ORIGINAL ARTICLE

Preceptorship Approach in Internship and Clinical Clerkship of Medical Sciences Students

Background: The training of healthcare professionals is crucial for the effective delivery of healthcare services. Numerous studies have cited insufficient training as a key factor contributing to students' lack of essential skills. This study aimed to assess the level of satisfaction among medical and public health students regarding the management and supervision of preceptorship during their health internship and practicum periods.

Method: This cross-sectional study included all students who completed their health internships and practicums under preceptorship supervision from 2019 to 2021 (n=208). Data were collected using the revised Nursing Clinical Facilitator Questionnaire and analyzed with SPSS 20.

Results: The mean age of participants was 23.41±2.46 years, and their average GPA was 16.85±1.35. The mean satisfaction score with the educational program was 104.34±23.32 for public health students and 100.45±24.05 for medical students. The highest mean scores were related to the honesty of feedback from preceptors and maintaining the confidentiality of clients. The lowest mean scores were related to providing sufficient opportunities for independence and efforts to identify and address students' learning needs.

Conclusion: Based on the findings, this approach appears to achieve a high level of student satisfaction. Continuing this approach could have a positive impact on students' skill development. It is recommended that this model be implemented and evaluated in other disciplines and internship programs as well.

Keywords: Preceptorship, Internship and Residency, Clinical Clerkship, Public health, Medicine

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نهج التدريس في التدريب العملي والتدريب السريري لطلاب العلوم الطبية

الخلفية: يعد تدريب المتخصصين في الرعاية الصحية أمرًا بالغ الأهمية لتقديم خدمات الرعاية الصحية بشكل فعال. أشارت العديد من الدراسات إلى عدم كفاية التدريب كعامل رئيسي يساهم في افتقار الطلاب إلى المهارات الأساسية. هدفت هذه الدراسة إلى تقييم مستوى الرضا بين طلاب الطب والصحة العامة فيما يتعلق بالإدارة والإشراف على التدريس خلال فترات التدريب الصحي والتدريب العملي.

الطريقة: شملت هذه الدراسة المقطعية جميع الطلاب الذين أكملوا تدريبهم الداخلي والتدريب العملي في مجال الصحة تحت إشراف التوجيهي من ٢٠١٩ إلى ٢٠٢١ (العدد = ٢٠٨). تم جمع البيانات باستخدام استبيان التمريض السريري المنقح وتم تحليلها باستخدام SPSS 20.

النتائج: كان متوسط عمر المشاركين ٢٣,٤١±٢,٤٦ سنة، وكان متوسط المعدل التراكمي لديهم ١٦,٨٥±١,٣٥. وكان متوسط درجة الرضا عن البرنامج التعليمي ١٠٤,٣٤±٢٣,٣٢ لطلاب الصحة العامة و١٠٠,٤٥±٢٤,٠٥ لطلاب الطب. وكانت أعلى الدرجات المتوسطة تتعلق بصدق ردود الفعل من المعلمين والحفاظ على سرية العملاء. وكانت أدنى الدرجات المتوسطة تتعلق بتوفير فرص كافية للاستقلالية والجهود المبذولة لتحديد ومعالجة احتياجات التعلم لدى الطلاب.

الاستنتاج: بناء على النتائج، يبدو أن هذا النهج يحقق مستوى عال من رضا الطلاب. إن الاستمرار في هذا النهج يمكن أن يكون له تأثير إيجابي على تنمية مهارات الطلاب. يوصى بتنفيذ هذا النموذج وتقييمه في التخصصات الأخرى وبرامج التدريب أيضًا.

