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ORIGINAL ARTICLE

THE IMPACT OF MEPI-JUNIOR FACULTY PROGRAM ON SCHOLARS AND TO THE COLLEGE OF HEALTH SCIENCES AT LARGE

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ABSTRACT

Introduction *The Medical Education Partnership Initiative Junior Faculty (MEPI-JF) Program at College of Health Sciences (CHS), Addis Ababa University (AAU) is designed to enable junior faculty physicians to conduct research in collaboration with mentors from AAU and partner universities abroad. The program has been implemented since 2016 to achieve its goal of nurturing the next generation of researchers. The program has enrolled a total of 44 scholars grouped in five cohorts.*

Objective: *The aim of this study was to share experience and describe the output and possible impact of the MEPI-JF program on the scholars and within the CHS, AAU.*

Methods: *Mixed methods (both prospective quantitative and descriptive qualitative study designs) were employed to describe the impact of the MEPI-JF program on the scholars and within the CHS. Four cohorts of 32 MEPI-JF scholars, faculty mentors, and officials at the CHS were involved as key informants in the study.*

Results: *Fifty-three researches have been published by the first three cohorts of MEPI-JF scholars after joining the program. In addition, these three cohorts of scholars have made 63 paper presentations at local and international conferences, and secured eleven grant awards from funders for advancing their research careers. The program has introduced the journal club culture in with weekly journal club presentations by the scholars to the College community.*

Conclusion: *the contribution of MEPI-JF program has created a great opportunity by building the research capacity of physicians to generate evidence for improving their practice and for developing their particular fields of specialty in the College.*

Key words: *Medical Education Partnership Initiative, Junior Faculty, Addis Ababa University*

INTRODUCTION

Sub-Saharan Africa bears more than 24% of the global burden of diseases but lacks the human power or infrastructure to tackle the problem (1). The average physician to population ratio is 2 per 10,000 people in Sub Saharan Africa compared to high income countries with 29 physicians per 10,000 people (2). The small number of physicians as well as the brain drain in the region has resulted in very busy clinical and teaching responsibilities for faculty with neglect of focus on research functions. The health care services cannot survive if the physicians are away from their clinical and teaching duties with the time and commitment required to conduct research.

The number of researchers per million inhabitants in high income countries is 20 times higher than in lower and middle-income countries (3). There were 3,814 researchers per million people in the high-income countries, while there were only 121 researchers per million people in low-income countries with 91 per million people in sub-Saharan Africa (4).

Worldwide scientific publications originating from SSA has low level with 1% of biomedical publications, and only 2.3% of the world's articles cite an African author. A research conducted in 2014 shows that 31 of the world's 193 countries produce 97.5% of the world's most cited papers. South Africa, at number 29, is the only Sub-Saharan African country on this list (5). Additionally, the knowledge generated from the publications form SSA has low potential for innovation, which results in poor social and economic value (6). In Ethiopia, the number of published works from the country in the last three decades is one of the lowest by any standard. There were 4,687 biomedical research articles published between 1980 and 2008 (7).

There are many reasons for the low research productivity and gaps in the physicians' research career in the region: lack of formal research training in research design, data analysis, presentation/ writing skills and preparing manuscripts; lack of funding; insufficient laboratories and computers; and lack of sufficient time for research activities.

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Poor administrative and institutional support for developing, submitting, and administering research grants; and brain drain in the region where physicians have to immigrate to HIC for better job opportunities and career development also contribute for the low research productivity in the region (4).

A comprehensive solution for thriving health research is coordination among researchers, funders and users including policy makers for conducive environment for research. Effective research requires individual skills, research infrastructure, and relevance to national policies. The region needs to focus on strengthening the research capacity by creating a research platform that addresses locally relevant research issues. Programs for research training and mentorship for faculty are among the most important institutional practices recommended for building and strengthening research culture within universities (8). Based on such ideal, the College of Health Sciences at Addis Ababa University has launched a junior faculty research mentorship program to nurture the culture of research within the School of Medicine and create a platform for junior faculty to advance their research careers and become the next generation of leaders in health research.

Research training for career development of African Junior Faculty of the Medical Education Partnership Initiative - Junior Faculty (MEPI-JF) program was launched with the aim of providing research training and mentored research opportunities for junior faculty within the College of Health Sciences who seek careers in research that contribute to improved human health and to become the next generation of leaders in health research. The program has been financially supported by the US National Institute of Health for the period of five years (2016-2020), and Emory and Johns Hopkins Universities from the US are also collaborators (9).

