



STRATEGIES TO PROMOTE BETTER ORAL HEALTH RESEARCH IN INDIA: A DELPHI CONSENSUS STUDY

Dental Science

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ABSTRACT

Aim-To identify strategies for promoting better oral health research in India using Delphi technique.

Methods-The study involved a panel of 25 experts who are asked to complete Delphi questionnaire. Domains included were current status of research, constraints in promoting research, role of educational institutions in promoting research and development of policies to strengthen the research infrastructure and capacity. Quantitative analysis was made to obtain consensus.

Results-The study was conducted in two rounds. Strong consensus was obtained on the benefits of research, barriers with respect to conducting research like constraints in publication and lack of funding, importance of teaching research methodology and biostatistics in educational institutions, need for curriculum up gradation as well as collaborative efforts of various stake holders.

Conclusion-Our study unearthed a lot of gaps in oral health research. Addressing these gaps would help decision makers in formulating new strategies to strengthen the research.

KEYWORDS

Research, Oral health, Qualitative study, Delphi, Consensus

INTRODUCTION

Research is central and indispensable tool for improving health. Health research is crucial for growth and development of people and nations. Health research be it of any kind, contributes to the enhancement of health directly or indirectly. Despite great improvements in the oral health status of populations across the world, problems persist. This is particularly so among underprivileged groups in both developed and developing communities. The WHO Oral Health program gives priority to research helping to correct the so called 10/90 gap. This relates to the fact that only 10% of funding for global health research is allocated to health problems that affect 90% of the world population.¹ Building and strengthening research capacity is highly recommended by WHO. It helps in effective control of disease and the socioeconomic development of any given country.

Many important clinical issues do not yield to randomized clinical trials or to stepwise quantitative data analysis. In such cases, professionals use their training and personal experience to assist decision making in a variety of practice contexts. In these circumstances, consensus opinion of experts provides a formal structured process for decision making. One such method is Delphi technique.² It is a kind of detailed survey having diversified uses in dental research.

Delphi technique was developed by the Research and Development Corporation (RAND), Santa Monica, California in the early 1960s. It is a method for the systematic solicitation and collation of judgments on a particular topic through a set of carefully designed sequential questionnaires interspersed with summarized information and feedback of opinions derived from earlier responses. It consists of a series of rounds. In each round every participant works through a questionnaire which has to be returned to the researcher who will collect, edit, and return to every participant.²

Research in the field of dentistry is progressing at mightier speed worldwide. The situation of dental research in India is still in the nascent stage even though we have more than 300 dental colleges in India, which are more than any number compared to other countries.³ The representation of India towards research on the international platform is negligible.⁴ Therefore, political, social, organizational (both government and nongovernmental), professional dedication and

support are needed to take oral health research to the next level.⁵ Hence, in order to assist decision makers in identifying strategies to promote better oral health research a Delphi consultation was implemented.

MATERIALS AND METHODS

This qualitative research using Delphi technique was conducted in a dental educational institution in Bangalore, Karnataka during July - August 2019. Delphi technique is used because it provides the deeper understanding and the expert's perspective on the study topic. It is a group facilitation technique, which is an iterative multistage process, designed to transform opinion into group consensus.⁶ Ethical clearance was obtained from the Institutional Review Board and informed consent was obtained from the participants.

Purposive sampling was used to collect data. A total of 25 experts were identified. They were included in the panel as they were experts in oral health research and academics.

Construction of questionnaire

An open ended questionnaire was constructed from a content analysis based on systematic search of relevant evidence.³⁻¹² The key words used for literature search were Delphi study, consensus, oral health, policy priorities and India. The questions were framed under the following domains like i) Current status of oral health research in India ii) Constraints in promoting oral health research iii) Role of educational institutions in promoting oral health research iv) Development of policies to strengthen the research infrastructure and capacity.

The first round of Delphi process begins with this open-ended questionnaire which serves as the cornerstone of soliciting specific information about content. This questionnaire had 23 items. Collected information was converted into a closed ended questionnaire with five point Likert scale (totally agree, agree, no opinion, disagree and totally disagree). This questionnaire serves as the survey instrument for the second round of data collection and had 50 items under the above mentioned four domains. This round is open only to those people who have responded in the first round. The experts were asked to answer the questionnaire by web survey.

STATISTICAL ANALYSIS

Seven categories characterize the level of consensus.

