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# Understanding medical students' transition to and development in clerkship education: a qualitative study using grounded theory

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## Abstract

**Background** Medical students perceive the transition to clerkship education as stressful and challenging and view themselves as novices during their rotation in clerkship education. The developmental perspective is thus important because the transition to clerkship supports rather than hinders growth. Accordingly, this study examines medical students' transition to clerkship and their developmental features.

**Methods** In-depth interviews were conducted with 18 medical students or graduates who had completed clerkships as medical students. Based on Straussian grounded theory, the collected data were analyzed in terms of the differences between pre- and post-clerkship education.

**Results** Our data analysis revealed five stages of the transition process: "anticipation and anxiety," "reality check," "seeking solutions," "practical application," and "transition and stability." The core category, that is, "growing up from being students to being student doctors," was driven by patients who perceived the participants as student doctors. Meanwhile, the participants recognized that having a solution that is agreed upon by colleagues was more important than knowing the correct answer. The participants undergoing the transition to clerkship showed developmental features divided into three categories: personal, social, and professional. Specifically, they attempted to balance clerkship and life through personal development, learned to navigate around the hospital and reduced tension through social development, and developed clinical competencies focused on efficiency through professional development.

**Conclusions** This study explores the process of students' transition to clerkship education and the developmental features that emerge during this period. The students were motivated by patients who perceived them as student doctors. Through the transition, they maintained a work-life balance and adapted to hospitals but developed an overly doctor-centered attitude by cultivating clinical competencies with a focus on efficiency. To develop them into medical professionals, it is essential to assist their transition and cultivate a patient-centered attitude.

**Keywords** Transition, Clerkship, Medical student, Professional identity, Professional development

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## Background

The transition to clerkship education marks the first time that medical students will experience the role of being doctors and is an important stage for them to grow into doctors who think and act according to the values of their profession in clinical settings [1, 2]. Students who have entered clerkship education move away from the systematic and structured medical school environment to a hospital setting where apprenticeship and experiential learning methods are common and students face a variety of tasks that are markedly different from those in the pre-clinical education period, including communication with patients and their families, cooperation with medical staff, and self-management [3, 4]. In other words, the transition to clinical practice education involves understanding the context of the new environment, socializing to meet societal standards, and exerting considerable effort toward adapting to the complex environment [5, 6].

The transition to clerkship is known to be a difficult period for medical students as they face stressful and challenging tasks as part of the undergraduate medical curricula [7]. Many students express concerns that their lack of clinical knowledge and skills could potentially harm patients [7]. In addition, the increased workload causes physical and mental fatigue, and students experience difficulties in self-management and time management [8]. Accordingly, universities offer a transition course to help students in their transition from pre-clinical to clinical education. Nevertheless, students struggle to adapt to the culture of medical teams, including interacting with supervisors, professors, residents, and interns; and learning how to work effectively [3, 9]. Furthermore, students still perceive the transition as “disruptive” [10] and a “big leap” that needs to be overcome [9].

Examining the developmental perspective of the transition to clerkship education is crucial in medical education. The purpose of clerkship education is to provide students with hands-on clinical experience and to facilitate their development into proficient medical professionals. Despite its importance, current research primarily focuses on bridging the gap between pre-clerkship and clerkship education by enhancing students' preparation while paying little attention to their developmental experiences during this transition [11]. Consequently, each new rotation often leaves students feeling like novices, impeding their progress and weakening their sense of direction [12]. This recurring sense of starting over can slow the transition process, potentially hindering overall growth [13].

Socialization during clerkship plays a crucial role in the formation of professional identities, which has a direct impact on care quality and patient outcomes. Students who develop a strong professional identity are more likely to be confident, communicate well, and understand their

roles and responsibilities, which are essential to high-quality patient care [14]. However, recent studies have focused on students' experiences in a single specialty without considering the temporal aspect, which limits the generalizability of the findings to students in other specialties [9, 10]. Therefore, it is necessary to comprehensively understand the developmental processes across various specialties during the transition to clerkship. This understanding not only enhances the current state of clerkship education but also informs the development of targeted improvement strategies through an evaluation of educational outcomes and achievements.

In summary, the developmental perspective of the transition to clerkship education is vital. By emphasizing the growth experiences of students, we can optimize medical education to foster continuous development and the formation of professional identities during the transition phase, which in turn leads to improved patient care and academic success. Accordingly, our study aims to explore the transition process by evaluating not only medical students' experience in their transition to clerkship education but also the developmental features they gain through the transition. Our research questions are as follows: First, how do medical students transition into clerkship education? Second, what developmental features do medical students cultivate as they transition to clerkship education?