الكلمات المفتاحية: التدريس، التدريب والإقامة، التدريب العملي السريري، الصحة العامة، الطب

رویکرد پرسپتورشیپ در دوره کارآموزی و کارورزی دانشجویان علوم پزشکی

زمینه و هدف: تربیت نیروی انسانی برای ارائه خدمات بهداشتی درمانی از اهمیت بالایی برخوردار است. مطالعات متعددی آموزش ناکافی را عامل عدم کسب مهارت‌های لازم در دانشجویان عنوان می‌کنند. این مطالعه با هدف تعیین میزان رضایت دانشجویان پزشکی و بهداشت عمومی از مدیریت و نظارت پرسپتورشیپ در دوره‌های کارآموزی و کارورزی بهداشت انجام شد.

روش: این مطالعه مقطعی شامل کلیه دانشجویانی بود که از ۱۳۹۸ تا ۱۴۰۰ دوره‌های کارآموزی و کارورزی بهداشت خود را تحت نظارت پرسپتورشیپ گذراندند (n=۲۰۸). از پرسشنامه بازنگری شده Nursing Clinical Facilitator Questionnaire برای جمع‌آوری داده‌ها استفاده شد و داده‌ها با نرم‌افزار SPSS 20 تحلیل شدند.

یافته‌ها: میانگین سنی شرکت کنندگان ۲۳/۴۱±۲/۴۶ سال و میانگین معدل تحصیلی ۱۶/۱±۸۵/۳۵ بود. میانگین نمره رضایت از برنامه آموزشی در بین دانشجویان بهداشت عمومی ۱۰۴/۳۴±۲۳/۳۲ و در بین دانشجویان پزشکی ۱۰۰/۴۵±۲۴/۰۵ بود. بالاترین میانگین مربوط به صداقت در بازخوردهای پرسپتور و حفظ اسرار مراجعه‌کنندگان و کمترین میانگین مربوط به فراهم‌سازی فرصت استقلال و تلاش پرسپتور در بررسی نیازهای یادگیری بود.

نتیجه‌گیری: بر اساس یافته‌ها، این رویکرد می‌تواند نمره مطلوبی از رضایت دانشجویان دریافت کند؛ لذا ادامه‌ی این رویکرد می‌تواند تأثیر مثبتی بر آموزش مهارت‌های دانشجویان داشته باشد. پیشنهاد می‌شود این رویکرد در سایر رشته‌ها و دوره‌های کارآموزی نیز اجرا شده و تأثیر آن بررسی گردد.

واژه های کلیدی: پرسپتورشیپ، کارآموزی، کارورزی، بهداشت عمومی، پزشکی

میڈیکل سائنسز کے طلباء کی انٹرنشپ اور کلینیکل کلرک شپ میں پریسیپٹرشپ اپروچ

پس منظر: صحت کی دیکھ بھال کے پیشہ ور افراد کی تربیت صحت کی دیکھ بھال کی خدمات کی موثر فراہمی کے لیے بہت ضروری ہے۔ متعدد مطالعات نے ناکافی تربیت کو ایک کلیدی عنصر کے طور پر بیان کیا ہے جو طلباء کی ضروری مہارتوں کی کمی کا سبب بنتا ہے۔ اس مطالعے کا مقصد طبی اور صحت عامہ کے طلبا کے درمیان ان کی ہیلتھ انٹرنشپ اور عملی ادوار کے دوران پریسیپٹرشپ کے انتظام اور نگرانی کے حوالے سے اطمینان کی سطح کا جائزہ لینا تھا۔

طریقہ: اس کراس سیکشنل اسٹڈی میں وہ تمام طلباء شامل تھے جنہوں نے ۲۰۱۹ سے ۲۰۲۱ (n=208) کے دوران پریسیپٹر شپ کی نگرانی میں اپنی ہیلتھ انٹرنشپ اور پریکٹس مکمل کیے۔ اعداد و شمار کو نظر ثانی شدہ نرسنگ کلینکل سہولت کار سوالنامہ کا استعمال کرتے ہوئے جمع کیا گیا اور SPSS 20 کے ساتھ تجزیہ کیا گیا۔

