

**Developing a programme of assessment in Postgraduate Medical Education:
An exploratory study**

Kadambari Dharanipragada

**Submitted for the Degree of Masters in Health Professions Education:
Assessment and Accreditation, Keele University**

The Declaration page

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Date: March 23, 2016

DEDICATION

This work is dedicated to the memory of my parents, life's first teachers, who taught me to value two things – education and sincerity.

Acknowledgements

Words are not enough to express my heartfelt thanks to my supervisor, Dr Danette McKinley, Director, Research and Data Resources, Foundation for Advancement of International Medical Education and Research (FAIMER), Educational Commission for Foreign Medical Graduates (ECFMG), for her infinite patience with me during the entire period of getting this work done. Her constant encouraging words “We can get this done!” and untiring enthusiasm gave me the impetus and courage to go on and complete the study. I particularly acknowledge her help with the coding of data and the statistical analysis.

My sincere gratitude to Dr Janet Grant, Course Director for this Master’s in Health Profession Education programme and Director of the Centre for Medical Education in Context [CenMEDIC] & FAIMER Centre for Distance Learning, for teaching me how to think critically. Her sharp intellect and clarity of thought have contributed significantly to refining the study protocol.

My supervisor at the study site, Dr B Gitanjali, Professor of Pharmacology and Head of Department of Medical Education, has been a source of tremendous support right from the design to the conduct and completion of the study. Her help in ‘making it happen’ is something that has my everlasting gratitude.

I would like to express my sincere thanks Dr John Norcini, President and Chief Executive Officer of FAIMER and Dr John Boulet, Vice President for Research and Data Resources for their critical inputs to the design of the study at the residential at Keele. Their contribution to my interest in assessment in medical education goes way back, even before I registered for this course.

I am extremely grateful to every single one of the authors of the MHPE course, who have worked so hard to design the instructional modules that have

taught me what I know about medical education today and for driving my thirst for more.

My sincere thanks to Ms Debbie Paddison, Postgraduate manager, Robin Bell, English Language Unit, Paul Roach and all others at Keele university, who took us through the University rules and regulations during the residential in August 2015.

Thanks are also due to my friends and colleagues on this course who made valuable contributions during the discussions of the protocol at the residential.

I cannot thank my colleagues in the medical education unit at JIPMER, enough, for their enthusiastic participation in conducting the focus group discussions and for 'being there' for me always, Dr Santhosh Kumar, who fueled my interest in education with his enthusiasm and encouragement and my good friends Dr Debdatta Basu, Dr Nanda Kishore Maraju, Dr Sitanshu Kar, Dr Zayapragassarazan and Dr Ravi Philip who helped to make this study happen. My sincere thanks to Dr Manikandan, for helping me with the reference manager software.

All this would never have been possible if my colleagues at work and my family at home did not support me entirely. They silently took over my duties so that I could complete this work in time.

I thank the Dean of JIPMER, for giving me the necessary permissions to conduct this study.

Last but not the least, I thank the participants of this study, both the faculty and the postgraduate trainees for their enthusiastic involvement in this project. The most appropriate way to thank them would be to take this to the next step in bringing about the change that they wish to see in the learning and assessment environment at JIPMER.

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Abstract

Background

With the shift in postgraduate medical education towards a competency based framework, there is a need to bring in a change to the assessment of trainees. There is also a growing concern that there is a drop in the quality of postgraduate doctors in terms of their skills and attitudes. As an initial step a consensus must be arrived at by all stakeholders in the process regarding the problem and the need for change that is a solution to the problem.

Aims of the study

1. to record the perspectives of the faculty, administrative heads and postgraduate trainees from one medical school, regarding the need for change from the current system of assessment
2. to study the factors that determine the feasibility of bringing about policy change in the postgraduate assessment system

Methodology

This was conducted as a mixed methods study at Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), a medical school in southern India between September 2015 and March 2016. Second and third year postgraduate trainees and trainees who had just completed training in the same school and faculty from various specialties were invited to participate in the study. Perceptions of the trainees and faculty were recorded using a survey questionnaire and with focus group discussions respectively.

Results

There was an overall response rate of 78% from the invited faculty and 50% from eligible trainees. From analysis of the transcripts of the focus group

discussions, four main themes emerged regarding the current assessments. These included

1. deficiencies in the content and
2. suboptimal quality of current assessment practices,
3. suboptimal quality of feedback and
4. lack of institutional support.

The trainee survey similarly identified a mismatch between their needs of assessments and feedback and what was currently available to them.

Discussion

The results indicate that there is a need for change in the current practice. A programmatic approach to assessments would be the required strategy to bring about structure of assessment, in order for assessment to serve the dual purpose of enhancing learning and certifying a trainees' fitness to practice. The next logical step in the change process would be to disseminate the results of this study among the rest of the stakeholders locally in order to get the majority to participate in the change, followed by the implementation of training programs for the faculty in assessment methods.

Conclusions

The assessments currently being conducted in postgraduate medical education at JIPMER are inadequate in terms of content and structure. There is a need for training faculty for bringing about desired changes.

*Education is a social process . . . education is growth . . .
education is not a preparation for life; education is life itself.*

John Dewey (1859 - 1952)

Introduction

There is a growing concern with the drop in quality of postgraduates who have qualified in the end of course examinations. This concern exists in the minds of both the public and the educator, the former on account of their better informed status. Public expectations of a specialist doctor include ethical and professional behaviour in addition to up-to-date knowledge and skills. Altruism, a caring and compassionate attitude, effective communication with patients and peers / colleagues, capacity to work in a team, pursuit of self-directed learning are some important attributes expected in a postgraduate trainee. These are seldom explicitly taught and even less often formally assessed, therefore having little influence on summative judgements.

Medical education in India is facing a number of challenges, a poor assessment system being one of them (Goswami, 2015). The existing pattern of assessment of postgraduates in the Indian setting consists of one final summative examination at the end of three years, in which the trainee is assessed on knowledge by a written examination consisting of 4 papers and a clinical examination with long and short case discussions in clinical specialties and practical examinations in the laboratory sciences. Within this framework, there is no scope for giving due importance for the day to day performance of the trainee in the wards/workplace, both with respect to knowledge and attitude. The single summative examination focuses more on the ‘knows’ and ‘knows how’ and to a limited extent at the ‘shows how’ levels of Miller’s pyramid. Trainees from surgical specialities, for instance, are not formally assessed for their operative skills.

For assessment there needs to be a meaningful analysis of how the individual learns, not just in the short term but in the long term as well. The

WFME Global Standards for Quality Improvement in Postgraduate Medical Education (WFME, 2003) document emphasizes the key role of continuous assessment using an appropriate balance of formative and summative assessments to document adequacy of training, emphasis on in-training methods and constructive feedback and use of criterion referenced standards. Formative assessment is thus seen as a mechanism for addressing trainee errors at a much earlier stage than waiting until the end for the summative assessment. (IOM 2014. Assessing health professional education: Workshop summary).

A well designed contextually relevant programme of assessment that is continuous, that enhances learning and that provides valid scores to allow certification is therefore much needed.

To develop a robust programme of assessment demands a culture change in the educational environment. This requires careful planning, involvement of all stakeholders including administrators, appropriate modification of examination rules and faculty training, for example, in formative assessment and feedback techniques (van der Vleuten CP et al , 2014). In order for this to take place, institutional policy on the assessment system needs to be appropriately changed.

As a first step in the plan towards this change this study is being undertaken to take into account the views and inputs from the three major stakeholders, i.e., the trainee, the faculty and the administration.

The purpose of education is not the accumulation of information in order to compete for success. Education is the experience of being fully present to oneself and the world; it is transformation toward wholeness.

David Forbes

Review of Literature

The core element in professional development programmes such as health professions education is orientation to work and a focus on preparing students for the workplace. (Gulikers, 2008). There has been a shift in the focus of medical education curricula, both at undergraduate and postgraduate levels, from a process based to a product based competency model (Caraccio, 2002). In postgraduate medical education, it is particularly important that the training ensures acquisition of abilities (Caraccio, 2002) by the trainees who must demonstrate competence in the application of their learning to patient care (Iobst, 2010) in order to declare them fit to practice. Competency may be defined as “a complex set of behaviours built on the components of knowledge, skills, and attitudes” (Caraccio, 2002).

Competency-based education (CBE) in medical education is “...an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs....” (Frank, 2010).

Competency based education in medicine has recently seen a resurgence (Frank, 2010), with the increasing trend of focusing on outcomes rather than curriculum processes as the basis for all decisions - outcomes based education described by Harden (1999). In an outcomes based approach to the competency framework, the list of outcomes describe what a learner would be able to do in order to be certified as a competent doctor (Harden, 2007 a).

In addition to assessing achievement of the exit outcomes, progress towards them must also be assessed (Ben David, 1999). It follows therefore that appropriate changes have to be brought into assessment systems. The need for formative assessment as a means of establishing a postgraduate trainee’s progress towards

competence during the training period has long been recognized (Marshall, 1993). The WFME Global Standards for Quality Improvement in Postgraduate Medical Education (WFME, 2003) emphasizes the key role of continuous assessment using an appropriate balance of formative and summative assessments to document adequacy of training, emphasis on in-training methods and constructive feedback with the use of criterion referenced standards. Greater emphasis is required on formative assessments with constant, high quality feedback to support the attainment of competencies.

Harden (2007b) proposes a model that describes how a trainee's progression from novice to expert can be tested by building the assessments along the four dimensions of increasing breadth, depth, utility and proficiency as the trainee advances in the educational programme, tailoring the assessments to match the level of the learner.

Purpose of assessment

Assessment is a powerful tool that directs learning by indicating to the learner what is important to learn and understand (IOM 2014. Assessing health professional education: Workshop summary). Whereas summative assessment measures achievement, accredits learning and provides evidence to satisfy measures of quality (Price, 2011), formative assessments focus on the learning process and whether the learning activities are helping learners to become competent. Formative assessment is seen as a mechanism for addressing trainee errors at a much earlier stage than waiting until the end for the summative assessment.

A robust assessment that ensures trainees' attainment of competencies to set criteria and standards provides reassurance to the public, whose expectations of a doctor include ethical and professional behaviour in addition to up-to-date knowledge and skills. (Holmboe, 2010).

Assessment and Learning

Knowledge, particularly in medicine, is rapidly expanding and constantly changing. Acquisition of knowledge and skills becomes more meaningful, therefore, when they are relevant for the demands of the workplace of today and are best learned ‘in context’ (Gulikers, 2006). Among the purposes of assessment is the role it plays in motivating learners to acquire knowledge (IOM, 2014). The ‘testing effect’ hypothesis refers to how assessments create learning by forcing the learner not just to retrieve and apply information but also to guide them towards what they must learn and experience.

Biggs (2003) argues for the need for a constructive alignment of intended learning outcomes, the teaching learning tasks and the assessment tasks to enhance learning. At the centre of the process is the list of intended learning outcomes (ILO) that determine the design of the teaching- learning experiences and the creation of a “learning environment” which promote achievement of these outcomes. Against these ILOs, assessments must be designed, so as to enable judgement of the learner’s performance to set criteria.

Summative assessments have a driving effect on learning. However, summative assessments’ impact on learning is influenced by a range of factors. Ciliers (2010) studied the impact of in training summative assessments on learning and the mechanisms of these effects in a group of 4th and 5th year students at a medical school in South Africa. Learners’ response to summative assessments was influenced by their appraisal of the impact of the assessment and their learning response, their perceptions of agency and by contextual factors. The severity and magnitude of consequences in terms of marks, progression or esteem among peers, and the costs in terms of effort and emotions were major influences on their engagement with assessments.

