Strategies to promote better research on oral health in Africa: A Delphi consensus study

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Abstract

Background: Research on oral health contributes to improved health outcomes; it is an indispensable tool in health policy. But how to fill the gaps in research oral health and to strengthen its capacity is the question. The main objective of the present study is to identify the current status of oral health research and potential strategies, thereby strengthening the research infrastructure and capacity. Delphi consultation, in the perspective of assisting decision-makers to identify strategies to promote better research on oral health in Africa, was initiated. **Design and Methods:** The panels of 30 experts were asked to complete the questionnaire with 42 items into four groups by web survey. Each indicator statement was considered to be in consensus if the expert's opinion rating was of "A or B" for more than 75% in a scale of seven categories. Quantitative analysis was made from the answers of Delphi round. **Results:** There was a strong consensus about three items concerning the role of oral health research, the development of research policy for oral health going through an effective governance of research institutes, migration of researchers and fund raising. **Conclusion:** This study shows strong many dispersal opinions by experts, but highlights the need for to improve the effectiveness of oral health research capacity strengthening activities. Africa's researchers, policy makers and partners will have to give special attention to ensuring that knowledge generated from oral health research is acted on to improve health for all.

Keywords: Research, oral health, strategy, Delphi survey, Africa

Introduction

Health research capacity is unanimously recognized as contributing to the overall development of low-and middle-income countries.[1] It is a critical precondition for achieving the Millennium Development Goals.[2] Resolutions and recommendations have advocated the strengthening of research. The Regional Committee for Africa adopted in 1998, the strategy for the promotion of health research in the region. The main constraints must be identified in order to cope with the high disease burden. Countries should identify priority areas of their research and capacity building in this area.[3] The Ministerial Summit of Health Research in 2004 recognized the need for health systems research that informs action and feeds into the development of health services that reach the poor and marginalized.[4] The Global Ministerial Forum on Research for Health in 2008 give emphasis to the challenges of research for development and health, the need for more health-system research and a greater intersectoral approach to science, technology and health.[5] But how African countries can develop their fragile health systems and their own capacity to do health research is rarely discussed.[6]

In oral health, the Africa Regional Strategy (1999-2008) recommends encouraging research in order to provide factual evidence on the effectiveness, cost interventions and strengthen partnerships.[7] Resolution WHA 60.17 urges member states to strengthen oral health research and use evidence-based oral health promotion and disease prevention in order to consolidate and adapt oral-health programs.[8] Therefore promotion of research in oral health, aimed at bridging gaps in research between low and middle-income and high-income countries, conduct of operational research and translation of knowledge about oral-health promotion and disease prevention into public-health action programs is essential.[9]

The question is what are the strategic directions toward which we must focus research on oral health in Africa. Including what would be its position relative to the axes of international research, how to design cooperation and organization, development and promotion. In the perspective of assisting decision-makers to identify strategies to promote better research on oral health in Africa, a Delphi consultation was implemented. The main objective is to identify the current

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status of oral health research and potential strategies, thereby strengthening the research infrastructure and capacity.

Methods

Methodology

Consensus methods such as the Delphi survey technique are being employed to help enhance effective decision-making in health. The Delphi survey is a group facilitation technique, which is an iterative multistage process, designed to transform opinion into group consensus.[10] A Delphi approach of eliciting expert opinion and achieving consensus on key technical and policy issues for this study.

Methodologies available to meet the objectives of the project come within the purview of so-called consensus surveys. Investigation comprises three phases:
- Bibliographic research (Medline/PubMed) in 2011 using the keywords: Oral health, Africa, research, review to identify the current situation and produce an analysis of oral health research from the different African sub-regions
- Methodological research to enhance and optimize the efficiency of consensus research fields applied to the topics previously identified. The key words were Delphi study, consensus, policy priorities and oral health
- Consultation with experts in the research field through a Delphi survey.

Identification and selection of the expert panel [Table 1]

Academics, Chief of Department's Dental Health, World Health Organization, Nongovernmental organizations (FDI, ARO) and academic public health were recruited to form the panel. The experts are selected for a purpose, to apply their knowledge to a problem on the basis of criteria, which are developed to our thematic under investigation. The panel of experts will focus on why and how harmonization of funder's efforts and enhanced alignment with country needs could improve the effectiveness of funding. Participants were selected because they were recognized opinion leaders or public health decision makers and were knowledgeable about experienced in oral health. In Mars 2012, a total of 30 experts participated in consultation to structure and rate according to their importance by means of a two-round Delphi process. The process gathers opinion without the need to bring panelist together physically. The panel members were asked to complete, the questionnaire by web survey.

