Development and Evaluation of a Peer Mentoring Programme for Postgraduate Medical Residents in Pakistan: A Pilot Study

Sonia Ijaz Haider[1], Qamar Riaz[2] and Muhammad Furqan Bari[3]

[1]*Dow Institute of Health Professions Education, Dow University of Health Sciences, Karachi, Pakistan*
[2]*Department for Educational Development, Faculty of Health Sciences, The Aga Khan University, Karachi, Pakistan*
[3]*Department of Pathology, Dow University of Health Sciences, Karachi, Pakistan*

ABSTRACT

Objective: To develop, implement, and evaluate the impact of one-year peer mentoring programme for postgraduate medical residents.

Study Design: Mixed methods.

Place and Duration of the Study: The Aga Khan University, Karachi, from January 2019 to December 2020.

Methodology: A survey was administered to junior residents in Medicine, Paediatrics, Pathology, and Radiology residency programmes to identify their academic needs from January 2019 to December 2020. Final-year residents, who served as peer mentors were provided a one-day mentoring workshop, including details of the identified needs. This was followed by one-year intervention in which mentors-mentees met as per mutual feasibility. A structured survey and focus group discussions were conducted to inquire the effectiveness of mentoring.

Results: A total of 33 out of 52 (63%) Year 1 residents completed needs analysis survey. Four essential identified areas were research (63%), memory (59%), reading (55%), and time management (53%). Residents reported excelling in areas of research, memory and reading, however, time management needed improvement. Focus group discussions emphasised mentoring as mandatory, including the wide range of skills.

Conclusion: Senior residents should be trained as mentors of juniors, and semi-structured formal and informal mentoring can be implemented across all residency programmes.

Key Words: *Mentoring, Residents, Postgraduate, Medical trainees.*

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INTRODUCTION

Mentoring is a process whereby an experienced, highly regarded, empathetic person (the mentor) guides another (usually younger) individual (the mentee) in the development and re-examination of their own ideas, learning, personal and professional development.[1] Evidence indicated mentoring as essential for the professional growth of medical students and trainees into competent physicians.[2-4] The benefits of mentoring include increase in clinical knowledge and skills, guidance and career counselling for pursuing a clinical speciality, increased research output, and personal development.[5,6] Presently, in Pakistan, there is no formal and structured mentoring system for postgraduate medical trainees.[7]

Correspondence to: Dr. Sonia Ijaz Haider, Dow Institute of Health Professions Education, Dow University of Health Sciences, Karachi, Pakistan
E-mail: drsoniahaider@gmail.com

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It is essential to develop a programme in which senior trainees can be trained to become mentors for junior trainees. This is imperative because senior trainees can facilitate junior trainees' smooth transition into residency training programme by advising and supporting them in their career development, social acclimatisation of the institution, residency programme, and coping with work stress and burnout.[8] Senior trainees as mentors can also benefit from mentoring because this gives them the opportunity to develop mentoring skills, ultimately preparing them for their role as the future physicians.[9,10] Studies have been conducted which indicate that during residency programme, residents suffer from stress, burnout, and fatigue, and during this time, they need a mentor who can support them in dealing with their professional workload and responsibilities.[11,12] Without a mentor, residents are unable to effectively manage the workload; hence their work quality is also compromised which in turn negatively affects patient care and management.[13,14] Therefore, before implementing a large-scale mentoring programme, the objective was to conduct a pilot study to explore the needs of the residents, and then develop and implement a peer mentoring programme for postgraduate medical trainees.

The aim of this study was to develop, implement, and evaluate the effectiveness of a pilot peer mentoring programme for postgraduate medical trainees in Pakistan.

METHODOLOGY

It was an exploratory mixed methods research design study. Peer mentoring was introduced in the Internal Medicine, Paediatrics, Pathology, and Radiology residency programmes at the Aga Khan University, Karachi, from January 2019 to December 2020. Prior to commencement of the study, the Ethics Review Committee of the institution approved the study. Written informed consent was taken from all participants in the study. Participants for the study were first year (as mentees) and final-year trainees (as mentors) in four residency programmes including Medicine, Paediatrics, Pathology, and Radiology. The reason for selecting first-year trainees as mentees was because they needed maximum support as compared to the trainees in later years. Final year residents were selected as mentors because they had experienced all the years of the postgraduate residency programme and were most appropriate in supporting first-year trainees as mentees during the residency training. In total, there were 14 mentors and 26 mentees (Table I).

Table I: Number of mentors and mentees from different specialities.