Sambell et al (2013) suggest the following strategies to improve the use of summative assessments for promoting learning:

1. Aligning assessment with outcomes – learning occurs by doing the tasks that a learner should be able to do.
2. Providing guidance on how to approach summative assessments
3. Exploring ways of providing effective and timely feedback after a summative assessment, for example, with the use of computer based assessments.

Formative assessment, in contrast, contributes to learning by providing the learner with information about his/her performance (Yorke, 2003). The importance of formative assessment is related to the feedback that is central to it, and which could have effect both in the short and long term (consequential validity). Formative assessment can range from a formal highly organized task to an informal one that takes place in the course of events. The latter is not usually a stipulated part of the curriculum and could be provided by anyone, even outside the immediate educational context.

The essence of formative assessment is described by Vygotsky's Zone of Proximal Development, wherein the learner and teacher collaborate actively to improve performance (Yorke, 2003). Hence the strength of formative assessment is increased if the teacher provides, in addition to feedback of performance, some information on correct results, some explanation and suggestions for specific activities to undertake for improvement (William, 2011).

In postgraduate medical education, where learning is self directed and occurs at the workplace, progress of a trainee towards attainment of outcomes must be fostered by a robust formative process. The role of the supervisor then would be more that of a mentor than an assessor.

Assessment for learning (AfL) is any assessment for which the first priority in its design and practice is to serve the purpose of promoting students' learning (Williams, 2011). Assessment for learning is described as an assessment environment that is rich in formal and informal feedback, provides opportunities to try out and practice knowledge, skills and understanding, has assessment tasks which are authentic or relevant, assists students to develop independence and autonomy, and has an appropriate balance between formative and summative assessment (MacDowell et al, 2011; Sambell et al, 2013). Authentic assessments employing tasks related to the 'real world', focus on what the students are expected to achieve and encourage a deep approach to learning. Authenticity addresses the question "How can we best prepare youth and adults for the workplace of today?" (Wonacott, 2000, p.1). Gulikers (2004) emphasizes the importance of authenticity of assessments in competency based education. She reasons that authenticity lends to both construct validity (the summative assessment) and the consequential validity (the formative assessment). She proposes a five dimensional framework for authentic assessments, including the assessment task, the physical context, the social context, the assessment result or form, and the assessment criteria. She further emphasizes that the authenticity of assessment is a continuum and can vary with respect to each of these dimensions based on the extent of resemblance with the criterion situation.

For authentic assessment to be effective it is necessary that students be given opportunity practice with the form of assessment before it is used to make decisions. A 'low stakes' formative environment that provides adequate time for practice and in which mistakes are not experienced as too risky, fosters learning and encourages learners to take up responsibility for their own learning. Summative assessments exert significant power on students who are seen as

“problems” or “having deficits”. In an AfL environment these students would be seen as people who have the potential to contribute, learn to improve and take control over their assessments rather than being governed by it.

Feedback is at the core of formative assessment and is a process rather than a product of assessment (Black and William, 2009). It could be given after the action (extrinsic) or could be a by-product of doing the tasks, that is, it is given during the action (intrinsic) (Sambell, 2013). Instead of a one way process from teacher to student (feedback as telling) there must be a feedback cycle that goes hand in hand with the learning activity and is embedded in it so that learners are engaged in it and are able to see how they can use it (van de Ridder, 2008). Furthermore, feedback that provides timely information that is forward viewing (feed forward) would support both current and future learning (Hounsell, 2007).

The socio-cultural perspective on learning proposed by Lave and Wenger describes how people learn from doing tasks as a community of practice that is formed around a common agenda (Wenger, 2007). In postgraduate medical education trainees learn to perform tasks as members of the healthcare team and will, in their professional life, have to attend to feedback created by a range of stakeholders including peers, more experienced learners and other members of the healthcare team. Peer feedback has been described as “the learning element of peer assessment” (Liu and Carless, 2006) and is associated with less anxiety and concern comparing to using grades and marks (Hounsell, Hounsell and Tai, 2010). It therefore has the potential to promote development of skills such as self-evaluation and justifying one’s judgement.

Involving learners in the feedback process, for example, in personal development planning (PDP) activities, improves their engagement with the feedback. With these PDP activities learners formulate their own learning goals

and engage in learning that will help them achieve these goals, in a continuous reflexive process (Nicol and MacFarlane- Dick, 2006)

Other skills fostered in an AfL environment include self-assessment and lifelong learning. Sambell et al (2013) recommend engagement of the learners with the assessment practice in a planned and systematic manner and in reflective discussions about assessment. Trainees should be provided with authentic evaluative experiences by which they learn to recognize and appreciate quality work and explain their judgements of quality (Sadler, 2010). They would thus develop a feel of what standards and criteria are to be met in practice.

Postgraduate trainees of any specialty must, by the end of their training, be able to work independently without direct supervision, know how to find information and use resources without guidance, how to set goals for themselves, devise strategies to achieve them and be able to monitor the extent to which they achieve their goals and find alternative means of reaching them, all of these attributes of a lifelong learner described by Knapper and Cropley (Sambell, 2013). Many learners would need explicit help and support to develop capacity to evaluate and manage their own learning. An effective formative assessment environment fosters the development of these skills.

Progress in cognitive skills towards expertise in solving complex problems is another important and often neglected assessment area in postgraduate education. Longitudinal testing (progress testing) is a method employing a series of written tests aimed at assessing progress in the development of the trainee's knowledge base and is intended to promote deep approaches to learning (Dijksterhuis, 2009). Progress testing has been found more useful at the earlier phases of postgraduate training but reliability is low at more advanced levels of training. Changing the format of questions to address complex decision making skills in ill-defined

problems that are closer to real life situations, using script concordance tests or extended matching questions and increasing the sampling have improved the reliability of progress tests (Dijksterhuis, 2009).

Programmatic assessment in postgraduate medical education

Regehr et al (2011) raise concerns with a competency based approach to assessment in postgraduate medical education. They question the feasibility of assessing competencies individually despite the large number of assessment tools available today. They suggest that the focus of assessment be directed towards a trainee's capacity to integrate the individual competencies (competence) as would be required of him in the actual practice of medicine.

Shuwirth and van der Vleuten (2011) propose a programmatic approach to assessment of clinical competence. Such an assessment programme would consist of employing a selected set of tools to get the entire picture of a trainee's competence, formulating the rules and regulations for such a program and the design of organizational systems to support it. They developed a model for the programme of assessment (van der Vleuten et al, 2012) which attempts to optimize assessment for and of learning, with cycles of training, assessment and learner support activities. The assessments provide several data points which are aggregated to provide remediation or higher stakes pass/fail decisions. They also argue for moving away from the psychometrics of assessment to emphasize the role of expert judgement in the assessment of competence.

Challenges to the development of assessment programmes

Despite the potential advantages of formative assessment there are pressures that threaten its effective employment. These include the increasing concern with attainment standards causing more emphasis on outcome achievement, and the

decreasing teacher to student ratios which reduce opportunities for individualized feedback and introduce additional professional demands on teachers (Yorke, 2003).

Dijksterhuis et al (2013) explored the perceptions of trainees and supervisors with focus group discussions on what factors determine active engagement in formative assessment. They identified three major themes of influences:

- 1) Individual perspectives relating to ownership of learning and goal orientation, that is, mastery or performance oriented
- 2) The learning environment encompassing commitment of supervisors to teaching, clear assessment procedures that delineated standards and consequences (trainees) and acknowledgement of clinical training by the hospital management so that dedicated teaching time is available (supervisors)
- 3) Credibility of feedback (trainees)- with respect to authenticity to the task, timeliness and the personality traits and feedback strategies adopted by the supervisor.

The authors recommend strategies such as provision of a supportive learning environment, faculty development for providing high quality timely feedback and ongoing discussions regarding setting of appropriate standards. Knowledge of the epistemology of the subject concerned, of the level of the learners and the psychology of feedback are some determinants of the quality of supervisor feedback (Yorke, 2003).

The complex nature of formative assessment also results in difficulty to convert observation to effective action in a ‘seamless manner’ (Heritage et al, 2009) thereby leading to a failure of trainees to engage in the formative assessment process. Bok et al (2013) recorded trainee and faculty perceptions of a programme

of assessment over one year of its implementation at the Faculty of Veterinary Medicine, Utrecht University (FVMU) in the Netherlands. A significant proportion of students found that the miniCEX encounters were being used more with a summative than a formative intent and failed to engage with them. They also identified issues with the delivery of effective quality feedback by supervisors who felt ill prepared for the role, despite a definite feedback seeking behavior of the trainees. Supervisors also did not feel confident enough to use the aggregate of multiple assessment points to make summative decisions. The authors concluded that ongoing faculty development with constant on the job supervision and training are needed.

There may be inherent risks in the movement away from the conventional assessment with its reliance on consistency and focus on ‘fitness for purpose’, towards development of an Assessment for Learning environment (Sambell, 2013). This may need creativity on the part of the assessor that may not receive favour from the administration. An effective strategy could be to begin in a small way, compare results with others doing similar things and evaluate one’s own results. AfL also blurs the boundaries between learning and assessment, considering teaching, learning and assessment as an integrated whole.

The importance of administrative support in the form of faculty training for the establishment of robust assessment practices cannot be stressed enough. Inadequate supervisor training to help them move from the role of mentor/supporter to assessor (collision of values) (Bogo et al, 2007) could become a barrier to authentic documentation of trainees’ performance resulting in failure to identify poorly performing trainees (Regehr, 2011). There must also be established remediation structures for trainees in difficulty, lack of which could lead to a ‘failure to fail’ attitude among supervisors (Dudek, 2005, Cleland, 2008 & Hauer,

2009). Faculty development is important for supervisors in postgraduate medical education because they have to face the dual demands of teaching and service on their time which is a potential threat to engagement with formative assessment and feedback. Additionally, issues of patient safety create a conflict between inconvenience to the patient and the educational opportunity for trainees (Swanwick, 2008).

Assessment in the Indian Context

Medical education in India is facing a number of challenges, a poor assessment system being one of them (Goswami, 2015). Medical Council of India regulations for Postgraduate Medical Education (The Postgraduate Medical Education Regulations 2000, Medical Council of India) states that the training programme must be a competency based one with learning being predominantly self-directed and must employ a suitable mix of formative and summative assessments. The existing pattern of assessment of postgraduates in the Indian setting, however, consists of one final summative examination at the end of three years consisting of a written examination with 4 papers and a clinical examination with long and short case discussions in clinical specialties and practical examinations in the laboratory sciences. During the training period the “knows” and “knows how” levels of Miller’s pyramid are assessed with periodic assignments such as journal clubs, case discussions and short lecture presentations of different topics. These exercises are graded and the aggregate considered mainly to decide if the trainee is ‘fit’ to appear in the final summative examination. Furthermore, the feedback that the trainee receives after these activities is generally weak, that is, it comprises of only grading with some information on correct results (William, 2011). The assessments thus fail to scaffold learning and poorly performing trainees are the ones who are the worst affected.

Within this framework there is, therefore, no scope for assessment of the day to day performance of the trainee in the wards/workplace, or of her attainment of ‘generic’ or ‘transferable’ skills such as communication, teamwork, self-management, creativity and problem solving. (Schwartz and Webb, 2002). For example, surgical trainees are not assessed for their skills, both technical and nontechnical, in the operation theatre. Changes in the assessment are needed, that will result in the establishment of a set of practices that ensure the development of a competent specialist while also providing a supportive environment for learning.

