Student’s perception of utility and application of skills taught during the foundation course at a medical college in central Uttar Pradesh, India

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ABSTRACT

Context: “Foundation course” is an orientation program for MBBS students at time of entry into medical college. Aims: To study the MBBS student’s perception of relevance and level of confidence in application of skills acquired in foundation course and its predictors. Settings and Design: A cross sectional study was done among second year MBBS students at a medical college in central Uttar Pradesh, India. Methods and Material: Data was collected online using a Google form over 1 month. About 97 (out of 200) students participated in the study. Final analysis was done for 94 responses. Statistical Analysis Used: Chi Square test for proportions. Results: Overall 83% students found foundation course to be relevant. Sessions on professional development & ethics (94.6%), biomedical waste management (94.6%), social responsibility of doctors (91.5%), communication skill (93.6%), role and responsibilities of Indian Medical Graduate (93.6%), universal precautions (91.5%), immunisation (91.5%) and assessing E-resource (90.4%) were rated as most relevant. Computer skills and sports/extra-curricular activities were perceived as non-relevant by 29% and 16% students respectively. Overall 61% students were confident about application of knowledge/skills acquired in the foundation course. A significant difference was observed for gender and medium of education with regards to level of confidence in application of certain skills/knowledge. Conclusions: Foundation course was perceived as relevant by most students. However, level of confidence with regards to application of skills/knowledge was found to be variable with significant difference for some variables.

Keywords: Perception, MBBS, foundation course, relevance

Introduction

National Medical Commission (NMC) Act 2019 mandates development of a dynamic competency based medical education curriculum that would facilitate making a physician, who can deliver quality healthcare in primary health care settings. Orientation to family medicine has been introduced for the first time for MBBS students as part of the Foundation course. Foundation course seeks to orient, sensitize and acclimatize MBBS students to the new professional environment. It emphasises on soft skills, local language and orientation to health care delivery system.[3] WONCA (World Organization of Family Doctors), expects six domains of core competencies in all trained and qualified family doctors across the globe, working in primary care settings i.e., values, communication skills, assessment, management, collaboration and referral and reflective practice.[3] Module 1E of the foundation course focuses on understanding of the concept of family practice and holistic care. It seeks to orient medical students to the ten principles of family practice i.e., caring, clinical competence, cost-effectiveness, continuity of care, comprehensive care, common problems management expertise, co-ordination of care, community based care and research, counselling and communication skills and Continuing Medical Education. It stresses on importance for the
student to understand, role of the family practitioner in the health system and their role at various levels of health care via a case vignette or visit to a family care physician.

Previous studies on foundation course have reported students and faculty perspective on relevance of foundation course. However, extent of application of acquired skills over due course of time has not been studied. Students feedback is vital to help understand utility, acceptance, application and for further refinement of foundation course. The present study seeks to know the perceived utility and level of confidence of MBBS students in application of knowledge/skills acquired in foundation course on completion of 1 year in medical college.

**Subjects and Methods**

The present study was a cross sectional study carried out among 2nd year MBBS students (2019 Batch) at a premier medical college in central Uttar Pradesh. The study was approved by the institutional ethics committee. Students were invited to participate in study using a structured questionnaire (comprising open and closed ended questions) designed on Google form on the perceived utility and level of confidence in application of skills taught in the foundation course held in the month of August 2019. Consent was sought and filling the survey form was taken as consent for participation. Students had the option to skip the survey after reading the consent form and study summary with objectives if they did not wish to participate in the study. Data was analysed using MS Excel & Epi Info ‑7. Data was collected over a period of 1 month (in December 2020). Perception with regards to application of different acquired skills was assessed on a 5 point Likert scale as follows, 1‑Not at all confident, 2‑Cannot comment, 3‑Confident to some extent, 4‑Confident to a great extent, 5‑very confident. Perception with regards to utility of different skills taught in foundation course was assessed on a 3 point scale as follows, Not Relevant ‑1, Cannot comment  ‑2, Relevant ‑3. Data was summarised into tables and figures. Chi square test was applied.

