

# Students' Perception of Peer- Students Mentoring Program “Big Sibling Mentoring Program” to Complement Faculty Mentoring of First-Year Medical Students in Saudi Arabia

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**Background:** The Big Sibling Program is an innovative peer student mentoring method that was designed and implemented by the students' council in 2021 to complement the faculty mentoring program of first-year medical students in the College of Medicine, King Saud University, Saudi Arabia. The aim of the study was to evaluate the medical students' perception of the peer students “Big Sibling” mentoring program and to assess the effectiveness of the program in terms of changes in the behavior and academic performance of the students.

**Methods:** This is a retrospective study that was conducted in 2021. A registration form that includes demographic data, personal information, and academic performance (GPA and extracurricular achievements) was sent to all second- and third-year medical students to select the Big Siblings. A total of 49 mentors “Big Siblings” were accepted (30 males, 19 females) and matched randomly with the little siblings from first-year medical students. A written consent was obtained from the participants. The survey was structured on a 5-point Likert scale, and composed of four sections of closed-ended questions, that includes: the demographic data, the students' (little sibling) evaluation of the mentorship sessions, the little sibling perception of the Big Sibling Program and its effectiveness of the Big Sibling Program in terms of behavioral or quality effects.

**Results:** Out of 297 first-year medical students, 284 (95.62%) responded. The majority significantly agreed that the Big Sibling was readily available and they personally benefitted from the relationship (94.36%,  $p < 0.001$ ; 90.14%,  $p < 0.001$ ). They significantly disagreed that the relationship requires too much time (72.54%,  $p < 0.001$ ) or that they do not need a mentor (78.87%,  $p < 0.001$ ). Most significantly agreed that mentoring is a good idea (94.37%,  $p < 0.001$ ), the program helped reduce their stress (84.51%,  $p < 0.001$ ), helped them adjust to college (89.44%,  $p < 0.001$ ), and advance academically (78.52%,  $p < 0.001$ ). The program also encouraged their involvement in extracurricular activities (58.10%,  $p < 0.0001$ ), research (43.31%,  $p < 0.001$ ), and social engagement with peers (71.48%,  $p < 0.001$ ). Moreover, the majority thought the program significantly improved their self-confidence (73.94%,  $p < 0.001$ ), self-awareness (84.51%), accountability (54.51%), leadership (54.93%), resilience (71.13%), punctuality (69.01%,  $p < 0.001$ ), time management (75.70%), stress coping (77.82%), problem-solving (76.76%), and teamwork (75.35%).

**Conclusion:** Peer students' big Siblings program has succeeded in reducing first-year medical students stress levels, improving their self-confidence, self-awareness, accountability and responsibility, leadership, resilience, punctuality and engaging them in research and extracurricular activities.

**Keywords:** Medical students, big sibling program, mentoring, peer mentoring, mentoring program

## Introduction

### Role of Mentoring in Medical Education

The first year in the College of Medicine has been well known as stressful and full of challenges.<sup>1,2</sup> Mentoring of undergraduate medical students plays an important role in medical education.<sup>3-5</sup> Studies have shown that mentorship reduces stress, enhances academic performance, and helps in career selection.<sup>6,7</sup> Studies have shown that mentorship programs have succeeded in improving the well-being of medical students and their education.<sup>8</sup>

### Faculty Mentoring Program

In 2019, the Academic Guidance Unit at the College of Medicine, King Saud University established the Direct Mentorship Program, in which each medical student is assigned to a faculty to be his/her academic mentor. The program aims to improve communication within the academic environment, early detection and prevention of academic, social, and psychological problems, and proper guidance of talented students.

### Direct Mentorship Program at Medical College

The College of Medicine (COM) at King Saud University (KSU) has paid great attention to the care of medical students and the provision of the optimal environment for learning and teaching, which was evident in the impact on the quality of its educational outputs and the diversity of its medical specialties with the large number of students compared to other medical colleges in Saudi Arabia, to take the lead in medical leadership in quantity and quality. As an extension of these efforts, and in the interest of developing them, and based on the most important strengths of the College of Medicine, the College's administration had established Academic guidance unit (AGU) to be a model in the Saudi Arabia, in which all services provided to students are integrated and contribute to providing the optimum academic environment in terms of psychological and health aspects.

