Original Article

Assessment of Health-care Research and Its Challenges among Medical Doctors in Nigeria

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Abstract

Introduction: Health-care research in Nigeria has been growing over the years but is constrained by many difficulties. This study aimed to identify the challenges encountered in health-care research and suggest policies to address these problems. **Materials and Methods:** It was a cross-sectional study of medical doctors who have been involved in health-related researches. All participants filled a self-administered online questionnaire comprising 31 questions in five sections. The responses were analyzed using the Google forms and the Statistical Package for the Social Sciences software version 23. **Results:** The mean age of the study participants was 41.0 ± 8.4 years. Three-quarters of the respondents (75.5%) worked in teaching hospitals. Nearly all (96.6%) carried out their studies using personal funds and only one in 10 had been involved in high-budget projects (≥₦1,000,000). The generation of quality researches was impeded by the restriction of literature review to free online journals (93.2%), incomplete health records (88.0%), limited access to research kits (65.7%), limited use of advanced statistical analysis (29.8%), and challenges with obtaining ethical approval (21.2%). Despite the average online visibility of these researches (52.2%), only 28.5% stated that it has been locally adopted to influence medical practice in their center. **Conclusion:** There is a wide disparity in research capacity among hospital tiers. It is important to leverage on and expand existing partnerships to provide institutional access to premium literature, offer robust, and assessable financial support for the conduct of high-quality researches and provide a framework to bridge the gap in the use of these works to influence practice change in Nigeria.

Keywords: Challenges, healthcare, Nigeria, research

Introduction

Research is the key driver of development in a nation.[1] As a result of the dynamic nature of medicine, continuous research in healthcare is required to advance scientific knowledge, improve practice, and ultimately provide better healthcare for patients.[2,3]

The occurrence of discoveries and innovations from healthcare research in Nigeria is, however, far below expectations.[2] In order to reverse this trend, there has been renewed attention by the government and institutions on the need for the translation of basic science research into the clinical practice in the country.[4] Despite the critical importance of this target, researchers meet various brick walls during the conduct of

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their studies. There might be uncertainties in the existence of these challenges due to the lack of reliable data. Thus, research is required to generate evidence about the problems faced by the medical researchers in Nigeria.[5]

The engagement of medical researchers to identify their collective problems facilitates the production of the consensus on burning issues to generate evidence-based solutions to address these difficulties. The aim of this study was, therefore, to identify the challenges encountered in healthcare research in Nigeria and to suggest the policies to address these problems.

Materials and Methods

This was a cross-sectional study that was carried out on all medical doctors practicing at government-owned or privately managed secondary and tertiary health-care facilities in Nigeria over a period of 1 month between May 12, 2019, and June 11, 2019. Those who have not engaged in health-related researches were excluded from the study. Ethical clearance was obtained from the health research ethics committee of Ahmadu Bello University Teaching Hospital, Zaria (ABUTH/HREC/W31/2019).

The sample size was calculated using the Taro Yamane Formula with an assumption of a 95% confidence interval and a margin of error (e) of 0.05.[6] Based on the available data on the population size of practicing medical doctors in Nigeria (N) of 35,000 and a nonresponse rate of 20%, the minimum sample size was 475.[7] The sample size was, however, increased to 564 to increase the accuracy of the results. Participants were prospectively enrolled until the target sample size was reached.

All participants filled a pretested self-administered online form, which was designed on the Google form platform (https://forms.gle/f9txstQcYDLApWAj7), disseminated across institutional emails and social media groups of medical doctors and accessed via the posted web page link. The form addressed 31 questions in five sections using a dichotomous response and a 3-point Likert scale. Information assessing biological data (age, sex, nature of institution, geopolitical zone of practice, and specialty), research history (experience as a primary investigator, nature, and frequency of research), research funding (source of funding and highest budgetary spending on research), capacity building (access to relevant literature, training in research methodology, availability of functional health research ethics committee, challenges of the ethics committee, use of research assistants and its challenges, methods of data collection, challenges with health records data retrieval, challenges with data collection in prospective researches, involvement in data analysis, and level of data analysis done), and priorities in healthcare research (determinants on the choice of research topics, motivation for engaging in researches, source and accessibility of reagents/kits used, initiation or participation in a multidisciplinary research, publication in internationally indexed journal, citation in a local clinical protocol or guideline, and adoption of results to change medical practice) were obtained from the participants. Participants that filled the form were deemed to have given implied consent. There was no information on participants' identity in the form, and the data obtained were treated with strict confidentiality.

