Passivity, task segmentation, and relational capital: a study of interpersonal relationship formation among freshman medical students in team-based activities

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Purpose: Team-based learning in medical education facilitates the formation of interpersonal relationships, enhances academic achievement, and establishes future clinical connections. Despite medical schools' distinct educational environments and curricula, research investigating students' learning and behavioral characteristics within this context remains limited. This study aimed to investigate the specific characteristics of interpersonal relationship formation among freshmen medical students in team-based learning activities.

Methods: Focus group interviews were conducted with 11 students who participated in a team-based class held during the first semester of the premedical year.

Results: Medical students passively expressed their thoughts and feelings, such as active sympathy for the team's opinions and self-censorship of SNS (social networking service) conversations. When performing team activities, students were excessively conscious of others and focused on evenly dividing their work, minimizing their opinions, and fulfilling their share to prevent potential interpersonal conflicts. Interpersonal activities were only superficial, as students intentionally maintained a certain distance from team members or used team activities as an opportunity to accumulate relational capital.

Conclusion: The results of this study are expected to provide a useful basis for designing and conducting team activity classes to enhance interpersonal relationship formation.

Key Words: Curriculum, Medical education, Interpersonal relations, Premedical, Team-based learning, Relationship

Introduction

Developing strong interpersonal relationships is a core competency for medical students. The formation of smooth interpersonal relationships assists in adapting to university life, developing positive attitudes toward others, reducing problematic behavior, and enhancing academic achievement [1]. In clinical settings, various human relationships among patients, nurses, and medical technicians are inevitable after graduation. Therefore, communicating effectively and forming close relationships with others contributes to creating cooperative working relationships and ultimately improves the quality of long-term patient treatment [2]. For these reasons, the "Korean doctor's role," which represents the competencies that Korean medical professionals should possess, was published in South Korea. In particular, communication

and cooperation skills are continuously emphasized as essential competencies that medical professionals must possess to establish smooth relationships with others as members of society [3].

To enhance the development of interpersonal relationship skills, medical schools have implemented team-based learning activities as a representative approach [4]. Teams comprise multiple individuals who collaborate towards a shared goal to accomplish tasks, and this teaching and learning method aims to improve performance abilities such as problem-solving and critical thinking and enhance interpersonal relationship skills such as cooperation and communication through interaction among team members [5].

In medical schools, team-based learning has often been used in courses such as the medical humanities, which require frequent discussions on specific topics, concepts, and phenomena, as well as collaboration with peers. Previous studies have mainly focused on problem-based learning (PBL) and small-group practice activities during clerkship courses for medical students. Further research on these teaching methods is needed [6,7].

This study aimed to examine newly admitted medical students' interpersonal relationship formation characteristics in team-based learning. The transition to medical school signified a major shift from secondary to higher education. For medical students, building new relationships is crucial for adapting to the new academic environment and is expected to involve significant effort [8]. Previous studies have reported that medical students tend to form competitive relationships and prioritize business-like relationships over socializing with peers in the rigorous academic environments of medical school [9].

A burgeoning interest in comprehending the "new generation" of medical workplaces has spurred the need for research to identify medical students' communication and interpersonal relationship traits. This research topic is meaningful and beneficial for understanding and educating future workforce members. Acquiring interpersonal relationship skills necessitates long-term education and training, as such skills are refined through ongoing relationships with multiple members. Therefore, it is imperative to prioritize the development of interpersonal skills among prospective medical professionals in the early stages of medical school. Moreover, it is essential to provide these individuals with long-term and systematic education in interpersonal skills, not only during their medical school period but also throughout their professional careers in medical workplaces.

By adopting a qualitative research approach, this study aims to conduct an in-depth examination of the intricate and multifaceted interpersonal interactions that transpire within the context of team-based learning activities. Qualitative methods offer a comprehensive means to explore the thoughts, emotions, and behaviors of medical students in relation to the formation of relationships. This approach facilitates a nuanced understanding of the various factors that influence interpersonal dynamics, the challenges encountered, and the strategies employed by students to navigate and cultivate these relationships. Furthermore, a qualitative research approach provides a valuable opportunity to capture the distinctive dimensions of interpersonal relationships that may not be captured through quantitative measures alone [10].