Construction of the questionnaire

A questionnaire was constructed from a content analysis of the actions indicated in the literature. The content was based on a systematic search of the relevant evidence and claims made by authors of consumer and career guides and websites.

The technical committee decided on the structure of the 1st round and based on responses and arguments from the participants, which items and questions should appear in the questionnaire. The questionnaire developed for English and French-speaking countries had 42 items, each describing the strategies for research which could be put to the panel for rating. These items covered the following broad areas: Current situation, development of research policy and implementation's strategy, constraints of oral health research

Table 1: The experts to which the questionnaires were sent and their affiliations

Experts	Institutions	Countries
Adeyemo	University of Lagos	Nigeria
Benzian	Health bureau Ltd. Private sector	United Kingdom
Brandt	University of Pretoria	South Africa
China	National Dental Association	Benin
Damle	Maharishi Markandeshwar University	India
Danfillo	Director Regional Centre for Oral Health	Nigeria
Erasmus	National Dental Association	South Africa
Faye	National Oral Health Program, Ministry of Health	Senegal
Gandjeto	National Coordinator, Focal Oral Health	Benin
Gare	Coordinator National Oral Health Program	Burkina Faso
Grossman	University of the Witwatersrand	South Africa
Gueye	NCD Program, Ministry of Health	Senegal
Jimongou	National Oral Health Programme	Togo
Louazani	Former NCD WHO/AFRO	Algeria
Mesenge	University of Alexandria	Egypt
Msefer	Oral Health National Association	Morocco
Myburgh	University of the Western Cap	South Africa
Naidoo	University of the Western Cap	South Africa
Ndiaye	WHO Representative	Cameroon
Ogunbodede	Obafemi Awolowo University	Nigeria
PiliPili	Catholic University of Louvain	Belgium
Robison	National Center for Health Promotion-Disease Prevention	USA
Samba	University of Cocody	Ivory Coast
Savage	University of Lagos	Nigeria
Seeberger	University of Caligari	Italy
Sembene	University Cheikh Anta Diop	Senegal
Senkoro	Chief Dental Surgeon	Tanzania
Smith	Director Oral Health, Department of Health	South Africa
Tchere	National Oral Health Program, Ministry of Health	Ivory Coast
Varenne	WHO/AFRO	Congo

WHO/AFRO: World Health Organization. Regional Office for Africa

and role of universities. Response options usually used are those of a six-item (totally agree, agree, partially agree, disagree, totally disagree) format.

Analysis

Quantitative analysis was made from the answers of Delphi round. The technical committee determined the meaning of consensus in relation to the study aim. Statistical definition of the group response can be used to describe the degree of consensus achieved with regard to certain issues and problems. An iterative multistage process was performed to further clarify and strengthen the quality of consensus.

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 "Partially agree"
C: Scattered toward agreement: More than 75% of the referees answered: "Totally agree", "Agree" or "Partially agree"
D: Scattered toward disagreement: More than 75% of the referees answered: "Partially agree", "Disagree" or "totally disagree"
E: Weak scattering around partially agree: More than 75% of the referees answered: "Agree", "Partially agree" 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" "Partially agree", "Disagree" or "Totally disagree" or more than 75% of the referees answered "Totally agree", "Agree", "Partially agree" or "Totally disagree".

Each indicator statement was considered to be in consensus if the expert's was of "A or B" for more than 75%.

Results

Of the participants, 12 identified their primary area of expertise as policy, five as dental decision maker and 13 as research. During the first round, panel members were also asked to suggest any additional actions that were not covered in the original questionnaire. Responses to these open-ended questions were used to generate new items use to the second questionnaire. After an iterative multistage process was performed to further clarify and strengthen the quality of consensus. The experts reviewed and completed the questionnaire, which have sorted 42 items into four groups:
• The current situation of oral health research in 2012 is presented in Table 2.

