

Original Article

Education in plastic surgery: Are we headed in the right direction?

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ABSTRACT

Introduction: Plastic surgery in India is in an era of transition. The speciality faces many challenges as it grows. The present study attempts to identify these challenges and the prevalent mood among the teachers and the trainees. **Materials and Methods:** The study was conducted from September 2011 to June 2012. In an E-mail based survey a questionnaire was mailed to professionals actively involved in teaching and training of residents in plastic surgery in many institutes running MCh courses in plastic surgery (Group I) [Appendix 1]. Another questionnaire was mailed to residents undergoing training in plastic surgery and those who had completed their training within past 2 years (Group II) [Appendix 2]. Chi-square test was applied to test for statistical significance. **Observations:** 29 Group I and 33 Group II subjects responded to the questionnaire. While 72.4% teachers believed that the current system is producing plastic surgeons with enough skill level, only 9.1% of the respondents in Group II thought the same (Chi-square = 28.1; df = 2; $P < 0.001$). Whereas 58.6% Group I respondents thought that their student is sufficiently equipped to compete in today's scenario [Figure 1], only 18.2% Group II respondents thought that their training is enough [Figure 2]. (Chi-square = 16.4; df = 2; $P < 0.001$). Nearly 28% respondents in Group I and only 3% in Group II thought that scientific research and publications should be made mandatory for successful completion of plastic surgery training (Chi-square = 9.4; df = 2; $P = 0.009$). Adequate exposure was thought to be available in general plastic surgery (Group I: 92% Group II: 81%), maxillofacial surgery (Group I: 72% Group II: 68%) and hand surgery (Group I: 84% Group II: 69%). Both groups agreed that exposure is lacking in craniofacial surgery, aesthetic surgery and microvascular surgery. Aesthetic surgery (38.7%) and microvascular surgery (32.6%) were the most frequent response when the Group II respondents were enquired about the subspeciality they would like to focus on in their practice. Inter-departmental exchange of students for limited period of time was favoured by 86.2% of Group I respondents and 93.9% Group II respondents (Chi-square = 1.3; df = 2; $P = 0.49$). **Conclusion:** The current training programme is differently perceived by teachers and the trainees. We recommend that constant

deliberations at national and regional forums should take place regarding our education and training programmes.

KEY WORDS

Education; plastic surgery; survey; teachers; training; trainees

Access this article online

Quick Response Code:



Website:

www.ijps.org

DOI:

10.4103/0970-0358.129636

INTRODUCTION

Plastic surgery in India is in an era of transition. From being limited to traditional methods of reconstruction, it has now evolved to encompass all spheres of reconstruction, aesthetics, trauma etc. The increasing demand and appeal, the versatility of treatments offered and the stupendous refinements in results have progressed tremendously. All this has been achieved by the cumulative efforts of disciples of the speciality who have gone on to become masters in their craft. However, with the advent of integrative plastic surgical training programmes, requirements for earlier specialisation decisions and an increasing sub-specialisation within the practice of plastic surgery, the educational goals of training may have changed.^[1] The current training programme is heavily focussed onto trauma and reconstruction. The demand for aesthetic surgery has grown tremendously over past few years. More and more plastic surgeons have taken up aesthetic surgery and in practice the proportion of aesthetic surgery has steadily grown. The current training programme does not focus on aesthetic surgery and hence the fresh pass outs have to spend additional time and resources in acquiring training in aesthetic surgery.

We have seen increasing competition from people not qualified to do plastic surgery. People with training in other branches have made inroads into the realms of plastic surgery. The public perception and expectations are at an all-time high due to the exposure provided by mass media like television. The time is ripe to introspect whether our training program is equipped to meet the challenges, which lie ahead. The current selection

process of candidates is based on various entrance exams which are conducted across the country. The training programme consists of 3 years of training in plastic surgery after having completed 3 years in general surgery. The training is conducted in a single institute most of which are government run hospitals catering to a vast population. We need to find out whether we been able to keep pace with the changing world order. It needs to be inquired whether our trainees believe in the training program which is offered to them and whether our teachers believe in the teaching curriculum which they offer to their students. Are we able to provide sufficient exposure in various subspecialities? If not, what needs to be done to bring about a positive change? The present study is an attempt to answer some of these questions.

