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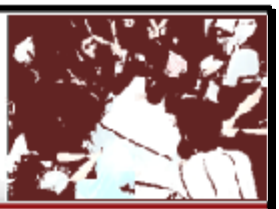

Students' perceived levels of 'human skills' and effectiveness of various modules in skill development

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ABSTRACT

Introduction: Medical students need leadership and other 'human' skills to address many of the health challenges facing society. **Objective**: The present study was conducted to obtain student opinion about the effectiveness of different modules in developing these skills, note students perceived levels of knowledge and skills in these areas and obtain suggestions for further improvement at KIST Medical College, Lalitpur, Nepal. **Method**: The present study was conducted using a questionnaire developed by the authors among the first batch of undergraduate medical students. Basic demographics were noted and participants rated the effectiveness of different learning modalities in developing these skills and also noted their present level of knowledge about the topics. Free text comments were also obtained. **Result**: Fifty-eight of the 75 students (77.3%) participated. Majority were male, self-financing and from urban areas. The mean overall effectiveness scores of different modalities in developing human skills were 190.09 (maximum 300). Correlation seminars and pharmacology small group sessions were regarded as less effective in developing these skills. The mean perceived knowledge score was greater than 3 (maximum 5) in most areas. Mean perceived skills scores in most areas were also greater than 3 except for breaking bad news and tolerance for differing views. Medical humanities sessions and community health exercises were especially appreciated. **Conclusion**: The different sessions were moderately effective in developing these skills. Students' perceived knowledge and skills levels were moderate. Further studies among other batches of students are required.

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Introduction

Nepal is a small developing country in South Asia situated between China and India. Recently a number of medical schools have been opened in the country predominantly in the private sector (1). The private medical schools admit both scholarship and self-financing students. Nepal suffers from a shortage of doctors in rural areas. Recently it has been made mandatory for scholarship students in private medical schools to serve in rural health facilities for a period of two years after graduation. These students are becoming an important source of support to Nepal's health system (2). Training medical students to possess not only clinical skills but

also sufficient leadership skills is necessary to address many of the health challenges facing society according to a study conducted in the United States (US) (3). The article also states that opportunities to combine needed leadership skills with actual service opportunities are not common in the medical curriculum. In the US the advanced leadership skills in community service (ALSCS) elective was developed to provide students with opportunities for leadership training in the community. At the University of Wisconsin Medical School in the US the leadership opportunities with communities, the medically underserved, and special populations (LOCUS) was started to improve leadership knowledge and skills of medical students, improve self-awareness and motivation for community service and provide models for students to integrate community service into their medical careers (4).

Social, behavioural and psychological variables play an important role in health and disease (5). Communication skills, human development, social influences in health care, psychosocial aspects of physical illness, medical ethics and mental illness are addressed while teaching behavioural sciences. A recent review revealed that medical education places little emphasis on leadership and management (6). Students however recognized management and leadership skills as important. In Australia a university in New South Wales conducts weekly workshops focusing on rural and cultural issues in an interprofessional learning context for health professions students (7). The Enhanced Rural Inter-Professional Cultural Health (ENRICH) programme uses professional, cultural and artistic community resources to provide stimulating educational opportunities to students.

At KIST Medical College (KISTMC) a variety of modules and teaching-learning activities are conducted to develop what we have termed as 'human skills' among medical students. Medical humanities, community medicine programs, small group clinical teaching, pharmacology small group sessions are among the important modalities. A medical humanities module, Sparshanam is conducted for all first year students (8). The module uses small group activities, facilitator presentations, role-plays, case scenarios and interpretation of paintings to explore various aspects of the medical humanities. Pharmacology small group sessions teach students to use essential medicines rationally. The ten basic competencies which the module aims to develop among students have been described in a recent article (9).

In Nepal students enter the undergraduate medical (MBBS) course after completing twelve years of schooling with the subjects of English, physics, chemistry and biology during the last two years. The six basic science subjects of anatomy, physiology, biochemistry, pathology, microbiology and pharmacology are taught in an integrated organ system based manner during the first two years along with community medicine. Students spend a month in rural or semi-rural communities towards the end of the first year of the course researching health problems of the community and possible solutions with the active involvement of the community members. Students spend over four hours every week in the hospital learning history taking skills during the first year and physical examination skills during the second. During the third year students undertake a family health exercise in the community surrounding the college. Each student group follows five families over a six month period. From the third year students attend clinics in the mornings every day and small group, bedside teaching is the major method used.

