



# A study of satisfaction of medical students on their mentoring programs at one medical school in Korea

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**Purpose:** The purpose of this study was to investigate the awareness levels of medical students regarding the characteristics of each function within a mentoring program conducted within Kyung Hee University and to ultimately suggest points for reformation. Medical students' awareness levels were determined using a 29-item questionnaire.

**Methods:** The questionnaire was conducted on 347 medical students, excluding 25 students who either marked multiple answers or did not reply. The assessment of the program was based on a questionnaire with the use of a 5-point Likert scale using SPSS version 22.0. Multiple regression was conducted to examine the relationship between the satisfaction level, regarding functions of mentoring programs, and characteristics of mentoring programs. Interviews were conducted to supplement additional information that was hard to gain from the questionnaire.

**Results:** The results on demographic and functional characteristics revealed that there was no statistically significant differences in satisfaction levels across gender, whereas there were significant differences across grade levels. In addition, there were significant differences in the frequency of meetings and topics of conversation while the length of meetings and meeting place were not significantly different.

**Conclusion:** For the improved mentoring programs for medical students, the program should focus on the frequency of meetings and the topics of conversation. Furthermore, mentoring programs of high quality can be expected if professors take interview results into consideration. Also, students want to be provided with psychosocial advice from mentors in various ways such as role model function.

**Key Words:** Mentoring, Satisfaction level, Medical students

## Introduction

For medical school students, mentoring programs are essential and beneficial because students build careers, strengthen relationships with professors, and gain interests and passions in their studies [1]. Currently, many ongoing research projects regarding mentoring programs are

implemented in South Korea, due to many beneficial aspects students can obtain. The research outcome of mentoring programs development and the effects [2] on college students showed the positive effects on the participants' academic adaptations and career identities as a result of the mentoring programs. Many studies about mentoring programs on undergraduates are actively in progress in other foreign countries too. According to the

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research targeting medical students in Germany [3], mentees responded that mentoring programs are valuable because their mentors gave advice regarding career plans and research areas. Moreover, it indicated that such programs play a significant role in mentees' major decision. In another qualitative research performed in the United States [4], the research participants, who were medical undergraduates, chose aid, trust, liberation from mental pressure, honest conversation and career development as the effects of mentoring programs. Thus, the effects of mentoring programs at college have been proven both abroad and domestically.

Though mentoring programs were initially implemented at corporations for the purpose of the improvements in work efficiency and employees' satisfaction, the programs gradually began to be applied at schools and universities. As many successful cases of mentoring programs in enterprise field are presented, the mentoring programs are widely invigorated in educational fields too [5]. Especially in consideration of the distinct characteristic that colleges cultivate students' specialties, maintaining personal relationships with seniors who already completed all academic curriculums is significant for juniors. In addition, the seniors can be life coaches and advisers to the juniors. Through these interactions, the mentees grow and develop their specialties and potentials in schools as organizations [6].

In a strict sense, mentors and mentees should take active parts in the mentoring [7]. For the success of mentoring programs, the relationships are very important, and so are mentees' satisfactions in the programs. The purposes of this study are the following. First of all, we take a look at the participants' level of satisfaction in the programs. Second, we find ways to improve mentoring programs through identifying factors that affect the satisfaction levels. Lastly, we discuss the needs for strengthening specific functions.

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## Methods

### 1. Subjects

The School of Medicine in Kyung Hee University provides a mentoring program to all undergraduate students majoring in medicine. Mentors are tenure track faculty members in the school of medicine who voluntarily serve as a mentor. Before entering the college, the Kyung Hee University collects preferences from both mentors and mentees to match them in a pair. A mentor and a mentee meet for the first time in late February. For example, if one female undergraduate student indicates that she prefers a faculty member from the dermatology department and a faculty member from the dermatology department prefers a female mentee, they will be matched in a mentoring program.

There is no official duration for mentoring relationships, but there are many cases that a mentor and a mentee form a network and continue the relationship even after a mentee graduates. The network includes both the 1:1 relationship between a mentor and a mentee and a group of a mentor and several mentees who share the same mentor because mentors often accept one or more mentees every year.