### Academic Guidance Unit

The AGU is a committee that was established in the COM at KSU to address students' academic problems, follow up their educational attainment and to discuss the decisions and recommendations with the vice dean of the academic affairs. The vision of the AQU is to become a leading national and regional center for comprehensive academic guiding. The mission is to guide and support students' academically, psychologically and socially to fulfil their goals and achieve their full potential within the framework of the University's rules and regulations.

### Direct Mentorship Program

The direct mentorship program is a comprehensive program entails active enrollment of all teaching staff in academic mentoring of student with ratio of 1:10 (mentor: mentees) in the basic science years: year 1 and 2, 1:7 in the clinical years. The aim is to improve the communication within the academic environment, early detection and prevention of academic, social and psychological problems and proper guidance of talented students. The objectives of the program is to provide an exemplary healthy environment for students on the academic, psychological and social level, to create a healthy environment for the College of Medicine to be an attractive environment for work and learning, to provide basic preventive and curative needs of students and achieve optimal use of the, to enhance the capabilities of the teaching staff in academic mentorship and guidance and proper follow-up of the student's attainment from the date of joining the college until graduation.

### Big Sibling Mentoring Program

Peer mentoring is an effective adjunct to faculty mentoring in providing students support in medical education.<sup>9,10</sup> As of 2021, the King Saud University Medical Students' Council (KSUMSC) designed and implemented an innovative peer-student mentoring method to complement the faculty mentoring program of first-year medical students at the College of Medicine, King Saud University, Saudi Arabia. The Peer- mentoring "Big Sibling Program" matched first-year medical students with a big sibling from second and third-year medical students. The mentor-mentee relationship between mentors (big siblings) and their respective mentees (little siblings) was nurturing and provided constant support.

A variation of group and individual meetings took place. Little siblings could seek help and guidance through meetings held both physically and online with their big siblings. Elements of a healthy and positive mentor-mentee environment were discussed with both parties, highlighting the importance of mutual respect, trust, effective and open communication, support, and constructive feedback.

The Big Sibling Program aims to improve the academic performance of first-year medical students, reduce stress levels, and engage first-year medical students in research and extracurricular activities. The study aimed to evaluate the medical students' perception of the peer students "Big Sibling" mentoring program and to assess the program's effectiveness in terms of changes in the behavior and academic performance of the students.

## Materials and Methods

A retrospective study was conducted in the College of Medicine, King Saud University. The study was approved by the Institutional Review Board at the College of Medicine, King Saud University, Ref. No. E-22-7330. All methods were carried out in accordance with relevant guidelines and regulations or declaration of Helsinki.

### Selection of the Big Siblings

For the selection of the Peer-mentors "Big Siblings", a registration form was sent to all second and third-year medical students at King Saud University in July 2021. The form consists of three sections: demographic data, personal information, and academic indicators. The selection of candidates relied majorly on academic indicator parameters consisting of GPA and extracurricular achievements which include participation in research activities, volunteering, and other academic achievements.

A total of 71 medical students applied, of which 40 applicants were male and 31 applicants were female. A total of 49 mentors, "Big Sibling", were accepted (30 males, 19 females). Ten of the 40 male applicants were rejected as they did not meet the GPA criteria ( $\geq 4.5$  out of 5). Eight out of the 31 female applicants were rejected as they did not meet the GPA criteria ( $\geq 4.5$  out of 5). The remaining female applicants were ordered from highest to lowest GPA and with academic achievements or not. As a result, two high-achieving students were rejected for having no extracurricular achievements, and two students were rejected for having the lowest GPA among the applied candidates.

### Matching the Big Siblings with the Little Siblings

The College of Medicine Administration at King Saud University provided a list of first-year medical students' names and phone numbers for the academic year 2021–2022. During the summer prior to the start of the academic year, the King Saud University Medical Students' Council (KSUMSC) reached out via phone to both new students accepted into the College and repeaters to create the first-year student database. The little siblings were distributed randomly between the big siblings as per the database provided through KSUMSC.