AIMS OF THE STUDY

1. to record the perspectives of the faculty, administrative heads and postgraduate trainees from one medical school, regarding the need for change from the current system of assessment
2. to study the factors that determine the feasibility of bringing about policy change in the postgraduate assessment system

If your goal is great and your resources small, act nevertheless. Only through action will your resources grow

Sri Aurobindo

Methods

Instrument design and piloting

The study protocol was approved by the Institute Review Board and Ethics committee. The questionnaire for recording the perspectives of the trainees was prepared to gather their views on the current assessment practice. The questions were framed so as to encourage the trainees to reply in their own words, particularly with regards to their experiences with the assessment as practiced and the feedback they receive on their performance. The questionnaire was refined to improve its clarity and modified, with the help of the literature review, to include the items regarding peer and self-assessment to better address these aspects. The number of questions was also kept to an optimum number of 22, with a mix of closed and open ended questions so as to ensure that participants respond without feeling fatigued by it.

The questionnaire was sent by email to a group of 4 postgraduate residents in Surgery and 3 residents who have recently passed their examinations. The pilot group of respondents were also asked to give their feedback regarding clarity of the questions and the length of the questionnaire. All of them gave the feedback that the length was optimal and that the questions were clear. The questions for use during the focus group discussions with faculty were peer reviewed by a group of colleagues in the medical education unit and pilot tested as an interview on 2 colleagues one each from a clinical and a non-clinical department.

Before sending it to the participants, the final questionnaire was submitted to the Institute Ethics Committee for final approval of the study.

Study procedure

Following the pilot process the questionnaire was uploaded into Google forms and a link to the same was sent to 186 eligible postgraduate trainees across various specialties (appendix 1). The email contained a brief description of the purpose of the study and assured the participant of the anonymity of their responses. A reminder mail was sent twice at intervals of 3 weeks to encourage response. A paper based questionnaire was also employed to reach 100 trainees whose email could not be obtained. The trainees were briefed about the study by the researcher and specifically informed that no details regarding the subject discipline or their personal details was required of them. The last item in the questionnaire sought their permission to quote them.

During analysis of the survey responses, replies to questions that had overlapping information were checked for consistency, for example the one on reflection against the one that asked them how often they discussed their self-assessments with the supervisor.

Faculty from departments that were running postgraduate medical courses in JIPMER were invited with an email to participate in the focus group discussions. The email described the purpose of the study and reiterated the voluntary nature of participation in it. A written informed consent was obtained from all faculty participating in the focus group discussions. Three focus group discussions were audio recorded in addition to being recorded on paper. Verbal consent was obtained from the participants. For the three others only hand written transcripts were prepared. Three focus group discussions were conducted simultaneously in three different rooms. Each discussion was moderated by one faculty from the medical education unit at JIPMER and recorded by another colleague both of whom were briefed about the list of trigger questions (appendix 2).

Statistical analysis

Descriptive statistics were calculated for categorical postgraduate trainee questionnaire responses. Open ended responses were analyzed by item. For each question, a sample of responses were initially coded by the student and reviewed by the advisor. Discrepancies were resolved through discussion. The remaining responses were coded independently based on the framework developed. Any new codes were discussed before coding was finalized. Coding of the faculty focus group discussions were conducted in a similar fashion. For both groups, frequency counts based on the coded statements were generated using SPSS v. 22®. (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp)

Responses to common questions for the two groups were compared. To identify differences in the proportion of faculty and post-graduate trainees responding, z-scores were calculated for each factor. Statistical significance was established as $p=0.01$ or less.

$$\frac{(\bar{p}_1 - \bar{p}_2) - 0}{\sqrt{\bar{p}(1 - \bar{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \quad \text{Z-test formula used to compare proportions}$$

*The first principle of true teaching is that nothing can be
taught*

Sri Aurobindo

Results

The study was conducted in a large medical school on southern India where postgraduate courses in broad specialities such as General (Internal) Medicine, General Surgery, Paediatrics, Obstetrics and Gynecology and so on have been running since over 40 years. Newer courses in the subspecialties have been set up in the last few years. The number of trainees in the subspecialties (annual intake of 34 in 16 specialties) is much smaller than that in the core specialties (annual intake of 126 across 23 specialties) and the faculty members themselves are relatively new to the teaching profession.

PG questionnaire survey

There were a total of 302 trainees from the various departments who were eligible to be included in the study. An invitation to participate in the survey was sent as an email with a link to the survey form. The mail was sent to 186 residents from various departments. They consisted of residents who had completed at least one year of postgraduate training and some who had completed training in the last two years. Responses were received from 65 residents with two reminder emails (response rate of 35%).

A paper based survey was administered to 100 eligible participant trainees to postgraduate trainees who could not be reached by email. Of the 100 trainees, 78 turned in their responses (response rate of 78%). The combined response rate to the survey was thus 50%.

136 respondents gave details regarding the assessments conducted in their respective departments. Seventy-four respondents mentioned the periodicity of the assessment in addition to listing the methods and tools that were being employed.

The following tools of the assessment in postgraduate medical education were listed by postgraduate trainees (Table 1):

1. Observation by consultants, at the workplace. These included clinical skills and patient management discussions by the bedside during rounds in the wards and in the outpatient clinics, operating skills in operating theatres, reporting lab test results in the laboratory and when performing practical skills such as dissection. 134 of the 143 respondents (94%) mentioned that they were observed during a clinical or practical exercise, 85 of whom said that this occurred only sometimes.
2. Assessment of their performance in journal clubs, seminars and clinical case presentations during the regular teaching sessions.
3. Logbooks, informal discussions and pedagogic skills (in a few departments)
4. Periodic notified tests of knowledge and skills, consisting of notified written tests, clinical case discussions and lab skills
5. A notified exam that was modeled along the final summative exam and held just before it and
6. The final summative examination

Current assessments	Postgraduate trainee responses; n=229 (%)
Knowledge/ theory/cognition	84(36.7%)
Practicals/ skills (lab and operative)	49(21.4%)
Clinical skills	30 (13.1%)
Presentations (journal clubs, seminars)	53 (23.1%)
Logbook / e-portfolio	4 (1.7%)
Affective skills	3 (1.3%)

Pedagogic skills	6 (2.6%)
All	0 (0.0%)

Table 1. Frequency of trainee responses regarding current assessment practice

One resident also mentioned publications and conference presentations but did not provide more information. The frequency of assessments range from daily to yearly. A six monthly frequency was most frequently mentioned (42%). Nine respondents mentioned only the summative examination at the end of 3 years.

Of the 143 respondents, 62.2% mentioned that they were always informed about the assessments beforehand while 8.3% of them said they were never notified regarding an assessment. Eighty-three of 141 respondents (58.9%) said they never got to decide on when the assessment would take place.

Of 143 respondents, 58.7% said that assessments were sometimes one on one between the faculty and residents, while about 20% each reported that it was sometimes and never so.

Over half the respondents (61%) preferred assessments to be performed one on one with consultants. Reasons for their preference were as follows: 18 of the 72 respondents (25%) cited focused observation of the trainee's performance by the assessor, 16 residents (22.2%) referred to the increased opportunity for getting instant and personalized feedback while 10 others referred to the increased scope for interaction and bonding with the faculty. Other reasons cited were improved level of comfort and less self-consciousness when making errors, increase in confidence brought about by the individual attention, motivation to involve themselves to a greater extent in the assessment, better learning and preparation for the final examination, more objective, accurate and therefore better assessments.

One respondent who answered in the negative cited bias as the reason for his/her response.

Assessment of their day to day performance at the workplace was reported to occur on a daily basis by 38 (26.6%), weekly by 18 (12.6%) residents and monthly by 25 (17.5%). (See Fig 1.)

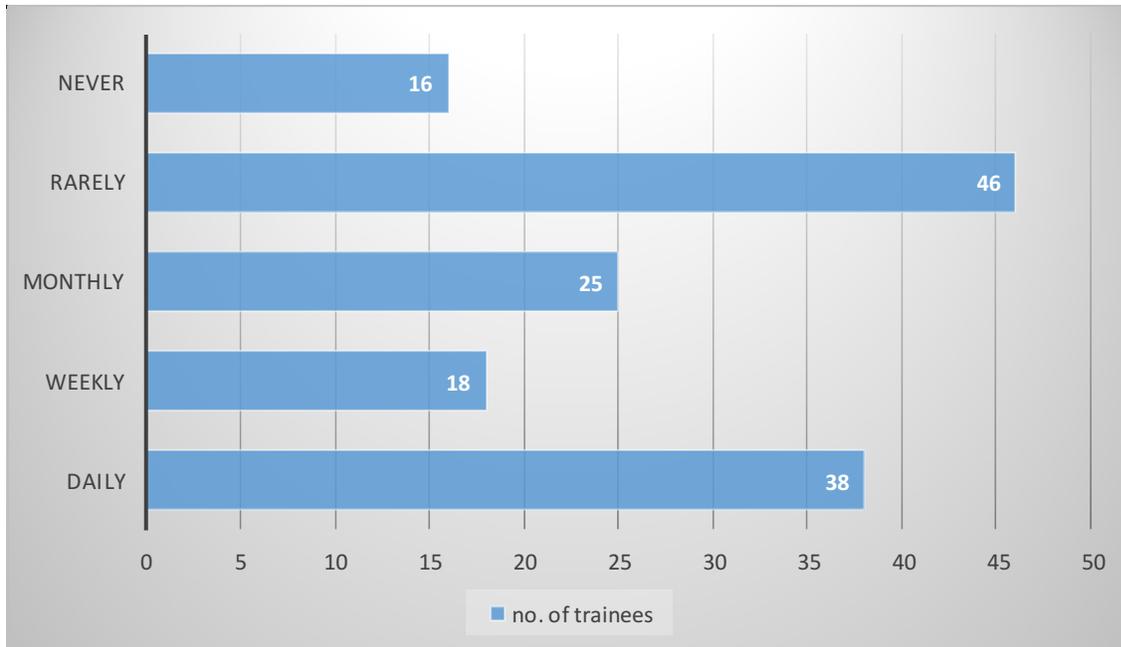


Fig 1. Frequency of assessments in the workplace – trainee responses

Of the various workplace settings, the bedside was the most frequent site of assessments either in the ward and / or in the outpatient clinic (67 responses). Assessments in the laboratory service departments was mentioned by 21 trainees. Nine respondents mentioned assessments taking place in the operating room. Only 6 respondents mentioned that assessments occurred in the emergency setting. Some other workplace locations mentioned included the dissection hall, during seminars and when taking classes for undergraduate students. (fig 2)

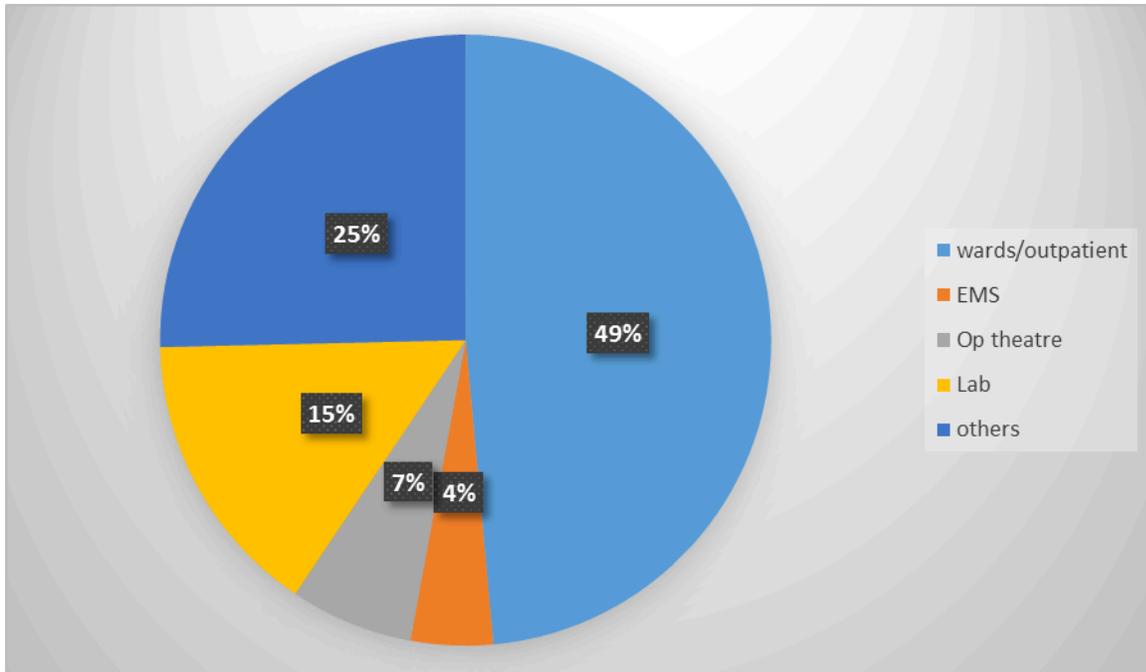


Fig 2 Settings of assessments – PG responses

Almost 10% of the 143 respondents said that they never received feedback after an assessment, 56.6% said it was sometimes given while 33.5% said they always received feedback.