MATERIALS AND METHODS

The study was conducted from September 2011 to June 2012. An E-mail based survey was done. Two questionnaires were made for teachers and students. A questionnaire was mailed to professionals actively involved in teaching and training of residents in plastic surgery in many institutes running MCh courses in plastic surgery (Group I) [Appendix 1]. Another questionnaire was mailed to residents undergoing training in plastic surgery and those who had completed their training within past 2 years (Group II) [Appendix 2]. No assistance was provided to the respondents in formulating the answers. The results thus obtained were tabulated. Statistical analysis was performed using the statistical programme (SPSS version 10.0, SPSS Inc., Chicago, USA). Chi-square test was applied to test for statistical significance. We considered differences to be statistically significant when the $P < 0.05$.

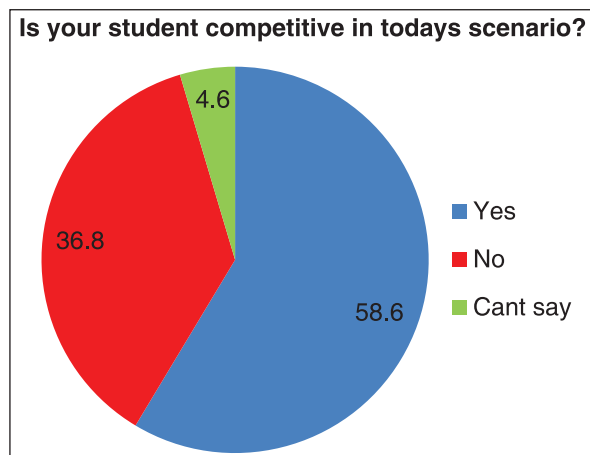


Figure 1: Assessment of competitiveness of current trainees by Group I respondents

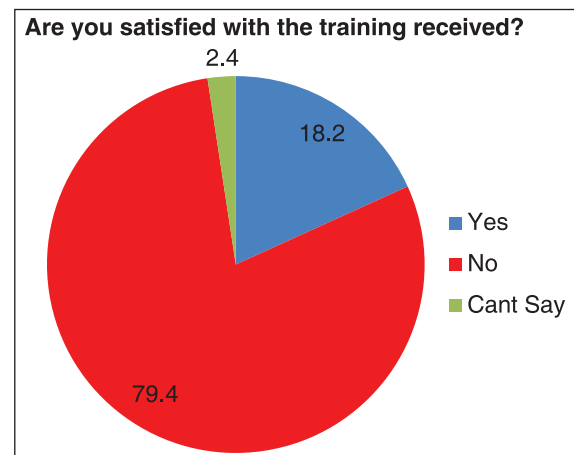


Figure 2: Satisfaction level of Group II respondents with the training received

OBSERVATIONS

29 Group I subjects from 14 institutes and 33 Group II subjects from 21 institutes responded to the questionnaire. Whereas 72.4% teachers believed that the current system is producing plastic surgeons with enough skill level, only 9.1% of the respondents in Group II thought the same [Figure 3] (Chi-square = 28.1; $df = 2$; $P < 0.001$). While 58.6% Group I respondents thought that their student is sufficiently equipped to compete in today's scenario [Figure 1], only 18.2% Group II respondents thought that their training is enough [Figure 2] (Chi-square = 16.4; $df = 2$; $P < 0.001$). early 28% respondents in Group I and only 3% in Group II thought that scientific research and publications should be made mandatory for successful completion of plastic surgery training (Chi-square = 9.4; $df = 2$; $P = 0.009$). 69% respondents in Group I and 81.8% respondents in Group II thought that their department was not sufficiently involved in research and scientific publications (Chi-square = 2.07; $df = 2$; $P = 0.37$). On questioning regarding the upgradation of the department, 41.4% teachers and 15.2% Group II respondents thought that the upgradation was sufficient (Chi-square = 6.4; $df = 2$; $P = 0.04$).

On enquiring about the exposure in various subspecialties, adequate exposure was thought to be available in general plastic surgery (Group I: 92% Group II: 81%), maxillofacial surgery (Group I: 72% Group II: 68%) and hand surgery (Group I: 84% Group II: 69%). Both groups agreed that exposure is lacking in craniofacial surgery, aesthetic surgery and microvascular surgery [Figure 4]. The two groups seem to disagree on the exposure in cleft surgery (Group I: 92%; Group II: 62%). Aesthetic surgery (38.7%) and microvascular surgery (32.6%) were the most frequent response when the Group II respondents were enquired about the subspecialty they would like to focus on in their practice [Figure 5]. Inter-departmental exchange of students for limited period of time was favoured by 86.2% of Group I respondents and 93.9% Group II respondents (Chi-square = 1.3; $df = 2$; $P = 0.49$). While 48.3% respondents in Group I favoured that students should work on a teaching post after completing their training, only 6.1% Group II respondents favoured the proposition (Chi-square = 17.5; $df = 2$; $P < 0.001$). When asked whether the training programme should include training on medical ethics, 34.5% Group I respondents and 9.1% Group II respondents favoured the suggestion (Chi-square = 6.4;

$df = 2$; $P = 0.034$). Similarly, when inquired whether the current training programme is compliant with the Hippocratic oath, 37.9% Group I respondents and 6.1% Group II respondents agreed (Chi-square = 17.2; $df = 2$; $P < 0.001$).