Out of 372 potential subjects, 347 students were selected as the final subjects, excluding 25 students who randomly responded and submitted blank responses. Sixty participants were medical undergraduate students and 287 were medical graduate students from Kyung Hee University. The study included the qualitative analysis about the cases of mentoring programs to discover the programs' characteristics, which were hard to be found only through the questionnaire. A total of eight interviewees were chosen from each grade of two members. Half of them were the highest and the rest of

them scored the lowest satisfaction levels in the mentoring programs.

Interview participants were eight students who were enrolled in a mentoring program in Kyung Hee University medical school. We randomly selected one male student and one female student from each grade. To enhance the reliability of the interview process, one of the authors received a systematic training before interviewing participants. For the consistency of interviews, one trained author interviewed eight participants with a same interview questionnaire at the same location. Moreover, the interview questionnaire was reviewed by three experts. After interviewing eight participants, three experts who made the questionnaire reviewed the recorded file to increase its reliability.

## 2. Methods

### 1) Survey

Originally created in the United States, the questionnaire used in this research is the adapted Korean version with sufficient validity and reliability [8]. Based on the Likert scale, it measures career development, psychosocial and friendship functions. The subcategories are composed of specific behavior indicators that measure each function. In order to investigate prediction factors that influence the level of satisfaction, we investigated gender, school year, number of meetings, time of meetings, and conversation topics, respectively.

### 2) Statistic analysis

T-test and analysis of variance were used to figure out the students' satisfactory scales in the mentoring programs and multiple regression analysis was employed to analyze prediction factors that affect the satisfaction levels. IBM SPSS statistics ver. 22.0 (IBM Corp., Armonk, USA) was used to analyze the collected information.

### 3) Interview

After each personal interview with the eight par-

ticipants, the interview records were written in text and a "open coding" method was used afterward. The 10-minute interviews per each participant were conducted in the form of open-ended questions. During the interviews, students were allowed to freely give their voice, and recordings are carried out after prior consent for the guaranteed anonymity is made. By classifying, comparing and analyzing the written data, we could identify antecedents of more effective mentoring. Lastly, we secured the reliability of the study through the member test, which directly verified the validity for the result statement and interpretation by confirming the study outcome to the interviewees.

## Results

### 1. Results of the survey

#### 1) Demographic characteristics and details of mentoring programs

Out of 347 students, the number of males, 221 (63.7%) exceeds that of females. The number of undergraduate freshmen is 60, whereas that of graduates in the first, second, and third grades is 89, 101, and 97, respectively (Table 1).

The detailed information about the survey is shown in

Table 1. Characteristics of Demographics

Characteristic	No. (%)
Gender	
Male	221 (63.7)
Female	126 (36.3)
Grade	
Undergraduate 1	60 (17.3)
Graduate 1	89 (25.6)
Graduate 2	101 (29.1)
Graduate 3	97 (28.0)

Table 2. Once in every 6-month for the frequency of meetings (n=241, 69.5%), and more than 3 hours for the average time of a meeting (n=238, 68.6%) are chosen by most respondents. Moreover, the majority of the responses for the meeting place are restaurants. On the contrary, it indicates that academics, careers and life counseling (n=263, 75.8%) are evenly distributed as the responses for the conversation topics.

## 2) Analysis of satisfaction levels of the programs' functions

The consequence of the students' satisfaction levels and in the mentoring programs as a whole and for each

Table 2. Details of the Mentoring Programs

Characteristic	No. (%)
No. of meetings	
More than once a month	5 (1.4)
Once a month	83 (23.9)
Once in 6 months	241 (69.5)
Once a year	8 (2.3)
Almost never	10 (2.9)
Average time of meeting (hr)	
<1	6 (1.7)
1-2	103 (29.7)
≥3	238 (68.6)
Meeting places	
Professor lab	4 (1.2)
Restaurants	333 (95.9)
Professor home	2 (0.6)
Other	8 (2.3)
Conversation topics	
Academics counseling	11 (3.2)
Career counseling	16 (4.6)
Life counseling	57 (16.4)
All (inclusive)	263 (75.8)

sub-area is as follows. The overall satisfaction scale on average is 3.95, while psychosocial, friendship, and career development functions have 4.14, 3.97, and 3.80 satisfaction scale, respectively (Table 3). An analysis of variance indicated that the effect of mentoring functions on students' satisfaction levels was significant ( $F(3,344)=2.63, p<0.05$ ). According to the t-test for individual group comparisons, all groups (e.g., psychosocial, friendship, and career development functions) were different to one another. In other words, satisfaction levels of three groups were different for one another with significance.