The program provides two-year dedicative mentored research training for those who have joined the program through merit-based competition. Four scientific areas were identified for the College based on the research priority areas set by the University. These included: HIV/AIDS and related infections; maternal and child health; non-communicable diseases with focus on diabetes and cardiovascular conditions; and mental health with focus on community interventions. In addition to inputs to the scholars, the program also aimed to strengthen the research culture within the College by creating a better environment for the faculty to conduct individual and collaborative research. This in turn was supposed to help the institute to maintain the quality of medical education, retain faculty, and improve the overall health services.

The junior scholars are enrolled in the program in a competitive process whereby they submit their research proposals that are anonymously reviewed by a training advisory committee (TAC) organized for this purpose. The selected scholars take didactive courses in biostatistics, data management, responsible conduct of research, fundamental health research, health care leadership, grant writing and mentorship; and then get involved in mentored research project in one of the four scientific areas. Research training and mentorship were provided by senior academic faculty from Addis Ababa University and the collaborating US based institutions (Emory and Johns Hopkins Universities). The duration of enrollment for a scholar in the program is two years.

Scholars are also involved in weekly journal club sessions where each (in rotation) of them present their critical review of a journal article selected based on relevance to their scientific area to audiences that are composed of all cohorts of trainees, program leads, and other members of the College community.

Based on this background, this particular study aims at describing the outputs and possible impacts of program within the College as an experience sharing of the lessons learnt for similar endeavors in the future.

METHODS

Study area/ setting: The College of Health Sciences (CHS), Addis Ababa University, is a professional health sciences College, established in 2010 by the reorganization of previously separate institutions of health under one umbrella. The CHS has the mission, within a scholarly environment, of providing high quality and regionally relevant health sciences training, research and community services at both undergraduate and postgraduate levels. The CHS also envisions to become a prominent African Health Sciences University dedicated to excellence in teaching, research and community health services (9).

Study design: Mixed methods (both prospective quantitative and descriptive qualitative study) design was employed to describe and explore the impact of the MEPI-JF program on the scholars and within the CHS.

Sample Size and study participant: Four cohorts of 32 MEPI-JF scholars, faculty mentors, and officials within the CHS were involved as key informants in the study.

Data collection: For the quantitative study, continuously collected information from the scholars' research performance progress reports (RPPP) and individual development plans (IDP) starting from 2015 were used for information on socio- demographic characteristic, number of publications, grant application and conference participation before and after joining MEPI-JF. For the qualitative study, focus group discussions (FGD) were conducted with four cohorts of MEPI-JF scholars and one with faculty mentors and officials at the CHS.

With the scholars, the point of discussion mainly focused on their professional carriers (publications, grant applications, and conference presentations), trainings and courses delivered by the program, as well as participation in journal club session.

With the mentors, status of their mentees' in research, publication, and conference presentation, how they help their mentees and strength of the process were discussed. In addition, in-depth interviews with officials at the CHS (school deans, department heads, program leads within the MEPI program, and the Director of Research & Technology Transfer at the College) were made regarding their views on the output and possible impacts of the Program.

The interviews were audio-tapped with digital recording after receiving permission from the study participants. Each FGD session took about an hour on average. Data on trends of publications were obtained from the Research and Technology Transfer of the College.

Data quality assurance: For the quantitative data, completeness and consistency of the IDP reports were regularly checked. Whenever there are inconsistencies or if data are out of date, the scholars were requested to revise and resubmit their reports. For qualitative data, the responses from the informants were checked before closing interview sessions.

Data Analysis: All the quantitative data were entered and analyzed using excel spreadsheet. Descriptive analysis was used for socio-demographic characteristic, distribution of MEPI-JF scholars within scientific areas, number of publications, grant applications, and conference presentations before and after joining MEPI-JF. For the qualitative data, the records were first transcribed in English word by word then uploaded to qualitative data management software. Analysis was conducted by writing thematic memos about emerging themes in the data. The data was extracted, assigned codes, and descriptive summaries for each of the codes were made. Thematic analysis of the data was conducted using MaxQDA for reviewing the transcripts and identify deductive and inductive patterns within the codes developed.

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board (IRB) of the CHS. The purpose of the study was clearly explained to all study participants before each interview was conducted. Assurance was made for the anonymity respondents and the confidentiality of the information they provide. Informants were also at their discretion to withdraw from participating in the study if they wished.

RESULTS

Scholars' Socio-Demographic Characteristics

The mean (SD) age of the scholars was 36 with SD (±4.4). Nineteen of them were females. All the scholars were medical practitioners and faculty members of the Schools of Medicine and Public Health with rank of assistant professor. Nine scholars were from the Department of Internal Medicine followed by Neurology, Obstetrics & Gynecology, Surgery, and Dermato-venereology) four scholars' each.

Program Description and Status

Scholars are enrolled into the program to conduct their mentored research in four scientific areas that are considered of priority for research: HIV/AIDS and related infections; maternal and child health; non-communicable diseases (with focus on diabetes and cardiovascular conditions); and mental health (with focus on community interventions). Table 1 shows the distribution of scholars across the four scientific areas.