Of the 117 respondents who indicated the type of feedback that was provided, 79 (67.5%) mentioned feedback to be usually verbal, 16 to be scores / marks, 5 to be in a written format usually accompanied by verbal feedback and 6 mentioned a combination of verbal feedback with scores. Feedback was usually corrective, sometimes included suggestions for learning that were given at the end of performance during a teaching session such as case presentation or journal club. This feedback was usually directed at the entire group of residents rather than to the individual trainee (fig 3). Only 35.6% said that the feedback was always given immediately after an assessment.

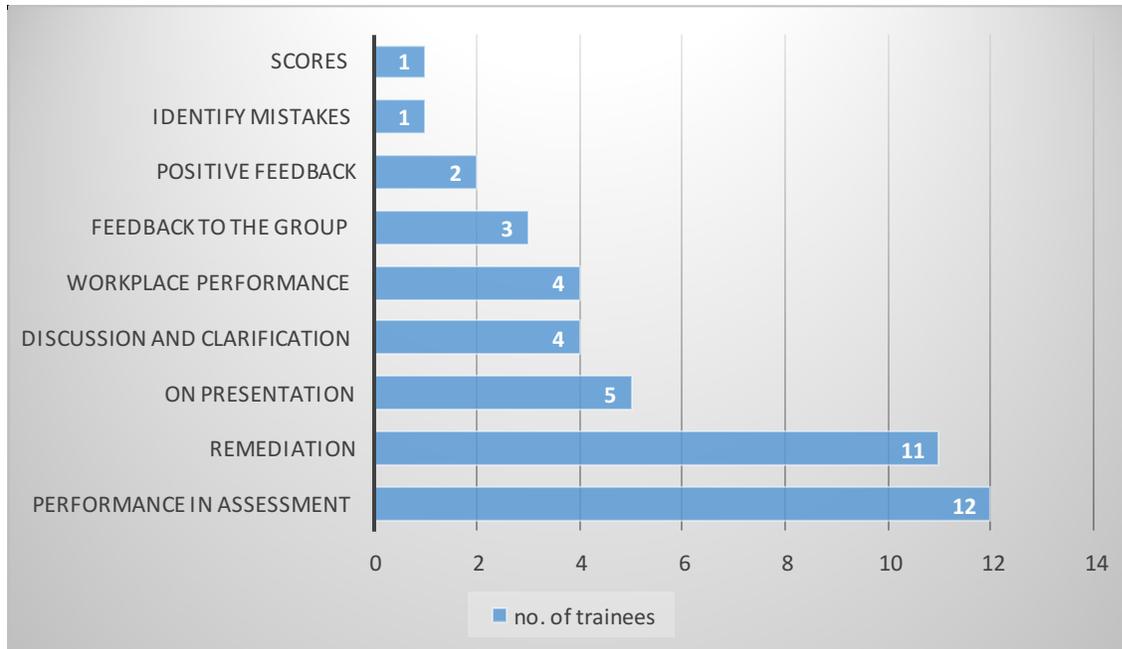


Fig 3 Content of feedback – trainee responses

Categories of response	Response codes	Freq uenc y	Sample quotes
Encouragement	Less upsetting / judgmental	2	“verbal gives guilty feeling/satisfactory feeling and motivate”
	Less permanent	1	“we get time to improve performance afterwards; because written is unchangeable”
	Encouraging	2	“...inform JRs about their mistakes and encourage them to improve”
Immediate	On the spot	2	“....able to clarify our doubts then and there”
	Instantaneous	5	“... gives direct impact”
	Quicker	2	“it’s usually immediate response & takes less time”
Interaction	Clarification	5	“we can clarify our doubts”
	Discussion	7	“Direct discussion, scope for improvement”
More informative	Detailed	1	“Writing opinions on exam paper is too curtailed to be of any use.”

	More attended to	1	“Written one to be frank are going to go into one more rack of filed pile of papers whereas verbal ones good or bad will have an effect”
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Table 2 a . Preferred format of feedback – **verbal** – postgraduate trainee responses

52 of 131 respondents (39.7%) preferred verbal feedback after an assessment. Reasons cited included the dialogue process that facilitated interaction with the assessor, an opportunity to explain one’s standpoint, and immediate clarification of doubts and unlike a written feedback which may “just accumulate as a pile of papers” the remediation itself was instantaneous and encouraging (Table 2 a).

However, a written feedback was preferred by 18.3% (n=24) of them as they would have a record of their progress that they could preserve and refer to later. (Table 2 b) Forty nine respondents (37%) said that they would prefer a combination depending on the setting for the assessment so as to benefit from the merits of both. To 4 respondents either method of getting feedback was acceptable. (Table 2 c)

Categories of response	Response codes	Frequency	Sample quotes
Record	Preserved	6	“(prefer it to be) in written form, as it can be preserved”
	Record of progress	1	“...if it is in written format it will be very useful to keep it safe and we can assess our self about our improvement in subsequent feed backs.”
Evidence	Evidence	1	“written document is the best evidence”
	Evidence to refer	1	“preferred because we do remember it till the end and we can make sure , once we are done with our negative comments”
Detailed	Focus on details	1	“written is more elucidative, focusing on details”
	More details	3	“it will help to compile entire process and will be more informative”

Table 2 b Preferred format of feedback – **written** – postgraduate trainee responses

Categories of response	Response codes	Frequency	Sample quotes
Content specific	Content specific	4	“Depending on the situation . Rounds day feedback can be verbal. Theatre and call day feedback ..if possible written”
Discussion with correction	Remediation	1	“to facilitate discussion and correction”
	Record which must be	1	“If given only verbally, I won't be able to retain it for a longer time. A written feedback will be a good document which I can refer to anytime.

	discussed		Also it should not be like handing over the document to me and read it and understand the areas in which I have to improve. It will be better if the faculty can explain (to)me”
More benefits	Long term	4	“helps to correct things in the future’
	Short and long term	2	“helpful for students like us to look back at our mistakes on a later date. Most of the times we tend to forget constructive criticisms. In other words, we tend to remember only the mistakes committed.”

Table 2 c Preferred format of feedback – **verbal and written** – postgraduate trainee responses

23 (16.2%) respondents said that they did not keep a log of their experiences. On the logbook that residents were required to maintain, nearly half of them (43.8%) only rarely sought feedback from their supervisors.

Most of the 139 respondents (79.1%) mentioned that they reflected on their day to day work, 74 (53.2%) of whom practiced it regularly. Twenty-nine trainees (20.8%) admitted that they did not spend time on reflection. However only about 27.6% often discussed their self-assessment with their supervisors.

Peer feedback was often sought, with 86 (61%) of the 132 respondents reporting that they did so, while 42 did so rarely. Peer feedback sessions were found useful by 89.7% (n=114) of 128 respondents, 64 of whom rated it as very useful. The high value placed on peer assessment and feedback was due to its perceived credibility and authenticity as they were constantly observing each other at the workplace and could point out errors and learn from each other’s

experiences. Peer feedback was also felt to be truthful, encouraging and positive. Some also felt it had a motivational effect on their learning. However, the lack of experience of peers in providing useful feedback and a perceived lack of trust especially due to competition among peers were reasons for peer assessment to be rated negatively by 9 of them (7.8%). (Table 5)

Role of peers	Faculty responses n= 22 (%)	Postgraduate trainee responses; n= 128 (%)	P value
Yes	14(63.6%)	117(91.4%)	0.00
No	0	11(8.6%)	0.15
Not sure	8(36.4%)	0	0.00

Table 3 Role of peers in Postgraduate trainee assessment

113 (88.2%) of 128 respondents felt that assessments helped their learning (Table 4).

Assessment helps learning	Faculty responses n=28 (%)	Postgraduate trainee responses n=128 (%)	P value
Yes	20 (71.4%)	113 (88.2%)	0.00
No	4 (14.3%)	10 (7.8%)	0.84
Not specified	4 (14.3%)	5 (4%)	0.98

Table 4. Comparative frequency of faculty and trainees on the beneficial effect of assessments on learning

The positive effects of assessments recognized were as follows: as a driver of learning and improvement, to identify mistakes and lacunae in learning, to document progress, feedback from experienced faculty helped improve skills and

correct mistakes, as a guide to prioritize learning, to prepare for the final examination and recognition of the need to do well (in internal tests if it affects final scores). Of the 10 respondents who answered in the negative, 2 of them added that in their present form, assessments did not help them learn. One of them felt that assessments put too much pressure on the learner especially for those from a busy clinical department. Five respondents acknowledged the role of some of the assessments including those occurring in the classroom, but felt that more feedback that was constructive in nature was necessary to motivate them to improve.

Only 36 (25.7%) of 140 respondents were of the opinion that the difficulty level of the assessments always matched the level of the learner, while 13 (9.3%) felt it never matched the level of the learner.

This group of residents who took part in the survey suggested the following assessment practices to maximize their learning during postgraduate training: (Tables 5 a, b c)

1. Periodic assessments that are notified
2. Using the results of the periodic assessments during the summative exam
3. More formative classroom based assessments with remedial feedback
4. Greater emphasis on day to day performance in the workplace
5. Focus on assessment of attitudes
6. Formative assessment of operating skills
7. Up to date content of assessments
8. Greater involvement by faculty in a mentorship role with personalized feedback following assessments
9. More structure to the training and assessments – a better learning environment

10. Well defined goals for learning with clear yardsticks and increasing complexity with each year of training
11. The need for more objective and impartial assessments was mentioned by some with more use of one to one assessments such as OSCEs
12. Involvement of other healthcare personnel such as staff nurses in the assessment of their day to day performance in the workplace

One respondent suggested that residents need to be involved in the scheduling of the assessments. The optimum frequency of assessments was suggested by 40 respondents and ranged from daily observation to annual internal assessment of theory and practical skills, a 6 monthly pattern being the most frequent (42.5%).