## 3) Results of prediction factors that influence the satisfaction level

The consequence of multiple regression analysis which calculates prediction factors that influence the general recognition level is shown in Table 4. It discovers that gender ( $p=0.502$ ) hardly affects the satisfaction levels. It shows that the higher the school year, the higher the satisfaction levels are. The order of the highest to lowest satisfaction levels follows the order of the highest to lowest school year. The higher the number of meetings there are, the higher the satisfaction levels are. It is investigated that the average time of meeting ( $p=0.30$ ) and meeting places ( $p=0.29$ ) hardly impact the satisfaction levels. Lastly, life counseling as a conversation topic predicts the significantly low level in the satisfaction, but it shows that other conversation topics have relatively little effect on the general satisfaction levels.

We are mindful of the fact that some categories (e.g., meeting places) have large deviations in terms of number

Table 3. General Satisfaction Levels and Analysis Result of Each Function (n=347)

Function	Mean ± SD	Cronbach α
Total	3.95 ± 0.66	0.97
Psychosocial function	4.14 ± 0.63	0.95
Career development function	3.80 ± 0.78	0.96
Friendship function	3.97 ± 0.81	0.82

SD: Standard deviation.

Table 4. Descriptive Statistics for Variables

Variable	$\beta$ (SE)	p-value
Gender		
Male	1.41 (2.10)	0.50
Female	0.00	
Grade	2.39 (0.78)	0.00
Frequency of meeting		
More than once a month	10.37 (10.36)	0.32
Once a month	21.81 (6.87)	0.00
Once in 6 months	17.28 (6.65)	0.01
Once a year	4.67 (9.24)	0.61
Almost never	0.00	
Average time of meeting	2.09 (2.03)	0.30
Meeting place		
Professor lab	0.00	
Restaurants	-9.59 (9.24)	0.30
Professor home	-24.05 (15.83)	0.13
Other	-8.65 (11.43)	0.45
Topic of meeting		
Academics counseling	0.00	
Career counseling	-6.50 (7.24)	0.37
Life counseling	-13.47 (6.21)	0.03
All (inclusive)	-3.49 (5.78)	0.55

SE: Standard error.

of participants for each group. However, we can still draw a meaningful conclusion with the current data because regression analysis is robust to homogeneity of variance and normality assumption if there are large number of participants, which is the case for this study.

## 2. Results of the interview

The arrangements of the interview results are the following. First of all, the interview results, regarding how the Kyung Hee University medical students think about the current level of the mentoring programs, are sorted out. To summarize the results, according to the sequence of grade level, frequency of meetings, and conversation topics, the satisfaction level of mentoring programs is determined. Second, the reasons for satisfaction with the mentoring programs are laid out. The role model function and stories outside from classes are chosen for the reasons. Third, the interviews for

improvement direction are organized. Specifically, it reveals that considering major suitability and fairness in the mentoring programs is significant.

### 1) Results of the interview about present level

Through the qualitative analysis, out of the question items from the questionnaire, meaningful items were chosen for qualitative analysis. In the interviews, only meaningful items found mainly treated. The first and second investigations were that the higher the school years and the higher the number of meetings, the higher the cognition level the participants had. The last factor was that “life counseling” as a conversation topic predicts significantly low satisfaction level. We took a close look at the reasons through the interviews.

#### a. School years

We discovered that the higher the college years are, the higher the fitness and engagement in the mentoring programs the students had.

