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Title Page

Original research

Exploring the reasons for medical student participation in peer mentoring programs

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Abstract

Background: Peer mentoring in medical programs can result in improved academic performance and personal wellbeing. This is important as medical students function within a competitive environment and have a relatively high risk of burnout, mental illness, and suicide in comparison to age-matched controls. Despite recognition of the benefits of mentorship, medical students often don't participate in available mentoring programs. In order to optimise medical student uptake of peer mentoring programs it is important to explore the factors that influence participation.

Materials and Methods: An online survey was distributed to current and former students of a graduate medicine program to explore the factors that influence medical students' participation in student-led peer mentoring programs.

Results: A total of 77 students completed the online survey. The majority of respondents had positive experiences with mentoring (82%, n=56). Older students, those in a relationship, and those with dependents were less likely to participate in peer mentoring programs. Respondents identified improved academic performance and overall wellbeing as positive factors associated with mentoring, which is consistent with previous research. The structure of the degree requires many students to relocate after 18 months, which influences participation in mentoring. The most common reason for peer mentoring relationships ending was due to the mentor moving away for university placements.

Conclusion: Age, relationship status, previous experience with mentorship and structure of the medical degree were all shown to influence medical student participation in mentoring programs. Tailoring mentoring programs to the student cohort and course structure may improve participation rates and subsequently personal wellbeing and academic performance of students. These benefits may assist medical students to navigate the competitive and often stressful profession of medicine.

Keywords: mentoring, medicine, students, wellbeing, medical education

Three learning points:

1. Participation in peer mentoring is influenced by participant age, relationship status, previous experience with mentorship, and structure of medical degree.
2. Peer mentoring programs should be individually tailored to suit the cohort and course structure.
3. Formal evaluation of each peer mentoring program should be undertaken to identify strengths, weaknesses, and possible alterations that may improve participation as associated benefits for students.

Introduction

Mentoring can be defined as a symbiotic, dynamic relationship whereby a more experienced individual provides a novice with knowledge, skills, and guidance to help them succeed [1]. Research has shown that mentoring can be a valuable tool in many different environments and can lead to a greater sense of wellbeing and satisfaction for the mentee and the mentor [2]. In the medical profession, having a mentor can lead to greater job satisfaction and be valuable in helping guide students in areas such as professionalism, ethics, curriculum navigation, and the art of medicine [3]. Benefits of being mentored extend to doctors-in-training, with mentored junior doctors experiencing higher rates of confidence, career progression, and improved exam performance [4]. The availability of mentoring programs is of particular importance for the profession of medicine. Medical school has a demanding workload and is a challenging environment that can leave students and doctors feeling pressured and overwhelmed [5]. High rates of stress, burnout, and mental health issues amongst medical students are well documented [6]. Rates of depression, anxiety, and attempted suicide are significantly higher in medical students than those within the general population [7]. Therefore, mentoring programs can decrease personal and academic burdens, as well as guide students through the challenging, competitive environment of medicine [3,4].

Current evidence supports the implementation of formal mentoring programs for students [8]. Many schools have successfully implemented student-to-student peer mentoring programs using a variety of strategies such as incoming students being assigned a more senior student mentor [9]. However, despite research demonstrating that there are benefits associated with mentoring and the availability of mentoring programs, only 50-60% of medical students participate in the available mentoring programs [10-12]. This low participation rate is somewhat surprising, as 80% of medical students identified mentoring as being important to them [10]. As mentoring has potential benefits for medical students both academically and personally, it is important to understand the reasons why students engage or fail to engage in peer mentoring programs. This knowledge will aid the development, implementation, and adaptation of successful mentoring programs. In turn, this may help improve the quality of peer mentoring, overall wellbeing, and academic outcomes of medical students, as well as decrease the stress and mental health issues that are prevalent within the competitive environment of medicine.

Improved academic performance has been identified by students as a potential reason to participate in mentoring programs [8,13]. This is supported by studies that found that students' academic performance improved when they were mentored [14,15]. However, academic benefit was not found in all research, suggesting that the academic benefit from mentoring may be influenced by student demographics, stage of their education, mentor characteristics, and the delivery and style of the mentoring program [10].

Another potential reason that medical students participate in mentoring programs is to make personal connections with professionals in the field. Furthermore, medical students identified desirable qualities in mentors as sincerity, honesty, understanding, and good active listening skills as well as viewing mentors as role models, friends, and a safe place to talk about moral and ethical issues [16,17]. Additionally, mentoring has been found to decrease stress in medical students which may help manage the high workload and demands of medical education [9,14,18].

