Women's Health Research Working Group: A Mentorship Model to Increase Women's Participation in Research

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Abstract

Background: Female academia makes up only a fifth of all faculty at Addis Ababa University, where only a few are actively engaged in research. With a belief that dedicated mentorship could bring positive change in research participation, a female-to-female mentorship group was established at the College of Health Sciences.

Objective: This study aimed to assess the effectiveness of mentorship in improving the research participation of young female academia from August 2016-April 2019.

Methods: The implementation was instituted by establishing a female-only research working group to enhance the participation of young female faculty members who were newly employed in a relatively large number. The main interventions were the coupling of mentors and mentees based on their respective research areas for two hours' weekly lunchtime and providing need-based training and life skill talks by exemplary women. We used a desk review and written testimonies of the Group to evaluate the effectiveness of the intervention.

Results: Young academics of the Group started to author scientific articles while the mentors had increased their publication track. The Group won a competitive three-year research grant. from Addis Ababa University. Its visibility due to its research output has helped to attract more members and encouraged the establishment of other sister groups in the University. The Group has also received the best female research group award from the Ministry of Science and Higher Education.

Conclusion: Female-to-female mentorship had helped researchers in their early careers to publish and won grants. This could be an exemplary intervention which only requires a commitment of staff time. [*Ethiop. J. Health Dev.* 2021; 35(SI-2):08-14]

Keywords: Female faculty, Implementation research, Mentorship, Research working group

Background

It is well known that women account for more than half of the global population and play an essential role in the economy (1). However, women's contribution to national development will be optimal when girls' enrolment in education is high (2). It is well documented that education empowers women to participate in science, politics, and gainful employment where it enhances the development of a country (3). Current estimates indicate that two in three countries have achieved gender parity in primary education; one in four countries have achieved gender parity in the secondary level education; and few countries achieved gender parity in higher education (4, 5). This low level of female enrolment in higher education will further affect the participation of women in academics (4).

Several global commitments, including the Sustainable Development Goals (SDGs), give directions towards gender parity in education and female empowerment in education, but this could not be achieved without countries' commitment to increase the proportion of females in higher education. In countries where gender parity in higher education is obtained, women's transformation from higher education to academics is not a simple task for different reasons including entrance barriers, workplace discrimination, and lack of interest by women (3).

Once women are engaged in academics, another challenge that deters their development in science is the lack of participation in research (6). In developed countries where women are encouraged to participate in scientific research, the numbers are not yet to create a critical mass of women researchers as per the United Nations' suggestion (6). Women's participation in academia is envisaged to be in all the three main areas of academics' research, teaching, and community services. However, even in developed countries, while women participate in service delivery and teaching, their participation in research as first authors is not visible; it is mostly limited to reviewing and coordinating activities (6). A UNESCO study indicated that women account for only 30% of all researchers globally (7, 8).

In developing countries, including Ethiopia, girls' education is affected by different social, economic, and cultural factors (8, 9). In Ethiopia, though gender parity is achieved in primary school enrolment, it is still in its infancy in higher education. A disproportionate percentage of all females (38%) in secondary education join tertiary education (8, 10). Current developments in Ethiopia affirm that women in academia will contribute to politics, including higher education and science leadership. However, women's academic participation is still insignificant, mainly because of girls' low enrolment in higher education (10). The Ethiopian Government has launched different strategies to increase female participation in education, academia, and higher academic leadership. The fourth Ethiopian Education Sector Development Plan (ESDP IV), for example, aimed to bring the proportion of females in academia to reach 25% and 16% females on top of the academic position (9). Despite this plan, the number of females in academia is still low (15.1%) as shown in a 2015 report where only 22.9% of staff with a bachelorette degree were females, and only 7% were females among faculty with an M.Sc. or a Ph.D. (11). The share of female academics in science and research was also meagre, in which less than 20% of women were in science and engineering universities (12). In

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addition, the female faculty mix is even worse as first, second, and third-degree qualifiers are at 22.9:10.2: 5.7, showing the gap in getting to the target as per the Ethiopian Education Sector Development Plan. With respect to the various leadership posts, females have achieved more than the target as university board members but achieved quite insignificantly in lower management positions (17.3%) and top leadership positions (38/6%) (14].

Understanding this gender gap in research, interested female faculty members at the College of Health Sciences formed a group called "Women's Health Research Group (WHRWG)" in July 2016. The main aim of the Group was to build local capacity in conducting high-impact and quality research by mentoring young female faculty members. This implementation study was conducted to evaluate WHRWG's mentorship effectiveness in the research involvement of young female faculty members who were involved in the mentorship program.

