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The Attitude of Pediatric Residents and Medical Students in the Pediatric Wards of Mashhad University of Medical Sciences Regarding the Educational Role of the Pediatric Residents

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Abstract

Background: **N**owadays, students' feedback regarding different aspects of training provided for them are constantly monitored and explored as an essential factor in medical universities' quality monitoring. We aimed to investigate the attitude of medical students and pediatric residents in the pediatric wards of Mashhad University of Medical Sciences' training hospitals to examine the existing educational conditions and its challenges, and improve teaching quality.

Materials and Methods: The present research is a cross-sectional study whose population consists of pediatric residents and medical students who are working in the pediatric wards of training hospitals affiliated with Mashhad University of Medical Sciences, Mashhad, Iran in 2020; 40 individuals have been selected through convenience sampling. The samples then filled a researcher made questionnaire, and the obtained data were analyzed using SPSS v.16 software.

Results: Average score of attitude toward educational role of pediatric residents based on the view of residents and medical students was 44.80 ± 9.49 and 37.25 ± 8.86, respectively. Fifty percent of residents and 15 percent of medical students agreed with the educational role of pediatric ward. Results of independent t-test demonstrated that there is a significant difference between how residents and interns regard the educational role of pediatric residents in training hospitals (P = 0.0.13).

Conclusion: The present study's results revealed that residents attribute more importance to the educational role in comparison to medical students. The educational role of the residents in training the medical students must be considered of great importance as an exemplary policy in medical universities.

Key Words: Attitude, Educational Role, Pediatric Resident, Medical Student.

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1- INTRODUCTION

Clinical education aims to provide students with opportunities to link their theoretical information with practical facts. Even though teaching is the teacher's job and learning that of the student, learning and teaching in fact have interconnections in the process of education. Therefore, education effectiveness must be examined from the perspective of both, i.e. the students and the teacher, which in result enables us to achieve better education by bridging their points of view, to find the flaws in clinical education by examining ideas and opinions of both of the groups involved with education, and also to pave the way for promoting efficient doctors through ameliorating the educational process. Hence, to achieve an efficient clinical education, it is necessary that the education quality be consistently reviewed and its weaknesses and strengths get recognized (1, 2). On the other hand, achievement-based education approach suggests that each educational system must train its students based on their future needs in the occupational field for presence in the society (3).

To implement effective educational plans, efficient people, a proper place, and educational tools and facilities play a significant role To improve education quality, assessing educational services is considered one of the most effective ones (4). Nowadays, in medical universities, students' feedback regarding all aspects of education provided for them are constantly examined. This process is considered as an essential factor in quality monitoring at universities, and the results of such evaluations are utilized in optimizing educational programs (5, 6). Most medical students believe that residents play a significant part in clinical education and about one-third of their practical training is delivered to them by the residents (7, 8). The educational approach of the residency course is that residents, as the frontline teachers for other medical students, make a major contribution in servicing hospitalized patients, in a way that they are educating and acquiring skills, and simultaneously have the responsibility of educational needs, e.g. skill acquirement, of other medical students such as interns and stagers in related wards (9). Researches carried out in the most reliable universities across the world confirm the fact that residents play a key role in interns' and students' clinical education (10). On the other hand, training interns will also improve residents' knowledge and skills (11). To reach this goal, reliable sources of medical education (Committee on Medical Educational), and of residency education (Accreditation Council for Graduate Medical Education [ACGME]) have required the residents to train other medical interns and emphasized the evaluation of the residents to make sure of their capability in training interns (12).

Hence, empowering residents' training programs is among the priorities of medical universities all around the world since in clinical wards it is these leaders who bring about the most significant effect on stagers' learning (13, 14). Teaching clinical skills to medical stagers and interns is among the residents' responsibilities during their own education. Therefore, due to the importance of residents' role, an awareness as to their educational condition based on the idea of the interns is vital for improving this skill and setting an organized plan for it. Since over one-third of the patients visiting general practitioners are children, teaching diagnostic and therapeutic approaches to medical stagers and interns in the pediatric department is of great importance, which, considering the extensity of pediatrics medicine, highlights the significance of pediatric residents' educational role in facilitating the educational process of other medical interns in this ward (15, 16). The

present study is carried out with the aim of examining and determining the attitude of pediatric residents and medical students in the pediatric wards of Mashhad University of Medical Sciences' training hospitals in order to examine the existing educational condition and its challenges, and to improve education quality.