## Methods

### Study design

This study utilized the Straussian Grounded Theory (Straussian GT) to deeply understand the process of transition to clerkship education for Korean medical students and to consider their development through this process. Straussian GT, developed by Strauss and Corbin, offers structured instructions for coding and analysis that include a literature review, allowing for a comprehensive examination of intricate social phenomena from multiple perspectives [15]. Unlike the classical GT by Glaser, which emphasizes emergent theory without pre-existing frameworks, the Straussian GT permits a more structured approach and integrates existing theoretical concepts into the analysis [16]. This methodology is particularly suitable for our study as it facilitates the exploration of the complex clerkship education environment, where students, supervisors, patients, and guardians coexist and interact. To capture the students' vivid experiences of this education, we conducted semi-structured interviews. The entirety of this study followed COREQ (Consolidated Criteria for Reporting Qualitative Research) guidelines [17].

### Study context

We conducted this study in the context of Korean medical schools. Traditionally, clerkship education in Korea is block clerkship, which lasts two years and begins in the fifth year of medical school. During that time, students work full time in hospitals and participate in clinical practice, notably rotating across specialties such as internal medicine, surgery, pediatrics, and psychiatry, for 2 to 12 weeks. Decisions regarding the order of rotation through various specialties and the grouping with peers are mainly made administratively, giving students minimal control over these decisions.

### Data collection and participants

We recruited 18 participants who had at least 3 months of clerkship education as student doctors from two separate universities. We used purposeful sampling to select two knowledgeable and experienced individuals from the early research participants who could provide in-depth answers to the research problems. The initial plan was primarily to target third-year medical students who had recently entered clerkship education to ensure the vividness of their data. However, two pilot interviews revealed that, on average, the transition to clerkship education takes 3 to 6 months. Hence, we shifted to the selection of participants who had received clerkship education in at least two specialties, students in their final year of medical school, and graduates within a year of graduation. Given that numerous environmental influences could impair recall, we chose this one-year time limit to attract graduates with recent experience.

Data collection involved conducting semi-structured interviews to explore the experiences related to the transition to a clerkship in depth. The participants were asked about “expectations and concerns about clerkship education before it begins,” “overall encounters in the early stages of clerkship education,” and “features perceived to contribute to the successful transition to clerkship education.” The grounds for these factors are provided accordingly. The interviews were conducted over a span of two months, specifically between March and April 2023, with each interview lasting 50–90 min. Afterwards, we repeated the selection and recruitment of the next data collection targets using theoretical sampling, based on the theoretical concepts that emerged from the collected data [15]. We repeatedly performed sampling and analysis until we reached theoretical saturation, indicating the accumulation of appropriate data and the unnecessary need for additional data collection [18].

### Data analysis and trustworthiness

The collected data were analyzed in terms of the transition process and the differences that emerged between pre- and post-clerkship education. The recorded

interview file and the researcher’s notes were transcribed using Naver Clova Note. The data were then analyzed by grounded theory using the qualitative research software MAXQDA20 (VERBI GmbH, Berlin, Germany, 2019). All collected data were categorized into concepts that could represent ideas and phenomena through line-by-line analysis. Constant comparative methods were used as the data were collected and analyzed. These methods involve a continuous comparison of the phenomena, concepts, and categories being studied. They also help form theories by elaborating abstract categories through the clarification of similarities and differences and understanding of their relationships. After all the data were collected, each set was synthesized and analyzed within the entire framework.

The following strategies were used to ensure the validity and reliability of the data analysis [18]. First, while coding, we tried to systematically compare phenomena by comparing them with existing theories and literature. Using this technique, we attempted to grasp the attributes and dimensions that might have been missed in the data analysis process [15]. Second, expert reviews were conducted. In this study, one researcher with qualitative research experience and another who was familiar with the research subject and had expertise in related fields were asked to review the validity of the data and results. Third, we conducted a member check to enhance the trustworthiness of the study. We provided a summary of the preliminary findings to the participants, asking them to review and provide feedback on the accuracy of their views and experiences. This process ensured that the data analysis accurately reflected the participants’ perspectives, thereby strengthening the credibility and dependability of the results.

### Ethics statement

This study was approved by the Institutional Review Board of Hanyang University (HYUIRB-202304-008-1). Before the interview, the participants were presented with a thorough explanation of the research purpose and interview content. They were then requested to sign a “Research Participation Consent Form,” and the interviews proceeded only after obtaining their consent.