Each Big sibling was assigned a group number (group 1, 2, 3, etc). consisting of 6 little siblings on average; others had seven little siblings due to uneven distribution. The KSUMSC leaders conducted an orientation meeting for the big siblings. The meeting covered the program's objectives, a description of the Big sibling's role, tasks, and expectations, and a guide on the important points to address and discuss with the aim of enhancing the academic and non-academic performance of the little sibling's journey as a first-year medical student. The big siblings reached out to their respective little siblings via WhatsApp. The choice of platform relied majorly on an application that is used for easy communication and suits friendly contact with peers. Moreover, WhatsApp was chosen as the platform of contact as it is widely used in our area.

The big siblings created a WhatsApp group two weeks prior to the start of the academic year. Subsequently, a virtual friendly meeting with their respective groups in which they disclosed the purpose of this program. As part of the first-day orientation at the College of Medicine, the big and little siblings met in person for the first time, where the big siblings guided them into the campus and college facilities. Afterward, continued follow-ups with little siblings were conducted to ensure the continuity of the mentor-mentee relationship over the academic year 2021–2022.

## Evaluation of the Big Sibling Program

By the end of their first semester, a survey evaluating the perception and effectiveness of first-year medical students (n=297) was sent to the little siblings in November 2021. A written consent was obtained from the participants. An online survey was distributed to the first-year medical students “little siblings” via WhatsApp by their respective big siblings. Little siblings were asked to reply with (complete) upon completion of the survey. Daily reminders were sent to non-responsive little siblings only.

### Details of the Survey

The survey consists of four sections. The survey was piloted and validated in a similar setting.<sup>11</sup> The first section was the participants’ demographic data, which included their gender (male/female), college ID, and number of their big sibling’s group. The second section focused on assessing mentorship sessions using the 5-point Likert scale. The third and fourth sections evaluated the effectiveness of the Big Sibling Program in terms of behavioral or quality changes.

## Statistical Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 23.0 (IBM-SPSS Inc, Armonk, New York, USA). Data was grouped and tabulated according to the study variables. Comparison between groups was done using the Chi-square test. P-value of < 0.05 was considered statistically.

## Results

Table 1 showed that out of 297 first year medical students, 284 students responded with a response rate of 95.62%. Table 2 presents the students’ perception of the Big Sibling Program. The majority of the students (n=268, 94.36%,  $p < 0.001$ ) significantly agreed that the Big Sibling was readily available and have personally benefitted from the relationship with the mentor (big sibling) (n= 256, 90.14%,  $p < 0.001$ ). The students significantly disagree that the relationship with the Big Sibling requires too much time (n= 206, 72.54%,  $p < 0.001$ ) and that they do not need a mentor (n=224, 78.87%,  $P < 0.001$ ). The majority of the students significantly agreed that mentoring is a good idea (n=268, 94.37%,  $p < 0.001$ ). The majority of the students significantly agreed that the Big Siblings Program helped reduce my stress (n=240, 84.51%,  $p < 0.001$ ), helped me adjust to my new college environment (n=254, 89.44%,  $p < 0.001$ ) and helped me advance academically (n= 223, 78.52%,  $p < 0.001$ ). Moreover, the majority of the students significantly agreed that the Big Siblings Program encouraged me to become involved in college extracurricular activities (n=165, 58.10%,  $p < 0.0001$ ), encouraged me to become involved in research activities (n= 123, 43.31%,  $p < 0.001$ ), encouraged me to become socially engaged with students in my batch at the college of Medicine (n= 203, 71.48%,  $p < 0.001$ ), encouraged me to become socially engaged with students in elder batches at the college of Medicine (n= 203, 71.48%,  $p < 0.001$ ). Table 3 presents the students’ evaluation of the effectiveness of the Big Sibling Program. The majority of the students think that the Big Sibling program significantly improved their self-confidence (n= 210, 73.94%,  $p < 0.001$ ), self- awareness (n= 240, 84.51%,  $p < 0.001$ ), accountability and responsibility (n= 240, 54.51%,  $p < 0.001$ ), leadership (n= 156, 54.93%,  $p < 0.001$ ), resilience (n= 202, 71.13%,  $p < 0.001$ ), punctuality (n= 196, 69.01%,  $p < 0.001$ ), ability to manage time properly (n= 215, 75.70%,  $p < 0.001$ ), ability to cope with stress (n= 221, 77.82%,  $p < 0.001$ ), ability to solve problems (n=218, 76.76%,  $p < 0.001$ ) and the ability to work in a team (n=214, 75.35%,  $p < 0.001$ ).