- A: Strong agreement: More than 75% of the referees answered: "Totally agree" or "Agree"
- B: Weak agreement: More than 75% of the referees answered: "Agree" or "No opinion"
- C: Scattered toward agreement: More than 75% of the referees answered: "Totally agree", "Agree" or "No opinion"
- D: Scattered toward disagreement: More than 75% of the referees answered: "No opinion", "Disagree" or "totally disagree"
- E: Weak scattering around partially agree: More than 75% of the referees answered: "Agree", "No opinion" or "Disagree"
- F: Strong disagreement: More than 75% of the referees answered: "Totally disagree" or "Disagree"
- G: Strong dispersal of the answers: More than 75% of the referees answered "Agree" "No opinion", "Disagree" or "Totally disagree" or more than 75% of the referees answered "Totally agree", "Agree", "No opinion" or "Totally disagree".

Each indicator statement was considered to be in consensus if the expert's opinion was either A or B.

RESULTS

Flow chart illustrating the stages of Delphi is given in figure 1.

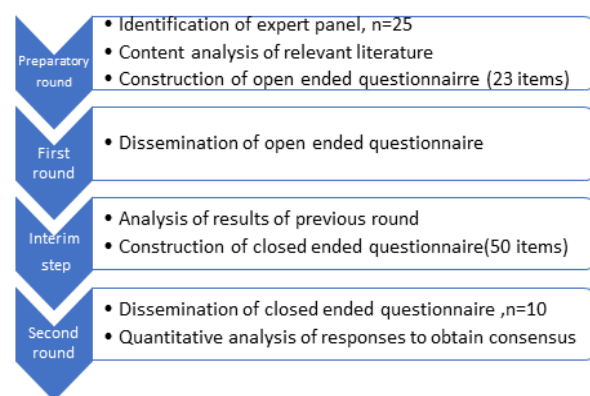


Figure 1-Stages of Delphi

Tables 1 to 4 shows distribution of consensus with respect to the four domains. Around 31 items fall to the category of agreement which is about 62% of the responses. Weak agreement and scattered towards agreement has around 16 responses. Overall there are no responses to categories of scattered towards disagreement, weak scattering around no opinion and strong disagreement. Only 8 responses were found to have strong dispersal of opinions.

Table 1: Distribution of Consensus Level on Current Status of Oral Health Research

Current status	A	B	C	D	E	F	G
Research contributes to sustainable development	✓						
Research helps in decision making and health improvement							✓
Wide scope for doing oral health research in India			✓				
Scope for research							
i) Means of employment							✓
ii) Capacity building of oral health care system	✓						
iii) Information system building	✓						
iv) Evidence based policy	✓						
v) Tool for advocacy	✓						
vi) Systems thinking in oral health	✓						
Lack of funding opportunities	✓						
Lack of infrastructure	✓						
Lack of oral health leadership			✓				
Multi-factorial nature of oral diseases complicates research							✓
Lack of centralized body to supervise research causes quality deterioration							✓
Poor knowledge of research methodology and biostatistics							✓

Lack of coordination and organization causes poor quality of research	✓						
Research agrees with principles of ethics		✓					
Dissertation gives firsthand experience to research	✓						
Research priorities and strategies has to be specific for population	✓						
Few dental professionals opt for full time research career	✓						
Lack of knowledge in research methodology			✓				
Lack of motivation to take up research as a career		✓					
Overweighing economic interests over one's research aspirations	✓						

Table 2: -Distribution of Consensus on Constraints in Promoting Oral Health Research

Constraints	A	B	C	D	E	F	G
Constraints in global health and oral health research are similar.							yes
10/90 financial gap		yes					
Low national income							yes
Lack of training support	yes						
High publication fees	yes						
Poor acceptance in national or international journals		yes					
Authorship issues	yes						
Brain drain of oral health researchers		yes					
Lack of full time dental research jobs				yes			
Less priority for funding	yes						
Lack of social recognition and appreciation			yes				

Table 3- Distribution of Consensus on Role of Educational Institutions in Promoting Oral Health Research

Role of Educational Institutions	A	B	C	D	E	F	G
Well equipped with library	yes						
Lack of institutional/departmental support							yes
Introducing research methodology and biostatistics in curriculum	yes						
Collaborations with foreign universities			yes				
Develop research and development wing	yes						
Employment of oral health researcher and biostatistician	yes						
Exclusive oral health research laboratory			yes				

Table 4: Distribution of Consensus on Development of policies to strengthen the research infrastructure and capacity

Development of Policies	A	B	C	D	E	F	G
Government should develop policies	yes						
Stake holders are			yes				
i) Dental Council of India							
ii) Indian Council of Medical Research	yes						
iii) Indian Dental Association	yes						
Introduction of Indian Council of Dental Research	yes						
Need for curriculum up gradation	yes						
Stake holders are			yes				
i) Academicians							
ii) University Grants Commission			yes				
iii) Health universities			yes				

DISCUSSION

Delphi technique is a unique type of qualitative research which is becoming increasingly popular for decision making in health research. The main advantage of this technique is that there is no need for participants to meet up and, hence it is a relatively inexpensive method of gaining a large number of responses. It also allows the involvement

of participants from disparate geographical areas and provides subject anonymity.²

To the best of our knowledge there was only one study reported in the literature which was a Delphi study in Africa for the same purpose by Kanoute et al.⁶ The maximum number of items with consensus was observed with respect to current status of oral health research in the country. It is undoubtedly agreed that scientific research is considered as an essential element for sustainable development of oral health. The study highlights opportunities in doing oral health research. There is a strong agreement that oral health research can support capacity building of oral health care system, information system building, making evidence based policy, used as a tool for advocacy and systems thinking. The study also points out that there is lack of funding opportunities and infrastructure to facilitate oral health research in the present scenario.