Department	Mentor	Mentee	Mentor-mentee ratio
Medicine	4	8	1:2
Radiology	2	2	1:1
Pathology	3	6	1:2
Paediatrics	5	10	1:2
Total	14	26	-

The study was conducted in three phases:

1. Needs assessment
2. Intervention
3. Evaluation

The residency programmes at the university vary in duration ranging from 3 to 6 years. A survey questionnaire was administered to the first-year and final-year residents of four residency programmes to identify the needs and challenges during residency training and the support they needed. Final-year trainees were included because they had been through the entire residency and thus, were more suitable (as compared to other residents) for identifying challenges and issues in the residency programme, while the first-year trainees would be able to identify the areas in which they needed support from their faculty/mentors. A written consent was obtained from all the participants before administering the survey. A total of 33 out of 52 (63%) Year 1 residents from Internal Medicine, Surgery, Gynaecology and Obstetrics, Pathology, Radiology and Paediatrics residency programmes filled out the needs analysis survey. Frequencies and percentages were used to calculate the results. The residents indicated that they needed support, particularly during the first year of residency (33 residents, 63%). The four areas which were rated by residents as needing the maximum support and guidance were:

- Research Skills (33 residents, 63%)
- Study skills - Memory (31 residents, 59%)
- Study skills - Reading (29 residents, 55%)
- Time management (28 residents, 53%)

The findings from the survey were used to prioritise the areas for developing the peer mentorship programme.

Based on the needs assessment, a one-year mentorship programme was developed that focused on 4 areas: Research Skills; Study Skills (reading and memory); and Time management. Four residency programmes namely Internal Medicine, Pathology, Radiology, and Paediatrics were identified for the pilot because of the difference in their work dynamics and structure of the residency training. A formal approval from the directors of these residency programmes was obtained. Final year senior trainees and junior trainees in first year in these residency programmes were invited to participate in the study *via* email, followed by a meeting during which they were given an overview about the mentorship programme. Those who consented were enrolled into the study, and randomly assigned as mentors (final-year residents) or mentees (first-year residents). The final-year trainees, who were expected to serve as the peer mentor for the first-year trainees were provided a one-day mentoring workshop to orient them about their roles and responsibilities as mentors. During this workshop, each of the 4 areas included in the peer mentorship programme was also discussed in detail. The participants were also given brief readings and references for detailed readings regarding these areas. In addition, they were also informed to hold weekly meetings with mentees for one month, followed by fortnightly meetings with the mentees. In each meeting, they were required to fill a brief mentor/mentee recording sheet. Moreover, the mentors were encouraged to contact the investigators at any point for any clarification or assistance on any matter. The duration of mentorship was one year during which the mentors and mentees initially met weekly in the first month, and later, fortnightly. Short formal meetings with mentors were conducted monthly (if needed) to resolve problems and queries related to their role.

At the end of one year, a structured survey was administered to all the mentees to rate their competence in Research Skills; Study Skills (reading, and memory); and Time management using a five-point Likert scale. Percentages were used to calculate the responses of the participants. This was supplemented by focus group discussions to explore in-depth about the overall effectiveness of the peer mentoring programme on their personal and professional development, and any issues or challenges which they came across during the programme.

Data from quantitative surveys were analysed using StataCorp. 2019 (Stata Statistical Software: Release 16, College Station, TX: StataCorp LLC). Descriptive statistics (percentages and frequencies) were used to calculate the survey. Initially, the audio recordings from the students' interviews were transcribed. In the transcriptions, no identifying features/charac-

teristics were included. A thematic analysis approach was used to analyse the transcript. The analysis included steps such as familiarisation, identifying significant statements, formulating meanings, clustering themes, developing an exhaustive description, producing the fundamental structure, and seeking verification of the fundamental structure. Two researchers were involved in independently reviewing the data and formulating the themes after summarising and extracting the meaningful contents, bracketing the presuppositions of the researchers. Any inconsistencies were solved through discussion until a mutual agreement was reached.

RESULTS

A total of 26 out of 33 mentees completed the evaluation survey. In the survey, there were 12 items related to research skills. Majority of the participants were able to summarise scientific information (11, 42.3%); 14 were able to interpret data graphics of a scientific article (53.8%); 12 analysed main ideas of a scientific article (46.2%); 12 made conclusions after reviewing scientific literature (46.2%); 13 reflected as they read a scientific article (50%); and 13 knew how to perform literature search (50%).

More than half of the participants were able to identify the structure of a scientific research article (12, 46.2%); 38.5% used references according to the rules of scientific writing; and only half of the participants were able to prepare abstract of a research topic (34.6%). Majority of the participants were unable to orally communicate the results of a review (12, 46.2%); 10 could critically discuss research articles (38.5%); and 12 brought ideas to develop a research topic (46.2%).