نتائج: شرکاء کی اوسط عمر ۲۳٫۴۱ ± ۲٫۴۶ سال تھی، اور ان کا اوسط GPA 16.85 ± 1.35 تھا۔ تعلیمی پروگرام کے ساتھ اوسط اطمینان کا اسکور صحت عامہ کے طلباء کے لیے ۱۰۴٫۳۴ ± ۲۳٫۳۲ اور طبی طلباء کے لیے ۱۰۰٫۴۵ ± ۲۴٫۰۵ تھا۔ سب سے زیادہ اوسط اسکور کا تعلق پریسپٹرس سے آراء کی ایمانداری اور کلائنٹس کی رازداری کو برقرار رکھنے سے تھا۔ سب سے کم اوسط اسکور کا تعلق آزادی کے لیے کافی مواقع فراہم کرنے اور طلبہ کی سیکھنے کی ضروریات کی شناخت اور ان کو حل کرنے کی کوششوں سے تھا۔

نتیجہ: نتائج کی بنیاد پر، ایسا لگتا ہے کہ یہ نقطہ نظر طالب علم کی اعلیٰ سطح پر اطمینان حاصل کرتا ہے۔ اس نقطہ نظر کو جاری رکھنے سے طلباء کی مہارت کی نشوونما پر مثبت اثر پڑ سکتا ہے۔ یہ سفارش کی جاتی ہے کہ اس ماڈل کو دوسرے شعبوں اور انٹرنشپ پروگراموں میں بھی لاگو کیا جائے اور اس کا جائزہ لیا جائے۔

مطلوبہ الفاظ: پریسیپٹرشپ، انٹرنشپ اور رہائش، کلینیکل کلرک شپ، صحت عامہ، طب

INTRODUCTION

Ensuring the health of community members plays a key role in social and economic development. Improving healthcare services is critical for national progress, making the training of healthcare professionals essential (1). Studies indicate that inadequate education often results in students' failing to acquire necessary skills (2, 3). Despite various studies on effective educational methods for improving students' counseling and communication skills, a definitive answer remains elusive. Findings suggest that communication skills training programs that incorporate practical exercises yield better outcomes. Methods based on practical exercises and simulations positively influence these skills, but further research is necessary to tailor these methods to specific educational and cultural contexts (4, 5).

Several factors, including the choice of an appropriate educational model, contribute to motivating students in healthcare environments. One such model is the preceptorship model (6). The preceptorship model, widely used in nursing, medicine, and pharmacy education, involves an experienced practitioner (preceptor) providing direct supervision and guidance to students or novices in clinical settings. This approach emphasizes the integration of theoretical knowledge with practical experience, fostering the development of clinical skills, critical thinking, and professional behavior (7). Preceptors act as role models and mentors, helping students transition from academic learning to real-world practice by facilitating hands-on learning environments (7).

Preceptors work closely with students, serving as teachers, role models, and evaluators. They help bridge the gap between theory and practice in medical sciences, guiding students through their responsibilities and roles within a specific field (8, 9).

In addition, preceptors help students develop key skills such as emotional intelligence, empathy, decision-making, and empowering others (10). Activities during clinical training typically include goal-setting, competency validation, and providing feedback on progress (11). Preceptors also encourage students to acquire skills and make informed decisions, fostering a collaborative learning environment (12, 13).

Research by Ain et al. highlights the positive impact of preceptorship, noting that it leads to more targeted internships, better student engagement, and increased responsibility for learning. The preceptorship model creates a sense of security and belonging, facilitates gradual acceptance of professional responsibilities, and promotes independence and fair evaluation (14). Although the preceptorship model is widely recognized for its effectiveness in transferring theoretical knowledge to clinical practice (15, 16), it also faces challenges. For instance, preceptors often struggle with limited management support and heavy workloads, leaving them with insufficient time to adequately mentor students (17). Some studies have also reported that students tending to prefer training led by instructors over preceptorship-based training (18).