Nevertheless, despite research suggesting that mentoring can benefit medical students in multiple ways, the literature also demonstrates that there are difficulties in the recruitment and retention of mentee students to these programs [10-12]. The low participation rates for medical students in mentoring programs suggest that there are factors that can prevent some students from engaging with mentors.

The literature suggests that mentors should ideally be selected by the mentees and not assigned, as selection by mentees based on knowledge, competence, and a willingness to teach and share provided better outcomes and increased participation rates [13,19,20]. Other potential barriers to engagement with mentoring programs include lack of time, lack of funding, inadequate training for mentors, students feeling that they don't need a mentor, and a poor fit between mentor and mentee [8,17,21]. The impact these issues have on participation rates of medical students in mentoring programs is not clear and further research is required.

There is limited research that directly examines why medical students choose to participate in peer mentoring programs. Most research examines the positive and negative aspects of mentoring and whilst this information provides some insight into students' views on mentoring, it does not always allow definitive conclusions to be made about the reasons that students choose to engage and disengage in mentoring programs. Further research is required in order to explore the reasons medical students engage and fail to engage in peer mentoring programs.

Materials and Methods

Ethics approval for this study was granted by the Health and Medical Human Research Ethics Committee at the University of Wollongong (Ethics number 2019/383).

University of Wollongong Medical Student Mentoring Program

Currently, the peer mentoring program at University of Wollongong (UOW) Graduate Medicine is a student led initiative whereby members of the Wollongong University Medical Student Society (WUMSS) assign incoming students to a mentor in the year above via an opt-in system for both mentors and mentees. The program was initiated shortly after the establishment of the UOW Graduate Medicine course in 2007 to help incoming students transition into the course and provide them with additional support. Students are matched by WUMSS representatives based on factors such as previous degree, age, and gender. There has been minimal formal evaluation of participation and any potential associated benefits of program. The study aims to explore the reasons students participate in the program to establish overall participation rates as well as to identify potential barriers and benefits associated with the program. The results have the potential to improve the WUMSS peer mentoring program and other similar programs which may optimise benefits of such programs for students.

The medical program at UOW is a four-year graduate program which is delivered in four phases, beginning with the medical science phase (18 months). A twelve-month hospital placement phase follows, with students participating in five rotations across medicine, obstetrics and gynaecology, paediatrics, psychiatry, and surgery. In phase three (twelve-months), students undertake practice-based placements in one of eleven communities across New South Wales. During phase four, the final six months of the course, students undertake three rotations, each of six weeks duration. This course structure often requires students to relocate after the first 18 months.

Research methods

A survey containing 24 multiple choice questions was designed and distributed via Qualtrics to explore factors that may impact student participation in peer mentoring programs. The survey was distributed to past and present students of the UOW Graduate Medicine program through private cohort and alumni Facebook pages. Demographic information, such as age, gender, and relationship status were collected. Possible influential factors such as previous experience with mentoring, perceptions about positive and negative aspects of mentoring, as well as specific reasons that impact on students engaging or not engaging in mentoring programs were also included (see Appendix 1 for full survey).

Statistical analysis was completed using the Qualtrics Data Analysis tool. Descriptive statistics were primarily reported. Chi-squared tests were used to analyse categorical variables when observed frequencies in each cell were five or greater. Fisher's exact test was used for categorical variables when the observed frequency in at least one expected cell was less than five.

Results

A total of 77 students completed the survey with most being female (n=44, 57%) and aged 20-30 years old (74%, n =57). Of those surveyed, 77% (n=57) were either in a relationship or married and 14% (n=11) of all respondents had dependents. Most

respondents (93%, n=72) were current students in years one to four of their medical education (Table 1). The response rate for the survey was approximately 10%.

Experience and future intentions towards being mentored.

Previous experience of participation in a program where they were assigned a mentor was identified by 86% (n=66) of respondents. Most respondents rated their overall experience with being a mentee as “Extremely positive” on a 5-point Likert scale (62%, n=36; Figure 1).

“Guidance for study” was the most commonly identified benefit of being mentored (90%, n=69; Figure 2). “Friendship” and “Better understanding of Australian culture for overseas students” were some of the potential benefits reported by respondents in the “Other” category.

Several negative aspects to participating in a mentoring program were identified by respondents with “Being assigned an unsatisfactory mentor” the most common response (62%, n=48). Other reasons included the mentor “lacking insight” and “having a different study method” (Figure 3).