Three levels of strong agreement (level A) were identified among 15 questions, included the role of research. Furthermore, oral health research is contributing efficiently to decision making

Table 2: The current situation of oral health research in 2012: Distribution of the level of consensus of the panel issue from the Delphi survey

The current situation of oral health research	Level consensus						
	A	B	C	D	E	F	G
Scientific research is considered as an essential element to enable the sustainable development of oral health in Africa			✓				
Oral health research is contributing efficiently to decision making and to global health improvement	✓						
The quality of the coordination and organization of research performed in different regions is judged to be satisfactory				✓			
The credibility of the public institution's research is overall satisfactory							✓
The current organization of the research is in agreement with the principles of ethics	✓						
The countries determine their own priorities and develop their own strategies to meet the needs of their populations			✓				
It is antipated to modify the oral health research objectives and strategies with respect specific aspects of the system			✓				
The themes of oral health research developed by universities are clearly identified							✓
The organization of oral health topics specific to African region is justified			✓				
The quality of the research's organization and production of the research requires that researchers clearly identify the priorities to be considered			✓				
Some progress could be performed by pooling regional resources			✓				
The level of production of the oral health research in Africa is similar to that to that of the general research in health							✓
The level of production and dissemination of dental research results is judged to be satisfactory	✓						
Oral health research is integrated within in sanitary information systems				✓			
The promotion of good practices in oral health research is judged as satisfactory							✓

and to global health improvement, the current organization of the research is in agreement with the principles of ethics and the level of production and dissemination of dental research results is judged as satisfactory. However five items which showed strong dispersal of opinion.

• The main constraints of the research in oral health are shown in Table 3.

In answering the question as to whether improved the main constraints on research in oral health showed a strong dispersal opinion, but two level of strong agreement (level A) were defined by migration of researchers and fund raising.

• The development of research policy and the implementation's strategy for oral health are shown in Table 4.

For a majority of the proposed theme, the experts' answers ranged from disagreement. However, one level of weak agreement (level B) was defined by an effective governance of research institutes.

• The role of universities in oral health research [Table 5].

There is strong dispersal of opinion to this category.

Finally, responses of experts to 86% questions are shown a dispersal opinion.

Discussion

Delphi consultation is increasingly used as decision making methods, for they have lower production cost than other methods and provide results more rapidly.[10] It is an exercise in group communication, bringing together and synthesizing the knowledge of a group of geographically scattered participants who never meet.[11]

Table 3: The constraints of oral health research in 2012: Distribution of the level of consensus of the panel issue from the Delphi survey

The main constraints of the research in oral health research	Level consensus						
	A	B	C	D	E	F	G
The research constraints in the fields of global health and oral health are similar							✓
The main constraints of the research in oral health							✓
The main constraints of the research in oral health originate from							✓
Low level of national economic development							✓
Limited access and the recourse to information technologies			✓				
The absence of the robust and long standing scientific culture							✓
The migration of the researchers towards the developed countries	✓						
Limited access to the international scientific demonstrations							✓
Limited access to international publications							✓
The limited number of regional scientific event							✓
The limited number of regional scientific publications							✓
Fund raising is the main issue affecting the improvement of the research	✓						

Table 4: The development of research policy and the implementation's strategy for oral health in 2012: Distribution of the level of consensus of the panel issue from the Delphi survey

The development of research policy and the implementation's strategy for oral health	Level of consensus						
	A	B	C	D	E	F	G
The development of research policy for oral health is going through							
An effective governance of the WHO regional office							✓
An effective governance of member states							✓
An effective regional governance universities							✓
An effective governance of research institutes		✓					
The implementation's strategy for oral health is going through							
An effective governance of the WHO regional office							✓
An effective governance of member states							✓
An effective regional governance universities							✓
An effective governance of research institutes							✓

WHO: World Health Organization

Table 5: Role of universities in oral health research in 2012: Distribution of the level of consensus of the panel issue from the Delphi survey

Role of universities in oral health research	Level consensus						
	A	B	C	D	E	F	G
The collaboration between African dental universities and non-African							✓
Collaboration between African dental universities is judged to be satisfactory				✓			
The collaborations between different sectors of the dental research are judged				✓			
The scientific production of the African dental universities is sufficient to product							✓
The current priority of universities remains the initial training of dental students			✓				
The quality of supervision of researchers in universities is judged to be satisfactory							✓
The quality of the formation of the researchers is judged to be satisfactory							✓
The missions of the professors are clearly defined during their recruitments							✓

