INTRODUCTION
Postgraduate medical education entails a diverse continuum of learning in the context of providing medical care to patients. The learning and educational process during residency is highly dynamic and involves a complex interplay among a variety of factors. For instance, the workload and working environment, formal educational activities, and careful supervision and feedback by faculty etc. all have a bearing on learning during residency. The existing standards of residency training have evolved as a result of long standing educational research and evidence base, side by side with technological advancements in medicine. In the United States, the Accreditation Council for Graduate Medical Education (ACGME) identified six learning outcomes for postgraduate medical education. These include patient care, medical knowledge, interpersonal communication skills, professionalism, practice based learning, and system based practice.

The issues surrounding postgraduate medical education have been debated for long in the developed countries, however, there has been little contribution to these intellectual debates from developing countries. Surveys that entail residents’ ratings of their residency have been under continuous scrutiny and they are increasingly employed to identify and rectify deficiencies in residency training.

The present study was conducted to measure the level of satisfaction among residents with regards to various educational attributes of their training and hence evolve actionable evidence base to effect meaningful changes for improved quality of training.

METHODOLOGY
This cross-sectional study was conducted at the Department of Medical Education, (DME), Pakistan Institute of Medical Sciences (PIMS), Islamabad over a period of 3 months, from September to November 2008. The study included residents who had been pursuing residency training in different specialties for over a period of one year. The target was to get the questionnaires responded from a heterogeneous group of residents encompassing all specialties and residency

ABSTRACT
Objective: To determine the residents’ rating of the quality of their residency training by measuring their level of satisfaction with the various educational attributes of their training.

Study Design: Cross-sectional survey.

Place and Duration of Study: Department of Medical Education (DME), Pakistan Institute of Medical Sciences (PIMS), Islamabad, from September to November 2008.

Methodology: Residents who had been pursuing residency training for over a period of one year were included. A comprehensive questionnaire consisting of 14 questions was employed which covered fundamental attributes of the quality of postgraduate training. A five point response scale was used to rate responses to questions. Results for each of the measures of all the included residents were added up, and then an average was calculated and scaled to a score out of 100 to form the Index Score. In this way the residents’ level of agreement or disagreement with the questioned statement was measured from ‘Strongly disagree’ (0%) to ‘Strongly agree’ (100%).

Results: Out of a total of 150 residents contacted, 109 answered the questionnaire. The response rate was thus 73%. Residents variably rated the various educational attributes of their residency training. Relatively favourably rated areas included regular conduct of case/ topic discussions (75.96%), consultant's supervision during interventional procedures (70.27%) and regularly holding journal clubs (69.54%). The less favourably rated areas included constructive feedback by supervisor (54.49%), consultant as role model (54.49%) and faculty as the source of learning (50.82%). Overall, the Index Score was 60.55%.

Conclusion: Significant room exists for improvement in the quality of residency training as indicated by the less than desirable ratings of the various educational attributes of the residency programme. Faculty members who constitute the cornerstone of educational process are pivotal to effect the desired improvements.

Key words: Postgraduate medical education. Residency training. Quality of training.
Residents rating the quality of their training

While 36 were undergoing other degree programmes. They were randomly approached face-to-face. Residents who were unwilling to participate were excluded. The study was conducted in accordance with the Declaration of Helsinki of 1975, as revised in 1983 and anonymity of the participants was guaranteed.

A comprehensive questionnaire was employed which covered the fundamental attributes of the quality of postgraduate training. It was constructed to meet our survey objectives. The questionnaire was pre-tested on a group of 15 residents. The questions were phrased in such a way that an agreement/satisfaction with the accepted standards got higher score, while disagreement/ dissatisfaction scored low.

The key questions/attributes included affirmation of undergoing a structured residency programme, cases/topic presentations being regularly held in the ward, weekly teaching round being regularly held in addition to daily business round, Journal club being regularly held, multidisciplinary meetings/grand rounds being regularly held, using internet for searching medical literature, source of learning, consultant accessibility in OPD, senior/consultant availability for supervision during surgery or procedures, professor/consultant providing regular constructive feedback on progress, quality of supervision and consultant being a good role model.

At the conclusion of the questionnaire the residents were asked for any additional suggestion for further improvement.

The data were analysed through Statistical Package for Social Sciences (SPSS) for Windows version 10 and various descriptive statistics were employed to calculate frequencies, means and standard deviation. The categorical data such as gender distribution, residency programmes were reported as frequency and percentages. The numerical data such as age were reported as mean ± S.D. The responses to the questions were rated on a 5 point response scale. If the response was 'strongly agree' it scored 5 points, 'Agree' 4, 'Neither agree nor disagree' 3, 'Disagree' 2 and 'Strongly disagree' 1 point. No response was awarded zero point. Results for each of the measures of all the included residents were added up, and then an average was calculated and scaled to a score out of 100 to form the index score. In this way the residents’ level of agreement or disagreement with the questioned statement was measured from Strongly disagree (0%) to Strongly agree (100%).