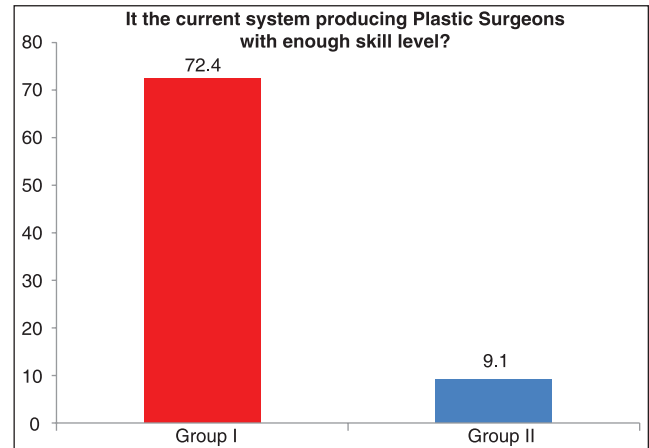


Figure 3: The perception of both the groups regarding the skill level of current trainees

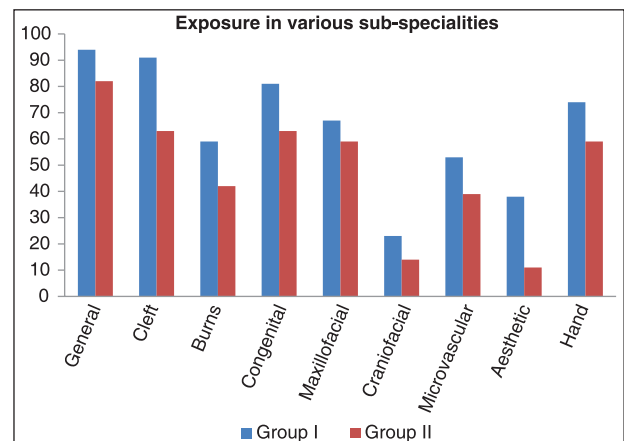


Figure 4: Perception of both the groups regarding exposure in various sub-specialties

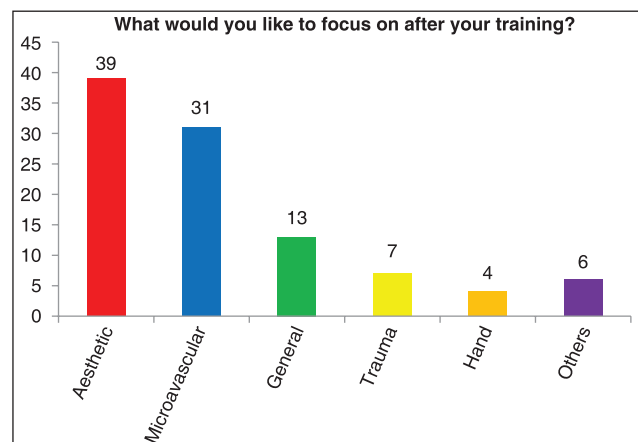


Figure 5: Preferences of Group II respondents for future practice

DISCUSSION

Plastic surgery in India has shown considerable growth over past few years. It is estimated that cosmetic surgery alone would grow at a compound annual growth rate of 31% in the period 2010-2013.^[2] The growth in demand is associated with greater expectation level and the pressure to deliver the best care possible. Trainees in plastic surgery would be expected to cater to this demand in future. During the last few years, there has been considerable discussion in the United States concerning the ideal format and structure of plastic surgical training.^[1] The trend in a few countries is to move to a more integrated programme, which is highly focussed on plastic surgical training.^[3] The teaching program in some countries identifies that plastic surgery is a vast speciality and hence there is a focus onto various aspects during training and even after it. However, such discussion or deliberation has not taken place in our country. The present study attempts to evaluate the opinion of the current teachers and trainees in plastic surgery.