Methods:

Settings: Addis Ababa University is one of the oldest universities in Ethiopia, established in 1950. The University has 2,987 academic staff in its ten colleges and 11 teaching and research institutes where only 16% were female as of 2020. The College of Health Science (CHS) which consumes about 40% of the University budget, has 685 staff in which only a fifth (148) of the faculty were female in the four Schools found in the College (i.e., School of Medicine, School of Nursing, School of Pharmacy, and School of Public Health) (12). Other than the few graduate assistants currently employed to increase female faculty number, most female faculty of the College have at least a master's degree or MD with a specialty. Their research engagement is, however, limited except as partial fulfilment of a master's degree or specialty certification. Concerning academic achievements, as of October 2020, the College has only one female full professor and less than ten female associate professors.

Study design and period: The study employed a formative assessment to evaluate the effect of research mentorship implementation from August 2016 to April 2019.

Study population: The participants of this study were 15 young female faculties who were newly employed with a master's degree (n=10) or MD plus specialty certification (n=5) at the College of Health Sciences (CHS) Addis Ababa University (AAU). The mentors were four senior's female faculty members with a Ph.D. (n=2) and MD plus subspecialty (n=2)

The implementation

Working group establishment: The main intervention in this implementation study was establishing a female-only research working group. The relative increase in young female faculty at the College, especially at the School of Public Health (SPH), was seen as an opportunity to increase female researchers' number through mentorship.

***Mentorship*:** Mentors and mentees were coupled based on their specific research areas. A mentor would have between two-to-three junior faculty as mentees where they meet every week for two hours at lunchtime. In addition to mentoring in a small group, the junior faculty were presenting their progress, starting from proposals to all the group members.

Training: Three major trainings were organized and provided to the group members. The courses included advanced statistics (10 hours), qualitative research methods (32 hours), and grant application writing (eight hours). Life skill training in balancing work and life was also provided by prominent international female role models in academia.

Publishing a memorandum of establishment: To guide the function of the Group, the Group drafted its memorandum of establishment, which has 15 main articles: naming and the effective date of formation; headquarter and branch offices; objectives; membership; election and duties of the chair; duties and responsibilities of the Group Members; meeting days and attendance; confidentiality and good practice; Ethical practice; Evidence generation modalities; research focus areas; income generation for researches and start-up funding; dissemination of research findings; and commitment to life.

Evaluation: The evaluation focused on the progress made among the same population of junior faculty members in terms of research participation, grant application, research awards, and participation in academic leadership and scientific presentations.

Data collection and analysis*:* We reviewed documents such as the memorandum of establishment, weekly meetings minutes, proceedings report from the three annual International Women's Day presentations, and success stories of members narrated by themselves. Having analysed the above documents, this article presents the evaluation findings by narrating stories and descriptive tables.

Findings from the evaluation

Naming and fixing meeting dates: The Group's naming and setting meeting dates was the first step the Group took. That was followed by setting a standing meeting date. The Group was named "Women's Health Research Working Group". Group members dedicated their lunchtime to their weekly working meetings. Over the past three years of its establishment, the Group has performed several scientific works, including planning, training, mentoring junior faculty, learning from role models, and related activities.

Setting research focus areas: The Group held a brainstorming session and chose seven thematic areas that focus on women's health including maternal health, non-communicable and communicable diseases, environmental health, health systems nutrition, and gender.

Initial research engagement: The nine junior faculty

came up with five project proposals of which three were successful (Table-2). Six junior faculty participated in the three research areas. While four young and two senior faculty members took part in a clustered randomized controlled trial, two junior and two senior faculty participated in the other longitudinal data analysis and survey studies. Though the four senior faculty were mentoring the six young faculty in the three studies, the study was discussed in most weekly lunch meetings. As indicated in the table below, the two studies were published, and one is ready for submission Table -1.