2- MATERIALS AND METHODS

The present study is a cross-sectional research whose population consists of pediatric residents, and medical students who are working in the pediatric wards of training hospitals affiliated with Mashhad University of Medical Sciences, Mashhad, Iran (Akbar, Dr. Sheikh, Qaem, and Imam Reza hospitals) in the year 2020, 40 of whom have been selected as the sample through convenience sampling. Guest students and residents were excluded from the study. The data collection tool included a researcher-made questionnaire containing demographic questions (gender, age, educational level), and 20 Likert-scaled attitude items with three scales (agree, no opinion, and disagree). The present questionnaire was designed with the help of reviewing scientific texts, other related questionnaires, centralized group discussions, and interviewing expert professors. The validity of questionnaire was confirmed through approval of content validly done by 10 experts (including general practitioner, pediatric residents, three pediatric faculty members, and a medical education specialist). Tool reliability was examined across the 40 residents and interns and confirmed with 84% reliability. The inclusion criteria were medical student (internship), and also pediatric residents. The exclusion criteria were unwillingness to participate in the study or filling the questionnaire incompletely. Guest students and residents were excluded from the study, too. The anonymous questionnaires were distributed with the coordination of the head of pediatric residents in training hospitals and gathered by the head resident of each. Participation was voluntary and a summary of the results was sent to the willing participants. Collected data were first entered in SPSS software version 26.0, and then were analyzed with the help of descriptive statists and an independent t-test to compare and analyze the attitudes of the two groups. Statistical significance level of this study was considered $P<0.05$.

3- RESULTS

In this study 20 medical students (50%), and 20 pediatric residents (50%) of teaching hospitals affiliated with Mashhad University of Medical Sciences were examined. A normality test was conducted indicating that gathered data were distributed normally. The parametric test was also used for the analysis. **Table 1** demonstrates the average and standard deviation of attitude towards the educational role of residents in pediatric wards of training hospitals divided by residents and medical students. Results indicate that the average score of the attitude towards the residents' educational role to be 41.02 ±9.84, that number being 44.8 ± 9.49 from the residents' point of view and 37.25 ± 8.86 from the interns' point of view (**Figure.1**).

Independent t-test reveals a significant difference between the attitude towards the residents' educational role in the pediatric wards of training hospitals from the viewpoint of residents and that of the medical students (P= 0.013). Given the obtained mean scores, the residents, in comparison to medical students, attribute a greater importance to educational role. **Table.1** indicates the amount of disagreement and agreement regarding the attitude toward educational role of residents divided by the total scores and levels of residents and medical students. Results suggest that on the whole, 13 residents and medical students (32.5%) agreed and 13 residents and medical

students (32.5%) disagreed with the residents' educational role in pediatric ward of training hospitals. However, results divided by educational groups reveal that based on the residents' viewpoint 10 people (50%) agreed and four people (20%) disagreed with the residents' educational role in pediatric wards of training hospitals; while based on the medical students' point of view, three people (15%) agreed and 9 people (45%) disagreed the residents' educational role in pediatric ward of training hospitals.

Table-1: Mean of attitude score of the educational role of residents in the pediatric wards of Mashhad teaching hospitals in terms of residents and medical students, n=40.

Attitude	Mean ± SD	Min-Max	Agree (45-60) Number (%)	No comment (35-45) Number (%)	Disagree (20-35) Number (%)	P-value*
Residents	44.80± 9.49	24-60	10(50)	6(30)	4 (20)	T=-2.599 P=0.013
Medical Students	37.25± 8.86	24-59	3(15)	8(40)	9 (45)	
Total	41.02± 9.84	24-60	13(32.5)	14(35)	13(32.5)	

*Independent t-test.