Table 1: Distribution of MEPI-JF scholars across scientific areas

Scientific area	Number of Scholars					Total
	Co-hort I	Co-hort II	Co-hort III	Co-hort IV	Co-hort V	
HIV/AIDS	-	5	1	1	5	12
Maternal & child health	2	1	2	2	3	10
Mental health	1	1	2	2	1	7
NCDs	5	1	3	3	3	15
Total	8	8	8	8	12	44*

* Two have dropped out of the program.

Mentored Research

The results of the focus group discussions found that core capacity in research was built through the training and mentored research among the junior faculty members in selected priority scientific disciplines. Majority of the scholars confirmed of having a mentor (both local and international), and they have found the mentor-mentee agreement to have highly significant impact on their research advancements.

> *"Honestly speaking, I got the right idea about mentor-mentee relationship after I became a scholar. I had advisors throughout our educational career, but now I have formally learnt about what is expected from mentees and mentors. Our interaction with our mentors is very good and cultivating".*

The didactive courses were also found to be very useful. The scholars felt that the biostatistics course in particular was explained in so much simple terms, that they got good grasp of the subject.

> *"All the online courses and in-person trainings were very helpful. They were very interesting and have made us knowledgeable"*

> ***"****In particular, the courses in biostatistics and data management were interesting"*

The journal club presentations were also highly appreciated by the scholars, and considered to be very useful in strengthening their research knowledge and in better understanding research methodology.

> *"I am pretty sure that MEPI journal club is different from our department's journal club. I follow attentively. It is just amazing how you follow the research methodology and see part and parcel of the discussion".*

There are also MEPI-JF Scholars' Scientific Conferences that are organized annually where the scholars make scientific presentations as well as progress reports. These annual conferences also provide opportunities where mentorship trainings are conducted, and lectures on contemporary issues and new developments are provided by speakers invited on the basis of their expertise in the relevant subjects.

All scholars have made presentations in MEPI-JF Scholars Scientific Conferences. Furthermore, scholars are also provided with travel related resources for presenting their research work at international forums. In the focus group discussions, the scholars mentioned that the feedback on their presentations at the annual conferences were very useful.

Program Output

At the time of the write-up of this article (in 2020), the program has graduated three cohorts of 32 scholars, and additional two cohorts of scholars are on the process of conducting their research activities. As of this same period, the first three cohorts of junior scholars in the program have made a total of:53 publications and 63 scientific presentations (at local and international meetings) after they joined the program. The three cohorts of scholars have also secured 11 grant awards from funding agencies. Figure 1 below shows the changes in the number of scientific presentations made by the first three cohorts of scholars before and after they got enrolled into the program.

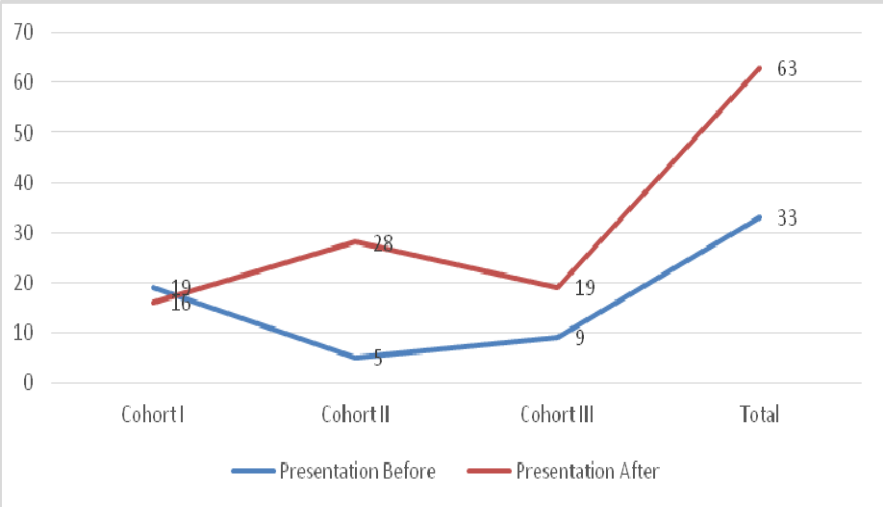


Figure 1: Changes in scientific presentation before and after enrolling in the program (first three cohorts).

Possible Program Impact

The publication record within the College of Health Sciences has been steadily growing over the last five years as shown in figure 2 below, and research outputs by the MEPI-JF scholars is no doubt among the contributing factors to this phenomenon.