Table-1. **Initial studies conducted by the WHRWG at the College of Health Sciences from 2017 to 2020.**

S.No	Study title	Number of young faculty	Mentors	Source of funding	Status
1	Role of Health Education on Cervical Cancer Screening Uptake at selected Health Centres of Addis Ababa	Four young faculty (1 PI and 3 co-PIs)	Senior faculty Public Health	AAU senior faculty project	PLoS ONE 15(10): e0239580. https://doi.org/ 10.1371/journal.pone.0239580
2	Depression and social support among breast cancer patients in Addis Ababa, Ethiopia	Four young faculty (1 PI and three co-PIs)	Senior faculty with clinical and PH background	AAU, senior faculty project	*BMC Cancer* **19,** 836 (2019). https://doi.org/10.1186/s12885-019-6007-4
3	Mortality trends of rural women in Butajira, a 33-year trend analysis	One Young faculty	Senior faculty with PH background	AAU, existing database	MS ready for submission

Dedicating women's research day: The Group has been celebrating March 8th, (International Women's Day) at the CHS since 2017, and the date was dedicated as *"Women's Research Day"* by the College in the same year. Since then, the Group had presented its establishment booklet, research proposals, and subsequently its research findings from 2017-2019 as indicated in Table-2. In addition, a broader topic on empowering female researchers at universities and the way forward was also presented. The Group obtained support from the academia where prominent personalities from the Ministry of Higher Education such as State Ministers, President of Addis Ababa University, Director for Research of AAU, College Executive Directors, and AAU Gender Office gave keynote addresses, opening and closing remarks on the yearly celebrations.

Motivating other women in academia: In addition to presenting scientific works, the celebration of March 8th, as a female research day, has helped motivate others and increase the number of female faculty interested in taking part in the Group. Using the Group as their model, the faulty at the Natural and Computational Sciences (with about 20 members having diverse backgrounds) has formed a similar group.

Research grant application: The Group has been competing to get research awards both internationally and locally. The Group applied for the fifth round Addis Ababa University Thematic Research Grant to study the gender gap in research, and it was awarded 1.5 million Birr (equivalent to about USD 55,500). In this thematic research study, all WHRWG members participated. The Group conducted the study between 2017 and 2019 and generated data from 980 faculty (both men and women) who were on duty at the time of the study and were willing to participate in the study. As a result, three articles are published as a special issue where young faculty took part as lead authors and co-authors. The other three manuscripts examining the international and national perspectives and the present manuscript were authored by the senior faculty from the Group (Table-2).

Table-2. **Second round of research works conducted by the Women's Health Research working WHRWG 2020.**

S. No	Research title	Lead author	Source of funding
1	Gender inequity in higher education in Ethiopia. (Editorial)	Senior Faculty	Faculty time/AAU
2	Gender Equality in Academics: Are we there?	Senior Faculty	Faculty time/AAU
3	Women's Health Research Working Group: A Mentorship Model to Increase Women's Participation in Research.	Senior Faculty	Faculty time/AAU
4	Experience of Research Undertaking among Women Academia at Addis Ababa University: A Qualitative Study	Junior faculty	AAU
5	Female Academia's Carrier Development and administrative positions at Addis Ababa University: A Mixed-Method Study	Junior faculty	AAU
6	Gender Difference in Research Productivity and its associated factors at Addis Ababa University: A cross-sectional study	Junior faculty	AAU

Presentation of the Group in workshops: Invited by the State Minister of the Federal Democratic Republic of Ethiopia Ministry of Science and Technology (MoST), the Group presented about its establishment at "National Capacity Building Workshop and 4th Annual Conference of Society of Ethiopian Women in Science and Technology (SEWiST)". The workshop was organized by MoST with the theme " *The Status and Prospect of Ethiopian Women Researchers, Women Empowerment and Leadership Skill in Science and Technology*.

Invited by the University of Bergen, Center for International Health, Norway, the Group also presented itself and discussed related gender issues in a moderated panel discussion at a breakfast forum held at the Centre. The theme of the discussion was *"A men's club? Gender, research, and higher education in Ethiopia"(15).* In this moderated discussion, a gender specialist from the University of Bergen gave a gender perspective in academia.

Recognition: The Group got recognition from the Federal Democratic Republic of Ethiopia, Ministry of Science and Higher Education during the International Science Week. The Group was awarded the Ethiopian Women in Science 2019 award for the *"Best Female Research Working Group Performance"* along with a financial incentive to be used for its lunch meetings.