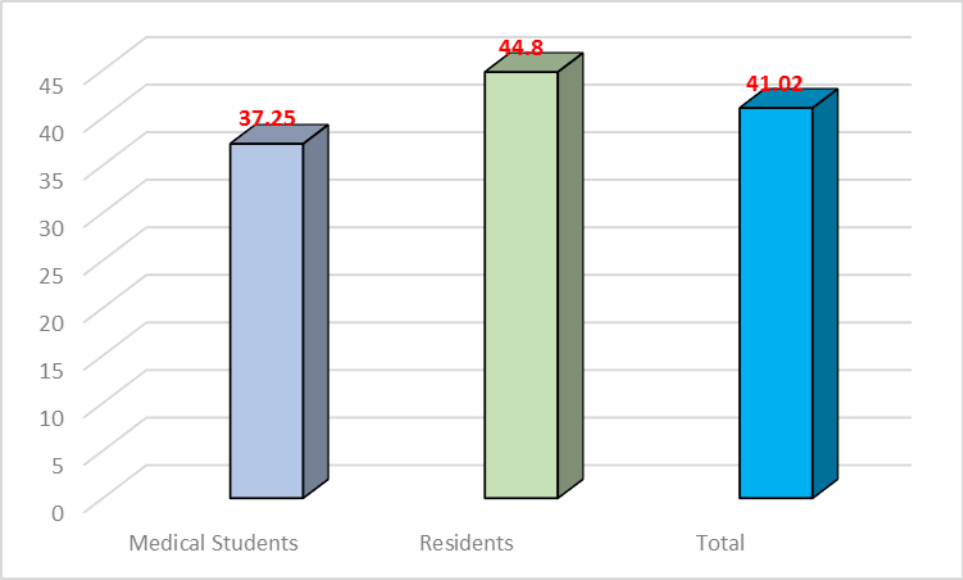

Fig.1: Mean attitude of pediatric residents and medical students towards the educational role of pediatric residents.

Table.2 indicates the average of the attitude towards the residents' educational role in pediatric wards of training hospitals divided by answers from residents and medical students and the comparison between the residents' and medical students' answers to each question. According to the average score of the total attitudes of the population under study and based on the residents' and medical students' opinion, questions "Residents' conducting educational affairs is also helpful for themselves" and "Professors' conducting educational affairs is more

helpful than that of residents" gained the highest level of agreement regarding the residents' educational role in pediatric wards of training hospitals with respective scores of 2.45 ± 0.749 and 2.42 ± 0.781. Also, based on the residents' and medical students' opinion, the lowest level of residents' and medical students' agreement on the residents' educational role in pediatric wards of training hospitals was associated with items "The residents allocate sufficient time for training" and "The residents utilize educational tools for training as much as needed and not more" with respective average scores of 1.57 ± 0.781 and 1.72 ± 0.816. Comparison between the residents' and medical students' opinions regarding the residents' educational role in the pediatric wards of training hospitals, divided by the questions, has been demonstrated. Independent t-test reveals a significant difference at 0.05 level between the residents' and medical students' point of view regarding the residents' educational role in the pediatric ward of training hospitals in items "Residents have enough time to train", "Residents have properly filled the gaps in education", "Residents are motivated enough to train", "Residents' teaching is helpful for learning the specialized principles of the educational departments", "Residents play their educational part in clinics appropriately", "Junior residents' play a significant part in training students", and "Senior residents' play a significant part in training students", in a way that for all the aforementioned questions the residents' average score of the residents' educational role in pediatric ward of training hospitals was higher than that of the medical students. Moreover, no significant difference at the 0.05 level was observed between the residents' and interns' point of view regarding the residents' educational role in pediatric ward of training hospitals, and in all the questions except for "Professors' conducting educational affairs is more helpful than that of the residents" the residents' average score was higher than the interns'.

Table-2: Mean attitude of the educational role of pediatric residents and medical students towards the educational role of pediatric residents (n = 40).

Items	Total score	Resident's score	Medical students' score	P-value
1. Residents are serious enough in education.	2.35± 0.83	2.55± 0.68	2.15± 0.93	t=-1.544 p=0.131
2. Residents have sufficient knowledge for scientific education.	2.40± 0.70	2.45±0.70	2.35± 0.67	t=-0.441 p=0.661
3. Residents have sufficient skills for scientific education.	2.22± 0.83	2.35±0.81	2.10± 0.85	t=-0.949 p=0.348
4. Residents have enough time to education.	1.75± 0.84	2.05± 0.82	1.45± 0.75	t=-2.392 p=0.022
5. Residents have sufficient familiarity with educational methods.	2.01± 0.906	2.25 ± 0.78	1.75 ± 0.96	t=-1.795 p=0.081
6. Residents use training aids appropriately to conduct training.	1.72 ± 0.816	1.80 ± 0.76	1.65 ± 0.87	t=-0.576 p=0.568
7. Residents have been able to fill the existing educational gap to the desired extent.	1.78 ± 0.832	2.05 ± 0.82	1.50 ± 0.76	t=-2.191 p=0.035
8. Residents have sufficient motivation for education.	1.90 ±0.900	2.35 ± 0.81	1.45 ± 0.75	t=-3.619 p=0.001
9. Education by residents is sufficient in the management of common diseases.	2.05 ± 0.876	2.30 ± 0.80	1.80 ± 0.89	t=-1.862 p=0.070
10. Training by residents is useful for learning the specialized principles of training groups.	2.02 ± 0.920	2.35 ± 0.87	1.70 ± 0.86	t=-2.363 p=0.023