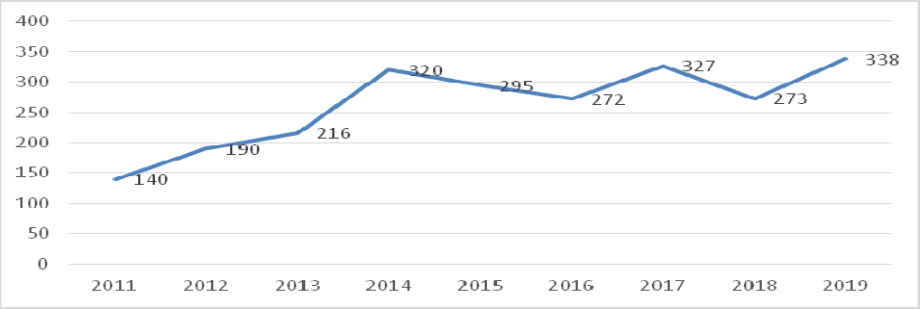
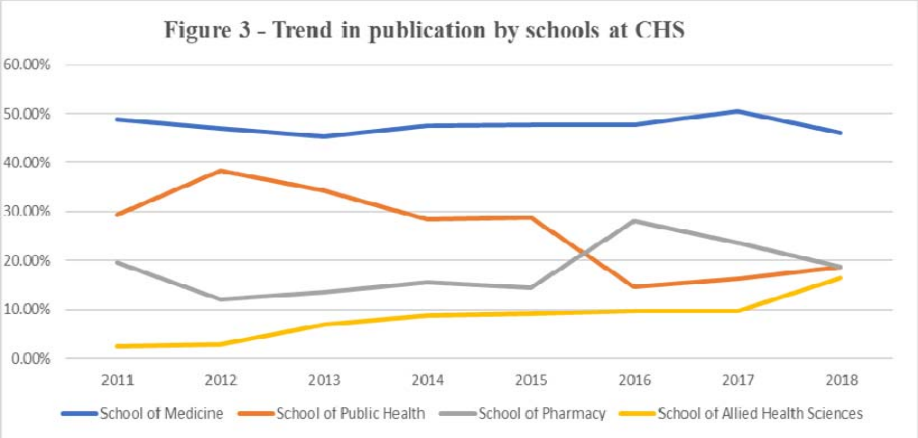


Figure 2: Number of publications within CHS.

Similarly, as shown in figure 3 below, the proportional contribution of the School of Medicine within the CHS's trend in the total publication also seem to be steadily increasing since 2016.



DISCUSSION

The present study was aimed at looking the outputs and possible impacts of the Medical Education Partnership Initiative (MEPI) Junior Faculty (JF) research training and mentorship program within the College of Health Sciences at Addis Ababa University. As shown in the findings, the program seems to have resulted in changes in research outputs among the junior faculty members involved. In addition, the fact that there has been an overall trend of increase in the number of publications within the College during the period of the program implementation, one can suggest a possible impact of the program on the research output in the College in general.

It should also be noted that at the AAU level, faculty members of the CHS have been rated among the top in their publication outputs. AAU's share of world research output increased from 0.017% in 2012 to 0.024% in 2016, and among the total of 2,352 publications by the University that were found in Web of Science during 2012-2016, the CHS produced the highest number (757) or 32% of them (10). Furthermore, based on evaluation of research performance and ratings by members of the academic community around the world and in the region, Addis Ababa University was ranked as the tenth top global university in Africa (with a world rank of 618) in 2019 (the first being University of Cape Town with a world rank of 121) (11).In addition, it is known that enhancing the research capability of academic faculty also would have positive benefits to those involved both in terms of increase in the scope of knowledge as well as in improving ones' status within the global academic community (12).

Another element in the MEPI-JF program is that it is a collaborative program with other universities, and this has been seen to be an important factor in research productivity of faculty across the landscape of universities according to a comparative analysis of research versus non-research institutions (13).

The fact that scholars were given access to travel opportunities at international meetings for presenting their research work will be an impetus for them to work towards publishing their research. Similarly, encouragement for publication by organizing periodic conferences to present their papers, creating opportunity to hear others research presentations, and opportunity to create researcher network are considered as important strategies to increase research productivity in higher educational institutions in India (14).

Of course, resources are required for financing the providing research activities of the scholars as well as for providing protected time to engage them in the program.

The commitment by departments and faculty colleagues to be willing to share the teaching and clinical responsibilities foregone by the scholars during their engagement in the program is also very critical as demonstrated earlier in the findings of a case study in Canada (15).

Junior faculty in the study are enrolled in the program based on individual research proposals they submit in response to calls for competition, and such a process does not have much room for group or team-based activities. Given additional resources in the future for similar efforts, it is recommended that programs be directed towards encouraging interdisciplinary and collaborative "team science" research (16).

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