Student satisfaction is a key indicator of educational quality, reflecting the effectiveness of both theoretical and practical training (19). Numerous studies have shown high levels of student satisfaction with the preceptorship model (20, 21).

Public health is a fundamental branch of health sciences, and graduates are expected to have important responsibilities in the healthcare system. They must work alongside other health professionals to maintain and improve public health (22). To prepare for these roles, public health students must acquire practical skills such as vaccination administration and maternal and child healthcare, which are also part of medical students' health internships.

Also, considering that the priority of implementing the Preceptorship project in the country has been in the field of treatment and clinical students, and for the first time this project is being implemented for the field of public health in North Khorasan University of Medical Sciences, therefore, examining the views and satisfaction of students from the implementation of the preceptorship project helps to know about the appropriateness of this educational method and to solve its problems and deficiencies. Therefore, in this study, we examined the level of satisfaction of medical and public health students in the management and supervision of Preceptorship in health internships and internships.

METHODS

Design and Setting

This cross-sectional study, conducted in the second half of 2018, explored the views and satisfaction levels of medical and public health students at North Khorasan University of Medical Sciences regarding Preceptorship management and supervision. The inclusion criteria were: willingness to participate, being a public health or medical student at the university, and having completed internships at health and treatment centers.

Participants and Sampling

Using the formula $n = \frac{(z_{1-\frac{\alpha}{2}})^2 \delta^2}{d^2}$, with a standard deviation of 18.85 from Rambod et al. (21), and setting the error margin at 15% of the standard deviation, the minimum sample size was calculated as 171 students. However, data collection was extended to 208 students. Participants were selected using an available sampling method, and verbal consent was obtained before completing the questionnaires.

Tools/Instruments

The Nursing Clinical Facilitation Questionnaire (NCFQ) was used for data collection. Originally designed by the University of Technology Sydney's Education and Learning Center (18), this questionnaire was validated in Christopherson et al.'s study (23) and by ten nursing faculty members in Rambod et al.'s study, which found a reliability of 0.85 and Cronbach's alpha coefficient of 0.96 (21).

The NCFQ assesses student satisfaction with preceptorship in clinical settings. For this study, health experts reviewed and confirmed the questionnaire's suitability for health sector use, leading to minor modifications. The revised questionnaire, validated by 13 specialists, included 26 questions on preceptor satisfaction and two additional questions focused on client care and confidentiality. It was

graded on a 5-point Likert scale, with scores ranging from 26 to 130. A higher score indicated greater student satisfaction. Additionally, a question was included to gauge overall student satisfaction. Reliability was confirmed with 15 students, resulting in a Cronbach's alpha of 87%, indicating good reliability.

Data Collection Methods

After receiving permission from the research vice-chancellor of the university (code of ethics IR.NKUMS.REC.1398.126), the research units were referred to, and the purpose of the research was explained to the students. The research consent form was provided to the students. After completing the written consent form, the students completed the questionnaires.

Data Analysis

Data analysis in SPSS 20 used descriptive statistics to assess student satisfaction with preceptor management. Relationships with factors like gender, marital status, employment, and GPA were examined using t-tests, ANOVA, and Pearson's correlation. Missing data, especially for satisfaction, semester, and GPA, were addressed using the Expectation-Maximization (EM) algorithm. Most other variables had less than 2% missing data.

RESULTS

In total, data was collected from 208 students. The average age of the participants was 23.41±2.46 years (age range: 21 to 39 years), the average academic grade point average was 16.80±1.40, and the average academic semester was 8.77±2.17. 76% of the studied samples were women, 70.3% were single, 94.8% were unemployed, and 42.7% were dormitories. Among 107 public health students, the average age was 22.59±1.70, the academic grade point average was 17.66±1.14, and the academic semester was 7.30±0.67. Among 101 medical students, 24.26±2.81, 15.93±1.08, and 10.45±2.07 were obtained, respectively (Table No. 1 and 4). The average satisfaction score of the preceptorship plan of all students based on the Nursing Clinical Facilitator Questionnaire was 102.45±23.70 out of 130. According to public health and medicine fields, the average score based on NFCQ was 104.35±23.33 and 100.45±24.05, respectively. The average score of the students'overall satisfaction, separated by health and medicine fields, was 3.93±0.91, 3.97±0.77, and 3.89±1.03, respectively (Table No. 2).