**Results**

Out of the batch of 200 students 97 students participated in the study, 3 forms were incomplete, hence a total of 94 responses were analysed. Among the study participants, 67 (71%) were male students. Majority of respondents 65 (69%) were from urban areas. Hindi was the mother tongue for 88 (93%) respondents. Majority of students, 81 (86%) had English as their medium of education. About 67 (71%) student’s belonged to nuclear family.

Figure 1 shows the overall relevance of foundation course as perceived by MBBS students. Overall 83% students felt the foundation course to be relevant, with 32% responding to it as very relevant. About 5% students didn’t find it to be relevant.

Figure 2 shows that overall about one third of the students i.e., 34% were confident to a great extent and another 27% were “Very confident” with regard to application of knowledge and skills acquired in foundation course. About 10% students were not confident, whereas about 28% were confident only to some extent, thus requiring further handholding and support.

Table 1 Summarises the response of students with regards to relevance of different modules and skills taught during the foundation course. Sessions on professional development & ethics (94.6%), biomedical waste management (94.6%), social responsibility of doctors i.e., understanding expectation of society/patients (91.5%), communication skill (93.6%), role and responsibilities of IMG (93.6%), universal precautions (91.5%) and assessing journals, E–resource were highly rated as most relevant (90%) by majority of students.

The session on computer skills and sports/extra-curricular activities had a high proportion of students responding as non-relevant i.e., 29% and 16% respectively compared to other sessions. Only 40% & 66% of students rated session on computer skills and sports/extra-curricular activities as relevant respectively.

About one fifth of the students chose the option “cannot comment” for sessions on career pathways & opportunities for personal growth (21.3%), self-directed learning, learning pedagoge and collaborative learning (24.5%) and anti-ragging measures (19%) thus pointing towards the need for further clarification and review of these sessions.

Enhancement of language, research opportunities for UG students, history of medicine and alternate system of medicine, interpersonal relationship, leadership, time and stress
management although rated as relevant by majority of students, still had a higher proportion of students opting for “Cannot comment” compared to other sessions.

Table 2 summarises the level of confidence in application of skills acquired in foundation course at end of 1st MBBS. Students reported the highest level of confidence (i.e. to a great extent and

| Table 1: Perceived Relevance of Topics Covered in Foundation Course by Students (n=94) |
|-----------------------------------------------|------------------|------------------|------------------|
| Skills/Topic                                  | Not Relevant     | Cannot Comment   | Relevant         |
| Orientation with Institution/Course Work      | 7 (7.4%)         | 5 (5.3%)         | 82 (87%)         |
| Community orientation                         | 4 (4.3%)         | 7 (7.4%)         | 81 (86%)         |
| Professional development & ethics             | 2 (2%)           | 3 (3.2%)         | 89 (94.6%)       |
| Enhancement of language                       | 7 (7.4%)         | 14 (15%)         | 73 (77.6%)       |
| Computer skills                               | 27 (29%)         | 28 (30%)         | 38 (40%)         |
| Sports & extra-curricular activities          | 15 (16%)         | 17 (18%)         | 62 (66%)         |
| Stress management (n=92)                      | 6 (6.4%)         | 13 (14%)         | 75 (80%)         |
| Time management                               | 7 (7.4%)         | 12 (13%)         | 75 (80%)         |
| Interpersonal relationship                    | 3 (3%)           | 14 (15%)         | 77 (82%)         |
| Learning (SDL, pedagogue and collaborative)   | 5 (5.3%)         | 23 (24.5%)       | 66 (70%)         |
| Leadership- Leading peers/seniors/juniors     | 3 (3.2%)         | 14 (15%)         | 77 (82%)         |
| Social Responsibility                         | 3 (3.2%)         | 5 (5.3%)         | 86 (91.5%)       |
| First Aid (Scalpel/chemical/Needle stick injuries) | 5 (5.3%)   | 10 (10.6%)       | 79 (84%)         |
| Basic Life Support                            | 3 (3%)           | 9 (9.6%)         | 82 (87%)         |
| Universal Precautions- Hand washing, PPE      | 0 (0%)           | 8 (8.5%)         | 86 (91.5%)       |
| Biomedical Waste Management                   | 1 (1%)           | 4 (4.3%)         | 89 (94.6%)       |
| Documentation in improved patient outcome     | 5 (5.3%)         | 8 (8.5%)         | 81 (86%)         |
| Communication Skill                           | 1 (1%)           | 5 (5.3%)         | 88 (93.6%)       |
| Role and responsibilities of IMG              | 1 (1%)           | 5 (5.3%)         | 88 (93.6%)       |
| Career Pathways & Opportunities for personal growth | 7 (7.4%) | 20 (21.3%)      | 67 (71.3%)       |
| Assessing Library, Journals, E-Resource       | 1 (1%)           | 8 (8.5%)         | 85 (90.4%)       |
| Research opportunities for UG students, Importance of publication/Research module | 5 (5.3%) | 14 (15%)     | 75 (80%)         |
| Motivation & Mentoring                        | 2 (2%)           | 13 (14%)         | 79 (84%)         |
| Anti Ragging Measures                         | 8 (8.5%)         | 18 (19%)         | 68 (72%)         |