Approximately half of those assigned a peer mentor (49%, n=36) did not continue with that mentor (Figure 4). Course structure impacted mentoring with the “mentor moving away for ongoing study/work” being the most common reason for the discontinuation of mentoring (44%, n=19). Other reasons included “Mentor leaving the course”, “Mentor failing their phase”, and a “Perceived lack of interest from the mentor”.

With regard to being mentored in the future, most respondents (71%, n=52) indicated that they were likely to take on a mentor in the future.

Experience and future intentions towards being a mentor.

In total, 75% (n=58) of the respondents were involved in mentoring a student that had been assigned to them during their medical education. Of respondents that were assigned a mentee, 30% (n=22) did not continue the relationship. The average length of a discontinued mentorship relationship was 3.8 months (Figure 5).

There were various reasons identified by respondents regarding why they discontinued their relationship as a mentor to another student. Having to relocate for study was the single most common reason (26%, n=6) followed by time constraints (21%, n=5). A “Lack of interest from the mentee”, “Taking time off study”, and “Failing the phase” were some of the specified responses in the “Other” category.

Respondents reported positive experience as a mentor (89%, n=49). Only 7% (n=4) reported a negative experience. When considering the future 83% (n=60) indicated that they intend on being a mentor, 3% (n=2) did not intend on being a mentor, and 14% (n=10) were undecided.

Respondents were more likely to have an intention to be a mentor in the future if they had been mentored themselves (Chi-Squared Test, $p=0.0003$).

“Helping other people” was the most commonly identified benefit from mentoring another student (84%, n=65 Figure 6). “Potential for revision” and “Opportunity to support some minority groups” were some of the other identified benefits.

The most common potential negative factor identified with being assigned a mentee was “Increased demands on time” (74%, n=57). “Sense of responsibility for a mentees poor performance” and “Not being able to meet a mentees expectation” were also some of the specified responses in the “Other” category (Figure 7).

Factors influencing participation in mentoring programs

Age significantly influenced whether or not respondents were assigned a mentor. People aged 26-30 were more likely to be assigned a mentor, (Chi-Squared Test, $p=0.003$) and people aged 36-40 were likely to be assigned a mentor (Chi-Squared Test, $p=0.003$). People aged 26-30 were also more likely to become a mentor (Chi-Squared Test, $p=0.01$).

Relationship status was also found to influence participation in mentoring programs, as people who were married were less likely to participate in programs where they were assigned a mentor (Chi-Squared Test $p=0.002$).

Respondents without dependents were significantly more likely to take part in a peer mentoring program where they were assigned a mentor (Fisher’s Exact Test, $p=0.006$). Previous participation in programs where respondents were assigned mentors was positively correlated with being a mentor in the future (Fisher’s Exact Test, $p=0.0003$).

34% (n=26) of respondents indicated that they were more likely to participate in mentoring programs if they could choose their mentor. However, 22% (n=17) were undecided about whether or not being able to choose their mentor would influence their participation in a mentoring program.

Respondents who were previously assigned a mentor were more likely to identify “Access to potential source of knowledge” (89%, n=69) as a potential benefit to having a mentor when compared to those who weren’t assigned a mentor (64%, n=seven). They were also more likely to identify “Guidance for study” (92%, n=61) as a potential benefit compared to those who weren’t assigned a mentor (72%, n=8). All respondents thought that there were potential benefits to being a mentor.

Discussion

The survey findings demonstrate that medical student participation in peer mentoring programs is influenced by multiple factors such as an individual's personal demographics, previous experience with mentoring, and the structure of the available mentoring program and the medical program.

The influence of personal factors on participation

Students who were older and married were less likely to participate in mentoring. This is likely to reflect an increased level of personal support associated with being married. Kalen *et al.* [16] and Singh *et al.* [9] identified that mentoring can provide medical students with an increased level of personal support. Therefore, it would be reasonable to theorise that already having adequate personal support may negatively influence participation. Older students having an increased demand on their time due to extra-curricular factors such as marriage, dependents, and employment may explain the decrease in participation in mentoring associated with age. Increased demands on time associated with mentoring was a common negative factor identified by respondents, which is consistent with findings of previous research [21]. Respondents without dependents were more likely to participate in mentoring ($p=0.006$), presumably as they had fewer family commitments.

Those aged under 30 made up most of the respondents (74%, $n=57$) which may explain the higher participation rates found in the study. In total, 86% ($n=66$) of respondents reported participating in mentoring during their medical education. This is higher than participation rates reported in the literature for other mentoring programs (50-60%) [10-12]. WUMSS does not keep records of participation rates in mentoring programs, so it is not clear if the actual participation rate is higher than other studies or if responder bias occurred. One limitation of this study is that it was only distributed to past and present students active on cohort Facebook groups.