Testimonies of the Group on their professional development: One of the main aims of the Group was empowering the group members to write and publish their scientific works. Both mentors and mentees have reflected on their experiences. A young faculty indicated her participation in research work as follows:

> *I joined the Working Group in 2016. It gave me a rare opportunity to work with committed senior researchers and colleagues. Most of the research conducted by the Group aimed at studying women's health problems. I got the opportunity to lead a research project entitled "Role of health education on the uptake of cervical cancer screening." The paper has recently been published (Junior faculty, MPH-R1)*

On their part, mentors point out that their research productivity has increased following their involvement in the group. One of the mentors has, for example, this to say:

> *My publication was only 10 when I joined the Group. It took me seven years to get there; however, I have published 23 articles in peer-reviewed journals in just three years after joining the Group.https://scholar.google.com/citations?hl=en&user=HTCgLfkAAAAJ" (Mentor, MD with specialty, MPH-R2)*

Talking about a similar experience, another mentor says,

> *... I have taken so much; my relationship with the Group positively evolved me to an aggressive researcher; I published 9 articles and my promotion [to the next academic rank] is under review. From the lunch meetings, I have learned that there is no perfect time but good to work effectively and that changed me to become a passionate mentor/advisor (Mentor, MD with specialty- R3)*

Most young faculty in the Group report that their research skill has improved by being in the Group. Here are some remarks by two junior faculties:

> *Over the past few years, I have gained a lot about research from the team. My understanding of different research methodologies has evolved. I have learned and shared experiences about proposal and research grant writing. I also had the opportunity to get short-term training in qualitative research and to be part of internationally renowned expertise talks. (Junior faculty, MPH)*
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> *Joining the group has helped me to acquire lots of skills such as grant writing, scientific writing, networking, communication, teamwork, and mentorship through our weekly meetings, workshops, and actual research activities." (Junior faculty, MPH-R4)*

Most young members described the Group as a place of learning and balancing life and work. The selfless contribution of the mentors to research is also reported as encouragement by some:

> *From our Group, I have learned how to be able to work despite being busy; how to be a successful woman; how to be a caring mother, and still be a visionary leader. I learned that we should not give up on our hopes and dreams and have faith in ourselves. I am grateful for that! (Junior faculty, MD, with specialty-R5)*
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> *In addition to the mentorship and support in the research, I have learned a lot informally from the lives of senior female researchers. I have witnessed their hard work and selfless contributions to research despite their multiple*

commitments in life. Finally, I can say the Working Group is where you learn, contribute, and share your difficulties in life with friends. (Junior Faculty, MPH-R6)

Other young members also indicated that they got more beyond academics and research from the Group:

Besides the professional value, social support is also beneficial. The group members' positive spirit is contagious, and it has inspired me to be strong in several aspects of life. I am very thankful for the great experiences I had as a member of this unique Group. (Junior faculty, MD with specialty-R7)

Some also indicated that it allowed them to dedicate their time to research:

Before joining the Group, I was preoccupied with my usual activities of seeing patients and teaching. Nevertheless, in the Group, I appreciated the importance of research and devoting time to research projects. My knowledge of considerable research skills increased considerably. (Junior faculty, MD with specialty-R8).

Almost all the Group members indicated that the Group has been an inspiration for them and a platform for learning and experience sharing. A young faculty indicated the group dynamics as infectious:

When you have such mentors and vibrant young female academicians that work intently to see the advancement of young female faculty, it is quite overwhelming; it is impossible to sit back and not be part of the solution as their energy and goodwill are too infectious. The Group is always actively working, searching for innovative strategies, researching to solve the health challenges faced by our fellow countrywomen, and get it scrutinized through the lens of science. (Junior faculty, MD with specialty-R9)

Mentors also say that their involvement in the Group has been quite inspirational to them:

My experience as a member of the Group since 2016 has been overwhelming in the best possible way! I attended most of the lunchtime meetings. Talking and sitting with these successful professionals and experiencing their energy was refreshing. Training exercises showed me how to be more effective in writing, work in teams, and understand my strengths and weaknesses as an academician. Being introduced as a senior/core member in the Group was another dimension of my experience. It allowed me to exercise the experience of being a mentor (MD, with specialty and MPH, Mentor-R2).

The members reported mutual support from the Group, ease of discussions, mentorship, and an amicable relationship to work more. One of the mentors has indicated her feelings as follows:

Being a member of this working group has been one of the best experiences in my academic life. All the meetings have been full of cheer, uplifting, while at the same time with weighty agendas that addressed the aim of the establishment of the Group. I learned a lot from the young members' enthusiasm, attention to the mentoring they get from the seniors, and their resilience to further their careers in science despite their challenges at this stage of their life. The benefit from the kind of mutual support we have in this Group is immeasurable. Personally, after joining the Group I have continued to publish, be involved in more projects in my area of expertise, and always mentor young women in science to assist them to reach their highest aspirations and use their potential capacity. (MD,PhD Mentor-R11)