In summary, the research question of this study was: What are the specific characteristics of interpersonal relationship formation among newly admitted medical students in team-based learning activities?

Methods

This study utilized a qualitative case study research method. Four focus group interviews (FGI) were con-

ducted using the constant comparative method. This study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines [11]. The research team comprised three experts in education and medical education. The FGI was moderated by an education PhD (Doctor of Philosophy) holder with extensive qualitative research experience. All researchers had prior experience in conducting qualitative research and analyzing the data.

1. Study context and participants

To achieve the purpose of the study, this study recruited premedical class that use team activities as a major teaching method. In this class, teams were randomly organized according to the instructor's instructions for team activities, and 8 to 10 students were organized into one team, resulting in a total of 14 teams. Students voluntarily selected team activity topics and tried to achieve the selected topics. After the semester, the researcher recruited students who actively participated in team activities during the semester, using "purposeful sampling" as research participants in the interview group [12]. In this process, students were not evenly recruited from a total of 14 team topics, which was based on the researcher's judgment that "active participation in research interviews" was a priority over "distributing and selecting team topics evenly." As the interview progressed, the number of study participants was added through "snowball sampling" [13]. The final study participants in this study were 11 (Table 1).

2. Data collection

The data collection method used in this study was an FGI. FGI collects information by dividing a small group into subgroups and collecting information through interactions between members on a specific topic. It is widely used in qualitative research because it can stimulate thinking as multiple people discuss topics. To collect rich data on FGI, it is important to form groups with diverse members with similar backgrounds but different experiences or attitudes [14]. Each interview group consisted of 2–4 students from different teams.

Data collection was conducted from July 6 to July 19, 2022, shortly after the end of the semester, with each group meeting approximately once for about 2 hours. For all groups, common questions, such as "the overall process of performing team tasks," "the tasks performed during team activities," and "interpersonal relationships experienced during team activities" were presented, and the

Table 1. Characteristics of Participants

Participants	Gender	Age (yr) (as of 2022)	Topic (team #[a])
1	Male	22	Exploring methods to foster closer relationships with peers (Team 1)
2	Female	20	Exploring ways to support students' hobbies and facilitate career exploration (Team 3)
3	Male	18	Exploring methods to build friendships with unknown colleagues (Team 8)
4	Female	20	Making a school map for freshmen (Team 9)
5	Male	18	Making a guidebook for freshmen (Team 7)
6	Male	23	Investigating different paths to experience various aspects of a premedical life (Team 10)
7	Male	19	Exploring methods to train and prepare the MD-PhD/medical scientist (Team 11)
8	Male	24	Supporting the learning of basic liberal arts (Team 2)
9	Female	21	Exploring ways to revitalize disconnected school culture due to online classes (Team 12)
10	Male	19	Exploring methods to foster closer relationships with peers (Team 1)
11	Male	20	Exploring methods to foster closer relationships with peers (Team 1)

MD: Doctor of Medicine, PhD: Doctor of Philosophy.
[a]There were a total of 14 teams, and "Team #" does not mean "interview group," but a team in which students did "team activities" in class.

interviews were conducted in a semi-structured format, where researchers added exploratory questions based on the responses.

3. Data analysis and validity evaluation

The collected data were analyzed using the constant comparative method, which is a commonly used approach in qualitative data analysis [15]. This method involves comparing the content of data to identify similarities, differences, and patterns or trends in the data [16]. First, all the recorded data were transcribed. Each author independently read and familiarized themselves with the data and compiled a list of significant statements. Similar dimensions of data were identified and explored together, and categorization was performed through iterative processes of discussion and consensus building among all researchers. Ultimately, three categories and seven subcategories were formed, and similar data were named. The entire analytical process was facilitated using MAXQDA20 (2019; VERBI GmbH, Berlin, Germany) for the convenience of qualitative data analysis.

To increase the validity of the study results, the member check method was utilized to verify the accuracy of participants' opinions and gather feedback on the research findings [13]. Also, to enhance reliability, the research team regularly discussed and exchanged feedback on interview materials through peer debriefing [17]. The study results were shared with some participants to confirm there was no distortion or unacceptable content and to ensure their statements were accurately understood and represented.