The results of the study showed that the highest average score of NFCQ is related to the items "the feedback and guidance of the preceptor are honest and correct

Table 1. Demographic characteristics by students of public health and medicine

	Number*	Minimum	Maximum	Mean (SD)
Age	202	21	39	23.41 (2.46)
Semester	208	4	14	8.81 (2.13)
GPA	208	14	20	16.85 (1.35)

		Number (Percent)			Number (Percent)
Sex	Male	48 (24)	Marital Status	Single	142 (70.3)
	Female	152 (76)		Married	60 (29.7)
Employment Status	Working while studying	10 (5.2)	Field of Study	Public Health	107 (51.4)
	Only studying	182 (94.8)		Medicine	101 (48.6)
Place of residence	Dorm	85 (42.7)			
	With Family	86 (43.2)			
	Other	28 (14.7)			

* Some students did not answer all the questions.

Table 2. Descriptive indicators of satisfaction with the Perceptship project by field of study

Descriptive Index of Satisfaction score	All the students	Public health field	Medicine field
Mean ± standard deviation	102.45±23.70	104.34±23.32	100.45±24.05
Median	104	108	103
Minimum	26	41	26
Maximum	130	130	130
Overall satisfaction (based on one question)	3.93±0.91	3.97±0.77	3.89±1.03

(4.10±1.01)"," the Preceptor tries to keep the secrets of the visitors to the center and reminds the students to observe this issue (4.05±1.11)", and "the preceptor reminds me of the points related to honoring clients and proper treatment with clients while providing care and services (4.04±1.09), and the lowest mean related to the items "preceptor gives me enough opportunity to be independent in my work (3.86±1.09)", "Preceptor tries to determine and examine my learning needs and teach according to them (3.86 ± 1.11)", and "Preceptor communicates between the theoretical content with skill environment and cares in the centers (3.86±1.11) (Table No. 3).

Based on the statistical tests, the satisfaction score of the preceptorship project had no significant relationship with any of the demographic variables listed in Table 2 ($p > 0.05$). Also, about quantitative variables, the correlation value of satisfaction score with age and grade point average was -0.12 and -0.03, respectively, which were very weak and not statistically significant ($p > 0.05$) (Table No. 4).

DISCUSSION

This study aimed to determine the level of satisfaction of medical and public health students regarding the management and supervision of Preceptorship in health internships and internships, and the results indicated high satisfaction among students using this method. Preceptors provide more individual student learning opportunities than other student learning methods, increasing student satisfaction (24).

Preceptorship brings positive results, such as internships becoming more targeted; students cooperate more, use learning opportunities and create a sense of belonging to the team (14). Bradbury-Jones et al., in a study conducted in England in 2007, considered the need to be accepted as a team member important and listed the lack of feeling of belonging and lack of respect as the basis of clinical education (3). In this regard, in the study of Ayin et al. in 2013 in Shahrekord, belonging to the team was mentioned

Table 3. Mean and standard deviation of student satisfaction items from supervision and management of perception