Influence of previous experience with mentoring

Students who had participated in previous mentorship programs were more likely to participate in future mentoring ($p=0.0003$). This is likely due to respondents experiencing benefits associated with mentoring. 82% ($n=56$) of respondents reported a positive experience with mentoring and identified potential benefits including both improved academic performance and increased personal wellbeing, which is consistent with previous research [9,13-15,18].

There were multiple potential negative factors to mentoring identified such as being assigned an unsatisfactory mentor, personality differences, and an increased demand on time. Due to the high participation rate found in this study, it appears that the potential negative aspects associated with mentoring do not significantly deter people from participating in mentoring programs.

Influence of the structure of the available mentoring program and medical program

This study identified that the structure of the WUMSS mentoring program influenced participation such as the mentor relocating. While many of the positive and negative aspects of mentoring identified by respondents were similar to those identified in other studies, the most common reason for the termination of a mentoring relationship was unique to the WUMSS mentoring program. Having the mentor move away was identified by 44% ($n=19$) of those who had their relationship with their mentor end.

While it is commonplace for medical students to relocate upon completion of their degree, many students in the UOW Graduate Medical program begin to move away after the first 18 months of the course due to the structure of the program. This demonstrates that the structure of the mentoring program within a medical program can influence participation. Identifying factors that influence mentoring program participation can be useful so that programs can be restructured to address them, such as having the option to be reassigned another mentor or implementing the use of web-based meeting platforms. It should be noted that this research occurred prior to the COVID-19 pandemic and the pivot to online teaching. Further research is required to determine whether students are utilising web-based methods of communication for their mentoring relationships. Although only identified by two respondents, having a mentoring relationship end due to a student failing a year or dropping out further highlights how a simple restructuring of the current WUMSS mentoring program to allow participants to be reassigned mentors each year could improve overall participation.

Interestingly, another aspect of the WUMSS led program, mentor choice, that has been shown to negatively impact participation in other research did not seem to have the same influence in this study. This study found that only 34% (n=26) of respondents would be more likely to participate in mentoring programs if they could choose their mentor, which is lower than other studies. Jayalakshmi *et al.* [13] found that 73% of medical students wanted to have some choice in their mentor, suggesting that being assigned a mentor rather than choosing a mentor is a possible reason that medical students don't participate in mentoring programs. This claim is strengthened by Guse *et al.* [20] who found that a mentor-mentee "speed-dating" session, where students met with potential mentors and had input into who they were assigned to improved rates of overall satisfaction and longevity of mentoring relationships for medical students. It is not clear why the influence of the ability to choose a mentor in the WUMSS program is lower than rates reported in other studies. As most respondents reported positive experiences with being mentored, it may be a further indication of a possible responder bias that is also implicated by the aforementioned high participation rate.

The study findings demonstrate that improved wellbeing and academic results are associated with mentoring and may help counteract some of the stress and burnout associated with medicine. The majority of respondents identified decreased stress and anxiety (56 %, n=43), improved overall wellbeing (52%, n=40), and improved academic results (51%, n=39) as potential benefits of being mentored. These findings are consistent with previous research [8, 9,13,14,18]. Future research could use interviews to further explore potential barriers and enablers to participation in mentoring and the reasons some students do not have a positive experience with peer-mentoring.

Conclusion

Students who were older and married were less likely to participate in the mentorship program. Students who had participated in previous mentorship programs were more likely to participate. Tailoring a mentoring program to the student cohort and course structure may improve participation rates and subsequent personal wellbeing and academic performance of those involved in the program. Improvements in personal wellbeing and academic performance may assist medical students to navigate the competitive and often stressful profession of medicine. Future research should focus on

evaluating individual programs to identify barriers to participation and possible ways to address them.

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Conflicts of interest:

The authors have no conflicts of interest to declare.

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Author contributions:

Warren Policha: Study design, ethics approval, data collection, data analysis, writing of manuscript.

Dr Pippa Burns: Data analysis, writing of manuscript.

Dr Darryl McAndrew: Primary project supervisor, study design, ethics approval, data analysis, writing of manuscript.

Ethics:

Ethics approval for this study was granted by the Health and Medical Human Research Ethics Committee at the University of Wollongong (Ethics number 2019/383).

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Appendix 1

Thank you for participating in this survey. This survey should take no longer than 10 minutes to complete and all information is anonymous. You are free to choose not to participate at any time while completing this survey. You can choose not to answer questions if you wish. By completing and returning this survey form you have given us permission to use this information in our study. As this survey is anonymous, researchers will not be able to identify the information you have provided as yours and therefore you will be unable to withdraw the survey information once submitted.