### Results

We interviewed nine third-year medical students, seven fourth-year medical students, and two interns who were less than a year after graduation. They received clerkship training at two different universities. Table 1 provides their detailed demographic characteristics. According to the statements of the study participants, they went through five steps to become student doctors. Comparing themselves to their earlier selves, they observed significant changes and growth, ultimately reaching a

**Table 1** Participant characteristics

	Category	n
Sex	Female	7
	Male	11
Age	≤ 24 years	3
	25 years	9
	26 years	4
	≥ 27 years	2
Medical School	National/public	5
	Private	13
Year	Medical 3	9
	Medical 4	7
	Intern	2

transition where they could assume the role of student doctors. This data analysis divided the study's results into two distinct parts: (1) the process of transitioning to clerkship education, and (2) the students' developmental features through the transition.

### Part 1. process of transition to clerkship education

The data analysis revealed the core category as "growing up from being students to being student doctors." It also identified the five stages of the transition to clerkship education: "anticipation and anxiety," "reality check," "seeking solutions," "practical application," and "transition and stability."

The first stage was "anticipation and anxiety." The participants felt both excited and anxious before their clerkship education started. They looked forward to having more leisure time than they did during the pre-clinical period, but they were also nervous about getting to know new people. In particular, they were worried that they might unintentionally harm a patient because of their lack of expertise. Nevertheless, in the field, they expected vivid and rich learning.

The participants then entered the "reality check" stage as their clerkship education began. At this stage, the participants reported perplexing experiences that differed from their expectations. In an unfamiliar medical setting, the participants observed that even the professors could not focus and were puzzled about their position. Furthermore, they regarded themselves as "non-medical personnel" who were comparable to patients. However, actual patients did recognize them as medical staff, and this perception developed the participants' sense of obligation but became a burden as well. Consequently, the participants understood that they needed qualifications beyond their student status to perform the role of doctors. To achieve these qualifications, they exerted effort to identify the competencies that they lacked.

The participants who identified their competencies entered the "seeking solutions" stage to explore the ways to improve them. The search for improvement measures

was divided into the individual and group levels. First, at the individual level, the participants attempted to address a problem by going to the library to look for textbooks or by utilizing a database to find the original text. In addition, they used image training to alleviate their fear when confronted with an operating room or a patient and to raise the degree of preparation for responding flexibly to any situation. The participants progressively recovered their diminished confidence as a result of this approach. Meanwhile, they addressed problems that could not be solved by data search by closely observing the interaction between supervisors and members of the medical team. Furthermore, they attempted to observe and use their colleagues' performance abilities.

The group level entails looking for someone who can solve a problem when a solution cannot be reached through individual effort. In this case, the participants frequently worked with their colleagues to address problems and would ask interns or residents. In some cases, they would ask for help from their supervisors, but such an approach is extremely rare. Therefore, the accuracy of a solution sought could not be verified easily. Nevertheless, the participants appreciated coming up with a solution that was agreed upon by their colleagues.

After completing the search for improvements, the research participants entered the fourth stage, "practical application," and applied and practiced the measures sought in the previous phase in actual scenarios. At this stage, the participants reported striving to avoid stuttering when interacting with patients or using a forceful tone to give the impression of being a student doctor with expertise rather than an inexperienced student.

In the final stage, "transition and stability," the participants repeated the process of identifying and executing improvements as well as developing their identities as student doctors. At this stage, the participants would have successfully transitioned to clerkship education and entered the stable phase.

The speed of the transition to clerkship education differed depending on the participants' prior clerkship experience and the characteristics of the patients they met. Participants with more opportunities for clerkship and positive patient experiences (i.e., patients being receptive to student involvement) tended to transition more quickly. Conversely, participants with fewer engagement opportunities or negative patient experiences (i.e., patients were reluctant towards student involvement) took longer to transition. One participant described his experience as follows: "*The patient I met when I started my internal medicine clerkship must have been upset. When I first spoke to him, I sensed it. I conducted the consultation as instructed by the professor, but the patient rejected me. After that, I was reluctant to conduct consultations. A few weeks later, during the hematologic*

oncology rotation, the professor’s educational goal was for us to conduct daily patient consultations and provide care like a doctor. I only went once, but this time, the patient was kind and cooperative instead of being difficult. Then I thought, “It’s okay; it’s worth trying.” After that, I consulted with patients more often until they were discharged. (Participant N)” The longer it took to reach the transition, the more they reverted to the second step, “reality check,” in a continuous process of seeking and applying solutions. Through this repetitive process, participants gradually moved beyond the student and established their identity as “student doctors,” a preliminary stage of medical practice.

In summary, the participants reported that their desire to manage the increasing responsibilities and burdens of clinical practice motivated their transition to clerkship education. They repeatedly identified problems and formulated and implemented improvement measures. As a result, they not only transitioned to clerkship education and acclimated to the educational environment, but also grew into student doctors. Figure 1; Table 2 present the specific contents and quotes for each step.

