Original Article

Experience of Delphi technique in the process of establishing consensus on core competencies

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Abstract

Introduction: The Department of Community Medicine and Family Medicine (CMFM) has been started as a new model for imparting the components of family medicine and delivering health-care services at primary and secondary levels in all six newly established All India Institute of Medical Sciences (AIIMS), but there is no competency-based curriculum for it. The paper aims to share the experience of Delphi method in the process of developing consensus on core competencies of the new model of CMFM in AIIMS for undergraduate medical students in India. **Methods:** The study adopted different approaches and methods, but Delphi was the most critical method used in this research. In Delphi, the experts were contacted by e-mail and their feedback on the same was analyzed. **Results:** Two rounds of Delphi were conducted in which 150 participants were contacted in Delphi-I but only 46 responded. In Delphi-II, 26 participants responded whose responses were finally considered for analysis. Three of the core competencies namely clinician, primary-care physician, and professionalism were agreed by all the participants, and the least agreement was observed in the competencies of epidemiologist and medical teacher. The experts having more experience were less consistent as responses were changed from agree to disagree in more than 15% of participants and 6% changed from disagree to agree. **Conclusion:** Within the given constraints, the final list of competencies and skills for the discipline of CMFM compiled after the Delphi process will provide a useful insight into the development of competency-based curriculum of the subject.

Key words: Community Medicine and Family Medicine, competencies, Delphi

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Introduction

Family medicine in India is a relatively new area of specialization which was evolved in the 1960s in the Western world as felt need in personal health care.[1] The subject has not got its formal status as an individual entity in Bachelor of Medicine and Bachelor of Surgery (MBBS) course though the subject matter is covered in other subjects such as preventive and social medicine (community medicine), general medicine, surgery, obstetrics and gynecology, and pediatrics. The Government of India is committed to producing competent physicians of the first contact by establishing six All India Institute of Medical Sciences (AIIMS) with a new model of having Community Medicine and Family Medicine (CMFM) Department.[2] The Department of CMFM has been started as a new model for imparting the components of family medicine and delivering health-care services at primary and secondary levels in all six newly established AIIMS, but there is no competency-based curriculum for training of undergraduate medical students. Teaching CMFM concepts to all medical undergraduates is an imperative need as majority of doctors function as the first contact

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physicians. For acquiring such skills at undergraduate level, the existing curriculum needs to be revisited with the intention of enhancing the teaching competencies of CMFM even before establishing the system of family medicine in the society.[3] Teaching CMFM demands competencies expected by the society that extends beyond mere facts and theories. The World Health Organization in 2008 highlighted the importance of the family medicine and primary care in its report.[4] However, there are no set guidelines for the curriculum of CMFM in India for undergraduates. In this road to developing the subject and reaching consensus on the competencies and clinical skills required by undergraduate students in the discipline of CMFM, this research project was undertaken.

In the past, Delphi technique has been used in various disciplines for obtaining consensus in the development of competencies, skills, and portfolio. Considering the limitations of resources, this method is a boon for a researcher of medical education to develop or refine the competencies and skills required in a discipline according to the changing needs of the time. In this study, the Delphi technique was adopted to develop a consensus list with inputs from experts of different specialities. This is an initiation of agreement over the competencies, but it needs further refinement as the subject is evolving.

Aims and objectives

The paper aims to share the experience of Delphi method in the process of developing consensus on core competencies of the new model of CMFM in AIIMS for undergraduate medical students.