	Items of student satisfaction with preceptor supervision	Mean (SD)
1	The Preceptor works towards the educational goals set in advance for each internship.	3.92 (1.07)
2	The Preceptor will be by my side when I need supervision.	3.88 (1.11)
3	The Preceptor is aware of my learning level and abilities and is trying to improve them.	3.89 (1.04)
4	The Preceptor clearly states the educational objectives of the course.	3.89 (1.12)
5	The Preceptor strives to determine and assess my learning needs and teach accordingly.	3.86 (1.11)
6	The Preceptor gives me enough time to be independent in my work.	3.86 (1.09)
7	The Preceptor encourages me to feel responsible for my learning.	3.93 (1.06)
8	The Preceptor supports and encourages me to do things.	3.97 (1.03)
9	The Preceptor reminds me of safety tips during care.	3.94 (1.15)
10	The Preceptor communicates between the theoretical content, skill environment, and care in the centers.	3.86 (1.11)
11	The Preceptor informs me about each health decision.	3.93 (1.03)
12	The Preceptor encourages me to make interventions related to client care.	3.90 (1.08)
13	The preceptor informed me and gave me feedback on performing the activities.	4.02 (1.07)
14	The guidance and feedback the Preceptor gives me leads to improving and developing my learning level.	4.05 (1.00)
15	The Preceptor's feedback and guidance are honest and correct.	4.01 (1.01)
16	The Preceptor is flexible towards the opinions and statements of students and staff.	3.97 (1.01)
17	My Preceptor encouraged me to learn as much as possible about the skill.	4.02 (1.03)
18	Perceptor is confident about her role by providing practical solutions and citing numerous sources for the materials she presents.	3.99 (1.01)
19	The Preceptor is available during internship hours.	3.87 (1.16)
20	The Preceptor tries to provide up-to-date and appropriate information.	4.03 (1.03)
21	The Preceptor provided situations that led to an increase in my knowledge and skills.	4.01 (0.98)
22	Carrying out internship activities in centers with the presence of a preceptor keeps me calm and confident.	4.00 (1.12)
23	The Preceptor is passionate about her work and motivates me.	3.99 (1.08)
24	The Preceptor gains the client's trust to do the work by the student and points out mistakes in another suitable situation.	3.97 (1.17)
25	The Preceptor reminds me of the points about honoring and treating clients appropriately while providing care and services.	4.04 (1.09)
26	The Preceptor tries to keep the secrets of the visitors to the center and reminds the students to observe this issue.	4.05 (1.11)

Table 4. The relationship between the satisfaction of the preceptorship project in health education and internship in public health and medical students with demographic variables.

Variable name	Frequency (percentage)		Mean (SD)	P-value
Marital Status	Single	142 (70.3)	22.68 (100.38)	0.95
	Married	60 (29.7)	24.26 (102.72)	
Sex	Female	48 (24)	22.24 (104.94)	0.74
	Male	152 (76)	24.19 (100.82)	
Employment Status	Working while studying	10 (5.2)	21.50 (93.50)	0.51
	Only studying	182 (94.8)	23.75 (102.32)	
Field of Study	Public Health	107 (51.4)	23.33 (104.35)	0.64
	Medicine	101 (48.6)	24.05 (100.45)	
Place of residence	Dorm	85 (42.7)	24.15 (100.40)	0.55
	With Family	86 (43.2)	23.98 (102.31)	
	Other	28 (14.1)	23.39 (106.07)	
	The correlation coefficient			
Age	-0.12			0.13
GPA	-0.094			0.175

as one of the achievements of this model (14).

In the present study, the items related to "enhancement of knowledge and skills" were among the items that got a high score of students' satisfaction. In a 2012 study in Norway, Löfmark et al. investigated the satisfaction of nursing students with the supervision of preceptors and university professors. The results showed that the students were highly satisfied with both the Preceptor's supervision and the professor's supervision, and they stated that this supervision was of great help in achieving clinical skills at the end of the academic course (18). Rambod et al.'s study in Shiraz in 2015 also showed that nursing students were highly satisfied with the Preceptor's supervision (21). Heydari et al., in a study conducted in Mashhad in 2012, investigated the effect of the implementation of the Preceptorship program on the clinical skills of the students and mentioned the improvement of the clinical skills of the students after the implementation of this program (25).