**Part 2. students’ developmental features through transition**

The second result pertained to the developmental features of students who have entered the transition and stability stages. These developmental features were divided

into three categories: “personal,” “social,” and “professional.” Personal development involved balancing clerkship and life; “social development” included changes in relationships among members and adaptability to the medical environment; and “professional development” featured content on growing up as a student doctor and how to perform the role. They identified themselves in a way that matched their first appearance after being transferred to clerkship. The developmental features of the students who have entered the stable phase through the transition are discussed in the next section. Table 3 summarizes the contents and quotes.

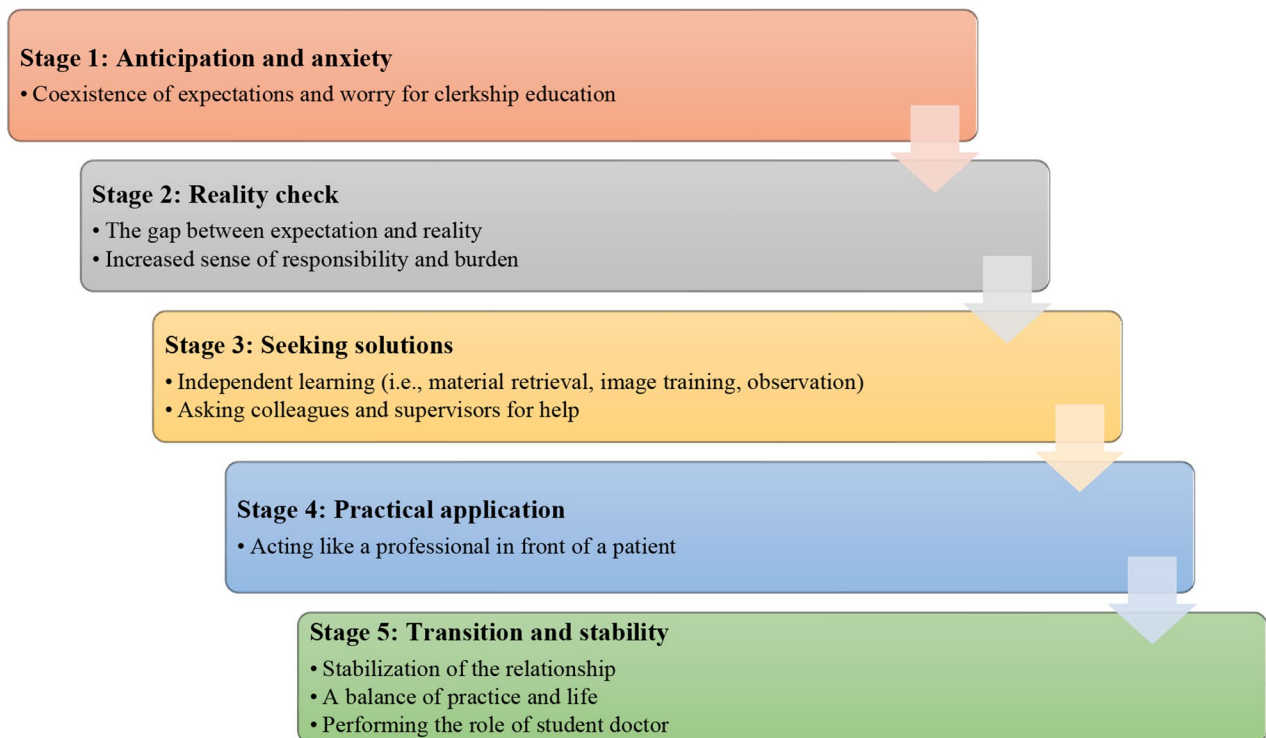
**Personal development**

**Securing personal time**

Securing personal time means that as the participants became accustomed to clerkship education, the time to prepare for clerkship became shorter, and the individual time increased in proportion. Specifically, they reported changes such as shortened time to read the handover or solve tasks such as case reports from 3 days to 3 h. This shortened time generated personal time, which was used for self-development or to completely rest or recharge by meeting friends.

**Building resilience**

Building resilience means being able to quickly forget the feelings they experienced while participating in