| Table 2: Level of Confidence in Application/Understanding of Skills Acquired in Foundation course at end of 1st MBBS (n=94) |
|-----------------------------------------------|------------------|------------------|------------------|
| Skills                                        | Not at all confident | Cannot comment | Confident to some extent | Confident to a great extent | Very confident |
| Orientation with institution/Course Work      | 2 (2%)           | 8 (8.5%)         | 28 (30%)         | 31 (33%)         | 25 (26.5%)     |
| Community orientation                         | 1 (1%)           | 9 (9.5%)         | 30 (32%)         | 31 (33%)         | 23 (24.5%)     |
| Professional development & ethics             | 1 (1%)           | 4 (4.3%)         | 24 (25.5%)       | 36 (38%)         | 29 (31%)       |
| Enhancement of language                       | 5 (5%)           | 2 (2%)           | 33 (35%)         | 33 (35%)         | 21 (22%)       |
| Computer skills                               | 13 (14%)         | 14 (15%)         | 29 (31%)         | 20 (21%)         | 18 (19%)       |
| Sports/Extra-curricular activities            | 8 (8.5%)         | 14 (15%)         | 26 (27.6%)       | 30 (32%)         | 16 (17%)       |
| Stress management                             | 5 (5%)           | 3 (3%)           | 29 (31%)         | 36 (38%)         | 21 (22%)       |
| Time management                               | 3 (3%)           | 6 (6.4%)         | 31 (33%)         | 31 (33%)         | 23 (24.5%)     |
| Interpersonal relationship                    | 4 (4.3%)         | 6 (6.4%)         | 25 (26.6%)       | 35 (37%)         | 24 (25.5%)     |
| Learning (SDL)                                | 7 (7.4%)         | 5 (5.3%)         | 29 (31%)         | 31 (33%)         | 22 (23.4%)     |
| Leadership                                    | 4 (4.3%)         | 2 (2%)           | 32 (34%)         | 29 (31%)         | 27 (29%)       |
| Social Responsibility                         | 1 (1%)           | 1 (1%)           | 25 (26.6%)       | 36 (38%)         | 31 (33%)       |
| First Aid                                     | 7 (7.4%)         | 3 (3%)           | 31 (33%)         | 33 (35%)         | 20 (21%)       |
| Basic Life Support                            | 4 (4.3%)         | 5 (5.3%)         | 33 (35%)         | 30 (32%)         | 22 (23.4%)     |
| Universal Precautions/Biosafety measures      | 6 (6.4%)         | 7 (7.4%)         | 26 (27.6%)       | 32 (34%)         | 23 (24.5%)     |
| Biomedical Waste Management                   | 3 (3%)           | 5 (5.3%)         | 27 (29%)         | 36 (38%)         | 23 (24.5%)     |
| Documentation for improved patient/personal outcome | 2 (2%)   | 6 (6.4%)         | 29 (31%)         | 33 (35%)         | 24 (25.5%)     |
| Communication Skills                          | 2 (2%)           | 5 (5.3%)         | 22 (23.4%)       | 36 (38%)         | 29 (31%)       |
| Assessing online resources/courses/Journals   | 2 (2%)           | 9 (9.5%)         | 24 (25.5%)       | 26 (27.6%)       | 33 (35%)       |
| Research opportunities for UG students, Publications and Research basics | 4 (4.3%) | 11 (12%)     | 22 (23.4%)      | 30 (32%)         | 27 (29%)       |
| Motivating SELF and others                    | 3 (3%)           | 5 (5.3%)         | 21 (22%)         | 35 (37%)         | 30 (32%)       |
| Motivation & Mentoring                        | 2 (2%)           | 4 (3%)           | 25 (26.5%)       | 28 (30%)         | 35 (37%)       |
very confident) with regard to application of skills of motivating self and others (69%), social responsibility (69%), communication skills (68%) and understanding mentorship (67%). Only about 50-55% students reported to be confident enough with regards to application of certain important skills like first aid and basic life support.