4. Ethics statement

This study was conducted with the approval of the Hanyang University Institutional Review Board the researchers belong to (HYUIRB-202105-023-4). Prior to conducting the FGI, the researchers provided a sufficient explanation to the participants regarding the research purpose, interview content, time required, and voluntary withdrawal and obtained their signed informed consent forms. All interview content was recorded with the consent of the participants.

Results

The data analysis revealed three categories: passive self-disclosure, elimination of potential conflict factors, and formation of relationships based on interests. Table 2 presents the main categories and subcategories.

1. Passive self-disclosure

Passive self-disclosure is a key feature of interpersonal relationships observed among study participants in team activities. They tended to reveal their thoughts and emotions minimally, as evidenced by behaviors such as

Table 2. Categories and Subcategories

Category	Subcategory
Passive self-disclosures	Active conformity to team opinions
	Self-censorship in SNS communication
Elimination of potential conflict factors	Distributing tasks equally
	Minimizing sharing of opinions with team members
	Focusing on the fulfillment of one's own role
Formation of relationship based on interests	Maintaining a certain distance from team members
	Utilizing team activities as an opportunity to accumulate social capital

SNS: Social networking service.

"actively conforming to team opinions" and "self-censorship" in social networking service (SNS) conversations.

1) Active conformity to team opinions

Team activities in medical schools require active communication among members, including presenting individual opinions and exchanging ideas. The participants primarily demonstrated a communication style characterized by actively agreeing with others' opinions and conforming to the majority view. This was likely due to their recent enrollment in the university, which limited their understanding of one another and made it difficult for them to express their opinions. Some participants chose to conform to the majority view in cases of disagreement, indicating that "they did not want to stand out."

"I didn't think the problem-solving method proposed by our team was a good activity. So, I told my team members that the solution seemed unclear, but the atmosphere was not receptive, so I didn't say more." (Participant 1)

2) Self-censorship in SNS communication

Although SNS can be a convenient tool for overcoming the constraints of face-to-face activities, communication among medical students on SNS is not always straightforward. They found SNS conversations uncomfortable because it was challenging to understand nonverbal expressions, such as facial expressions and tones, which could lead to the misinterpretation of meaning. Additionally, they felt burdened by the conversation being "recorded." These characteristics were particularly prominent in "group chat," where students often chose to review and refine their messages multiple times before sending them or even chose not to express their opinions if they found the process burdensome.

"During group chats, it was difficult for me to criticize others. The fact that the conversation was recorded made me feel burdened. Also, unlike speaking, written communication lacks nonverbal expressions such as facial expressions and tone, which made me worry that I might come across as rude. So, I reviewed each sentence carefully to make sure that I didn't appear rude before sending it in the chat room." (Participant 6).

2. Elimination of potential conflict factors

To prevent potential conflicts in interpersonal relationships that may arise during team activities, the participating students demonstrated behaviors aimed at eliminating potential conflict factors. Specifically, they exhibited three types of behaviors: "distributing tasks equally," "minimizing the sharing of opinions" among team members during discussions, and "focusing on the fulfillment of their assigned roles" when completing tasks.

1) Distributing tasks equally

To perform tasks based on teams, the process of "division of labor," in which each person takes their share, and the process of "collaboration," in which they work together through mutual consultation, are required. However, the work style of the participating students was more focused on "division of labor" than "collaboration." It was observed that at the beginning of the work after the team was formed, the students conducted tasks such as "understanding the amount of the entire task" and a "detailed breakdown according to the number of team members." The students were very sensitive to the idea of all team members "performing the task uniformly." They believed it would be unfair for certain members to bear excessive burdens that they did not want, which could negatively impact the team atmosphere.

"At the final presentation, we divided the roles of the presenter and the writing presentation scripter. We assigned the task of writing the script to one person because we thought it would be too much work for the presenter. We believed that the workload should be distributed equally among the team members. Therefore, if one person was burdened with too many tasks, we tried to divide the workload even if it was not necessary." (Participant 3)

2) Minimizing sharing of opinions with team members

While the process of gathering and coordinating diverse opinions among team members is essential for ideal collaboration, students do not prefer team activities that involve many conversations or exchanges of opinions. In particular, students feel uncomfortable giving feedback on their peers' performances. This was due to the belief that giving feedback was equivalent to criticizing others.