**Fig. 1** The process of transitioning to clerkship education

**Table 2** Examples of participants' statements regarding the process of transitioning to clerkship education

Categories	Quotes
Stage 1: Anticipation and anxiety	
Coexistence of expectations and worry for clerkship education	My grades were low in the first and second grade, so I was concerned about how well I would perform in the hospital and whether I would cause trouble for the team members. On the other side, I was excited to meet patients in person and not through texts. Also, I had high expectations for visiting the operating room I desired. Furthermore, I have always studied alone, but clerkship is done with my colleagues, so I was looking forward to learning a lot from one another. (Participant F)
Stage 2: Reality check	
The gap between expectation and reality	At first, I thought that the professors were too irresponsible for student education. They didn't even teach me how to wear a gown before entering the operating room. But when I went to the scene, I understood the professors. They couldn't take care of students because outpatients were rushing and there were continuous surgeries. The professors and nurses were all busy with their own jobs. So, I thought I should do my best on my own. (Participant E) It's harder to manage my schedule when I started clerkship. In particular, the professor informed me of the assignment to be presented the next morning only the afternoon before. Eventually, I had to complete all my assignments within 24 h. I didn't get enough sleep just to make the presentation as complete as possible. (Participant D)
Increased sense of responsibility and burden	During clinic hours, patients often look at us rather than at the professors. It's not just when they hear bad news. We felt pressure or something unusual when we made eye contact at that time. I thought that making eye contact and giving a slight nod could be relaxing for them. (Participant I) In the past, I studied to become a future intern and resident. But when I started my clerkship and encountered patients, I studied with the thought, "I really must know." Especially when patients come to a university hospital like our school, they believe that it is their last chance. It motivated me to think that if I didn't know because I wasn't studying hard, the patients would have nowhere else to go. (Participant R)
Stage 3: Seeking solutions	
Independent learning (i.e., material retrieval, image training, observation)	I searched for the structure of the operating room and the outpatient ultrasound room on YouTube. (Participant E) I was depressed since I performed so poorly in surgery on Wednesday. So, before going to bed that night, I sketched a picture in my head like, "Tomorrow, I'll deal with it right away when the professor talks; change it like this, and if he is going to irrigation, let's post it right away!" And the next day, the professor lavished me with praise, telling me how well I was doing. I was so happy at that time. (Participant Q) It was difficult to teach trainees comprehensive surgical skills in the operating room. Instead, we practiced basic suturing and instrument holding. Once I was used to them, I observed what tools the scrub nurse or fellow had handed the professor, how they behaved, and so on, in order to understand the flow of surgery. (Participant R)
Asking colleagues and supervisors for help	MRI and CT also show results, so I thought about them while looking at the images, and if I still didn't know, I asked my colleagues. Then I discussed with them, thinking, "Is this it?" We just thought that was right. (Participant K) If I don't know anything, I look it up first, and if it doesn't work, I ask my colleagues. When we couldn't find an answer, we asked the chief, but no one else did. We know to ask the professors if a question is actually important, but we nearly never do. (Participant O)
Stage 4: Practical application	
Acting like a professional in front of a patient	To increase my credibility among patients, I always wore formal shoes and a tie. And whenever I stuttered in the middle of a conversation, I felt less trustworthy. So I tried not to make it obvious, even though I was humiliated, and I pretended to be alright in front of a patient, even if there was something I didn't know well. (Participant O) When talking to patients, I tried to imitate the professor's know-how as much as I could. Even when I was speechless, I would raise questions like the professor did. Once, I found a patient's time span to be strange because I kept asking them in different ways instead of asking, "What month and date was it?" This was one of the skills of the professor. That's why I always thought about the professor and did simulations. (Participant F)
Stage 5: Transition and stability	
Stabilization of the relationship	Initially, I avoided conflict with my coworkers. But because I had to remain with them for a year during my clerkship, I thought I shouldn't. So, instead of telling them to fight, I adjusted my tone to one of warmth, as if we were doing great together. As a result, we created a relationship in which we all accepted one another and attempted to match well. Now we are close to one another. (Participant I)
A balance of practice and life	I didn't understand handover at first, so it took me a long time to read it, but as I learned that all clerkships were similar, I became more accustomed to the handover. Even if the same information is written, I know it, so I can understand it quickly. (Participant K)
Performing the role of student doctor	At some point, I started drafting fewer scripts when I was meeting patients. I went to the clinical consultation and simply asked pertinent questions. That's when I started to feel natural and confident. (Participant O)