The data were analyzed using Google forms and Statistical Package for the Social Sciences (SPSS) software version 23.0 (IBM Corp., Armonk, New York, USA). All continuous variables were summarized as mean and standard deviation, whereas the categorical variables were expressed as frequencies with percentages.

Results

The mean age of the study participants was 41.0 ± 8.4 years, and they had a male-to-female ratio of 2.3:1. The distribution of the age and sex of the population is shown in Figure 1. Overall, 3 in 4 respondents (75.5%) worked in teaching hospitals and majority, 504 (89.4%) were primary investigators in the research. Even though there was a similarity in the frequency of engagement of the respondents in prospective researches (271, 50.0%) and retrospective studies (272, 50.2%), a disproportionately lower proportion, 108 (19.9%), have carried out experimental studies compared to those who have done observational studies, 265 (48.9%).

Nearly all respondents, 536 (96.6%), had used personal fund to carry out their research. However, only 33 (5.9%) and 23 (4.1%) had been awarded either a local sponsorship or an international grant to finance their research. These international grants provided a higher capacity for regular research work in comparison to personal funding (71.4% vs. 37.5%), as shown in Figure 2. Only 1 in 10 respondents (57, 10.3%) had been involved in high-budget projects (≥₦1,000,000). These projects were more common when international grants were used as the source of research funding compared to when

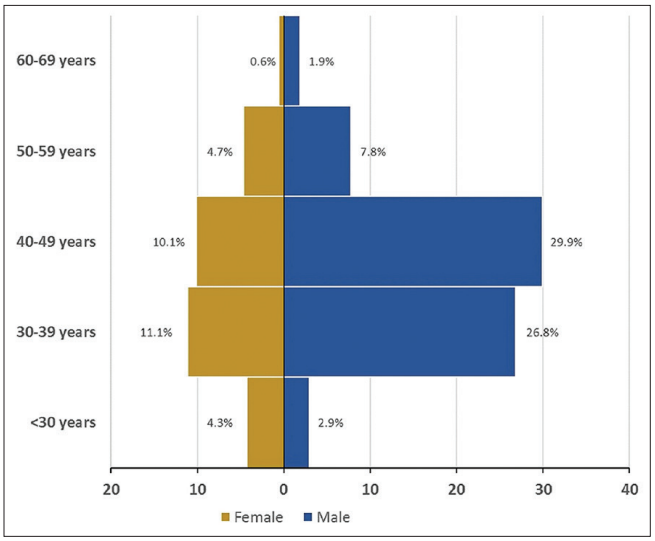

Figure 1: Age-sex distribution of respondents who participated in this survey

personal funds were used (57.1% vs. 7.4%), as shown in Figure 3.

Professional expectations to research a topic (328, 59.4%) far outweighed the motivation to engage in urgent problem-solving projects (218, 39.5%). The initiation of quality healthcare research was also impeded by other problems, as shown in Table 1.

Despite the certification of a large number of respondents, 474 (84.0%) in research methodology, more than half, 298 (53.9%) still employed statisticians for their data analysis and only over a quarter, 164 (29.8%) used advanced statistical analysis. Other challenges related to capacity building indices are shown in Figure 4. With regard to ethical challenges, delays (95, 16.8%), high cost of application (7, 1.2%), and interference on nonethical issues (6, 1.1%) were stated as problems by the respondents.

Two hundred and eighty-four respondents (52.2%) had published one of their research papers in an internationally indexed journal. However, majority of their projects have not been cited in any local guideline (428, 80.5%) or locally adopted to influence the practice of medicine (391, 71.5%) in the country.

Discussion

Research and advance in knowledge are the bedrock for the development of any nation; therefore, it must be encouraged and supported by all stakeholders in order to thrive. Research is as important to developing nations as it is even to the developed world. In this study, the analysis of the employment status of the respondents showed that the majority (75.5%) worked in tertiary hospitals. This observation could be explained by the fact that most doctors in these institutions are mandated by their terms of employment as university lecturers to actively engage in research work for career progression. Research is also a requirement to be fulfilled before the award of postgraduate fellowship in the medicine following residency training.