Response codes		Frequency	Sample Quotes
1	Formative assessments/ feedback Day to day work	18	<p>“Each resident should get to present a case at least once in 15 to 20 days, and there should be much more teaching required during rounds and in operation theaters.”</p> <p>“Assess not just performance in notified exams but also the performance in departmental activities as a whole.”</p> <p>“Assessment in day to day circumstances (ward management, surgeries performed) should be given preference over periodic theory examinations.”</p>
2	Skills assessment	11	<p>“Tests and exams, I feel, are not a fair judge. For a surgical field, some element of practical assessment is required...”</p> <p>“more of practical and skill assessment than theory”</p>
3	Attitudes assessment	2	<p>“Assessment should be to make a person a better individual, add to his personality to become a better doctor and care(give)r. Punctuality, Attitude, behavior towards patients, Academic assignment Should matter overall; Not just the viva on the last day exam performance.”</p>

4	Multiple assessment methods / tools	35	<p>“bedside assessment and monthly theoretical assessment”</p> <p>“monthly practical assessment, keeping written assessments every 6 months , expressing feedback immediately after presentation of seminar”</p> <p>“There should be periodic assessment. And it should include my theoretical knowledge, practical skills and also communication skills.”</p> <p>“Skills assessment at periodic intervals. Theory / MCQ papers yearly twice at least.”</p>
5	Conference and CME attendance	3	<p>“There has to be more value for academic pursuits, in the form of outstanding clinical presentations, journal discussions presentations and research activities. Impetus should be given for attending and presenting in conferences and being involved in publications. JIPMER being a medical education and research center should assess both.”</p>
6	Multi source feedback	3	<p>“Weekly feedback about each resident should be taken from patients, patient attenders, sisters (nurses) and faculty. The feedback should be provided to each PG in a sealed cover in written format. I feel patients and attenders are the best examiners.”</p> <p>“apart from feedback from faculty, feedback from students whom we teach should be considered”</p>

Table 5 a Trainee needs of assessment practice to enhance learning - **Content and tools**

Response codes		Frequency	Sample Quotes
1	Increase classroom activities	10	<p>“Probably, a bit more teaching before assessment, at least in our department”</p> <p>“Classes should be regular and should continue without a break ..”</p> <p>“Even though it (PG training) is a self-learning process there should be an organized way of teaching and assessment in regular interval can improve the PGs performance.”</p>
2	Healthy atmosphere	3	<p>“it should be more constructive rather than being a negative criticism”</p> <p>“Increased interaction with faculty, constructive ideas. Sufficient time to improve knowledge (and study), faculty teaching, healthy atmosphere”</p>
3	Group discussions/ bedside teaching	3	<p>“less presentations, more discussions, recent updates”</p> <p>“more bedside teaching may help”</p>
4	Student support mechanisms	2	<p>“I think Mentorship will help in assessing better and also one to one relationship with the faculty improves and helps learning better more from the experience of the mentor”</p> <p>“Time to be given to adjust, language barrier is a limitation for non Tamil student...”</p>
5	Enhanced facilities	1	<p>“More facilities must be provided like internet, specimens, 3D models, various software and access to various journals and books...”</p>

Table 5 b Trainee needs of assessment practice to enhance learning **Learning environment**

Response codes	Frequency	Sample Quotes
Count towards summative	5	<p>“Skills assessment at periodic intervals. Theory / mcq papers yearly twice at least . These should be added to our internal marks .”</p> <p>“There has to be well defined goals that I have to reach at each part of my career...They have to be predefined and one must master it to go to the next phase of the training.”</p>

Table 5 c Trainee needs of assessment practice to enhance learning **Impact of in-training assessments**

One respondent felt that the summative assessment must be replaced by a more structured formative assessment mechanism and importance must be given to research and participation in conferences and continuing medical education programs.

Seventy-six of the 120 respondents (63.3%) selected detailed feedback over scores as the preferred result of an assessment, while 24 of them preferred a combination of the two. Detailed feedback was seen as a better means of knowing one’s strengths and weaknesses (43.4%) and identifying specific areas for improvement (37%). It also provided an opportunity for having a discussion with the assessor, which would facilitate improvement and avoided the variability which could arise due to scoring by a number of faculty. To 3 of the respondents, the negative effect competitiveness brought about by comparing scores was the reason for preferring detailed feedback after an assessment. One respondent was of the opinion that “scores were not appropriate for PG assessment”. (Table 6 a)

On the other hand, scores alone were preferred by 12 (10%) respondents who saw them as being more objective, easier to comprehend, providing an incentive for

improvement when comparing oneself with peers and easier to track one's progress across the training period. (Table 6 b)

Most of the respondents (78.8%; n=??) said that they would welcome feedback from nurses and other members of the health care team as it would help in improving their work and that they would benefit from their experience especially in the area of patient care and interaction, learning about “local practices” (for trainees who were from other states of the country) and therefore their overall development as a postgraduate trainee. They also felt that teamwork would be enhanced. However 21.2% feared that there may be an element of bias in these assessments that would work against them. Eleven of the respondents welcomed the feedback from other health care personnel provided it was given in the form of constructive feedback rather than scores and only regarding their performance in the workplace. (Table 7)

Categories of response	Response codes	Frequency	Sample quotes
Identify mistakes and/or good performance	Identify lacunae	5	“Pinpoints the deficit “
	Recognize good performance and mistakes	8	<p>“detailed feedback, to know our skills , knowledge and also know how to improve our presentations, method of reading”</p> <p>“would prefer an assessment which provides detailed feedback so as to know specific flaws or pitfalls”</p> <p>“I want feed back, so that I could know my weakness and strength”</p> <p>“scores give competition and sometimes depress detailed feedback helps in knowing one’s plus and minus for improvement in the training period”</p>
	Know where to improve	7	“feedback really tells how we have done tests and where to improve.”
Improve oneself	To improve	17	<p>“Prefer detailed feedback. Helps to identify our mistakes and to improve on it”</p> <p>“I prefer a detailed feedback of my performance because if it is score oriented everyone will be interested only in raising the scores. If it is feedback oriented, it certainly will be helpful to improve our overall skills and performance”</p>
	Know mistakes and improve	5	<p>“Detailed feedback can help in improving in specific areas”</p> <p>“detailed feedback will help us improve in</p>

			areas of weakness”
Impetus	Motivation to do better	2	“I prefer detailed feed back as we can come to know were we are lagging behind and it motivates us to improve in that particular area”
	Competitive	1	“Detailed feedback will be better. Assessment should help us improve on the flaws and give an idea of what is lacking rather than just comparative marks/ score”
Negative effects of scores	unhealthy competition	3	“detailed feedback, partly because scores in each and every level can decrease the confidence level, invite unhealthy competition” “detailed feedback, scores will always lead to comparison and depression”
	less appropriate for PGME	1	“(prefer)detailed feedback of performance. Scoring should be done at UG level, not PG level”
	does not specify areas to remediate	2	“I prefer an assessment with feedback. A score will tell me how good or bad my knowledge is. For example, if I get a bad score, it means that I have to improve. But ultimately, the score is just a number. And it won't tell me which areas I have to focus more.”
	interfaculty variation/ bias	2	“Score has interfaculty variations . Some faculty who has a good opinion about the pg might give good scores irrespective of the

			presentation”
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Table 6 a PG trainee responses - Preferred result of assessment – **detailed feedback**

Response codes	Frequency	Sample quotes
Objective	4	“scores (are) more objective” “if bias ca be eliminated it is always better to give scores in numbers”
Taken seriously	1	“scores - If strictly followed and taken seriously would result in healthy competition”
psychological effect	1	“Score works psychologically . It keeps me up and about for the next assessment”
Easy to comprehend	3	“know where I stand”
Target for performance	1	“scoring gives a setpoint and gives a target to improve (towards)”
Record of assessment	3	“Written form so that we can maintain records and the assessment can be made easy as well.”
Comparison with peers	2	“numerical value is easier to compare between us “

Table 6 b PG trainee responses - Preferred result of assessment – scores

Role of other healthcare professionals	Faculty responses n= 20 (%)	Postgraduate trainee responses; n= 113 (%)	P value
Yes	16(80%)	89(78.8%)	0.55
No	0	24(21.2%)	0.12
Not sure	4(20%)	0	0.00

Table 7 Role of other healthcare professionals in Postgraduate trainee assessment

Focus group discussions by faculty

Invitations were sent to 70 faculty members from various departments running PG programmes of whom 55 (75.8%) responded and participated in focus group discussions on the current practices of assessments in PG medical education at JIPMER. Six focus group discussions were conducted, 3 each on two different days. Three groups of faculty were from core specialties (35 participants) and three groups consisted of faculty members of subspecialty departments (20 participants).

The core specialty faculty were grouped according to seniority so that there would be an uninhibited expression of views by the group members. There were 12 faculty at a senior level, including Heads of Departments. Fifteen participants were included in the midlevel faculty group and 8 faculty were at a junior level. Care was taken to ensure that each group had only one member from a department.

The transcripts of the focus group contained 313 recorded statements by the faculty. The frequency distribution of statements according to the level of faculty is shown in (Table 8). The greater frequency of subspecialty faculty reflects the fact that there was more representation from these departments.

Faculty type	Frequency	Percent
Subspecialty departments	113	36.1
Core specialties – junior level	105	33.5
Core specialties – mid level	58	18.5
Core specialties – senior level	37	11.8
Total	313	100

Table 8 frequency of statements according to faculty type/level

At first, participants were asked to share the practice of assessments being carried out in their respective departments. All of them had a regular set of assessments being done. Journal club presentations, seminars, case discussions in

clinical departments and laboratory work in basic science disciplines were commonly employed for evaluating postgraduate training in the knowledge domain and the trainees' performance in these exercises were being scored. In addition, tests of theoretical concepts in the form of written exams and bedside clinical examination skills were being conducted at varying frequency in most departments. Logbooks were listed as assessments although these were not scored. In some departments, a 360 degree evaluation of the trainee was also being practiced. The frequency and emphasis on in-training assessments appeared to be much less and more varied among the subspecialty departments compared to that being practiced in the broader specialties. Barring the lab departments, procedural skills were not being assessed either at the formative or summative level in a structured manner. (Table 9)

Current assessments	Faculty responses; n=43(%)
Knowledge/ theory/cognition	10 (23.2%)
Practicals/ skills (lab and operative)	8 (18.6%)
Clinical skills	2 (4.6%)
Presentations (journal clubs, seminars)	7 (16.3%)
Logbook / e-portfolio	11 (25.6%)
Affective skills	3 (7.0%)
Pedagogic skills	1 (2.3%)
All	1 (2.3%)

Table 9. Frequency of faculty statements regarding current assessment practices

Most faculty were of the view that although assessments were going on fairly frequently and a range of assessment tools were being employed, there was no definite programme and that sampling of content was inadequate due to lack of time. Relying on the single summative assessment was also acknowledged as grossly insufficient in departments which had a poorly structured internal assessment schedule. Clarity was also required regarding the appropriate use of the logbooks for assessment and on organizing a schedule of periodic assessments.

Both faculty and trainees reported on current training practices and their responses were compared to identify potential differences in what was reported. Table 10 provides this comparison. Proportions were compared to determine whether there were statistical differences between the two groups.