**Table 3** Examples of participants' comments on students' developmental features through transition

Categories	Sub-categories	Quotes
Personal development	Securing personal time	I didn't feel like I was resting when I initially went to the hospital despite having a lot of time left, but now I do. And I was busy reading the handover throughout the weekend, but now I can quickly familiarize myself with it, so I can absolutely rest during the weekend. Of course, the degree varies by specialty, but in terms of time management, I believe I can separate clerkship from life. (Participant F)
	Building resilience	Over the weekend, the patient I consulted a week ago died. That was the first time I experienced a patient's death. But that was near the end of my internal medicine practice. It would have been a shock if I had encountered it when I first started, but I think I reacted bluntly because it was the last time. Rather, when I announced the case, I just said, "I think this is the cause of death," and there was little difficulty. (Participant O)
Social development	Bridging the psychological gap with professors	I used to think that the professor was god, and that the interns and residents were all vastly higher than me. I began to think that they were all the same folks as time passed. If I used to believe that I was a doctor in another universe who had no engagement with me, I now believe that they are my senior. (Participant B)
	Adjusting to hospital life	At first, I was rigid when I walked around because I didn't know where the facilities were. But now I am free to move within the hospital. (Participant L)
Professional development	Developing a student doctor identity	It was tough to present myself as a student doctor at first, and I was concerned about how the patients would perceive me. Also, I was wondering if I could do this because I was a student rather than a doctor. However, after I discovered they weren't uncomfortable, I was able to ask questions that could establish a doctor-patient relationship. (Participant D)
	Enhancing patient communication skills	As I kept seeing the patient, the tension eased a lot. At first, I kept thinking about asking this with my head and asking that, but should I say it's just my flow? I feel like, "It's very natural if I ask this after asking this." I used to ask them in the order I'd written them down, but now I think it's more natural to ask them how sick they are the next time they say they're sick. (Participant I)
	Improving clinical efficiency	When I consulted the patient in the beginning, I heard his life story, such as how he lived his life. But as time went by, the consultation became concise as I only heard what the patient's symptoms were, when they developed, and others related to it. (Participant O)

clerkships. It was identified as one of the major features that contributed to the participants' improved quality of life. One participant stated that when she was scolded by a professor, she was depressed all day, even after going home, but she was eventually able to overcome it quickly (Participant A). In a repeated clerkship environment, the participants were able to quickly overcome the distress caused by their mistakes and did not hold on to the negative emotions or shock that arose from situation.

### Social development

#### *Bridging the psychological gap with professors*

The participants who recognized that they had reached the transition mentioned that unlike before, the psychological gap between them and their professors had narrowed through clerkship education. To date, pre-clerkship lessons have been conducted in classrooms with more than 100 students. Hence, for the participants, their professors were like "lecturers," and conversing with them and asking them questions were difficult. However, they acknowledged that the intimate engagement with professors softened their view of the latter. In particular, they began to view their professors not as authoritative and hierarchical creatures or as senior doctors with more knowledge but as humans who had emotions like them.

#### *Adjusting to hospital life*

The participants felt accustomed to hospital life as dressing and using hospital facilities became natural for them. They noted that wearing practical clothes such as gowns

before their transition felt like borrowing someone else's clothes, but at their current state, it was no longer awkward. Furthermore, they used to hesitate to go to the ward for water or to use the employees' restaurant, but at this point, they could use these facilities naturally. One participant stated that he felt completely familiar with the hospital after seeing himself clearly providing directions to patients. Some participants said that hospital life was still awkward but that if it went as described above, they would feel totally adapted to and transition to clerkship education.

### Professional development

#### *Developing a student doctor identity*

The participants shifted from being "the same non-medical personnel" to forming relationships with patients as "student doctors" through the transition to clerkship education. Initially, the participants were anxious and hesitant when consulting and examining patients, but over time, they were able to play a role in understanding their patients' status as student doctors.

#### *Enhancing patient communication skills*

One of the features of the transition was enhancing participants' patient communication skills. Previously, most participants not only wrote and memorized patient consultation scripts but also rushed to ask questions about memorized topics rather than listening to them while interacting with patients. However, with enhanced communication skills, they no longer wrote scripts and were

able to make eye contact with patients, talk with them, and freely think of follow-up questions based on patients' responses. In fact, some participants said that they were indeed fearful during their first time, but through constant practice, their communication with patients became more enjoyable (Participant E).

### **Improving clinical efficiency**

The participants gained clinical reasoning skills, particularly efficiency-oriented clinical abilities related to clinical consultations, as they transitioned to clerkship education. They became acquainted with the reasoning process of listening to symptoms and inferring diseases instead of thinking about likely symptoms based on the disease. They initially acted and responded attentively during physical examinations or consultations, taking into account their patients' pain or condition. Over time, they learned to focus on conducting consultations swiftly and accurately rather than examining their patients' emotions.

### **Discussion**

From a developmental point of view, this study explored how students form their professional identity as student doctors and what developmental characteristics they show through the transition to clerkship education. Based on the results, the transition process and the features that developed can be discussed in two ways.

#### **Process of transition to clerkship**

The participants' transition process revealed significant growth into "student doctors." This process involved five stages: anticipation and anxiety, reality check, seeking solutions, practical application, and transition and stability. This finding is significant in that it reveals the process by which students establish their professional identity. Previous studies have elucidated the process of adapting to an organization as a newcomer [19] and have also investigated factors or perceptions that influence this transition process, such as inadequate preparation [10]. Our research, however, uncovers the detailed stages through which students develop into student doctors via self-discovery and problem-solving.