An abysmal observation from this study that almost all researchers (96.6%) funded their projects with their personal income could be because of the poor funding of research institutions and limited opportunities for research grants. Nigeria's educational budget is inadequate, thus, the allocation for research grants is very meager.[1] Unlike most developed countries where 1.5%–3.0% of the gross domestic product (GDP) is spent on research, available data showed that the total yearly budgetary allocation to research in Nigeria is about 0.3% of the GDP, far below the National Science Policy which recommends 5%.[8] Research funding, to a large

Table 1: Factors affecting the initiation of health-care research

Research variables	Frequency (%)
Choice of a research topic	
Professional expectations	328 (59.4)
Urgent problem-solving	218 (39.5)
Current publications	201 (36.4)
Easy implementation	185 (33.5)
Access to relevant literature	
Free-online journals	520 (93.2)
Personal subscription	272 (48.7)
Institutional library	192 (34.4)
Institutional journal subscription	109 (19.5)
Health records retrieval	
Not available	60 (11.7)
Incomplete	453 (88.0)
Complete	33 (6.4)
Access to research kits	
Easily accessible	163 (34.5)
Neutral	191 (40.5)
Difficult to access	119 (25.2)
Prospective research challenges	
Difficulty in patient/subject recruitment	275 (58.5)
Need to give incentives	204 (43.4)
Poor patient co-operation	177 (37.7)
Difficulty in obtaining informed consent	124 (26.4)

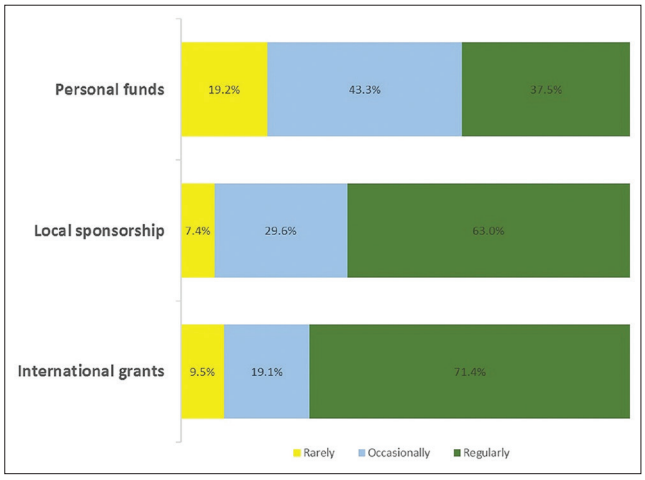

Figure 2: Association of medical research funding source with the capacity for frequent research