In Löfmark's study in 2012, insufficient experience and lack of self-confidence of preceptors in their ability to support students were mentioned as obstacles to the preceptorship model (18). In this study, the item "gaining the trust of clients by the preceptor," which showed the Preceptor's support for the student, received a relatively low satisfaction score.

In the present study, the Item related to "honesty of feedback and preceptor's guidance" was among the items with a high satisfaction score, indicating that the Preceptor's correct and timely feedback can play an effective role in students' satisfaction. Finally, it will lead to more effectiveness of this method in teaching clinical skills. The item "Preceptor's effort in keeping the clients' secrets" also got a high satisfaction score in this study. Among the items with a high satisfaction score in this study is the item "Preceptor's reminder about the points related to honoring clients." The high satisfaction score of students in these two items shows the importance of keeping the clients' secrets and honoring them from the student's point of view. Therefore, the Preceptor's attention to these points can effectively increase students' satisfaction and remind them to help them establish effective communication with clients.

Among the items with a low satisfaction score is "creation of opportunity for independence in work." This finding was contrary to the results of Rambod et al.'s study (21) in 2015, and it seems that giving enough independence to students has a greater effect on improving practical skills and leads to greater student satisfaction. "Preceptor's effort to determine and examine my learning needs and teach according to them" was among the items with a low satisfaction score, when the student feels satisfied with the training and considers himself a part of the team and experiences responsibility and independence.

In the present study, the item "availability of the preceptor during internship hours" was one of the items that received a relatively low satisfaction score from the students, which indicates that the Preceptor does not have enough time to teach the students. This finding was in line with the study conducted by Iraqi Megdar et al., who investigated the challenges and benefits of the preceptorship model in nursing clinical education. In this study, high workload and insufficient time for training were expressed as challenges related to preceptors (26). Shahbazi's study, conducted in Tabriz in 2018, also stated that the preceptors mentioned excessive workload and lack of time during the preceptorship period (27). The workload of preceptors or the diversity of roles of the Preceptor is a factor that prevents the student's educational needs from being observed or even ignored (28). Pollard et al. (29) also reported the problems experienced by students regarding the preceptorship program, insufficient time of preceptors to work with students, the excessive workload of preceptors, conflicting roles assigned to students, and insufficient work of personnel in the field of student education, which were

consistent with the findings of this study.

On the other hand, the benefits of this model are the reduction of clinical errors and the development of skills in students, ensuring compliance with the organization's policies and procedures, and the targeting of internships in education (26). Therefore, when using this method, special attention should be paid to having high motivation and information in the preceptors (20).

The item "clear expression of educational goals" also received a relatively low satisfaction score. In line with this finding, some studies have also stated the absence of an educational goal or the existence of an inappropriate goal for the students' level is as an important obstacle in this educational model (11, 30-33). Therefore, it is suggested that the preceptors have an academic lesson plan before the training. The internship course officials and the training group's director review and evaluate this lesson plan to make the goals appropriate for the course. The preceptors also announce the educational goals to the students at the beginning of the course.

LIMITATION

One limitation of this study was its cross-sectional design, which restricted the ability to establish causality or track changes in students' satisfaction over time. Additionally, since the study was conducted at one university (North Khorasan University of Medical Sciences), the findings may not apply to other institutions. The use of self-reported questionnaires could introduce response bias, with students potentially over-reporting satisfaction or under-reporting dissatisfaction. Addressing these limitations in future research could provide more comprehensive and generalizable insights into preceptorship programs.

CONCLUSION

The study found high student satisfaction with this method, which effectively teaches practical skills. To improve results, it should be applied in other fields and internships, with attention to preceptor performance and clear communication of goals. Regular evaluation of preceptors can enhance satisfaction. Future research may focus on preceptors' experiences and conduct long-term studies across multiple institutions to track changes in satisfaction.

Ethical Considerations: Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. This study has been approved by the Research Ethics Council of North Khorasan University of Medical Sciences (code of ethics IR.NKUMS.REC.2019.126).

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