Table 3 shows the association between level of confidence in application of knowledge and skills acquired in foundation course and important associated variables. A statistically significant difference was observed between male and female students with regards to skills/knowledge for community orientation, social responsibility (Role of doctors in the community), first aid, basic life support, biomedical waste management, orientation about MBBS curriculum and career pathway, documentation for improved patient/personal outcome, research opportunities, publications and research basics, motivating self and others and understanding mentorship. Higher proportions of male students were confident compared to female students. No significant difference was observed for place of residence. A significant difference was observed for medium of education with a higher proportion of students having English as medium of education being confident enough in applying skills of mentorship and community orientation.

In response to the question, any skill you feel can be excluded in foundation course? About 52 (55%) students did not respond, 26 (28%) were of the view that nothing needs to be changed, whereas 10 (11%) students said computer class can be excluded. Most of these students were of the view that the lectures had too much of basics and there was not much for those who were fairly acquainted with computers.

In response to the question, any skill you feel need to be covered in foundation course? About 40 students did not respond, 16 were of opinion that most things were covered. 10 students emphasised on sports and another 3 on extracurricular activities, whereas 3 wanted more time on addressing stress and mental health issues, specially managing away from home. Some students emphasised on interactive communication skills, personality development, and self-defence. Some students were not very clear on career opportunities and asked for more on future of medical course. One suggestion was on use of technology in medical sciences.

Regarding any unpleasant experience, most cited response was long duration of the course and continuous lectures. Some felt the lectures to be monotonous and not having any activity, mostly theoretical.

Discussion

One month long foundation course is now an integral part of MBBS curriculum since 1999. A review on Family Medicine