"I felt that within the medical school, there was a culture of not adding additional comments to what others have already said. Not only in class but also in everyday conversations, people seemed to have reluctance in adding their own opinions to what others have already said. Even if it was a positive comment, people seemed to hold back." (Participant 7).

3) Focusing on the fulfillment of one's role

Students not only focused on completing team assignments immediately but also considered their behavior's impact on their future medical school years in the long term. This was because of the belief that showing irresponsible or negative behavior toward colleagues could create a negative image of medical school life. One study participant mentioned the importance of personal responsibility for one's share of the work and used the

expression "one's own portion" to describe it.

"Even if they didn't want to work hard on team assignments, they didn't want to hear that they weren't participating fully because they have to spend 6 years together with their colleagues. It seemed like everyone found a compromise to do their own part as best as possible while navigating these conflicting emotions." (Participant 7).

3. Formation of relationship based on interests

It was found that students formed business-like relationships with their team members while participating in team activities rather than focusing on forming personal friendships. Some students deliberately chose to "maintain a certain distance from their team members," while others saw team-based activities as opportunities to "accumulate social human capital."

1) Maintaining a certain distance from team members

Team-based classes can provide college freshmen with opportunities to make new acquaintances. However, according to the research participants, it was better to maintain a "moderately awkward relationship" with peers during team-based activities rather than trying to establish an artificial interpersonal relationship. Students perceived that maintaining a certain distance from team members prevented interference with team assignments and helped each member take responsibility and feel a sense of obligation, which prevented "free riding."

"When working on team projects in university, I felt that maintaining a certain level of distance was ideal. We believe that being slightly uncomfortable with each other would help clarify individual responsibilities and enable

us to take more responsibility for our roles." (Participant 3)

2) Utilizing team activities as an opportunity to accumulate social capital

Although the students recognized the importance of maintaining an appropriate distance from their team members during task execution, they did not consider interpersonal relationships meaningless. In medical schools, where opportunities to form new relationships are scarce without specific occasions, students view team activities within classes as valuable opportunities to establish new interpersonal connections. The participants found that these relationships allowed them to expand their human relations networks through their team members.

"I think team activities have definitely brought about the effect of meeting and greeting fellow students. We can say hello and have a casual conversation when we pass by each other. Even if it's just to that extent, it's definitely helpful for interpersonal relationships." (Participant 4)

Discussion

This qualitative study explored the characteristics of interpersonal activities in team-based classes among first-year medical students. Based on these findings, the following discussion is possible:

First, the freshmen' team activities were based on passive interpersonal characteristics. Students were negative about expressing their thoughts in team activities that required active communication, such as advocating for opinions. They exhibited a passive range of task performance characteristics and tried to faithfully execute their tasks without harming others. This result somewhat

differs from previous studies that claimed that medical students actively engaged in learning by being stimulated by their peers, thus forming a learning culture [18].

The results of the present study can be interpreted in several ways. First, the study participants were freshmen who had just entered medical school. For those who have spent little time together since entering university, team activities are considered class activities that bring about both the burdens of performing tasks and building relationships with unfamiliar peers. Previous studies have reported that in a PBL education process based on team activities in medical schools, students can enhance their academic motivation and intimacy by actively interacting with colleagues in the same group during class [19]. Therefore, it can be expected that the characteristics of interpersonal relationships change naturally as students' progress to higher grades.

Another possible interpretation is rooted in the particularity of the premedical curricula of Korean medical schools. The premedical period is considered the time for relaxation and leisure activities before rigorous medical education begins [20]. Consequently, many premedical students intentionally exhibit a sense of helplessness towards their studies, which, if left unchecked, may negatively affect their entrance into medical school and lead to long-term loss of motivation for learning and other difficulties in medical school life [8].

Additionally, being conscious of others was a key characteristic of team activities. Despite the necessity for smooth communication and cooperation in team activities, the participants demonstrated behaviors such as equally distributing tasks, minimizing opinion exchange, and carefully choosing words when conveying their opinions to others. They explained that they were conscious of how others would perceive them and made efforts not to create negative images of themselves. Of course, according to the development process of interpersonal relationships in

university students, in the early stages, they exhibit immature attitudes, such as being conscious of others and being cautious. Still, they reveal themselves over time, create advantageous situations, and naturally form interpersonal relationships [21].