Current assessments	Faculty responses;n=43(%)	Postgraduate trainee responses; n=229 (%)	P value
Knowledge/ theory/cognition	10 (23.2%)	84(36.7%)	0.09
Practicals/ skills (lab and operative)	8 (18.6%)	49(21.4%)	0.68
Clinical skills	2 (4.6%)	30 (13.1%)	0.94
Presentations (journal clubs, seminars)	7 (16.3%)	53 (23.1%)	0.84
Logbook / e-portfolio	11 (25.6%)	4 (1.7%)	0.00
Affective skills	3 (7.0%)	3 (1.3%)	0.01
Pedagogic skills	1 (2.3%)	6 (2.6%)	0.54
All	1 (2.3%)	0 (0.0%)	0.01

Table 10. Comparative frequency of faculty and trainees regarding current assessment practice

The issues in the existing assessment practices that were identified by the faculty in the focus group discussion could be categorized into the following 4 major areas (Table 11 a-d)

1. Assessments were not ‘holistic’
2. Suboptimal assessment practices
3. suboptimal feedback practices
4. Lack of institutional support

Response Codes		Frequency	Sample Quotes
knowledge is most often assessed		12	<p>“Academic programmes – JC, clinical presentation, journal reading, abstract presenting – breadth of reading is assessed”</p> <p>“Knowledge (“knows how”) – Yes, but not in practical aspects”</p>
Critical thinking not assessed (Ability to present arguments)		6	<p>“Not (assessed) uniformly – situational”</p> <p>“(trainees) not encouraged to ‘argue’ with consultants”- cultural issue</p>
Generic skills assessment is ‘opportu-	professionalism and team work	7	<p>“Team work assessed and scores given by all faculty – assessment is subjective – no set criteria, counts towards medal”</p>

nistic’	ability to handle complex situations	10	<p>“Current assessment practice does not allow us identify real outstanding students. Some of them are good in theory and when it comes to surgical skills and other skills they struggle a lot and vice versa”</p> <p>“We are not training them adequately for this, exposure to situations may happen during learning, but is not applicable for all learners”</p>
	Creativity	4	“Happening in an informal way”
Lack of skills assessment		5	“To an extent, we are trying to do it: but mostly cognitive, not so much for psychomotor / affective skills. – Gap identified”
Attitudes not addressed		5	<p>“Only the knowledge component is assessed and skills and attitude part are not much assessed.”</p> <p>“Affective domain and skills are not assessed and it does assess their fitness to practice”</p>

Table 11 a. Faculty focus group discussions- issues in current assessment practice - **Not a ‘holistic’ assessment**

Response Codes	Frequency	Sample Quotes
Inconsistently / infrequently done	4	<p>“Not possible to cover everything in the given time”</p> <p>“Everything is being assessed but not in a conscious and structured manner”</p>
Unsure of impact of in- training assessments	7	<p>“None of these used for IA (Internal Assessments) – seriousness towards IA??”</p> <p>“log book assessment is done in many departments but is not added to the summative assessment; it should be”</p> <p>“Results filed against each resident’s record – usually ‘inconsequential’, matters only for decision on medal”</p> <p>“Faculty are made to complete periodic assessment forms on residents’ involvement in ward work and academic programmes (e.g. journal clubs) and scores are given. However, we don’t know how effective this is”.</p> <p>“Periodic assessment is mostly done during the course and the extent to which it reflects in summative assessment remains a question”</p>
Lack of structure to the assessment process	8	<p>“framework (of assessment) lacking in PGME”</p> <p>“Surgical skills – no structured way”</p> <p>“Postgraduates know they will definitely pass (in the summative exam) and it is very difficult for the teachers to fail the students for they are part of the system for a long time”</p> <p>“Logbook reviewed every 3 months by guide but not structured well”</p>

Table 11 b. Faculty focus group discussions- issues in current assessment practice - **Suboptimal assessment practices**

Response Codes	Frequency	Sample Quotes
Paucity of feedback	15	<p>“only random feedback is being provided to residents, usually in a bedside setting / during rounds or in the OPD setting; given by individual consultants, not systematic”</p> <p>“No feedback is given about their progress”</p> <p>“No written feedback in general”</p> <p>“Feedback not provided – only marks displayed. I am surprised that we are not giving them feedback”</p> <p>“Lack of protected time for this”</p>
General feedback/ based on group performance	6	<p>“general basic feedback is provided and not more specific, feedback is given regularly during rounds and as and when something is noticed”</p> <p>“Everyone is providing routinely mostly it is global feedback both individual and group”.</p>
Mostly negative / corrective in nature	2	<p>“Feedback should be both positive and negative; only the latter is given now.”</p> <p>“Feedback is given only for lapses in work / problems in academic performance in which the resident’s deficiencies are identified and pointed out, on an individual basis.”</p>

Table 11 c. Faculty focus group discussions- issues in current assessment practice - **Suboptimal feedback practices**

Policy on assessment practice in PGME	8	<p>“concept of summative assessment is not very useful as it only assesses performance on one day (example: a resident works well for 3 years but does badly / a resident does not work well but performs well in the exam); should have periodic assessment every 6 months”</p> <p>“log book assessment is done in many departments but is not added to the summative assessment; it should be”</p> <p>“Mechanism is not there (to assess creativity)”</p> <p>“Even someone is interested in improving the assessment methods the organizational climate is not conducive”</p> <p>“Content not under our control – need to change content”</p>
Variability across departments	4	<p>“(assessments)being practiced in some departments but not others”</p> <p>“Each department has their own way of assessment and there is no rigid policy.”</p>

Table 11 d. Faculty focus group discussions- issues in current assessment practice - **Lack of institutional support**

The results of these summative (internal) assessments were usually being displayed as scores for the trainees' information. In certain departments answer scripts of written assessments were routinely being discussed with the trainees and remedial feedback given. Tests that were being conducted periodically were used to monitor learning only and scores were never being used to contribute to the summative assessments. (Table 11b) This 'inconsequentiality' of assessments led most trainees to give little importance to assessments other than the final summative examination and there was an observed decline in the feedback seeking behavior among most trainees. Summative (internal) assessment performance was, however, taken into consideration to help a trainee who was 'having a bad day' during the summative examination and when selecting a medal winner.

The assessments, particularly the knowledge tests, were thought to motivate learning among the trainees. Periodic assessments in general enhanced learning by identifying gaps in learning in the areas that were being assessed. However, there was a felt need among the faculty for improving the quality of the assessments as it was often difficult to fail them "...because they have been around for a long time". The recently introduced requirement of having a 50% aggregate score in the internal assessments was felt to serve as a motivator for learning.

Some participants expressed the view that institutional support was required to allow for innovative approaches to assessments (Table 11d). Better use of logbooks particularly for certifying skills achievement was suggested. Overall, the participants agreed that although the assessments did enhance learning, the "quantum of difference needs to be enhanced".

Feedback on performance appeared to be fairly regularly practiced, although most of the time it was general feedback given to a group rather than the individual trainee. (Table 11 c) Providing feedback to the group was preferred as it would be

of benefit to more than one trainee. It was felt by most participants that there needed to be better and more effective ways of providing feedback. Although it was being done regularly, it was not structured and did not address the individual learner's problems.(Table 11 c) As there was no protected time for this exercise, the quality of feedback was compromised. Written feedback was rarely given even though logbooks and scoring forms had provision for this. Some others did not see the need for time to be set aside for this, as they were constantly observing the residents in the workplace such as during ward rounds or the operating room and felt that more effective feedback could be provided to them when given "then and there". Such feedback was routine and was usually verbal, informal and given without waiting for the trainee to solicit it. In some departments trainees were expected to seek feedback on performance if they had questions regarding the scores displayed after assessments.

The feedback whether on test performance or procedural skills or behavior, was usually corrective in nature with a focus on the "lapses at work or problems in academic performance". Faculty expressed concern that observation of a trainee when doing a procedure could have a deleterious effect on her/his performance, and it was felt that this may contribute to their reluctance to seek feedback on this aspect of their learning. The importance of positive feedback with appreciation of things done well was agreed upon as equally important.

Table 12 compares the feedback being provided with the trainee's preference as noted from the trainees' responses. The trainees felt the need for more feedback as a combination of discussion and recorded comments on their performance in assessments for better remediation.

Format of feedback	Provided; n= 117(%)	Preferred; n=131 (%)
Verbal	79(67.5%)	52(39.7%)
Written	0	24(18.3%)
Verbal + written	5(4.3%)	49(37.4%)
Score	16(13.7)	0
Either of the above	0	4(3.1%)
Verbal + score	6(5.1%)	0
None	1(0.8%)	0
Not specified	10(8.5%)	2(1.5%)

Table 12. Comparison of feedback practice against preferred mode of feedback by postgraduate trainees

That the assessments practiced were not robust enough to assess competence and fitness to practice in a systematic manner was the general opinion. Lack of structure, inadequate attention to logbooks, inadequate emphasis on assessment of skills and attitudes and an ‘exam-oriented approach to the training’ were some issues listed. (Table 11a) The lack of a formal systematic approach to assess procedural skills particularly operative skills was cited as a major concern. The need for a structured programme of assessment that would address a set of skills to be attained at each level of training would serve better to declare a trainee as fit to practice. This would have to be matched with a suitable training program with adequate learning resources.

Testing a trainee’s capacity to handle complex situations and creativity was more opportunistic and not uniformly employed for all residents. (Table 11a) Although hypothetical challenging situations were posed in theory examinations, performance in the field was difficult to assess. Among the clinical specialties, their management of complex clinical presentations in the wards, and a trainee’s ability to understand and deal with complex social interactions in the community

were appreciated and acknowledged. But these were again not uniformly done for all trainees and were not scored or graded. The need for this component in the assessment of competence was accepted and ways of incorporating it into the training program, for instance with the use of simulators were discussed. The trainee's creativity when handling difficult situations was particularly noted in the community medicine department, where postgraduates were sent for a residential posting into the community and had to sometimes deal with complex clinicosocial problems. But this was again opportunistic and was not a formal requirement for all trainees.

A trainee's ability to present arguments was being informally assessed, for example, during bedside clinical case presentations and treatment discussions on ward rounds, discussing the cause of death in a postmortem examination among forensic medicine trainees and discussions during journal article presentations and seminars, but no scores were allotted for the quality of these arguments.(Table 11 a) The importance of this aspect of assessments in "providing insight into the thinking process of the trainees" was acknowledged. The cultural taboo on 'arguing' with a consultant especially on diagnostic or patient management decisions was cited as a deterrent to this essential aspect of postgraduate training.

Assessment of 'soft skills' including team work, professionalism and ethical practice was being done in most situations informally (Table 11a). Some examples cited were, observation of trainees working together to organize a continuing medical education programme, punctuality at work and interaction with other members of the healthcare team such as nurses or working with others in the operation theatre. The importance of assessing trainees for these skills was acknowledged by all participants although they were unsure how it could be done more systematically, including the tools and frequency of assessment.

Most participants (10/19 statements) were of the opinion that feedback from patients was a valuable source of information regarding the attitude of the trainees. A different perspective of a trainee's behavior and the authenticity of the assessment environment were listed as reasons. However, many participants (7/19 statements) felt that caution was necessary when taking patients' views of a trainee's work as there were threats to the credibility of the information, including, the general tendency of a patient to be 'politically correct' in his/her opinions, a possibility of bias towards or against a particular resident and the perception among patients that only extreme deviations of behavior need to be reported. There could also be factors that are sometimes beyond the trainee's control, such as crowded outpatient departments or the inability of a trainee to communicate effectively in the vernacular which could influence patients' views.

In the basic science departments feedback was being sought from undergraduates for whom classes were taken by the postgraduate trainees.