Professional enhancement and developing self-confidence were other benefits the mentors reported:

I have gone up to the top professional ladder at my university because of the encouragement from my Group which has boosted my confidence and the prominence I got because of the Group. (Public Health Ph.D., Mentor-R12)

A mentor indicated her conviction in spreading the work throughout the country by breeding the success of this Group as follows:

My wish is that this home-bred experience should be sewn in all universities so that all young and senior faculty across the country become the best of their individual

and group potential. (MD with specialty mentor –R13)

Discussions

This study revealed that both mentors and mentees have benefited a great deal by working together in the study group. As a Group, they have won a thematic research grant. Young faculty have on their part started publishing their works in peer-reviewed journals. Mentors also increased the number of their publications. The fact that the Group selected women's health as their research agenda helped them to have a specific focus. By promoting itself in international and national forums. the Group has also been able to attract more women to be its members.

Women in academia are usually dedicating their time to teaching and student supervision in addition to household responsibilities as mothers and wives. The situation is much worse in a patriarchal society such as Ethiopia, where women shoulder most of the burden at home (16, 17).

In this situation, a group like ours has shown the possibility of enabling female faculty to use their potentials and participate in research, including winning a research grant, publications in peer-reviewed journals, and advancing in higher academic leadership roles (18).

Young women in academia shoulder much responsibility as they are overburdened with routine job-related activities as a professional and family responsibility in their prime age of production and reproduction. At this juncture, the need for a group that could encourage them and creates a friendly environment is essential. Working in a group using the personal time (time allotted for lunch) is a practical intervention that has improved the research participation of young faculty in the College. A recent study indicated the importance of collaborative work and mentorship as a key to optimize the research time for faculty at their prime time of research (19).

Dedicating a specific working day and time naturally free for most had helped the Group to come together despite their busy schedule as health professionals. In addition to socializing, the time spent in the group is mostly used to brainstorm ideas, share works done and update on assignments, and discuss challenges and opportunities. Apart from research work, socialization and informal discussions helped strengthen the Group to work more. Luncheon meetings, which are called by the westerns as brown bag luncheons, were reported to have impacts on scientific works (20).

In this study, young faculty reported that the ease of mentorship and the mentors' commitment to scientific work had introduced a strong interest in research work. The fact that young faculty who had never authored a scientific article reported having published at least one paper suggested that this implantation research intervention was worthwhile. There is also a great interest among women to undertake research, and more members had joined the female-to-female Group, which has helped in the professional diversity of the Group. We were also able to replicate similar groups in other colleges at the University, suggesting the importance of female-to-female mentorship which creates mutual understanding and interest. Mentorship has proved to be a key intervention in improving the capacity of the mentees elsewhere, too (21, 22)

On the other hand, mentors also reported having published more than ever before and participated in more research grant-winning proposals. Emphasizing the benefit of exchanging research ideas, the mentors also indicated the lessons they learned from the mentorship exercise and the mentees. Their experience confirmed that mentorship is a two-way communication where mentors can also update their knowledge from mentees who are current in their education (23).

This mentorship intervention also brought prominence to the Group by stakeholders and policymakers. Its recognition as the best female research working group by the Ministry of Science and Higher Education is the result of the hard work by the Group. Others also indicated that mentorship brings recognition as a subject matter expert (24).

Professional development was one of the items mentioned by both mentors and mentees. Some of the mentors reported that they have evolved in the University leadership positions partly because they participated in the Group. This may be related to the self-confidence created by the Group's participation for both mentors and mentees. Professionals who are mentored are reported to have been successful and satisfied with their careers (25).

Lessons learned: From this study, we learned that forming a research working group and introducing simple interventions such as mentorship with written guidelines could increase women's research participation and capacity in academia. Dedicating a specific working date and time has enabled the Group to have coordinated time to work in groups, share ideas, and obtain mutual support. The friendly situation and socialization have also helped keep the momentum of the group which is believed to sustain it.

Conclusion

In Ethiopia, where the number of female faculty in academia is minimal, the Government has recently decided to increase the number of female faculty by employing new graduates as graduate assistants who are expected to transform in a short time to lecturers by studying for their master's degree. This type of female-to-female mentorship would be an opportunity to transform young female faculty into vibrant researchers if senior faculty understand the need and intervene in mentoring these incoming young academicians. Learning from the experience of the Women's Health Research Working Group and implementing it nationwide, we believe, will accelerate the creation of a critical mass of female researchers and scientists as a long-term benefit of the country.

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