**Table 1** Demographic Data

Participants	Total students
<b>Gender</b>	<b>Gender</b>
Male (n=171)	Male students (n=183)
Female (n = 113)	Female students (n= 113)
Total (n = 284)	Total (n=297)

**Table 2** Students' Perception of the Big Sibling Program

QUESTION	Strongly Agree, n (%)	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	Strongly Disagree, n (%)	P values
My mentor (big sibling) was readily available	229 (80.63)	39 (13.73)	8 (2.82)	0 (0)	8 (2.82)	<0.001
I have personally benefited from my relationship with my mentor (big sibling)	195 (68.66)	61 (21.48)	17 (5.99)	1 (0.35)	10 (3.52)	<0.001
I feel that the relationship requires too much of my time	13 (4.58)	9 (3.17)	56 (19.72)	100 (35.21)	106 (37.32)	<0.001
I think mentoring is a good idea	207 (72.89)	61 (21.48)	11 (3.87)	0 (0)	5 (1.76)	<0.001
I think that I do not need a mentor (big sibling)	15 (5.28)	6 (2.11)	39 (13.73)	113 (39.79)	111 (39.08)	<0.001
The Big Siblings Program helped reduce my stress	141 (49.65)	99 (34.86)	33 (11.62)	6 (2.11)	5 (1.76)	<0.001
The Big Siblings Program helped me adjust to my new college environment	149 (52.46)	105 (36.97)	26 (9.15)	1 (0.35)	3 (1.06)	<0.001
The Big Siblings Program helped me advance academically	126 (44.37)	97 (34.15)	50 (17.61)	6 (2.11)	5 (1.76)	<0.001
The Big Siblings Program encouraged me to become involved in college extracurricular activities	97 (34.15)	68 (23.94)	99 (34.86)	12 (4.23)	8 (2.82)	<0.001
The Big Siblings Program encouraged me to become involved in research activities	73 (25.70)	50 (17.61)	121 (42.61)	31 (10.92)	9 (3.17)	<0.001
The Big Siblings Program encouraged me to become socially engaged with students in my batch at the college of Medicine	116 (40.85)	87 (30.63)	66 (23.24)	8 (2.82)	7 (2.46)	<0.001
The Big Siblings Program encouraged me to become socially engaged with students in elder batches at the college of Medicine	110 (38.73)	78 (27.46)	69 (24.30)	18 (6.34)	9 (3.17)	<0.001

**Table 3** Students' Evaluation of the Effectiveness of the Big Sibling Program

	Markedly Improved, n (%)	Improved, n (%)	No Change, n (%)	Worsened, n (%)	Markedly Worsened, n (%)	P values
Self-confidence	92 (32.39)	118 (41.55)	64 (22.54)	9 (3.17)	1 (0.35)	<0.001
Self-awareness	116 (40.85)	124 (43.66)	40 (14.08)	3 (1.06)	1 (0.35)	<0.001
Accountability/responsibility	109 (38.38)	131 (46.13)	42 (14.79)	1 (0.35)	1 (0.35)	<0.001
Leadership	80 (28.17)	76 (26.76)	124 (43.66)	2 (0.70)	2 (0.70)	<0.001
Resilience	95 (33.45)	107 (37.68)	79 (27.82)	1 (0.35)	2 (0.70)	<0.001
Punctuality	93 (32.75)	103 (36.27)	85 (29.93)	1 (0.35)	2 (0.70)	<0.001
Ability to manage time properly	94 (33.10)	121 (42.61)	55 (19.37)	12 (4.23)	2 (0.70)	<0.001
Ability to cope with stress	95 (33.45)	126 (44.37)	50 (17.61)	8 (2.82)	5 (1.76)	<0.001
Ability to solve problems	90 (31.69)	128 (45.07)	61 (21.48)	4 (1.41)	1 (0.35)	<0.001
Ability to work in a team	92 (32.39)	122 (42.96)	66 (23.24)	2 (0.70)	2 (0.70)	<0.001