Skill level in plastic surgery is a matter of subjective assessment. The key skills of any specialist physician does not consist of medical or surgical skills only but also consists of roles of communicator, collaborator, manager, health advocate, scholar and professional.^[4] In the present study, 72.4% teachers believed that the current system is producing plastic surgeons with enough skill level, only 9.1% of the respondents in Group II thought the same (Chi-square = 28.1; df = 2; $P < 0.001$). While 58.6% Group I respondents thought that their student is sufficiently equipped to compete in today's scenario, only 18.2% trainees and recent pass outs thought that their training is enough (Chi-square = 16.4; df = 2; $P < 0.001$). This means that there is significant difference in the perception of teachers and trainees in terms of skill level attained at the end of training program.

Most academic plastic surgeons are required to fulfil three discreet roles, that of a clinical expert, teacher-educator and researcher.^[1] However, in the present study only 28% respondents in Group I and 3% in Group II thought that scientific research and publications should be made mandatory for successful completion of plastic surgery training (Chi-square = 9.4; df = 2; $P = 0.009$). Another 32% of the teachers believed that while research publications are desirable during the residency it should

not be mandatory. We then asked both the groups whether their department was sufficiently involved in research activities? 69% respondents in Group I and 81.8% respondents in Group II thought that their department was not sufficiently involved in research and scientific publications (Chi-square = 2.07; df = 2; $P = 0.37$). Ironically while there were major points of disagreement between the two groups, both groups agreed that the department was not sufficiently involved in research activities.

On questioning regarding the upgradation of the department, 41.4% teachers and 15.2% residents thought that the upgradation was sufficient (Chi-square = 6.4; df = 2; $P = 0.04$). Apathy of the administrators and procedural hassles were cited as the main reasons for not upgrading the department sufficiently. Interestingly when residents from the same institutes where the teachers thought the upgradation was sufficient were questioned, only about one-third of the trainees seem to agree with their teachers. This clearly indicates that the perception of technological advancement is also different between the two groups.

Needs assessments are the first steps towards identification of educational needs.^[5,6] It has been argued that an ideal residency training programme in plastic surgery would reflect and address the different needs of plastic surgeons. The career aspirations of future plastic surgeons should be addressed by the training programme.^[1] On inquiring about the exposure in various subspecialties, both groups agreed that exposure is lacking in craniofacial surgery, aesthetic surgery and microvascular surgery. However, when the residents and fresh pass-outs were enquired about the subspeciality they would like to focus on in their practice aesthetic surgery (38.7%) and microvascular surgery (32.6%) were the most frequent responses. This indicates that the current system is probably providing the least exposure in the subspecialities which are most sought after.

Both groups were asked to suggest changes to solve the problems faced by the speciality. Inter-departmental exchange of students was advocated by 86% Group I and 94% Group II respondents. There were even random suggestions of a year of rotatory posting across the nation. This co-operation between the various teaching departments in the country could help ensure wide spectrum exposure and solve the problem of exposure

in various sub-specialities. Not all departments provide equal exposure in all the sub-specialities and hence such an exchange could lead to increased skill level.

Previous studies have evaluated whether training should occur only in tertiary care academic centres or should academic training also take place in community centres. It has been suggested that a mix of both could prove worthwhile and help in future career planning.^[7] In the present study, involvement of private practitioners in teaching and training of future plastic surgeons was an important suggestion by both groups. The same suggestion has been raised in our forum earlier.^[8] This would allow exposure in aesthetic surgery, which is not adequately offered by teaching institutes and would allow private practitioners to be a part of teaching programme.

The teachers have suggested that there should be a structured selection process wherein the candidate should objectively prove plastic surgical acumen before joining the training program. The resident selection protocol has been evaluated by previous studies in various countries. It has been suggested that given the exponential increase in the breadth of the field, it has become increasingly important to find the most effective and efficient method to select and train the appropriate candidate.^[9] It has to be accepted that the teachers and the plastic surgery community have little say in the selection of candidate. Undoubtedly, being able to judge the suitability of a candidate for plastic surgery would lead to increase in overall quality of the trainees and hence would contribute to the growth of the speciality. The teachers also suggested that there should be more avenues of clinical meets and academic exchanges and the number of years of broad speciality training could be reduced to increase the training period in plastic surgery.