The authors after an extensive review of literature and discussion identified (4, 10-13), ten important skills which they termed as 'human skills'. These include leadership, communication, breaking bad news, empathy, regard for patient autonomy, team management, presentation, persuasion and convincing skills, tolerance for differing views and time management. The study was conducted among the first batch of students who are now in the fourth year of the course with the following objectives:

A. Obtain student opinion regarding the effectiveness of selected modules in developing human skills
B. Note students present level of perceived knowledge and skills in these areas and
C. Understand the strengths of the teaching-learning programme and how students plan to use these skills in their future practice

Method

KISTMC is a private medical school in Nepal affiliated to the Tribhuvan University for the undergraduate medical (MBBS) course. The first batch of 75 students was admitted in November 2008 and these students are at present in the fourth year of their course.

In addition to didactic lectures, practical sessions, and clinical learning the college also conducts correlation seminars during the basic science years at the end of each major organ system, a small group activity-based medical humanities module (Sparshanam) for first year students, a residential community diagnosis program during the first year and a family health exercise during the third year as described in the introduction.

After discussion among the authors and review of literature ten skills termed 'human skills' (4, 10-13) were identified. These were leadership, communication, breaking bad news, empathy, regard for patient autonomy, team management, presentation, persuasion and convincing, tolerance for differing views and time management. Student opinion was studied using a questionnaire during November 2012. The questionnaire used is shown in the Appendix. The personal information collected was gender, method of financing of medical education and place of family residence. Respondents were asked to rate the effectiveness of different educational sessions like correlation seminars, medical humanities module, pharmacology small group practical sessions, community diagnosis exercise, small group clinical sessions and family health exercise in developing the ten human skills. Participants were also asked to rate on a scale of 1 to 5 their present level of knowledge about the topics related to these human skills. They were also asked to rate their present perceived skill level in these areas. Free text comments about the strengths of the teaching-learning program with regard to development of human skills, how they plan to use these skills in their future practice and suggestions to further improve the teaching-learning programme with regard to development of these skills were invited. Common free text responses were tabulated.

Three main scores relating to effectiveness of different learning modalities with regard to skill development, present perceived knowledge and skill level were obtained. The normality of these scores was checked using one sample Kolmogorov Smirnov test. The scores were found to be normally distributed and mean and standard deviation were used as measures of central tendency and variation respectively. The scores were compared among different subgroups of respondents with regard to gender, financing and place of family residence using appropriate parametric tests (Students t-test was used for dichotomous variables and ANOVA for the others). Statistical analysis was carried out using SPSS version 15 for windows. A p value of less than 0.05 was taken as statistically significant.

Result

Demographics: Fifty-eight of the 75 fourth semester students (77.3%) participated in the study. Table 1 shows the demographic characteristics of the respondents. Majority of respondents were male, self-financing and from urban areas.

Table 1: Demographic characteristics of respondents*

Characteristic	Number	Percentage
Gender		
Male	32	55.2
Female	16	27.6
Financing		
Scholarship	7	12.1
Self-financing	46	79.3
Place		
Urban	40	69.0
Rural	11	19.0

* The numbers and percentages may not add up to 58 and 100 respectively as certain respondents did not complete all the required demographic information

Effectiveness of different learning modalities in developing human skills: The mean ± SD effectiveness of correlation seminars in developing different human skills was 28.52 ± 5.64 (maximum possible score being 50). The mean ± SD effectiveness scores for teaching-learning modalities like medical humanities, pharmacology practical sessions, community diagnosis, small group clinical sessions and family health exercises in developing human skills were 31.43± 6.21, 29.52 ± 5.81, 34.34 ± 5.67, 32.17 ± 13.62, and 34.10 ± 6.66 respectively (maximum score 50).

Mean perceived knowledge scores and skill levels: The mean ± SD knowledge score with regard to leadership was 3.27 ± 0.69. The mean knowledge scores with regard to communication, breaking bad news, empathy, regard for patient autonomy, team management, presentation, persuasion and convincing, tolerance for differing views and time management were 3.52, 2.68, 3.19, 3.17, 3.38, 3.52, 3.24, 3.09 and 3.40 respectively. The mean ± SD perceived skills level with respect to leadership, communication, breaking bad news, empathy, regard for patient autonomy, team management, presentation, persuasion and convincing, tolerance for differing views and time management were 3.12 ± 0.73, 3.55 ± 0.73, 2.77 ± 0.86, 3.21 ± 0.85, 3.12 ± 0.88, 3.34 ± 0.95, 3.40 ± 0.88, 3.19 ± 0.87, 2.96 ± 0.90, and 3.45 ± 0.84 respectively.