With regards to obtaining feedback from other healthcare personnel, although the value of this assessment of a trainee was appreciated, there was a general feeling of doubt as to the reliability of such feedback. (Table 7) Some of the faculty who were practicing this routinely albeit informally in both clinical and basic science departments expressed concerns regarding possibility of bias and the influence of a 'single sore incident' on the feedback, and the fact that many times it was only extremely deviant behavior that was noted. Training other healthcare personnel in the technique of giving feedback was one suggestion to improve the credibility of their assessments.

The same was felt regarding peer assessment (Table 3). Doubts were expressed regarding its value, the possibility of bias, the possible untoward effect on interpersonal relations among residents and the veracity of the feedback

provided. Some departments where peer assessments on journal and seminar presentations were done, the results had never been analyzed or used for purposes of feedback to the trainee being assessed. Here again, the possible role of training to improve the quality of the assessment was mentioned.

The performance of a trainee in all aspects namely, knowledge, skills and attitudes was incompletely assessed with the invariable neglect of procedural skills and behavior. Also, as most assessments were quantitative in nature, given the variability and bias that could occur in scoring, uniformity was lacking in the assessments. This, coupled with the extremely variable assessment methods employed by different disciplines and lack of a formal structure to the assessments hindered the ability to recognize an outstanding resident (5/20 statements). Poorly performing trainees could, on the other hand, be picked out as a result of the ongoing process of day to day interaction in the workplace and supported to improve “Assessments motivate especially when feedback is given for poor performers”. But this improvement occurred more with respect to knowledge than with other aspects of training.

*True knowledge is not attained by thinking. It is what you
are: it is what you become*

Sri Aurobindo

Discussion

The setting of the study

The study was conducted in a single medical school in southern India, where postgraduate medical training was first established over 4 decades ago. There has been a gradual increase in the number of courses and the intake of trainees per course. This has been accompanied with an influx of newly recruited faculty, many of them just beginning their career in medical education. The more experienced faculty are 'stretched thin' with the increasing number of trainees and this has led to decreasing attention to PG training.

Postgraduate training itself occurs 'on the job'. The trainee is part of the healthcare team and the workforce. Thus learning has to occur largely as a self-directed reflective exercise. Be that as it may, training opportunities are needed as is a well-planned assessment system to ensure achievement of competence as well as progress towards it (Ben-David,1999). Currently assessment in PGME comprises of a set of in-training assessments that are largely knowledge based and a final summative exam at the end of three years. A need therefore exists to modify the existing assessment practice with a programmatic approach to make it more robust.the resulting assessment structure would comprise of a series of in-training assessments, including those with a formative intent, rather than relying on a single summative examination to declare a trainee 'fit to practice'(Schuwirth,2011). In order to bring about change of such magnitude and at a policy level, the first step would be to identify the problem and establish the need and benefit of the change (Gale and Grant, 1997). This study was therefore planned to involve the two main

stakeholders in this process, namely the faculty and the trainees, in this first step, by recording their perceptions on current assessment practices at JIPMER.

An overall response rate of 50% from trainees and 78.5% from the faculty indicates their willingness and enthusiasm to participate in the change process. The faculty who took part in the focus group discussions were at different levels of experience. (See table 8). The faculty from core specialties were grouped according to level. Those from the subspecialties were not similarly stratified as there was a predominance of relatively younger faculty in this set of participants, these courses having been established relatively recently. Postgraduate trainees were not asked to provide information regarding the level of training and the courses they were in. This was done to ensure their frank response to the survey questionnaire.

Current assessments practices

Both faculty and trainees listed a range of assessments being currently practiced. (see table 10) Interestingly, except regarding the logbook as an assessment tool, there was no statistical difference between the two sets of responses ($p=0.01$). The observed difference in perception of the role of the logbook in assessment could have arisen from the fact that it has little, if any, impact on the final summative decision. Such a mismatch in perceptions of assessments between teachers and students has also been noted by MacLellan (2001). In her study on a group of undergraduate students of education, she noted that students perceived assessments to be “ubiquitous” and listed a wide range of activities that they perceived as assessments, including their presentations in seminars, case /field notes. In the present study, the questions faced by the trainees on patient care during daily rounds in the ward and during classroom activities such as journal clubs and seminars featured prominently in the list of assessments,

compared to those listed by the faculty, although the difference was not statistically different.

Both groups of participants felt that the assessments had a positive impact on learning. (see table 4)

From analysis of the focus group transcripts, four categories of issues with the current practices of assessments emerged. (see tables 11 a-d) The need for clarity of impact of in-training assessments on pass-fail decisions was one of them. To the faculty the need for trainees to take these assessments seriously was of primary concern. Although they were being conducted to promote learning, they doubted the effectiveness of these assessments.

The lack of a 'holistic' assessment of the trainee was another category of issues that emerged from analysis of the focus group discussion transcripts. The predominance of knowledge assessments with relative neglect of performance skills, lack of attention to critical thinking and opportunistic assessments of generic skills in the assessment practice were the codes that were derived from the transcripts. With the movement towards a competency framework, particularly in PGME, there is a need to change the approach to assessments as well (Holmboe, 2010). The following features of assessments in a CBME framework are described by Holmboe et al (2010)- they must be continuous and frequent, criterion based, emphasize on what the trainee will ultimately do, use assessment tools that meet minimum standards of quality, incorporate qualitative assessments and actively engage the trainee. To the list of tools of assessment, Shuwirth and van der Vleuten (2011) add the need for changes at the organisational level for implementation of a programme of assessment. The central role of faculty development in order to implement such a programme of assessment is also recognized.

The results of these assessments were usually in the form of scores with inconsistent feedback on performance. In some departments discussion of answer scripts was routinely practiced one on one between assessor and trainee, but there was a perceived increasing lack of interest in receiving this feedback by the trainees. Gulikers (2006) argues that student engagement with assessments depends on the perceived level of authenticity. She defines authentic assessments as those “.... requiring students to use the same competencies, or combinations of knowledge, skills, and attitudes, that they need to apply in the criterion situation in professional life.” In the context of PGME where the trainee is learning as she/he is working, tests of knowledge would be perceived as less authentic compared to assessment occurring at the work place.

Nearly a third of the faculty were of the opinion that current assessments do not address the trainees’ fitness to practice - “NO - Exam oriented presentation – case presentation in artificial set up”. This ‘artificial’ setting of the assessment and the lack of adequate assessment of skills both psychomotor and affective, the lack of a structured assessment programme and absence of clearly defined goals appropriate to the level of the learner were listed as reasons for their response. The GMC defines fitness to practice as incorporating 4 aspects of a doctor’s performance and behavior that constitute good medical practice. These include the domains of knowledge, skills and performance, safety and quality, communication partnership and teamwork and maintaining trust. (www.gmc-uk.org/the_meaning_of_fitness_to_practise.pdf 25416562.pdf)

A trainee’s ability to be creative and to handle complex situations are attributes that are needed in professional practice. The faculty groups felt that these were being tested informally in day to day work. They however agreed that this was opportunistic and not uniformly done for all trainees (see table 11 b). Also,

they identified a lack of institutional mechanisms to incorporate this aspect of a trainee into the training and assessment programme. Gulikers (2006 b) reiterates the role of portfolios and performance based assessments rather than the use of MCQ or short answer based written tests to assess these aspects. She argues that such authentic assessments have construct validity in that the task is more representative of real life situations and require the learner to think and work appropriately.

Reflective practice is another dimension to the complex set of skills necessary for medical professionals to develop. More than half the trainees who were surveyed in this study reported that they reflected on their day to day work. Revisiting experiences to learn from them in addition to defining them is the essential quality of a 'reflective practitioner'. In their review of existing literature on the evidence for reflection, reflective practice and its utility in the medical profession, Mann et al (2009), found that reflection is regularly practiced by health professionals, usually when faced with a complex situation and also by students of health professions. They go on to recommend that to promote reflection in learners, the key role is that of the learning environment and the mentor or supervisor.

Need for change

The felt needs of the 'users' of assessments, namely the trainees, were derived from the responses to the survey. Two main areas were identified where change was seen to be needed to enhance learning, the practices of assessment and method of providing feedback. A better learning environment was also a felt need among the trainees. (see tables 5 a-c, 2a-c and 12)

1. Assessment and learning

Assessments need to have consequential validity too. (Gulikers, 2006 b) argues the case for having authentic assessments to promote deep learning in learners because of the resemblance they bear to what is expected of them in the workplace. She underscores the importance of student perceptions of authenticity of the assessment in determining how and what they learn.

The categories that emerged from the response codes to the question on trainees' perceptions on the role of assessments to enhance their learning, included the following – the content and tools of assessments, enhanced quality and impact of the in-training assessments and the learning environment.

The trainees listed the need for more formative assessments, tests of skills and attitudes, feedback from other healthcare personnel and use of multiple assessment tools to test their knowledge and skills. Van der Vleuten (2005) emphasizes the need to have an 'assessment toolbox' comprising of different methods that would serve different purposes and the need for assessment to become an integral part of the training program. There was a felt need expressed by some of the trainees for the 'internal assessments' to count towards the summative.

With regards to enhancing the quality of existing assessments in terms of structuring them, the following codes were derived from the responses – structured, frequent notified tests, held with regular periodicity, with a difficulty level matched to the level of the learner, marking that was criterion referenced, and accompanied by feedback which was constructive and directed at the individual learner. Van der Vleuten et al (2012) propose a model for a programme of

assessment that consists of several points of data collection regarding a trainee's progress in the course, each of them providing information about his/her learning and aggregating these data points to make high stakes decisions.

There were also responses that referred to updating the content of the assessments and of assessor knowledge.

2. Feedback practices

The faculty identified poor feedback practices such as, lack of documentation, paucity of feedback and feedback that was usually corrective and directed at the group of trainees rather than addressing individual performance. (see table 11 c) Feedback is central to the formative assessment and is optimally provided during the assessment task itself in order for it to influence learning. Van de Ridder (2008) defines feedback as “Specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance” and emphasizes the importance of the following characteristics of feedback, namely, its aim to motivate for improvement and stimulate reflection, the content and the concept of feedback as a cycle of ‘information’ and ‘reaction’. An almost equal number of trainees chose verbal and its combination with written feedback as their preferred format of receiving feedback (see tables 2 a-c)

The content of the feedback in addition to identifying lacunae in learning must also include suggestions for improvement and discussion of and clarifications regarding the trainee's performance (William, 2011). The trainees' preference of a detailed feedback versus a score as a result of assessment was recorded. The majority of the respondents preferred a detailed feedback for identifying their strengths and weaknesses, the opportunity for discussion and therefore to know

better how and where to improve. The combined benefits of the healthy competition and of having a target set by the score along with a detailed information from feedback on improvement was preferred by a fifth of the respondents.

The formative role of feedback was appreciated by the trainees who chose detailed feedback over scores as a preferred result of assessments. (see Tables 6 a & b). However a large number of responses were categorized under “identification of mistakes and strengths”. MacLellan (2001) argues that feedback, however detailed and specific, would not by itself, cause an improvement in learning. For this to occur the learner has to be actively involved in the process of monitoring and regulating his/her own learning.

Watling (2014) cautions that the learner’s engagement or not with feedback is influenced by her perception of the credibility of the feedback. He further asserts that the learning culture of medicine in which the learner and assessor are working side by side, actually reduces the number of opportunities for observation of a trainee performing a task, due to conflicting demands on both the assessor and the trainee. This is in contrast to the learning culture prevailing in other professions such as music or sports where the coach is always observing the student.