The trainees and fresh pass outs have suggested that the training should be divided into 2 years of broad and 1 year of focused training onto the area of interest and focus. They have suggested that the infrastructure should be revamped. Furthermore, there is a definite issue of quality control of teachers themselves. It needs to be constantly monitored that the faculty at the academic institutes should constantly upgrade themselves. Aesthetic surgery is an area of concern for the trainees and rightfully so. Aesthetic surgery cases are limited in academic institutes. Apart from the limited number of

cases, trauma and reconstructive cases obviously take priority when it comes to admission and operating list planning. The fact that aesthetic surgery training in teaching institutes is limited by these factors has been identified in previous studies across the globe.^[10] New challenges face plastic surgeons in the cosmetic surgery arena and there has been increasing encroachment from people of various other specialities.^[11] This problem has been identified and discussed at various forums nationally. It is probably the need of the hour that problems relating to training in aesthetic surgery be identified and the plastic surgery community and the academic institutes should ensure adequate training and expertise in this field.

The present study has some limitations. The questionnaire was sent to institutes running MCh courses only. There are a limited number of subjects with inadequate response rate. The study might also reflect opinion of a limited number of people at one particular point of time. Yet the implications of the results are alarming. There is a wide difference in perception of the adequacy of the current training programme as perceived by those imparting the training and those receiving it. The current education structure has been in place since past many years and it has developed gradually over a period of time. However, the growth of the speciality has been rampant over past few years. The changing socio-economic factors in the country have changed the dynamics of the field. It is our primary responsibility that we collectively keep pace with the changing world order and ensure that our speciality achieves its rightful place. We recommend that constant deliberations at national and regional forums should take place. Our training programme needs to be inclusive of all needs of such a wide speciality. Individual aspirations and needs should be taken into account and possibilities of ensuring sub- specialisations within plastic surgery should be evaluated. The branch faces many tough challenges but it is equally true that there are immense possibilities.

CONCLUSION

The current training programme is differently perceived by teachers and the trainees. The education structure in plastic surgery might require certain basic changes. We recommend that constant deliberations at national and regional forums should take place regarding our education and training programs.

APPENDIXES

Appendix 1: Training program in plastic surgery

Name (optional):

Name of Institution:

Years in full time

Present designation:

- Do you think that the present teaching/training scenario is serving its objective purpose of producing skilled plastic surgeons for future?
- Do you think your student is sufficiently equipped after his tenure to compete in today's scenario?
- Should scientific research/publications be mandatory for successful completion of MCh/DNB courses?
- Is your department sufficiently involved in scientific research/publications?
- Has your department sufficiently upgraded itself to meet the demands of present scenario?
- If No, what do you think is the likely reason?
- Does your department provide sufficient exposure in:
 - General plastic surgery
 - Cleft surgery
 - Acute burns
 - Congenital deformities
 - Maxillofacial surgery
 - Craniofacial surgery
 - Microvascular surgery
 - Aesthetic surgery
 - Hand surgery
- Should there be inter-departmental exchange of students to ensure that the student completes his training spectrum?
- Should the student compulsorily work on a teaching post for a stipulated period of time after their course completion?
- If yes what should be the time period?
- Do you think the teaching curriculum should include training in Medical Ethics and professional conduct?
- Is our teaching curriculum and conduct compliant with the Hippocratic oath?
- Suggest two changes in system for improvement of plastic surgery training?

Appendix 2: Training program in plastic surgery

Name (optional):

Name of Institution:

Present designation:

- Do you think that the present teaching/training scenario is serving its objective purpose of producing skilled plastic surgeons for future?
- Are you satisfied with the training received/being received by you?
- Should scientific research/publications be mandatory for successful completion of MCh/DNB courses?
- Is your department sufficiently involved in scientific research/publications?
- Has your department sufficiently upgraded itself to meet the demands of present scenario?
- If No, what do you think is the likely reason?
- Does your department provide sufficient exposure in:
 - General plastic surgery
 - Cleft surgery
 - Acute burns
 - Congenital deformities
 - Maxillofacial surgery
 - Craniofacial surgery
 - Microvascular surgery
 - Aesthetic surgery
 - Hand surgery
- Should there be inter-departmental exchange of students to ensure that the student completes his training spectrum?
- Should the student compulsorily work on a teaching post for a stipulated period of time after their course completion?
- If yes what should be the time period?
- Do you think the teaching curriculum should include training in Medical Ethics and professional conduct?
- Is our teaching curriculum and conduct compliant with the Hippocratic oath?
- Suggest two changes in system for improvement of plastic surgery training?

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How to cite this article: Khare N, Puri V. Education in plastic surgery: Are we headed in the right direction?. *Indian J Plast Surg* 2014;47:109-15.

Source of Support: Nil, **Conflict of Interest:** None declared.

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