## Discussion

### Peer-Mentoring in Medical Education

The present study's results showed that first-year medical students perceived implementing the peer-mentoring Big Sibling Program positively. In addition, the students found positive effects in terms of behavior and academic achievements. Peer-mentoring has been reported to successfully support medical students and improve their learning experience.<sup>9</sup> The results of this study suggest that peer mentoring can be more effective as senior medical students have recently experienced similar challenges, as reported by previous studies.<sup>12</sup> Moreover, senior medical students may be easier to approach by their peers and have fewer barriers to open up with their peers and discuss sensitive topics.<sup>9,12</sup> Moreover, Akinla et al have shown that peer mentoring is a way to promote professional and personal development.<sup>12</sup>

### Mentoring New Medical Students

The present study has shown that the peer-mentoring program "Big Sibling" has proven effective in supporting first-year medical students. The results showed that the first-year medical students found that the Big Sibling program improved their self-confidence, self-awareness, accountability and responsibility, leadership, resilience, punctuality, ability to manage time properly, ability to cope with stress, ability to solve problems, and ability to work in a team. Mentoring of first-year medical students has been reported to be important to address the difficulties that may arise during the introduction to Medical College.<sup>13</sup> Studies have shown that peer mentoring is important in aiding transition and maintaining the well-being of first-year medical students.<sup>12</sup> First-year medical students face several stressful challenges that may lead to stress issues.<sup>14</sup>

Furthermore, medical education is well known to be stressful and demanding.<sup>15</sup> Several studies have shown that medical students reported high levels of stress and anxiety.<sup>14,16</sup> In the present study, the new peer-mentoring "Big Sibling" Program is found to be effective in reducing stress levels as perceived by first-year medical students. But unfortunately, we cannot generalize our findings, because we did it in one institute with a small sample size.

### Peer-Mentoring to Complement Faculty Mentoring in Medical Education

Previous studies have also reported that peer-mentoring can be an effective adjunct to faculty mentoring.<sup>9</sup> Peer-mentoring has been reported to be powerful when combined with the wisdom of faculty mentoring.<sup>9</sup> At King Saud University Medical College, the peer-mentoring Big Sibling program was implemented to complement the Direct Faculty Mentoring Program that was implemented in 2021. Our results are consistent with previous results by Andre et al that suggested implementing a peer-mentoring program can be an effective adjunct to faculty mentoring.<sup>9</sup>

## Limitations

Our study has several limitations. Most importantly, the current study was held in a single institute, which limits the ability to generalize our findings. Another limitation was the relatively small sample size. A multicenter study with a larger sample size is recommended to generalize the results.

## Conclusion

In conclusion, the Peer Students' Big Siblings program has achieved its goal of reducing stress levels among first-year medical students, improving their self-confidence, self-awareness, accountability, responsibility, leadership, resilience, and punctuality, and engaging them in research and extracurricular activities.

## Data Sharing Statement

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

## Ethics Approval and Consent to Participate

The study was approved by the Institutional Review Board at the College of Medicine, King Saud University, Ref. No. E-22-7330. A written informed consent was obtained from all the participants before the study.



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This paper has been uploaded to ResearchGate website as a preprint: [<https://www.researchgate.net/publication/376736356> Students' perception of peer- students mentoring program 'Big Sibling mentoring program' to complement faculty mentoring of first year medical students in Saudi Arabia].

## Disclosure

The authors declare that they have no competing interests in this work.

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