The move towards a competency framework particularly for PGME requires changes in the assessments, with greater emphasis on observing the trainees during formative assessments taking place in the workplace. The emphasis in CBME is on attaining “abilities” rather than just “knowledge” as the curricular goal (Iobst, 2010), using criterion based assessments to monitor progress through the training. These abilities also include knowledge, skills and attitudes required for their work in clinical ‘microsystems’ such as wards, intensive care units, emergency care and so on (Holmboe, 2010). The competencies required include being an effective

member of the health care team and ability to interact effectively with other team members, such as nurses and paramedics. Both faculty and trainees, participating in the present study appear to value the feedback from nurses and other healthcare professionals although a significant number of faculty were cautious in their replies citing a possibility of bias as a limiting factor.(see table 7) Some of the trainees also expressed their reservation for the same reason. The role of training health care professionals to give effective feedback for improvement needs to be explored.

A high value was attributed to peer feedback by the trainee respondents. There was a significantly lower acceptance of the role of peers in PGME among the faculty (see table 3). In contrast to the trainees who rated the credibility and authenticity of peer assessments as high, faculty felt that there was a high possibility of bias and the influence of personal relationships in the assessments. Norcini (2003) discusses a set of 4 factors that influence the quality of peer assessments in medical education. These include reliability, relationships between peers, stakes involved and equivalence across sets of peers. He suggests ways to mitigate these influences, namely, ascertaining clarity of the purpose of the assessment, setting down criteria, training students in assessment, monitoring the process for validity and feedback to the assessors to ensure uniformity in assessment.

The role of patients in providing feedback was similarly held to be of dubious value by the faculty groups, for reasons of unreliability and potential bias. Although being practiced in some departments, it was more informal and indirectly done, for example, the seeking out of a trainee by a patient on a second visit to the clinic. In the Indian context, the role of patient feedback regarding a trainee's performance at the workplace may be influence by the prevailing culture of

deifying a doctor especially the primary care giver, who is usually a postgraduate in a large teaching hospital such as JIPMER. It could be replaced or supplemented by taking a feedback on trainee behavior from patient' relatives with whom the resident doctor more often communicates.

3. Learning environment

Lack of institutional support was perceived as an issue to be addressed in the present practice of assessments. (see table 11 d). The need for establishing a policy framework on postgraduate assessments was identified as was a need to bring in uniformity of assessment across all specialties.

An improvement in learning environment emerged as one of the categories from the trainees' perceptions of assessments that would enhance their learning (see table 5 b). More time for and greater attention of the faculty on classroom activities and formative assessments conducted as continuous day to day assessments in the workplace and student support mechanism including mentorship were seen as necessary changes in the learning environment of PGME. This would also require the establishment of regular faculty development programmes to train faculty in assessment practices. Among the faculty participants of the present study, those from core specialties had all received training in education practices in regular faculty development programs conducted locally. However, more than half of the participants from the subspecialty departments had not signed up for any training program. Many of the clarifications regarding teaching-learning, assessments and feedback sought during the focus group discussions were from this group highlighting the urgent need to conduct faculty development programs for them. Steinert (2010) studied the factors that promote and the barriers to clinicians attending faculty development programs. The most often cited reason was the lack of time and perceiving it as irrelevant to their work. She argues that

participation will improve if the faculty see it as relevant to their needs and are beneficial to their growth in the profession. Networking with colleagues and medical educators was found to be a significant motivator for those who frequently attended such programs. The first step has now been taken with the group of participants from the subspecialties by inviting them to the focus group discussion. Their enthusiastic participation in the discussion is evident from the frequency table 1. Bok et al (2013) stress the need for careful planning when implementing a programme of assessment, including adequate training of faculty and trainees in work based assessment (WBA) methods and in feedback in addition to development and implementation of 'user-friendly' WBA tools.

The issues identified by faculty and trainees along with suggestions for change will be used to develop a framework for a programme of assessment for postgraduate trainees to JIPMER. The study results can be used to provide faculty development, allowing them to acquire additional skills in trainee assessment. The data collected in the current investigation can be used to gain administrative support. Further studies to compare the assessment practice at JIPMER with that in other postgraduate training institutes in this part of the country could help in generalizing the results of the study and pave the way for a joint effort to improve postgraduate medical education in the country as a whole.

Summary and conclusions

The present study is the first step in the attempt to develop a structured programme of assessment in postgraduate medical education in a large medical school in southern India.

55 faculty across various specialties (core and subspecialties) participated in focus group discussions that recorded the faculty's perceptions on current assessment and feedback practices and on the need for change. Four major problems that needed to be addressed were identified during these discussions. They include suboptimal assessment and feedback practices, failure to address certain key aspects of the trainees' development towards competence and need for more support at the institutional level.

The perceptions of trainees regarding the assessments they are required to face during and at the end of the training period were recorded by means of an anonymous survey that was administered online to 186 trainees and in a paper based format to 100 others. There was a response rate of 50%.

From the focus group discussions, 4 themes emerged of issues regarding the current assessments that would need to be addressed. The faculty could perceive the inadequate assessments of skills, attitudes and some of the professional attributes of a postgraduate trainee that would be required to declare him/her competent and fit to practice, such as critical thinking team working skills. They also concluded that feedback practices were suboptimal and that there was a need for faculty development for this. There was also an agreement that the assessment practice lacked structure and that there was a need for more institutional support to bring about desired changes.

The postgraduate trainees' responses showed that although assessments being currently practiced enhanced their learning, there were deficits in the structure and content of these assessments particularly with respect to skills. This was one of the main themes that emerged from analysis of trainee responses. A healthy learning environment was also a felt need of the trainees as also greater involvement by the faculty in formative assessments in the workplace.

To conclude, the present study has shown that although assessment in postgraduate medical education at JIPMER is being done with regularity and using a wide range of tools and methods, there are some lacunae identified that need to be addressed. There is a need for implementing a structured assessment programme that will both enhance learning and provide robust evidence for summative decisions of a trainee's fitness to practice. Of the many challenges to establishing a robust assessment for learning environment, the dominance of summative over formative assessment is a major one that needs to be overcome in order to improve trainee and supervisor engagement with formative assessments. Faculty development, trainee involvement in the design and implementation of assessments and administrative support are essential to bring about the desired changes in the current assessment system.

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Appendix 1

Consent form and questions for faculty focus group discussions

Dear Participant (faculty of JIPMER),

Thank you for your interest in taking part in this round of focus group discussions which should take up about one hour of your time. Before you begin answering our questions, we would like you to know what the project is all about. The aim of this project is to bring about a structure to the assessment of postgraduates during and at the end of their training at JIPMER. We plan to begin this study by recording the perceptions of the three major stakeholders in this process, namely you –the faculty , the trainees and senior residents who have completed training and the Dean and members of the Institute Council, regarding the current system of assessment as practiced in JIPMER.

We would appreciate a frank discussion among you and assure you that your responses will remain anonymous in our transcripts of the discussions. We look forward to your constructive suggestions towards the change process.

If you permit we would select some of your opinions to be quoted, anonymously, of course, during presentation or publication of our study.

If at any point during the study you would prefer to leave the study, you may do so without assigning any reason.

Thank you

CONSENT FORM

Title of the project: **Developing a programme of assessment in postgraduate medical education – an exploratory study**

Participant's name: _____ Address: _____

The details of the study have been provided to me in writing and explained to me in my own language. I confirm that I have understood the above study and had the opportunity to ask questions. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason. I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s). I have been given an information sheet giving details of the study. I fully consent to participate in the above study.

I permit/do not permit that I be quoted during presentation or publication of the study results.

Signature of the participant: _____ Date: _____

Signature of the witness: _____ Date: _____

Name and address of the witness:

Signature of the investigator: _____ Date: _____

1. To what extent are postgraduate trainees being assessed during their training?
2. How are the results of these assessments being used for?
3. How well would you say the current assessment practice is serving the purpose of enhancing student learning?
4. How is feedback on performance being provided – [on demand or as a routine? Written or verbal?]
5. How well does the content of the assessments address the trainees' fitness to practice?
6. How well does the current assessment system test residents' ability to show understanding of complex situations?
7. Is there scope to assess his/her creativity?
8. How do you assess residents' ability to present arguments?
9. Do you believe that the assessments you currently employ adequately address qualities such as ability to work in a team, professionalism and ethical practice?
10. In your opinion, what is the role of patients in the assessment of postgraduates?
11. What is the role of other healthcare personnel in the assessment of postgraduates?
12. What do you think would be the role of peer assessments in postgraduate training?
13. Do the current assessment practices help you to recognize and encourage an outstanding resident and identify those in need of additional support?

Appendix 2

Consent form and survey questionnaire – PG trainees

Dear Participant (Junior resident or Senior resident, JIPMER)

Thank you for your interest in taking part in this survey which should take you not more than 20 to 30 minutes to complete. Before you begin answering our questions, we would like you to know what the project is all about. The aim of this project is to bring about a structure to the assessment of postgraduates during and at the end of their training at JIPMER. We plan to begin this study by recording the perceptions of the three major stakeholders in this process, namely yourselves – the trainees and senior residents who have completed training, the faculty and the Dean and members of the Institute Council, regarding the current system of assessment as practiced in JIPMER.

Some items in the questionnaire will require you to write a few lines in your own words, while some others will require placing a tick or selecting an option. We would appreciate a frank response from you to the former and assure you that your responses will remain anonymous.

We look forward to your constructive suggestions towards the change process.

If at any point during the study you would prefer to leave the study, you may do so without assigning any reason.

One of the questions requests your permission to quote your opinions – anonymously, of course, during presentation or publication of our study. Select “yes” if you give us your permission.

1. How are you assessed during your postgraduate training?
2. Are you informed about the assessment beforehand?
Always Sometimes Never
3. Do you get to decide when you would like the assessment to take place?
Yes No
4. Is the assessment exercise done one to one between faculty and resident?
Always Sometimes Never
5. Would you prefer it to be done one to one?
Yes No
If your answer is yes, please explain why you would like them to be so
6. Are you assessed on your day to day performance at the workplace?
Daily Weekly Monthly Rarely Never
7. If you are assessed on your day to day workplace performance, in which setting does the assessment take place?
Wards/bedside Outpatient clinic Emergency Operation theatre Laboratory Others (specify)
8. During a clinical or practical exercise, how often are you observed during your performance?
Always Sometimes Never
9. Do you receive feedback after an assessment?
Always Sometimes Never

if feedback is provided how is it given to you?

10. Is feedback given immediately after the assessment?

- Always sometimes never
11. Would you prefer feedback to be provided in a written or verbal form, or both? Why?
12. Do you maintain a log of your experiences?
Yes No
13. How often do you seek feedback on your logbook?
Weekly Monthly Rarely
14. Do you spend time reflecting on your performance in your day to day work?
Yes No Sometimes
15. Do you discuss your self assessment with your supervising faculty?
Often Rarely Never
16. Do you take feedback from your peers regarding your performance in your day to day work?
Often Rarely Never
17. In your opinion, how useful is peer feedback for learning in postgraduate training?
18. Do you feel that the assessments help your learning? If your answer is yes, please explain how it does.
19. Is the difficulty / complexity level of the assessment matched to the level of your learning?
Always Sometimes Never
20. In your opinion, how should the assessment in PG medical education at JIPMER be organized to maximize your learning?
21. Would you prefer an assessment that gives you a score or one that provided you with a detailed feedback of your performance? Please give reasons for your preference.
22. Would you welcome feedback from other members of the healthcare team in the workplace, such as nurses and paramedical personnel? How would you use such feedback?
23. Would you permit some of the responses to be quoted in an anonymous manner during publication or presentation of the results of this survey?