There were 7 items in the survey related to memory skills. Majority of the participants indicated that they associated new information with previously learnt material (14, 53.8%); 11 used repetition to study and practice in more than half of the time (42.3%); 13 made summary of their reading for better understanding in more than half of the time (50%); 10 used mnemonic devices such as acronyms (38.5%); less than half of the participants (7) created colourful visual charts to correlate with new information (26.9%), and 9 reviewed notes and reading within 24 hours (34.6%). However, majority of the participants were unable to make songs and rhymes to learn new knowledge (65.4%).

There were 7 items related to reading skills. Majority of the participants indicated that they browsed through the heading of pictures, charts, questions, and summaries (46.2%); 38.5% tried to infer the meanings of new words, and 50% looked for main ideas as they read. Majority of the participants broke large reading assignments into smaller chunks (34.6%), 14 tried to organise main ideas and details into some logical order (53.8%), and 10 did self-review of their reading (38.5%). More than half of the participants indicated that they made notes while reading from a chapter (30.8%).

There were 7 items related to time management skills. Majority of the participants (46.2%) indicated that they scheduled their study time in about half of the time to avoid cramming; 12 chose tasks appropriately in the allocated time in more than half of the time (46.2%); and 10 were amenable to change in situations if prevented from doing the selected work (38.5%).

Most of the participants indicated that they were able to schedule their own time in less than half of the time (65.4%). Majority of the participants did not use a planner or a to-do list to keep track of tasks (30.8%). There were mixed responses in using daily activity plan at the beginning of the term with 6 (23.1%) responses, each of almost never, less than half, about half, and more than half participants.

In the study, a total of three focus group discussions (FGD) were conducted; one FGD with 12 mentors while two FGDs were conducted with 26 mentees. The themes which emerged were categorised into experiences of the mentors and mentee and suggestions for improvement of the programme (Table II).

i. Experiences (Mentors and mentees)
- Effect on personal/ professional skills
- Perceived opportunities and challenges

ii. Suggestions for implementation
- Structure and format
- Composition

Table II: Experiences and suggestions for implementation of the mentoring programme.

Theme: Effect on personal/ professional skills
"I really liked this one-on-one meeting with the mentor in which specific areas were discussed and it was like being guided." (Mentee 22)
"Just sharing my personal/professional stuff, felt there is someone I can talk to about my issues." (Mentee 17)
"I felt guided amidst the rush." (Mentee 18)
"I never realised that as a mentor, you could do so much for the person (mentee). The material you shared with us was very helpful." (Mentor 4)
"I liked that you gave us handouts and references for further reading about the mentoring skills and areas which added to my knowledge." (Mentor 9)
"It was so good to focus on my educational skills we get very little time to do so." (Mentor 13)
Theme: Perceived opportunities and challenges
"It is a great initiative, especially for the junior residents and as seniors we can learn so much, but time is a crunch and that is the difficult part." (Mentor 1)
"I like the fact that I can contribute in a meaningful way to someone's personal and professional development." (Mentor 10)
This is so much needed for all residencies, but time is a big challenge here, and we need to figure out a way to make it work." (Mentor 6)
"I needed to remind my mentor to give me time for the meeting, it was not easy, perhaps because being final year residents they have a lot of responsibilities;
I think its best we have mentors who are even in second or third year." (Mentee 7)
"I found a sense of direction but getting hold of my mentor was not easy." (Mentee 11)
Theme: Structure and format
"This mentorship helps the first-year resident to settle quickly and efficiently in their training programme." (Mentor 4)
"This is the best support you can give to first year residents as seniors or faculty. But in real life specialists are too busy to give the residents time, and the residents seem to be lost most of the time." (Mentee 24)
It is best the senior residents can be mentors to juniors, even Year 3 residents can be mentors for year 1 residents." (Mentee 16)

"It is good to have a structured training programme, however as we become seniors there are more responsibilities and less time, hence its best we have an informal programme." (Mentor 4)
The problem with structured programme is that it becomes hard to follow. Even during this pilot, we had our regular meetings but it required effort. We usually get to talk informally during rounds or in coffee areas." (Mentor 2)
This needs to be structured programme; otherwise we will not get to discuss our issues in detail. Our seniors are pretty busy and it's difficult to get hold of them." (Mentee 11)
"Some of the senior residents are really good, they make time for us, however not everyone is the same and its best we add some structure to the programme." (Mentee 21)
Theme: Composition of the peer-mentorship programme
"Mentorship programme should cover all the skills which residents need during their residency training. It should be more comprehensive so that all aspects can be covered." (Mentor 6)
"We focused on four skills only, but there is a lot more which can be included such as conflict management, anger management, communication skills (although we are taught this by the PGME office) but should be re-touched on within the residency training." (Mentor 18)
"Skills such as resilience building and motivation should be included also." (Mentee 13)
"Residents need a lot of skills, more needs to be added to it." (Mentor 5)