“I feel that as I move on to the next year, I am gradually more into and adapt to the mentoring programs. My role in the programs is slowly switching as time goes by. At first, I was the youngest mentee, and now I have become a more experienced mentee with responsibility and attachment to this mentoring. Our trust relationship between my professor and me is blossoming as well.”

b. The number of meetings

The consequence of the study showed that the higher the number of meetings is, the higher the satisfaction levels the students showed.

“Our mentoring team meets twice in a semester, but I think our meetings are frequently held when the professors and students are quite busy. I am very pleased with this mentoring system, because this is not just annual formal meeting, but we, as the professors and peer mentees, maintain our trustful relationships. Naturally, we have various counseling topics as our relationships blossom. If we meet annually, the meeting may run out of time, just catching up on our lives. However, as we meet more frequently, our conversation can cover a bunch of topics, like career paths and school lives. Especially, the professor is deeply concerned for our family affairs (household economy). These are possible because we have frequent meetings.”

c. Conversation topics

The students whose satisfaction levels were significantly low responded that their mentoring teams mainly dealt with life counseling.

“I think life counseling is still important to build the personal relationship with my mentor to some extent, but my expectations from this mentoring are largely academics and future careers. I wish we can share more

about academics and careers issues. In other words, I want my mentor, who has travelled the same career path and become a doctor already, to share how he has gone through hardships as I have too. Also, we want to talk about how we can prepare for our futures.”

## 2) Reasons for satisfaction in the mentoring programs

a. Role model

“I began the mentoring with hope to find my role model who has travelled same career path. As I have proceeded the mentoring for a year, the professor naturally becomes my role model. I think I should act and be like my professor, after he shares his own experiences.”

b. Meetings with other seniors and juniors

“I have rarely met other juniors and seniors except those in my club, but through the mentoring programs, I am exposed to new situations where I can meet diverse people. In addition, we feel we establish a good rapport because we are likely to choose the same sub-major.”

c. Stories from outside of the classroom

“This opportunity brings me chances to take a deep understanding of schools, academics and majors by sharing stories. Especially, the professors tell stories from their own experiences, not in their classes. Meetings with the professors do not come easy, so the additional benefit of the mentoring is giving specific shape to my future careers even after graduation through these meetings.”

## 3) Results of interviews regarding improvement direction

a. Considering major suitability

“By the time I entered the college, I chose my major professor as my mentor in the programs. Although I applied and proceeded the mentoring programs in my major field because of my interest in it, I have considered to have meetings with other professors in other major fields as I move up to higher grades. In consideration of the fact that few undergraduate freshmen can determine their majors, I think it is better to have other programs, like union meetings with other mentoring teams or meetings with other major professors.”

#### b. Fairness in the mentoring programs

“In fact, I think there are big gaps in terms of intimacy among other mentoring programs and the professors. Some programs hold frequent meetings and the members are connected, while some only stick to the formality. I expect systematizing this fairness issue will lead to the better qualified mentoring programs.”

## Discussion

The purposes of this research are to discover the overall satisfaction the Kyung Hee University medical students have in their mentoring programs, and to identify which prediction factors affect the satisfaction levels. As a result, we set our study purposes for drawing discussion on how to implement more effective mentoring programs. The followings are the key results and the considerations.

First, according to our questionnaire outcome, more senior students have higher satisfaction levels. We interpret this as phenomenon that the mentors and mentees gradually develop their relationships as time goes by. Thus, developing trust between mentors and mentees is very significant. Second, the higher number of meetings

predicts higher satisfaction scale. Therefore, we can draw a conclusion that each mentoring team should have meetings at least once in 6 months to provide mentees higher satisfaction rates. The success of mentoring highly depends on the mentor-mentee relationship and this indicates the importance of the trust between them. For these reasons mentioned above, students in higher grades and with higher number of meetings have higher cognition levels about the mentoring programs. Third, the students, who answer that their main conversation topic at the mentoring meeting is life counseling, score significantly low satisfaction levels. After several interviews were conducted, we found that the students expect to ask for solutions for their careers and academics rather than personal issues.

The interviews focused on the satisfaction and dissatisfaction factors in the programs to draw implications for improving the mentoring programs. As the preceding research showed, the students wish to learn tips for academics and career issues, and it is proven that the role of mentor professors is crucial [9,10].