Similar to the study by Kanoute et al⁶, our study has found that quality of current oral health research is unsatisfactory due to lack of coordination and organization. But surprisingly there is a consensus that research is in agreement with the principles of ethics. This may be because of the strict guidelines on ethical conduct of research monitored at various levels. Dissertation work in post graduate curriculum is very important. It provides a firsthand experience to the spirit of scientific enquiry for the students. Hence there is a strong consensus that dissertation is unavoidable in post graduate curriculum. There is strong agreement that there are only few dental professionals who opt for a full time oral health research career in India in the present scenario. This may be because of lack of interest or due to overweighing economic interests over one's research aspirations. Lack of knowledge in research methodology among dental professionals may also hinder them from taking up full time oral health research.

We could neither reach 'an agreement nor disagreement' regarding so many items listed under current status of oral health research. These are with respect to role of oral health research is contributing efficiently to decision making and health improvement, whether oral health research can be a means of employment, challenges in conducting research like multi-factorial nature of oral diseases, lack of centralized body to supervise research activities, poor knowledge of research methodology and biostatistics.

Our study has identified constraints in promoting oral health research like lack of training support, issues regarding authorship, publication and lack of funding. These findings were also reported by Bishen et al.³ Lack of training support may be due to inadequate professionals in this field to guide oral health researchers. Issues with respect to authorship prevent researchers from conducting and publishing research. Some of the international journals do not give value to Indian studies. Also high costs of publication in national and international journals are also an additional burden.

The whole process of research can be very expensive. Many a times the researchers only have to fund for their work and ends up in financial crisis. Less priority for funding is a serious issue. Globally only 10% of budget is devoted to research to solve 90% of health problems of the world population.¹ This has also been pointed out in the study by Kanoute et al.⁶ This financial gap adds to the burden of researcher.

Present study identified only weak consensus with respect to brain drain of qualified oral health researchers unlike the study by Kanoute et al.⁶ It may be because of the regional differences between India and Africa. The social recognition and appreciation towards quality oral health research in India is slowly increasing and is commendable. This might be useful for Indian oral health researchers to find jobs in their home country compared to their African counterparts.

Our study underlined that educational institutions play an important role in promoting oral health research. It suggests that dental colleges need to have well equipped library with enough references and journals to support research work. Main reason for lack of interest in research is lack of understanding of research methodology and biostatistics. Hence our study strongly recommends introducing this as an individual subject in curriculum in order improves the research and critical appraisal skills of the students. This finding has also been reported by Bishen et al.³ and Shirahatti et al.⁷ Our study also highlights

the need to develop an oral health research and development wing and employing a full time oral health researcher and biostatistician to guide the research activities. This would be really helpful for promoting research culture among students right from their college days.

Present study suggests that our country needs a policy to strengthen oral health research infrastructure and capacity. There is a strong consensus that Government, ICMR, DCI, IDA should work together for developing a policy. There is also a recommendation to introduce Indian Council of Dental Research exclusively for the conduct and promotion of oral health research in the country. Also there is a strong consensus that a curriculum up-gradation is needed for inculcating research culture among the dental students of our country. Academicians, UGC, various health universities across the country may work together to bring in this change.

This study was found to have certain limitations such as non response of participants in the first round which was about 60%. If all the experts were to participate the results would have been very different. Delphi study is all about obtaining consensus. So there are chances that few minor items may be of importance could be missed out due to lack of consensus.² Due to time constraint we could conduct only two rounds of Delphi process. As a result of which we could not obtain consensus on many items. If we were to conduct more rounds we would have obtained more number of items with consensus. Hence more studies are recommended with multiple rounds in order to unveil more information on improving oral health research in India.

CONCLUSION

The present study unearths a lot of information on current status of oral health research, opportunities and barriers in conducting research. It is found that there are a lot of gaps in the present scenario. In order to create an ideal environment for research it is absolutely necessary to fill these gaps. Therefore a change is inevitable and it cannot take place in an isolated way. Government should team up with various agencies to bring in a change in the existing scenario. This information would be very helpful for the decision makers in formulating new strategies for promoting better oral health research in the country.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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