DISCUSSION

The aim of the study was to develop, implement, and evaluate a peer mentoring programme as a pilot for postgraduate medical trainees in Pakistan. The results of the study indicated that a peer mentoring programme is needed to facilitate academic progress, social acclimatisation, psychological well-being and personal growth of junior residents. Clinicians and specialists have heavy clinical and administrative demands and usually are unable to give time to junior residents, therefore, senior residents as peer-mentors can facilitate them during their residency life. This is also supported by the existing evidence in which the importance of senior residents as mentors for junior residents is emphasised for career development and personal well-being.[15,16] In the present study, both the mentors and mentees indicated this need. However, in the opinion of mentors, there should be an informal mentorship programme, while mentees preferred a structured programme. This reflected the dilemma between the senior and junior residents of the residency programme. For the senior residents, issues and concerns were usually dealt in an ad hoc manner over a cup of tea or coffee and a dedicated time was not needed. For mentees, an informal ad hoc meeting could not help in solving their issues as mentors did not have sufficient time for them. One of the possible solutions could be to have senior residents as mentors because the final-year residents have considerable clinical and administrative responsibilities. During the FGD, taking out time for mentorship was identified as the most common challenge. One possible way to address this when planning a formal mentoring programme for all the residency programmes could be to ensure protected time by involving all the stakeholders. As suggested in the findings of the present study, if third-year residents could be included as mentors, they would be able to manage the time better as compared to the final-year residents.

Secondly, it can be a semi-structured programme in which initially formal time is set aside for mentor/mentee meetings and after a few months, less formal meetings with agreement of both the mentors and mentees as per their requirements and convenience can be arranged. In this way, mentees' issues, concerns, and queries can be answered effectively. In the present study, four areas were identified as requiring maximum support for mentoring research skills, reading skills, memory skills and time management. In previous studies also, research skills, memory skills, and time management had been found to be required more by junior residents.[17,18] Although the focus of residency training was on clinical care, research was considered as a core competency during residency training to enable them for providing evidence-based patient care. Residents needed support in skills required for enhancing scholarly and research output. Academic writing skills are challenging and the existing evidences also indicated that continuous support during residency was needed to facilitate residents to develop their research skills.[19] Research skills can be incorporated into their current residency curriculum as a longitudinal theme during which capacity building can be done as well as protected time can be spaced out for residents to apply the skills learned. Similarly, time management was also a skill which majority of junior residents lacked and one of the major reasons was the nature of the training with heavy service load and unprecedented clinical requirements and hence, they did not feel as if they had control over their time. However, some junior residents made an effort to have some sort of monthly planner or diary to add some routine in their life. But more than half the residents found it difficult to follow the schedule, and therefore, it is an area that should be emphasised in the mentorship programme. Findings from the present study also indicated the need for inclusion of more skills as part of the mentorship programme such as critical thinking and decision-making skills. The limitation of the study was that it was a cross-sectional study and the mentorship programme included four specialities only Medicine, Pathology, Radiology, and Paediatrics in a single institutional setting. Since no baseline survey was undertaken to gauge the competence of the residents before the intervention, the authors cannot be entirely confident that the current ability of the residents in the four areas was the result of the mentorship programme. However, the strength of the study was that residents in these specialities were allowed to explore the feasibility and challenges of implementing a mentoring programme, and the findings indicated that it is achievable. Therefore, future research can be planned to implement mentorship across the entire residency programme at the university.

CONCLUSION

Developing and implementing a peer mentoring programme for residents is needed to facilitate academic progress, social acclimatisation, psychological well-being, and personal growth of junior residents. The present study was a pilot project, and findings from the present study can facilitate implementing peer mentoring in other specialties across the university.

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ETHICAL APPROVAL:
An approval was taken from the Ethics Review Committee of AKU, Karachi, Pakistan (No. 3928-DED-ERC-15).

COMPETING INTEREST:
The authors declared no competing interest.

AUTHORS' CONTRIBUTION:
SIH: Research conception, design interpretation and final approval.
QR: Data collection, analysis, design, manuscript writing.
MFB: Data collection, analysis, design, manuscript writing.
All authors approved the final version of the manuscript to be published.

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