Table 2: Mean effectiveness scores of different learning modalities with regard to specific human skills

Skill	Correlation seminars	Medical humanities	Pharmacology practical sessions	Community Diagnosis	Small group clinical sessions	Family health exercise
Leadership	3.26	2.86	3.34	3.86	3.09	3.62
Communication	3.22	3.36	3.36	4	3.43	3.74
Breaking bad news	1.95	3.24	2.21	2.38	2.59	2.5
Empathy	1.91	3.59	2.4	3.22	2.77	3.57
Regard for Patient autonomy	2.12	3.02	2.4	3.26	2.83	3.48
Team management	3.45	3.31	3.45	4.09	3.09	3.83
Presentation	3.72	3.26	3.69	3.81	3.15	3.6
Persuasion & convincing skills	2.59	2.95	2.84	3.62	3.6	3.57
Tolerance for differing views	2.63	2.86	2.6	3.05	2.79	3.03
Time management	3.46	2.98	3.22	3.05	2.83	3.15

Table 3: Mean perceived effectiveness scores of particular teaching-learning modalities in developing human skills which were significantly different across subgroups

Parameter	Subgroup		Mean score	P value
Effectiveness score correlation seminar	Gender	Male	29.75	0.043
		Female	26.19	
Effectiveness score correlation seminar	Financing	Scholarship	32.57	0.043
		Self-financing	27.98	
Effectiveness score pharmacology practical	Financing	Scholarship	33.14	0.048
		Self-financing	28.59	

Table 2 shows the effectiveness scores of different learning modalities with regard to development of specific human skills as perceived by the students. Correlation seminars were effective in developing leadership, team management, presentation and time management skills but were less effective with regard to other skills.

Table 3 shows effectiveness scores which were significantly different according to subgroups of respondents. In the present study male students were of the opinion that correlation seminars were more effective in developing human skills compared to females. *Strengths of the program:* Among the commonly mentioned ones were training in communication skills (24 respondents), the program creates a good base for development of leadership skills (11 respondents) and improves presentation skills (10 respondents). Medical humanities sessions, family health exercise and community health diagnosis sessions were specially appreciated. Desire to teach among faculty members, interactive learning sessions and good student teacher relationship was also mentioned. Respondents planned to use these skills to develop their future practice and reputation as a doctor (6 respondents), go to the community and provide better care to patients (4 respondents), and manage time better and maintain a proper balance between personal and professional life (4 respondents).

Suggestions for improvement: Among suggestions to further improve the program with respect to developing human skills were more clinical learning sessions in small groups (7 respondents), more interactive sessions (7 respondents), continue correlation seminars during the clinical years also (7 respondents), regular interaction program with students (5 respondents) and continuation of medical humanities sessions during the clinical years (5 respondents).

Discussion

The different teaching-learning modalities studied in the manuscript were moderately effective in developing human skills. Medical humanities sessions, small group clinical sessions, family health exercises and community diagnosis were regarded as especially effective. The knowledge scores in most subject areas studied were good but the knowledge about breaking bad news was low. The perceived skills levels for breaking bad news and tolerance for opposing views were low.

The response rate was good and more female and scholarship students participated in the study. The first batch had 75 students with 67 of them being self-financing and eight being scholarship students. The scholarship students are selected through an entrance examination conducted by the Ministry of Education while the self-financing students have to obtain 50% of marks in an entrance examination conducted by Tribhuvan University to which the college is affiliated. The perceived impact of correlation seminars in developing human skills was lower compared to other modalities. These seminars are only conducted during the first two years (basic sciences) of the course at the conclusion of each organ system. We were of the opinion that these seminars might have been especially useful in developing leadership, team management, presentation and time management skills. This is confirmed by the scores shown in table 2. However the scores for some other skills were low. The correlation seminars may not have had the objective of developing these skills. A recent study had examined factors affecting student learning in seminars (14). The key aspects were identified were the seminar teacher, students' preparation, group functioning, seminar goals and content, course coherence and schedule and facilities. At KISTMC, the seminar objectives are finalized by the faculty members of different departments in consultation (15). The topics are chosen considering the public health importance of the selected condition and its ability to bring together learning objectives from a variety of basic science subjects. Two students are selected as coordinators for each seminar. Correlation seminars during the clinical years may increase their perceived effectiveness in human skill development. They can also promote revision of

the basic science subjects and greater knowledge about their use in making clinical decisions.

The medical humanities sessions were regarded as effective in developing human skills. Students perceived the MH sessions as less effective in developing leadership skills and tolerance for differing views which is different from our expectations. In these sessions students work together in small groups using a variety of teaching-learning modalities ranging from role plays, case scenarios, interpretation of literature and art among others. In Korea a 'medicine and literature' course for premedical students was conducted (16). Students valued the advantages of collaborative learning. 'Medical humanities' increases the empathy, communication skills, ethical standing and, paradoxically, the scientific literacy of the next generation of young doctors (17).