| Table 3: Possible Predictors for Confidence in Application of Skills Acquired in Foundation course at end of 1st MBBS |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| **Predictors**  | **Gender**      | **Place of Residence** | **Medium of Education** |
|                 | Male (n=67)     | Female (n=27)    | Rural (n=29)     | Urban (n=65)    | English (n=81) | Other (n=13)   |
| Orientation with institution/course work (n=56) | 43 | 13 | 17 | 39 | 0.016, 1.00 | 48 | 6 | 2.835, 0.418 |
| Community orientation (n=54) | 44 | 10 | 6.455, 0.020 | 19 | 35 | 1.117, 0.368 | 43 | 9 | 7.796, 0.005 |
| Professional development & ethics (n=65) | 50 | 15 | 3.281, 0.087 | 23 | 42 | 2.030, 0.227 | 55 | 8 | 3.745, 0.290 |
| Enhancement of language (n=54) | 42 | 12 | 2.620, 0.114 | 20 | 34 | 2.276, 0.176 | 45 | 7 | 3.595, 0.309 |
| Computer skills (n=38) | 30 | 8 | 1.833, 0.246 | 12 | 26 | 0.016, 1.00 | 31 | 5 | 4.163, 0.244 |
| Sports/Extra-curricular activities (n=45) | 35 | 10 | 1.782, 0.254 | 13 | 32 | 0.156, 0.824 | 37 | 6 | 3.842, 0.279 |
| Stress management (n=88) | 63 | 25 | 0.067, 1.00 | 25 | 63 | 3.854, 0.071 | 75 | 11 | 1.029, 0.794 |
| Time management (n=54) | 41 | 13 | 1.340, 0.260 | 18 | 36 | 0.367, 0.653 | 44 | 8 | 5.236, 0.155 |
| Interpersonal relationship (n=59) | 44 | 15 | 0.843, 0.480 | 19 | 40 | 0.136, 0.819 | 49 | 9 | 6.472, 0.091 |
| Learning (SDL, pedagogue & collaborative) (n=58) | 45 | 13 | 2.945, 0.104 | 19 | 39 | 0.258, 0.653 | 48 | 8 | 4.474, 0.215 |
| Leadership (n=56) | 43 | 13 | 2.054, 0.17 | 19 | 37 | 0.615, 0.499 | 47 | 7 | 3.363, 0.339 |
| Social Responsibility (n=67) | 52 | 15 | 4.573, 0.044 | 24 | 43 | 2.701, 0.139 | 56 | 9 | 1.762, 0.023 |
| First Aid (n=52) | 42 | 10 | 5.122, 0.038 | 18 | 34 | 0.773, 0.501 | 44 | 6 | 2.975, 0.396 |
| Basic Life Support (n=50) | 41 | 9 | 6.000, 0.022 | 15 | 35 | 0.036, 1.000 | 41 | 7 | 4.247, 0.236 |
| Universal Precautions (n=55) | 43 | 12 | 3.087, 0.106 | 18 | 37 | 0.219, 0.659 | 46 | 7 | 3.471, 0.325 |
| Biomedical Waste Management (n=59) | 47 | 12 | 5.441, 0.033 | 22 | 37 | 3.078, 0.107 | 48 | 9 | 3.477, 0.324 |
| Documentation for improved patient/personal outcome (n=57) | 47 | 10 | 8.840, 0.005 | 20 | 37 | 1.218, 0.361 | 47 | 8 | 4.641, 0.200 |
| Communication Skills (n=64) | 49 | 15 | 2.737, 0.142 | 19 | 45 | 0.127, 0.449 | 54 | 8 | 3.799, 0.284 |
| Assessing online resources/course/Journals (n=59) | 49 | 10 | 10.733, 0.002 | 21 | 38 | 1.67, 0.251 | 49 | 8 | 4.322, 0.229 |
| Research opportunities for UG students, Publications and Research basics (n=56) | 46 | 10 | 7.989, 0.002 | 17 | 39 | 0.016, 1.000 | 48 | 6 | 2.835, 0.418 |
| Motivating SELF and others (n=65) | 52 | 13 | 7.831, 0.007 | 21 | 44 | 0.210, 0.810 | 54 | 9 | 5.406, 0.144 |
| Understanding Mentorship (n=63) | 52 | 11 | 11.84, 0.01 | 21 | 42 | 0.552, 0.488 | 51 | 10 | 8.541, 0.036 |

*2 participants had missing data for medium of education
in Undergraduate Medical Education in India, concluded that sensitization of students to clinical care in primary care settings during their early years, and reinforcement during internship is the ideal way of orienting students to practice of family medicine. Foundation course offers a wonderful opportunity in this regard and has a scope of continuous improvement based on student feedback.

In the present study, overall 83% students reported the foundation course as relevant. A previous study at a medical college in Chennai also reported positive feedback in the range of 88.5 to 98.5% with regards to objectives of the course, contents, presentation, future value of the course in the student’s career. Similar results were also reported by a previous study from Gujarat where 88.4% students gave an overall positive response for foundation course. Another study from Bhuj, Gujarat reported that 75% of students felt that the objectives of the Foundation Course were largely met. In our study, about 61% students were confident with regard to application of knowledge and skills acquired in foundation course. Similar findings were reported by a recent study, with 97.6% of the students admitting to have benefitted and being more confident with loss of fear of the huge course, better orientation of national health policies, ethics, integrity and attitude. A previous study by Khilnani et al. found that 82.4% students felt that foundation course made them better prepared for the upcoming studies and about 89% students found it helpful in adapting to the new environment. Another study from Ahmedabad, reported that about 51% students strongly agreed that foundation course led to confidence-building before start of the formal learning of medical subjects and 43% students strongly agreed that the transition to medical college was smooth due to foundation course. Reported confidence level in our study is a bit less, but is more accurate representation as it is only in the due course of time, as students face the difficulties they can comment correctly on their level of confidence in handling issues and utility of skills acquired.