RESULTS

In the target population of 150, residents were contacted and 109 returned the questionnaires duly answered, constituting a response rate of 73%. Out of 109 respondents, 74 were males (68%) while 35 were females (32%). Majority of respondents (67%) were pursuing FCPS while 36 were undergoing other degree programmes (27%) including MS, MD, MCPS and M.Phil. The age was 25 – 41 years with a mean value of 31.60 ± 4 years.

Residents variably rated the various structural attributes of their residency training as asked in the questionnaire. Relatively favourably rated areas included regular conduct of case/topic discussions (75.96%), consultant’s supervision during interventional procedures (70.27%), regular holding of journal clubs (69.54%), holding of multidisciplinary meetings (68.80%), regular weekly teaching round (68.49%), use of Web based search for medical literature (68.07%), learning from self/other colleagues (65.50%), and consultant supervision in general (57.06%). The least favourably rated areas included regular constructive feedback by supervisor (54.49%), consultant as role model (54.49%), faculty as a source of learning (50.82%), residency as structured programme (50.64%), regular meeting with consultant to discuss progress (47.52%), and accessibility of consultants in OPD for case discussion (46.05%). Table I shows the responses of residents to the different questions.

Overall, the Index score was 60.55 %. It was calculated by initially adding-up the response scores (i.e. Strongly agree = 5, Agree = 4, Neither agree nor disagree = 3, Disagree = 2 and Strongly disagree = 1) of all the included attributes (of all the included residents), then measuring an average which was scaled to a score out of 100.

DISCUSSION

Majority of residents agreed with the fact that case/topic discussion, teaching rounds, multidisciplinary meetings, and grand rounds were held regularly.

Residents awarded relatively high rating (69.54%) to the journal club. The journal club is a useful academic activity that entails formal regular meeting of the ward doctors to critically appraise articles published in current medical journals. Our findings are in conformity to those of Crank-Patton et al. who surveyed the program directors of general surgery and found that 65% of them organized a regular journal club. Akhund et al. in a Karachi-based study found journal club a useful learning modality and have recommended effective use of online resources to support journal clubs as a successful alternative to excessive expenditure for obtaining print journals. In fact evidence-based medicine is one common interpretation of the ACGME mandate for practice-based competency and journal club is an effective tool to achieve that competency. The teaching process of the journal club should be interactive and should be based on adult learning principles. The format should emphasize a limited number of original articles reviewed in depth, inclusion of basic epidemiology and statistics, a structured review checklist, and defined objectives for the participants. The journal club should...
inculcate critical appraisal skills among the doctors and promote evidence based approach among them. Attendance by faculty as well as trainees should be made mandatory in order to make this tool more effective teaching activity.

Residents reported most of their learning to be from Web based search (68.07%) or self-learning/learning from other fellow colleagues (65.5%). Faculty as the source of learning was given low scores (50.82%). Internationally there is growing recognition of the importance of the contribution of Web based resources to postgraduate medical education.14,15 However, faculty’s contribution to residents’ training is also crucial as residents tend to have positive feelings for those teachers who not only focus on routine patient care but also give due attention to the education of their

Table I: Residents’ ratings of the quality of training (n=109).