A study conducted in three medical schools of Nepal found that the curriculum of the schools stressed community medicine practice (18). Community diagnosis, family health exercise and school health programs were among the various exercises being conducted. An article had examined the community diagnosis program at Kathmandu Medical College and concluded both the students and the community benefited from the exercise (19). Students benefited in terms of integrating clinical skills and developing a community health approach which would be useful in their future practice. The community also benefits by improved knowledge about health-related matters and their role in quality of life. In addition they also get access to high quality healthcare. At our institution students are posted for four weeks in a semirural location around the Kathmandu valley for their community diagnosis posting. During the third year they follow a set of families longitudinally over a six month period and in the fourth year they are posted to rural areas to study the health management systems. Our teaching-learning activities correspond to those described in the two articles cited in this paragraph. The community medicine activities in this study was perceived to be effective in developing a wide range of human skills but was less effective in terms of breaking bad news.

At the Oregon health and science university in the United States, six behavioural and social science (BSS) domains: health policy and economics, patient behaviour, physician-patient interaction, mind-body interactions, physician role and behaviour, and social and cultural issues were taught during the first two years of the medical course (20). At our institution there are certain sessions dealing with behavioural and ethical issues and some of these are addressed during early clinical exposure and the medical humanities module but a formal behavioural science module is lacking. At the University of Manchester in the United Kingdom, a presentation skills training session was conducted at the beginning of each psychiatry block (21). At KISTMC students are provided adequate opportunities to practice presentation skills throughout their course in the form of correlation seminars, PBL sessions, medical humanities module, community medicine presentations, small group clinical presentations and class room presentations during the clinical years. At KISTMC a humanities module has been conducted for the last five years. Scientific literature shows arts and the theatre improved communication skills, team working abilities, empathy and the ability to engage with and relate to people from other backgrounds (22, 23). At KISTMC we plan to further strengthen humanities education in the medical curriculum.

The perceived effectiveness score of correlation seminars was higher among male students and scholarship students. Scholarship students are stronger academically than their self-financing counterparts and they also rated the effectiveness of the pharmacology small group practical sessions higher. Among the suggestions for further improvement, correlation seminars during the clinical years may be worthwhile exploring. A challenge is the amount of integration during the clinical years is lesser and clinicians tend to teach subjects in isolation. The challenge in introducing medical humanities sessions during the clinical years is the less number of motivated and trained faculty facilitators.

The high response rate was the strength of the study. The limitations were the instrument used was developed by the authors and was not standardized. The questionnaire was pre-tested for ease of understanding but standardization and validation were not done. The authors had explained the questionnaire to students but it is possible that certain students may have had difficulty in understanding the terms used in the questionnaire or may have interpreted these terms in a different manner than that intended by the authors. The sample size was low as the study was conducted only among the first batch of 75 students as only they have completed the various learning modules described. In this particular intake the majority of students were male. We plan to repeat a similar study among the second student intake towards the end of 2013. Also student perception can serve only as a baseline survey of human skills and should be supplemented with an assessment survey of the competencies we have studied. This can be considered in future.

Conclusion

The different teaching-learning sessions were moderately effective in developing 'human skills' among students. Students' perceived levels of knowledge and skills in these areas were moderate. Medical humanities sessions, and pharmacology small group sessions which are at present not being offered in other medical schools in Nepal can be considered for inclusion in the curriculum. However studies among other batches of students are required.

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Appendix:
Questionnaire used in the study

Developing 'human skills': The KISTMC experience

Gender: Scholarship/Self-financing Urban/Rural

On a scale of 1 to 5 grade the effectiveness of different educational sessions you have undergone in the institution in developing specific human skills (1 = not effective, 2 = somewhat effective, 3 = effective, 4 = very effective, 5 = extraordinarily effective)

Skill	Correlation seminars	Medical humanities	Pharmacology practical sessions	Community Diagnosis	Small group clinical sessions	Family health exercise
Leadership						
Communication						
Breaking bad news						
Empathy						
Regard for Patient autonomy						
Team management						
Presentation						
Persuasion & convincing skills						
Tolerance for differing views						
Time management						

On a scale of 1 to 5 kindly rate your present knowledge about these topics

Area	Leadership	Communication	Breaking bad news	Empathy	Regard for patient autonomy	Team management	Presentation	Persuasion & convincing skills	Tolerance for opposing views	Time management
Present knowledge										

On a scale of 1 to 5 kindly rate your present perceived skill level in these areas

Area	Leadership	Communication	Breaking bad news	Empathy	Regard for patient autonomy	Team management	Presentation	Persuasion & convincing skills	Tolerance for opposing views	Time management
Perceived skill										

Mention THREE strengths of the teaching-learning program you had undergone in the institution with regard to development of human skills:

Mention how you plan to use these skills in your future practice:

Mention THREE suggestions for further improvement in the teaching-learning program with regard to developing human skills:

Any other comments:

Thank you for completing the questionnaire