In the present study sessions on Professional development & ethics (94.6%), Biomedical Waste Management, Social Responsibility of doctors, Communication Skill, Role and responsibilities of Indian Medical Graduate, Universal Precautions- Hand washing, PPE, and assessing Library, Journals, E –Resource were highly rated as most relevant by majority of students (about 90%). The findings are very similar to a recent study that found sessions on medical ethics (77.96%) and communication skills (75.86%) to have the highest consensus and well received by the students. In our study session on computer skills and sports/extra-curricular activities had a high proportion of students responding as non-relevant i.e., 29% and 16% respectively. The findings are in agreement with a recent study where students and faculty felt that the sessions on games, extracurricular activities, and sports needed improvement. Students emphasised on activity-based sessions to be incorporated wherever possible.

Enhancement of language, research opportunities for UG students, history of medicine and alternate system of medicine, interpersonal relationship, leadership, time and stress management although rated as relevant by majority of students, still had a higher proportion of students opting for “Cannot comment” compared to other sessions. Sobti et al. showed skill module the most relevant and enhancement of language and computer skills got the least favourable response. In our study also session on computer skills had a high proportion of students responding as non-relevant i.e., 29% compared to other sessions. The reason cited was, lectures had too much of basics and there was not much for those who were fairly acquainted with computers. In our study long duration of the course and continuous lectures was cited by most students as unpleasant experience. In a previous study in Ahmedabad, also about 48% students were of the opinion that one month was a long duration for Foundation Course. Long college hours, long duration of the foundation course was recorded as an unpleasant experience at a public medical college in India. Another study from Maharashtra, reported about 25% students suggesting the duration of the foundation course to be reduced to 2 weeks instead of 4 weeks. The foundation course can be shortened by decreasing the hours dedicated to computer skills and extracurricular and sports activities so as to make foundation course more relevant for the students.

In our study about 84%-87% students reported session on first aid and basic life support as most relevant. A previous study had also reported the session on CPR and Basic Life Support (BLS was perceived by students as most important of skills taught in foundation course). In our study only about 50-55% students were confident enough with regards to application of these skills. Thus emphasising on need for regular refresher training.

Personality development, self-defence and use of technology in medical sciences was reported as additional desirable skill to be covered in the foundation course. A significant difference was observed between male and female students with regards to application of skills/knowledge for community orientation, social responsibility, first aid, basic life support, biomedical waste management, orientation about MBBS curriculum and career pathway, documentation, research opportunities, publications and research basics, motivating self and others and understanding mentorship. Higher proportions of male students were confident compared to female students. A previous study in Maharashtra, also found significant gender differences in opinion on adequate peer interaction, utilization of library and Internet facilities, awareness on research, effective use of audio visual aids.
Conclusion

Majority of students reported the foundation course to be relevant and about 61% students were confident enough with regard to application of knowledge and skills acquired. Foundation course at the beginning of MBBS course is thus a welcome step by NMC, India to acclimatize the new MBBS students to the new professional environment. Long duration of course and didactic lectures were cited as unpleasant experience by most students. In our study male students and students with English as medium of education were significantly more confident in applying skills acquired during foundation course. Some of the skills like computers was not perceived as that relevant. Hence, further research in different settings, modifications and innovations are desired to make the foundation course more specific to the needs of the students and helpful.

Limitation of the Study

The study involves students from just one medical college. Also the students who opted not to participate are likely to differ in their perceptions. However, the study does give a decent insight to the perceived relevance and level of confidence in application of skills by students, helping to customise the foundation course as per the needs perceived by students in these settings.

Key messages

Foundation course need to be more interactive with focus on skills. Individual characteristic of students must be taken into consideration while planning. Student's feedback on level of confidence in application of skills taught must be assessed and refresher trainings can be planned to make the foundation course more specific to the needs of the students.

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Conflicts of interest

There are no conflicts of interest.

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