On the current situation of research in oral health in Africa, there was strong consensus about three items concerning the role of oral health research. Africa's health research capacity has grown considerably, with potential to increase this growth.[12] Successful research and capacity development programs led by African researchers have now started to emerge and serve role models for others countries' scientists to follow.[13] Research for oral health oriented toward bridging the gaps in research between developed and developing countries.[9]

Although experts consider favorably the quality level of production, there is a significant disparity in the scientific output as measured by publications. The access to the English-speaking reviews is a dominating factor in a scientific community which publishes mainly in English.[14] Academic traditions play an important role of French speaking African researchers to publish outside their country thus African publications in the field of health are faced with a lack of international visibility.[15] World-wide scientific publishing activity over the past decade indicates that most countries in Africa have low levels of publication.[16] Furthermore, the access to the electronic reviews is often hindered in Africa by inconvenient power cuts, lack of computers or services of access to the internet reliable and high expenses of connection.[17] Most African journals are owned by academic institutions, are not indexed in major databases, are poorly funded, have poor circulation and have difficulties maintaining publications schedules.[18,19]

The identification of adequate funding, consensus opinion in this consultation is one of the many constraints faced by the research. Countries affect insufficient resources to health research. Globally, 10% of the budget devoted to health research is to solve the problems of 90% of the population.[20] Furthermore one of the contributing factors is a lack of African research capacity to conduct local relevant research.[21] In most African countries, conditions for research have been severely compromised as manifest by the generally poor remuneration, heavy teaching loads, inability to mentor young faculty and inadequate infrastructure.[22] Investing in African institutions to improve research training capacity resulted in the retention of graduates in Africa in research positions and produced research output.[23]

The large-scale migration of researchers working in the field of health workers to developed countries is a constraint identified mostly by experts. The latter had a negative impact on the quantity, quality and relevance of health research.[24] Moreover a systemic way of defining, coordinating and growing the human resources for health research needed to support health systems development is missing.[12] In recent years, concerns about the migration of skilled professionals from poor countries to rich countries put the problem of emigration of health workers at the forefront of policy makers.[25] Other than disparate discussions on migration and curbing the brain drain, the need to capacitate health research is often neglected.[26]

On policies and strategies for the development of the desired oral health, the opinion is shared in what concerns the proper role of institutional actors. However, there was a strong consensus that the development of research policy for oral health is going through an effective governance of research institutes. Furthermore answer's experts indicated that interaction between policy makers and researchers is essential to influence the impact of research on oral health and health system strengthening. In many sub-Saharan African countries, there is a nonconductive environment for research: The legislative framework has not kept pace with new trends in research, such as genetics research, ethical conduct of clinical trials, material exchange and intellectual property rights.[27] The sector of global oral health suffers from a lack of analysis, connection and insight into political contexts.[28] Moreover to national health research fully operational not exist in many countries of the region, or appropriate policies and institutions to formulate national research programs.[29]

There are differences of opinion as to the involvement of universities in the organization and development of

the research. It is difficult for universities to develop a coherent strategy to identify and remedy deficiencies in their doctoral training programs because there is currently no single process that can be used to evaluate all the components needed to make these programs successful.[30] Africa's higher education institutions that are mandated to foster this capacity lack adequate resources to generate and apply knowledge, raising the need for innovative approaches to enhance research capacity.[31] The research environment is vital for viable academic staff recruitment and retention, particularly at the more senior levels and a number of policy options for the achievement of an improved research environment will be proposed.[32] It should also encourage the training of research in oral health on the basis of collaborative programs between universities.[33] Universities can make a major contribution to good policy-making by generating nationally relevant evidence, but little is known about how to strategically support universities in poorer countries to train and nurture sufficient internationally competitive researchers.[30]

Conclusion

Reducing the gap in oral health research cannot take place in an isolated way but may effectively take place through work within the framework of the Global Forum for Health Research.[34] Sub-Saharan African universities and research institutions might contemplate altering their practice of giving academic credit exclusively for publications in high-profile equal weight to publishing in national journals that have been indexed in international.[35] Greater national and international investment in capacity building in a developing country has the greatest potential for securing dynamic and agile knowledge systems that can better health and equity now and in the future.[36] Achieving research impact relies not only on fruitful interactions between researchers and policy makers.[37] Moreover governments must appreciate the need to make greater commitments to provide strategic planning, legislative reforms and funding for effective management of research activities.[27] Africa's researchers, policy makers and partners will have to give special attention to ensuring that knowledge generated from research is acted on to improve health for all.[38]

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