The following is the summary of the interview results. At first, through the examination of the personal interviews, we figure out that the students are satisfied with the mentoring because their mentor professors can match their role models. Moreover, they responded that meetings with other juniors and seniors, and the conversation, which involved stories based on the experiences in real fields, are the extra supports. Such characteristics overlap the factors the preceding research [11] proposes for better mentoring. In this proposition, good mentors are defined as those who can be mentees' role models. Moreover, connections and networking with other juniors and seniors are emphasized. Especially, the role model function is very essential in the medical mentoring programs as they are proven in Scandura's study [12]. Many dissatisfied students who do not fit in



their majors respond that union meetings with other major teams are necessary [13]. The reason is that mentor professor selection is made in freshmen years, but mentees can spark their curiosity in other majors thereafter. Also, those who fit in their majors still want the union meetings because they want to fulfill their curiosity and meet other juniors and seniors in other majors. Therefore, the alternative is the attempts of the union meetings. According to the study conducted at the Harvard Medical School Office of Faculty Development and Diversity [10], it announced that satisfaction is deeply involved with the help to form network relationships with other professionals within the mentoring programs. The second reason of the dissatisfaction is the fairness issue with other teams. It is investigated that, while some teams work out nicely, some do not, leading to the fairness issue. According to the preceding study [11], the performance of the mentoring improves when mentees feel equal throughout the overall programs. Accordingly, it is very important to make the mentoring participants feel equal without deviation in their programs by systematizing the mentoring programs. To achieve this goal, it is expected that specifically, the mentor professors' active participation and discussion are required. Recently, the announcement of academic articles [10,14], which deal with the importance of mentor professors for the qualified mentoring programs, are a rising trend. The prerequisites for this qualification are the professors' positive attitude and recognition of the current situation.

The limitations of the study are the following. First of all, this research took the samples only from a Korean medical school; the sample size was too small to make a definitive conclusion. Secondly, the study targeted only mentees, so it failed to reflect the mentors' voice.

The propositions regarding the restrictions and the follow-up research are the following. First of all, taking

extra students from other universities into account will lead to the extra data collections and research comparisons with mentoring programs from other universities. Secondly, taking the professors' opinions into account will lead to the examination for both mentor-mentee sides, providing precise study outcome.

For example, the School of Medicine at the University of Texas at San Antonio [15] runs a mentoring program called Veritas. All medical students participate in this mentoring program for 4 years and there are 20 groups. Each group has a faculty member as a mentor. Students meet with a faculty member one-on-one basis and they meet at least once a month. There is a specific topic for each meeting and mentees of a mentor proactively communicate with each other every month. This mentoring has several advantages. A mentor and mentees meet frequently (e.g., once every month) and students can focus on specific topics. Furthermore, Frei et al. [16] explored mentoring programs for medical students from 2000 to 2008. They identified 14 papers that examined advantages and disadvantages of mentoring programs all over the world. There are both one-to-one mentorships and group mentorships, and most schools established those mentorships first 2 years of medical school and continue throughout their studies. Personal relationships between faculty members and student mentee are particularly important because it could encourage student's participation in asking advice and applying them when applying to jobs. The study identified characteristics for successful mentors and mentees. A mentor should be a role model and builds a professional network for mentees and assist personal development of mentees. In addition, mentees should have their own agendas, follow through agendas, accept criticisms, and be mindful of performance assessment and benefits from the mentoring relationships.

Compared with other mentoring programs inside and



outside Korea, a mentoring program in medical school of Kyung Hee university has several advantages. First, faculty members from different fields participate in mentoring programs and provide diverse perspectives. At the time of survey, there were total of 63 mentors from 38 different fields of study. Students usually choose majors of their mentors and have a wide range of choices in selecting mentors. However, there is disadvantage as well. Since mentees meet with a mentor from one major, they have a limited opportunity to meet with mentors from other majors. In order to supplement this disadvantage, it would be beneficial to hold regular gatherings between mentees and mentors from different fields.

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