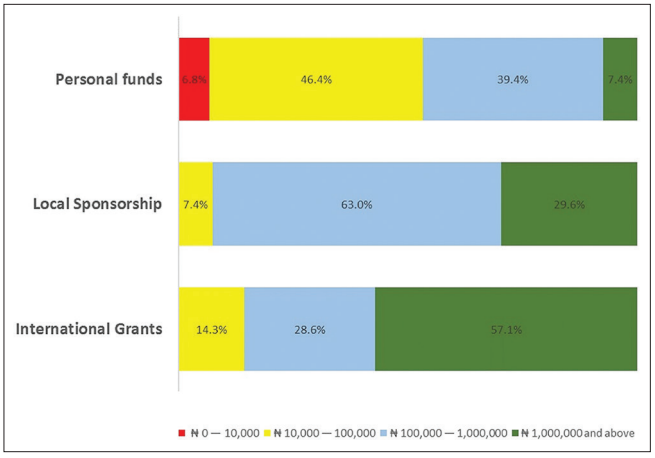

Figure 3: Association of medical research funding source with research budget

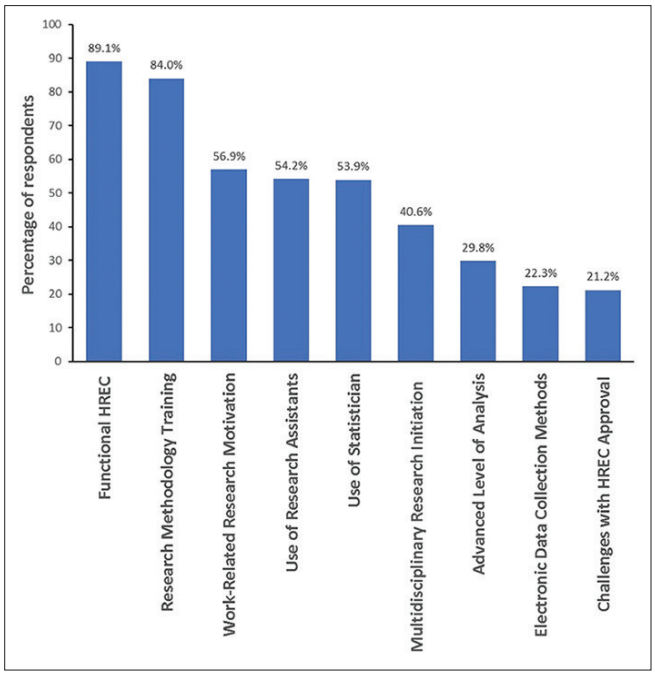

Figure 4: Distribution of capacity building-related indices among respondents

extent, determines the quality of research output.[8] Therefore, poor funding might have accounted for a restriction in the scope of researches to those which could be achieved with low-to-medium budgets and consequently lead to its limited contribution to new knowledge or impact. In addition to present initiatives from the Tertiary Education Trust Fund and foreign agencies, other fiscal measures should be incorporated to maximize funding from other government-driven sources, private companies, wealth endowments, and international grants.[3]

Researching urgent problem-solving projects ranked the second on the list of reasons for the selection of health-care research topics. There is thus a need for the development of research groups and the organization of regular brain-storming sessions at departmental, institutional, and national levels to pitch research ideas and develop those that would solve immediate local needs while harnessing others that would encourage research growth in the country. To do this, there must be a shift in access to literature beyond its current predominant personal dependence on free online journals to institutional access to premium literature through online subscriptions and updated library bookshelves for those not online-based, so that current evidence can be obtained to justify these researches. Our finding on the report of limited access to research kits and reagents in about two in three of the respondents supports the assertion that research centers and institutes in Nigeria have technological limitations in producing common reagents and processing samples for comprehensive data generation.[2] Another challenge affecting the initiation of healthcare research is difficulty in the recruitment of study participants which might be because of the ignorance of the populace on the significance of research. This condition without a doubt negatively affects research work and the results.[1]

This study also identified that the capacity of medical researchers was curtailed by the limitations in advanced research methodology training and poor cohesion for transdisciplinary collaborations. Ezeanolue *et al*. noted similar findings in their multi-stakeholder qualitative research of 94 participants.[9] The use of paper-based health records management system in 77.7% for patient-care documentation was probably one of the reasons for the high rate of incomplete records reported by respondents during its retrieval for research purposes. Although setting up an integrated electronic health record management system is cost-intensive, network infrastructure demanding, and power supply dependent, it could produce better accuracy, timeliness, and completeness of data retrieval.[10] Therefore, adopting electronic record systems is the key to effective data storage, retrieval, and advanced healthcare research in Nigeria.[11]

The institutional ethics review committee is at the heart of the regulation of the ethical integrity of research.[12] Despite the presence of functional ethical committees in the institutions of the majority of respondents (89.1%), challenges such as delays were encountered with obtaining ethical approval. There is thus a need to expand existing structures to create a seamless process of obtaining ethical approval from institutional review boards in the country.

At present, the visibility of Nigerian medical researchers in internationally indexed journals is just above average (52.2%). It has the potential to improve if medical researchers publish more as this might improve the writing ability, the probability of acceptance in high-impact journals, and the prospect of citation of the research works.[3]

On the local front, the finding that around four-fifth of the researchers have not seen their work used for the design of any guideline or adopted to influence practice change implies that results of researches in Nigeria are lying dormant in library archives.[1] Factors such as failure to research burning problems, untimely research results, barriers to access research results, and poor communication with the public could account for this problem.[4] Research is only useful when disseminated to others. Explicit knowledge obtained from evidence-based research needs to be integrated with tacit knowledge, obtained from the daily professional experiences to form "useful knowledge" which would inform decision-making to produce a change in clinical practice in Nigeria.[13]

The limitation of this study includes the nonrandomization of samples recruited in this study due to the unavailability of a sampling frame. Despite this, the quota sample used ensured fair representation from the different parts of the country to generate research evidence to support the existence of a problem in this exploratory research.

Conclusion

There is a wide disparity in research capacity among hospital tiers. Health institutions need to leverage on and expand existing partnerships to provide access to premium literature, offer robust and assessable financial support for the conduct of high-quality researches and streamline the activities of the ethics committee to forestall delays. There is also the need for the government to provide a framework to bridge the gap between health researchers and other specialties on one hand and the consumers at different management levels, on the other hand, to use these works to influence practice change in Nigeria.

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Conflicts of interest

There are no conflicts of interest.

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