Methods

As Delphi is considered to be an ideal method to reach consensus, it was chosen as the study tool. This is an iterative questionnaire exercise to a group of anonymous panelists with controlled feedback.[5] This is an alternative consensus tool to the traditional method of group meetings and has the advantage of eliminating the influence of personalities of higher rank or status. Its use in education is commendable and has been in use for the last five decades.[6]

The study was carried out in the Department of CMFM, AIIMS, Jodhpur, from July 2013 to June 2014 and has undergone various phases. In the first phase, preliminary list of competencies and skills was prepared through literature review[7-9] and views from experts of community medicine from all six new AIIMS at a meeting on curriculum development of CMFM at AIIMS, Bhubaneswar. In the second phase, the questionnaire was pilot tested among volunteers whose wisdom in subject is unquestionable. The third phase was the heart of the study comprising two Delphi rounds and was decided well in advance to limit the Delphi rounds in this investigation to avoid the dropouts that could be well expected if more rounds were conducted which marks the real sense of consensus. The participants were contacted through e-mail and their informed consent was taken. The participants were asked to rate their answers on Likert scale. Data collection was carried out through two Delphi rounds. In each round, after pre decided time, repeated reminders were sent through email. The questionnaire was restructured after Delphi-I in order to inculcate the suggestions and feedback from the participants. The Delphi II questionnaire was sent to the Delhi I participants, analysis was done on the responses of participants who responded timely in both the rounds. The results of the study were discussed in different forums and has been approved by the experts for preparation of competency based curriculum of CMFM subject.[10]

Results

The study adopted different approaches and methods, but Delphi was the most critical method used in this research. Two rounds of Delphi were conducted wherein Delphi-I, 46 participants responded and in Delphi-II, the responses of 26 participants were considered. Two-third (17) of the total participants were academicians and the rest were consultants from diverse medical fields. Among all the core competencies listed in the questionnaire, for none of them disagreement was shown by more than 50% of the participants. Three of the core competencies namely clinician, primary-care physician, and professional were agreed by all the participants, and the least agreement was observed in the competencies of epidemiologist and medical teacher. The experts having more experience were less consistent as responses were changed from agree to disagree in more than 15% of participants and 6% changed from disagree to agree [Figure 1]. The difference of consistencies in determining competencies between the more and less experienced was statistically significant (P=0.028) [Table 1]. The responses opted for different skills by participants were 82.3% for "must know," 15.4% for "should know," and 2.3% for "nice to know." The range for agreement for the skills in the category as must know, should know, and nice to know was 34–100%, 34.6–57.7%, and 34.6–53.8%, respectively.

Discussion

This was the first attempt to develop a consensus on competencies and skills of CMFM, and the results of Delphi technique used are discussed in this paper. The importance of the competencies and skills cannot be undermined and has to be laid down for proper training and teaching of the subject.

The interest in development of core curriculum has increased over the past two decades, and the competency-based curriculum is in vogue now as well as need of the hour in every discipline.[11] This can be attributed to the current health needs and demands and changes in the health problems in population. The transition to more competency-based approaches is taking place due to the trend toward standardization of education of health professionals at national and global levels. The characteristic of the competency-based approach makes it different from other approaches as it focuses more on outcomes as opposed to inputs in case of traditional approaches. However, these outcomes are specifically relevant to employment along with the content which is needed for professional activities.[12]

The Delphi technique has proved itself to be useful in curriculum development, and the drawbacks of traditional qualitative research methods have been voided in this technique, for example, dominance by a few strong members, difficulties in reaching consensus, and tendencies toward overload.[13] However, in our study, complete consensus was not obtained; neither the results were stable nor participants were consistent. Some participants changed their response in the subsequent round of Delphi. It was also observed that participants having experience more than 10 years were more inconsistent and changed their responses in the second round of Delphi. Similar findings have been observed in other studies who used Delphi technique in their methodology.[14] Hence, not to exhaust the panel members, it was decided to have only two rounds of Delphi. The response rate from the participants decreases for each round of the process and more number of reminders were needed. It has also been reported in earlier studies.[13,14] During the study, it was felt that the panel members want a medical graduate to be an ideal family cum community physician so that these graduates can deliver their services with great dexterity and compassion with all the requisite skills once they are out of the medical college. After the final round, it was observed that out of the total competencies enlisted in Figure 2, 100% participants agreed that a medical student learning CMFM must develop the core competencies of a primary care physician, clinician, and professional.