Central to the transition process was the interaction with patients. The students were motivated by the patient, who recognized himself as a student doctor and attempted to establish an identity as one. For example, one participant reported feeling a great sense of responsibility when he saw the patient struggling emotionally during the initial practice and taking his role seriously. This is an experience-oriented curriculum in which clerkship education takes place through dynamic interactions between members within a systematic structure [20], and in particular, interactions with patients prove

that students are important not only to acquire knowledge, skills, and attitudes based on learning experiences for individual patients in real situations but also to form their identity as doctors [21].

However, not all patient experiences lead to positive outcomes. Participants who interacted with patients willing to contribute to student education during clerkships were able to transition more quickly due to favorable responses and positive communication. Conversely, participants faced challenges in effectively communicating with patients who were unwilling to participate in student education, resulting in repeated attempts to identify and implement improvement measures that delayed the transition to clerkship education. Moreover, students often experience anxiety in clinical settings, such as patient consultations, due to a lack of clear understanding and readiness for their roles [22], and this insecurity is further exacerbated by inadequate supervision [23]. In the current medical environment, where expectations for quality medical services are growing, student participation is likely to face skepticism [24, 25]. To prevent students from experiencing severe negative experiences in clerkship, professors should intervene appropriately to ensure patients accommodate students and help form a constructive learning community [26–28].

Another noteworthy observation is the students' tendency to solve problems through discussions with colleagues rather than seeking help from professors. They valued having a common, agreed-upon solution as much as knowing the correct answer, and they perceived asking supervisors for help as something to avoid. We can discuss this behavior from a cultural perspective.

In Asian cultures, relationships play a significant role in influencing behavior [29]. Combined with the hierarchical and closed nature of medical groups, students may fear that making an unfavorable impression on a professor could adversely affect their future [30]. This hierarchical relationship extends beyond the university into their professional careers, emphasizing the importance of reputation management as perceived through the professor's eyes [31, 32]. As a result, students often felt burdened to maintain a professional appearance and were highly conscious of their evaluator-evaluated relationship with their professors. Their perception of asking questions as annoying likely stemmed from this hesitation [3, 8, 33]. Consequently, this structure may deter students from interacting directly with professors, leading them to rely more on peer support.

While peer interactions can strengthen their relationships, there is a risk of students acquiring inaccurate information due to their lack of expertise and difficulty in discerning the validity and usefulness of medical evidence [34]. This can hinder the development of expertise and skills, ultimately impacting their professional identity



as physicians [19, 28]. Therefore, fostering an environment where students can actively communicate and challenge rigid cultural norms is crucial for effective medical education [10, 35].

### Students' developmental features through transition

Students grew up balancing clerkship and life, adapting to the hospital environment, and developing efficient and professional clinical competencies during the transition to clerkship education. These developments improve students' adaptability, which is an important factor in their effective performance as future healthcare professionals [1, 4, 11]. To date, research has focused on increasing readiness by exploring gaps in pre- and post-clinical practice training [10, 11]. However, our work focuses on examining students' features during the transition to clerkship education and discussing the implications.

First, personal development demonstrates how students constantly strive to balance practice and life during clinical practice. With the recent emphasis on the concept of work-life balance [36], students recognize clerkship as a kind of work and seek to flexibly cope with stress and improve their quality of life [37]. They use their leisure time and reduced time spent preparing for clerkship to recharge or meet friends, and they develop resilience to maintain psychological stability. This is crucial because healthcare settings frequently expose not only students but also medical staff to the risk of physical and mental fatigue and burnout [7, 8, 24]. Therefore, practicing self-management, such as time management and flexible coping with stress during the clerkship education, can also greatly benefit professional socialization [10].

Second, with regard to social development, the participants recognized adaptation to the hospital environment as a crucial factor for the transition to clerkship education. The participants gained confidence as members of the hospital by becoming acquainted with facilities and locations of the hospital. This result differs from those of previous studies that reported the lack of clinical knowledge and skills as the cause of difficult conversion [38–40]. Until now, the preparatory curriculum for the transition primarily focused on basic clinical skills, communication, physical examination, and other topics related to the national examination, resulting in relatively limited awareness and information about the hospital's work environment [41]. It could have made the students feel that clinical practice education was a difficult process [9, 10]. However, it is necessary to review the content composition of the transition course, as students require useful and practical tips for clinical practice training, such as detailed job descriptions, in addition to clinical knowledge [13].