Q1

What gender do you define yourself as?

- Male
- Female
- Prefer not to say
- Other (please specify)

Q2

What is your age?

- 20-25
- 26-30
- 31-35
- 36-40
- 41-45
- 46-50
- 50+

Q3

What is your relationship status?

- Single
- Married
- In a relationship
- Other (please specify)

Q4

Do you have any dependents?

- Yes
- No

Q5

What year of medical education are you in?

- Year 1
- Year 2
- Year 3
- Year 4
- Junior Medical Officer
- Registrar
- Advanced Trainee
- Consultant

Q6

During your medical education have you ever participated in a program where you were assigned to a mentor?

- Yes
- No

Q7

During your medical education have you ever participated in a program where you were assigned another student as a mentee?

- Yes
- No

Q8

Would you be more likely to be a mentor/mentee if you were able to choose your mentor/mentee?

- Yes
- No
- Undecided

Q9

What qualities do you value in a mentor/mentee? Select more than one option if appropriate

- High academic achievement
- Similar personality
- Similar values
- Same gender
- Opposite gender
- Reliable
- Caring
- Similar interests
- Other (please specify)

Q10

What potential benefits do you see from participating in a program where you are assigned a mentor during your studies? Select more than one option if appropriate

- Meeting new people
- Guidance for study
- Access to potential source of knowledge
- Improved academic results
- Improved overall well-being
- Decreased stress and anxiety
- Increased cohesion between student cohorts
- Decreased cost of studying
- Other (please specify)
- No potential benefits

Q11

What potential negatives do you see from participating in a program where you are assigned a mentor during your studies? Select more than one option if appropriate

- Increased demands on time
- Being assigned an unsatisfactory mentor
- Increased cost associated with studying
- Feel obligated to become a mentor in the future
- Being assigned to a mentor that you don't like
- Being assigned to a mentor that doesn't like you
- Forced to meet new people
- Other (please specify)

- No potential negatives

Q12

What potential benefits do you see in being a mentor in a program where you are assigned a student as a mentee? Select more than one option if appropriate

- Meeting new people
- Access to potential source of knowledge
- Increased cohesion between student cohorts
- Decreased cost of studying
- Improved academic results
- Improved overall well-being
- Helping other people
- Other (please specify)
- No potential benefits

Q13

What potential negatives do you see in being a mentor in a program where you are assigned a student as a mentee? Select more than one option if appropriate

- Increased demands on time
- Being assigned a difficult student to mentor
- Increased cost associated with studying
- Being assigned to a student that you don't like
- Being assigned to a student that doesn't like you
- Forced to meet new people
- Other (please specify)
- No potential negatives

Q14

Have you ever been assigned to a mentor that you have not continued with?

- Yes
- No

Q15

If you have not continued with a mentor you were assigned to what were some of the reasons? Select more than one option if appropriate

- Personality differences
- Did not feel any benefit from being mentored
- Time constraints
- Mentor moved away to another location for study/work
- Financial reasons
- Other (please specify)
- × Not applicable

Q16

If you have not continued with a mentor you were assigned to how long did the relationship last?

- Less than 6 months
- 6-12 months
- 1-2 years
- 2-3 years
- 3-4 years
- More than 4 years
- Not applicable

Q17

Have you ever been assigned to a student as a mentor that you have not continued with?

- Yes
- No

Q18

If you have not continued with a mentee you were assigned to what were some of the reasons? Select more than one option if appropriate

- Personality differences
- Did not feel any benefit from mentoring
- Time constraints
- Moved away to another location for study/work
- Financial reasons
- Other (please specify)
- × Not applicable

Q19

If you have not continued with a mentee you were assigned to how long did the relationship last?

- Less than 6 months
- 6-12 months
- 1-2 years
- 2-3 years
- 3-4 years
- More than 4 years
- × Not applicable

Q20

Have you ever sourced your own mentor/mentee?

- Yes
- No

Q21

Do you intend on taking on a mentor in the future?

- Yes
- No
- Undecided

Q22

Do you intend on being a mentor in the future?

- Yes
- No
- Undecided

Q23

How would you describe your overall experience with being mentored?

- Extremely positive
- Slightly positive
- Neither positive nor negative
- Slightly negative
- Extremely negative
- × Not applicable

Q24

How would you describe your overall experience with being a mentor?

- Extremely positive
- Slightly positive
- Neither positive nor negative
- Slightly negative
- Extremely negative
- × Not applicable