It is important to note that the competencies and skills for the discipline are not a static document and may need to be changed and updated to reflect the changing circumstances and lessons learned as time passes. This should be done in alignment with the internship training in the discipline where the competencies and skills are further sharpened to function independently.[15] We propose that the lists should be reviewed after every three years as should be the case for any guideline so that important components are being added or less useful ones are retracted.

The Delphi method enabled a broadly representative expert panel from across the country to be included and ensured participation of the key stakeholders, but it should be noted that in a country such as India, only a handful of experts could opine their views in this Delphi study.[16] It also became clear that panel members had different understandings of the competencies enlisted and may have influenced their opinion which was reflected in the study. It was also noted that to achieve skills is difficult to document as the large volume of learning at the bedside, community, or in the consultation room often goes unnoticed in the daily work and sometimes

Table 1: Participants' experience and their consistencies in determining the competencies in two Delphi rounds

Experience (years)	Inconsistent (%)	Consistent (%)	*P*
<10 years (*n*=16, skills=15)	12.91	87.09	Chi-square equals 4.828 with df=1, *P*=0.0280
≥10 years (*n*=10, skills=15)	21.3	78.7	

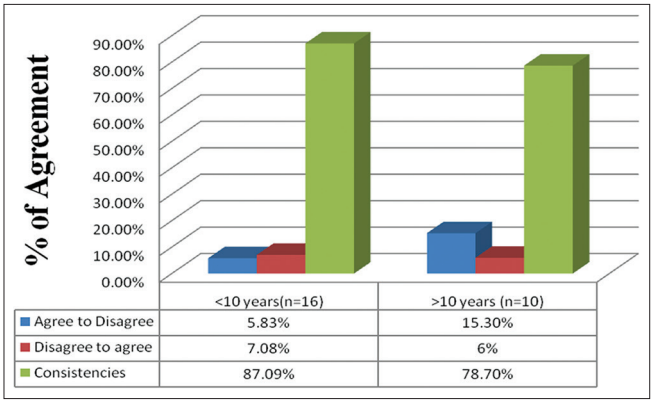

Figure 1: Relationship between participants' experience and their consistencies in determining the competencies in Delphi rounds

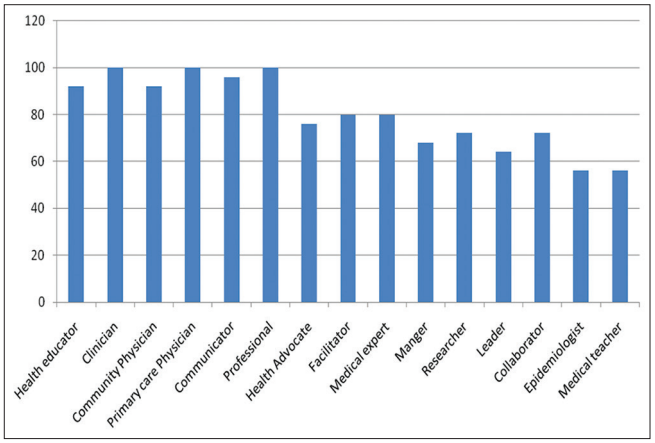

Figure 2: Percentage of agreement on core competencies in the discipline of Community Medicine and Family Medicine

it is an ongoing process.[17] Hence, there remains a challenge to maximize the potential for learning in these moments of uncertainty and to embrace conversations that enhance their knowledge.

Conclusion

Within the given constraints, the final list of competencies and skills for the discipline of CMFM compiled after the Delphi process will provide a useful insight into the development of competency-based curriculum of the subject at institutional level. For a student of CMFM, defined competencies will help in achieving the requisite skills at the end of completion of the subject. At the faculty level, the process is envisaged to enhance the competency and satisfaction of teachers while teaching the subject. The defined competencies inculcated in the learners and skills acquired during training are going to provide a patient-centered, family-focused, and community-oriented physician. The present model of competency-based curriculum in CMFM provides a feasible solution for achieving the goal of developing primary care physicians in India.

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Conflicts of interest

There are no conflicts of interest.

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