Furthermore, the participants felt the professors were more humane and accessible, although they were still

difficult, which reduced the psychological distance between them. This contributed to creating an environment where students can reduce tension in the hospital and move around without being overly conscious of their surroundings. For example, there were many students who were nervous to be polite when meeting professors, but the tension decreased as the psychological distance decreased. This allowed students to move confidently within the hospital, get the necessary information more easily, and adapt faster to the hospital's facilities and environment.

Finally, students achieved professional development through the cultivation of clinical competencies with a focus on efficiency. Specifically, their professional development mainly consisted of clinical competencies that could be objectively identified. Some participants mentioned that they were able to reflect on the characteristics of a good doctor as perceived by patients, but many others mentioned the reduction in patient consultation time as a key factor in a successful transition. Participants, who initially focused on patients' emotions such as pain, gradually came to understand symptoms through concise questions. They developed an attitude that was unaffected by patients' emotions and experienced a sense of bonding with doctors as a result of these changes. The overly skill-centered clerkship education may have led the participants to adopt a doctor-centered attitude instead of a patient-centered one [42, 43]. However, patient-centered healthcare is important because it not only contributes to improving patients' health outcomes, increasing patient satisfaction, and strengthening the trust relationship between patients and their healthcare providers, but also enhances doctor's the job satisfaction [44]. Therefore, clerkship education should be improved to cultivate doctors who can not only develop the capacity to objectively identify diseases but also empathize with patients and have a subjective perspective on diseases [5].

### Implications for medical education

Based on the results of this study, we derive several practical implications for improving clerkship education.

Firstly, we suggest implementing a faculty development program that offers guidance on conducting clerkship education. Guiding students through the transition process and sharing their difficulties will help professors reflect on how to manage a clerkship and adopt a learner-centered perspective. These efforts will provide opportunities for students to experience clinical practice in a constructive environment with appropriate supervision.

Second, we propose changing the content of the transition course before students enter clerkship education. Providing practical information about the clerkship, including the hospital's structure and system, as well as

lectures related to medical knowledge or skills, will be helpful for a successful transition [9, 10]. Additionally, similar to the faculty development program, including information on what students will experience after entering clerkship education will help reduce their initial confusion and increase their adaptability.

Finally, we suggest creating a clerkship environment that fosters patient-centered attitudes. To achieve this, involving patients as active partners or mentors can be considered. Patients' active participation in education can enhance students' understanding of diseases and patient experiences, as well as provide insights into the professional values expected by society from doctors [45, 46]. Furthermore, it can be a useful strategy, as involving patients who explicitly agreed to participate in student education can reduce the student's feelings of rejection and increase the patient's satisfaction with their treatment [26].

#### Limitation and avenues for future research

The limitations of this study and suggestions for future studies are as follows: First, we observed that the participants reached the transition to clerkship education at varying speeds, but we did not analyze the specific causes and types in detail. Therefore, to further understand the factors affecting the transition and the steps involved, we propose a follow-up study to verify the causes and types by conducting additional interviews. Second, this study limited its scope to experiences in block-type clinical practice and did not investigate students' experiences in longitudinal integrated clerkship or mixed clerkship education. Longitudinal integrated clerkship provides a unique learning environment in which students develop clinical competencies by establishing a longitudinal relationship with patients; therefore, block-type clinical practice and conversion experiences may differ [47]. Accordingly, examining students' conversion experiences in various clinical practice education models can contribute significantly to improving the overall clerkship education. Nevertheless, this study is significant because it presents the process of students' transition to clerkship education as well as the meaning of the features that develop through this transition.

#### Conclusions

This study explores the process of students' transition to clerkship education and the developmental features that emerge during this period. The students, motivated by patients who perceive them as student doctors, navigate through this transition by repeatedly identifying their problems and implementing improvement plans. Throughout this process, they balance their personal lives with clinical work, adapt to the hospital environment, and develop efficient and professional clinical

competencies. These developments improve their adaptability and readiness for future healthcare roles.

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#### Author contributions

Conceptualization: Lee HJ. Data curation: Lee HJ. Formal analysis: Lee HJ, Kang YJ, and Kim DH. Investigation: Lee HJ, Kang YJ, and Kim DH. Methodology: Lee HJ, Kang YJ, Kim DH. Software: Lee HJ. Validation: Lee HJ, Kang YJ, and Kim DH. Writing - original draft: Lee HJ. Writing - review & editing: Lee HJ, Kang YJ, and Kim DH.

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#### Data availability

The datasets of this article are available from the corresponding author on reasonable request.

#### Declarations

##### Ethics approval and consent to participate

This study was approved by the Institutional Review Board of Hanyang University (HYUIRB-202304-008-1). Before the interview, the participants were requested to sign a "Research Participation Consent Form," and the interviews proceeded only after obtaining their consent.

##### Consent for publication

Not applicable.

##### Competing interests

The authors declare no competing interests.

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