<table>
<thead>
<tr>
<th>Questions and responses</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am undergoing a structured residency programme.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>17 (15.59%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>41 (37.61%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>29 (26.60%)</td>
</tr>
<tr>
<td>Agree</td>
<td>20 (18.34%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>02 (1.83%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>2. Cases/ topic presentations are regularly held in our ward.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>03 (2.75%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>17 (15.59%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>12 (11.00%)</td>
</tr>
<tr>
<td>Agree</td>
<td>44 (40.36%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>33 (30.27%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>3. Weekly teaching round is regularly held in addition to daily business round.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>17 (15.59%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>23 (21.10%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>20 (18.34%)</td>
</tr>
<tr>
<td>Agree</td>
<td>45 (41.28%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>14 (12.84%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>4. Journal club is regularly held in our ward.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>06 (5.50%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>15 (13.76%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>33 (30.27%)</td>
</tr>
<tr>
<td>Agree</td>
<td>31 (28.44%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>24 (22.01%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>5. Multidisciplinary meetings / grand rounds are regularly held in our ward.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>07 (6.42%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>15 (13.76%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>33 (30.27%)</td>
</tr>
<tr>
<td>Agree</td>
<td>31 (28.44%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>23 (21.10%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>6. I regularly use internet for searching medical literature.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>14 (12.84%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>16 (14.67%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>15 (13.76%)</td>
</tr>
<tr>
<td>Agree</td>
<td>40 (36.69%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>24 (22.01%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>-</td>
</tr>
<tr>
<td>7. Most of my learning is from the faculty members.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>09 (8.25%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>43 (39.44%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>23 (21.10%)</td>
</tr>
<tr>
<td>Agree</td>
<td>22 (20.18%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>05 (4.58%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>07 (6.42%)</td>
</tr>
<tr>
<td>8. Most of my learning is from myself or other resident colleagues.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>04 (3.66%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>19 (17.43%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>22 (20.18%)</td>
</tr>
<tr>
<td>Agree</td>
<td>51 (46.78%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>09 (8.25%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>04 (3.66%)</td>
</tr>
<tr>
<td>9. My consultant is accessible in OPD for discussing patients.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>02 (1.83%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>04 (3.66%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>11 (10.09%)</td>
</tr>
<tr>
<td>Agree</td>
<td>47 (43.11%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>41 (37.61%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>04 (3.66%)</td>
</tr>
<tr>
<td>10. My senior/consultant is available for supervision during surgery or procedures.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>05 (4.58%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>07 (6.42%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>33 (30.27%)</td>
</tr>
<tr>
<td>Agree</td>
<td>35 (32.11%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>25 (22.93%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>05 (4.58%)</td>
</tr>
<tr>
<td>11. My professor / consultant gives me regular constructive feedback.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>15 (13.76%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>32 (29.35%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>29 (26.60%)</td>
</tr>
<tr>
<td>Agree</td>
<td>19 (17.43%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>11 (10.09%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>03 (2.75%)</td>
</tr>
<tr>
<td>12. I regularly sit with my consultant/ professor to discuss my progress.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>23 (21.10%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>37 (33.94%)</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>29 (26.60%)</td>
</tr>
<tr>
<td>Agree</td>
<td>10 (9.17%)</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>07 (6.42%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>03 (2.75%)</td>
</tr>
<tr>
<td>13. My consultant's supervision is excellent.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>07 (6.42%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>24 (22.01%)</td>
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<tr>
<td>Neither agree nor disagree</td>
<td>43 (39.44%)</td>
</tr>
<tr>
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<tr>
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<td>07 (6.42%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>05 (4.58%)</td>
</tr>
<tr>
<td>14. My consultant is a good role model for me.</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>09 (8.25%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>19 (17.43%)</td>
</tr>
<tr>
<td>Neither Agree nor disagree</td>
<td>21 (19.26%)</td>
</tr>
<tr>
<td>Agree</td>
<td>28 (25.68%)</td>
</tr>
<tr>
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<td>15 (13.76%)</td>
</tr>
<tr>
<td>Not answered</td>
<td>17 (15.59%)</td>
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</tbody>
</table>

Residents reported most of their learning to be from Web based search (68.07%) or self-learning/learning from other fellow colleagues (65.5%). Faculty as the source of learning was given low scores (50.82%). Internationally there is growing recognition of the importance of the contribution of Web based resources to postgraduate medical education.14,15 However, faculty’s contribution to residents' training is also crucial as residents tend to have positive feelings for those teachers who not only focus on routine patient care but also give due attention to the education of their
Residents rating the quality of their training

Six surgical residents variably expressed concerns about the growing interest of senior faculty in laparoscopic interventions. The situation is being perceived by them as detrimental for training, causing lesser surgical volume and fewer opportunities for meaningful participation in surgery on elective lists. The growing interest of the senior faculty in laparoscopic surgery should not jeopardize the learning experience of more novice learners, most notably junior residents. In the face of the rapid emergence of such new technologies, there is a dire need to review and redesign the entire spectrum of surgical residency programmes. This will ensure meaningful participation of the trainees in the various surgical procedures, building their capacity to become safe surgeons. Also the issues concerning the non-availability of laparoscopic instruments in periphery where most of the residents go for service after completing residency, need to be addressed. In this context the residents feel unprepared for independent performance of open surgical procedures also. Newer teaching technologies such as the virtual reality-simulation for the operating room\(^{22}\) can be employed to address the aforementioned genuine concerns of the residents.

Surveys and analyses of residents’ ratings of various attributes of residency training help to identify unrecognised areas of deficiency in the training system. Hence, such surveys should be conducted on regular basis and translated into practice for improved outcomes. Further research on essential attributes of residents’ education is needed to confirm and improve upon these results.

CONCLUSION

Significant room exists for improvement in the quality of residency training as indicated by the less than desirable ratings of the various educational attributes of the residency programme. There is a need to revisit postgraduate medical education and abolish the gap between what is possible educationally and what is being delivered at present. Faculty members who constitute the cornerstone of educational process are pivotal to effect the desired improvements.

Disclosure: This cross-sectional survey represents second of the series of three surveys conducted simultaneously by our institution’s DME, which aimed to establish baseline features of our residents education.

Conflict of interest statement: We declare to have no conflict of interest. The authors do not have any financial or personal relationships with other people or organization that could bias their work. There has been no funding involved.

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