It is expected that the interpersonal skills of medical students will gradually become more robust and improve over time. However, medical schools have a "closed" and "long-term nature" of interpersonal relationships, as they perform both lectures and practical training in the same educational process, spend most of their study time with classmates, and maintain those relationships during their enrollment and after graduation. Therefore, interpersonal relationships can be considered another task that medical students should pay attention to and manage as much as their academic performance [22].

Medical students tend to be conscious of their image in their relationships with peers and experiencing "stigma" or a "loss of reputation" when their image is damaged can have a negative impact on their university life [23,24]. Moreover, in the commonly used "peer evaluation" in medical schools, there is a tendency to not give honest scores for a peer's performance, which can lead to negative psychological and academic consequences due to awkward relationships with dissatisfied peers who receive honest evaluations [25]. This highlights the need to understand the unique culture of interpersonal relationships in medical schools and improve and intervene in the educational environment.

Finally, attention should be drawn to the superficial interpersonal relationship characteristics of freshmen. A harmonious team atmosphere and cordial relationships among team members are essential for improving task performance quality [26]. However, the typical characteristic the research participants showed throughout the team activities was "maintaining a certain distance" from each other rather than providing dynamism to the team.

There are various interpretations of interpersonal relationship characteristics; however, one possible interpretation can be viewed in light of the specificity of the cohort of freshmen who participated in this study.

These participants generally spent their high school years with coronavirus disease 2019 (COVID-19), during which secondary education was conducted online, making it inevitable that opportunities for enhancing competencies such as interpersonal relationships and communication, which can naturally form through interaction with others in the educational environment of "school," would be disrupted. Previous studies have reported that students who spent their high school years during COVID-19 were not accustomed to interacting with others or forming relationships with peers, thus experiencing difficulties in interpersonal relationships [27].

Suppose superficial interpersonal relationships are maintained for a long time. In that case, students tend to engage in defensive behaviors, making it difficult to reveal their true selves, including their mistakes and weaknesses [28]. In such situations, students become sensitive to the evaluations and opinions of others, making it difficult to obtain social support and leading to a decrease in self-esteem and an increased risk of psychological problems such as loneliness and depression [29]. Social and emotional support is critical, especially for medical students, as it can reduce academic stress and facilitate adaptation to medical school [1].

Based on the discussion of the research results above, the following suggestions are presented for team activities in medical schools:

First, the tasks performed in team activities should be challenging and require active cooperation among members. Various methods can be used to perform team tasks. Some teams may be able to complete tasks with several discussions and simple decision-making depending on the selected topic. In contrast, others may

require deep contemplation and collaborative efforts from several people. Low-level topic selection can stop at the stage of "distribution" of each member's share rather than moving forward to the stage of "cooperation and collaboration" through active interaction among students. Therefore, when conducting team activities, professors must set the difficulty level of team tasks so students can solve them through dynamic interactions.

Second, before starting team activities, it is necessary to add activities that can break down barriers and improve intimacy between team members. For example, ice-breaking can increase trust among members by improving understanding and connectivity through short activities before starting formal team activities, which can lead to meaningful interactions and learning [30]. In particular, since many medical students who have just entered medical school are in a new environment with a rigid atmosphere is often formed, it is necessary to create a team atmosphere that enables them to participate in a comfortable mindset through simple activities before starting formal activities.

Finally, creating an environment that encourages student discussion during team activities is necessary. Establishing "ground rules" within the team may be a way to do this. The ground rules are shared rules established within a team to perform tasks [31]. Specifically, it is necessary to establish rules, such as listening to the other party's opinions and controlling the tone of voice during discussions so that students can participate in team activities based on them. This will help the team function effectively, prevent free riders, and improve team performance.

This study was conducted on a single cohort in a medical school, and there may be differences in the experiences of the participating students depending on the nature of the tasks performed by each team. Nevertheless, this study provides foundational data for developing methods to enhance interpersonal relationships among medical school freshmen through team activities. Based on this study, we hope that follow-up qualitative research on team activities related to the environment and context of each university will be conducted.

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