11. Residents in the clinic play their educational role appropriately.	1.85 ± 0.802	2.15 ± 0.81	1.55 ± 0.68	t=-2.522 p=0.016
12. Residents in the emergency department play their educational role properly.	2.10 ± 0.900	2.30 ± 0.86	1.90 ± 0.91	t=-1.424 p=0.163
13. Residents in the section play their educational role appropriately.	2.15 ± 0.864	2.30 ± 0.86	2.01 ± 0.85	t=-1.101 p=0.278
14. Training of residents in emergency management of each field is sufficient.	2.05 ± 0.815	2.25 ± 0.78	1.85± 0.81	t=-1.582 p=0.122
15. Assistants devote sufficient time to training.	1.57 ± 0.781	1.70 ± 0.73	1.45 ± 0.82	t=-1.013 p=0.318
16. Residents play an important role in teaching the communication skills of the medical profession.	2.12 ± 0.883	2.15 ± 0.81	2.10 ± 0.96	t=-0.177 p=0.861
17. Junior residents play a major role in educating students.	2.10 ± 0.778	2.35 ± 0.67	1.85 ± 0.81	t=-2.122 p=0.040
18. Senior residents play a major role in educating students.	2.01 ± 0.877	2.35 ± 0.81	1.65 ± 0.81	t=-2.724 p=0.010
19. Training by professors is more useful than doing this by residents.	2.42 ± 0.781	2.30 ± 0.80	2.55 ± 0.75	t=1.013 p=0.318
20. Resident training is also beneficial for them.	2.45 ± 0.749	2.45 ± 0.75	2.45 ± 0.75	t=0.00 p=1

Table.3 indicates the frequency and frequency percentage of residents' and medical students' agreement and disagreement with questions regarding the residents' educational role in pediatric wards of training hospitals. From the residents' point of view, the question "Residents are serious enough in their training", agreed on by 13 people (65%), and questions "Residents' conducting educational affairs is also helpful for themselves", "The residents are knowledgeable enough for conducting scientific training", and "Residents' teaching is helpful for learning the specialized principles of the educational departments", with the agreement of 12 people (60%), were the most agreed upon regarding the residents' educational role in pediatric ward of training hospitals. On the other hand, apropos of the residents' educational role in pediatric wards of training hospitals, the questions raising the highest amount of disagreement were "The residents allocate sufficient time for training" and "The residents utilize educational tools for training as much as needed and not more", with nine people (45%), and eight people (40%), respectively. The highest level of agreement among the medical students regarding the residents' educational role in pediatric ward of training hospitals was attributed to questions "Professors' conducting educational affairs is more helpful than that of residents" and "Residents' conducting educational affairs is also helpful for themselves" with 14 people (70%) and 12 people (60%), respectively. On the other hand, questions raising the highest level of disagreement regarding the residents' educational role in pediatric ward of training hospital were the question "The residents allocate sufficient time for training" with 15 people (75%) disagreeing and the questions "The residents have enough time to train" and "The residents are motivated enough to train" with 14 people (70%) disagreeing.

Table-3: Determining the frequency of the educational role of pediatric residents and medical students towards the educational role of pediatric residents (n = 40).

Items	Residents Number (%)			Medical Students Number (%)		
	Agree	No comment	Disagree	Agree	No comment	Disagree
1	13(65)	5(25)	2(10)	10 (50)	3(15)	7(35)
2	12(60)	5(25)	3(15)	9(45)	9(45)	2(10)
3	11(55)	5(25)	4(20)	8(40)	6(30)	6(30)
4	7(35)	7(35)	6(30)	3(15)	3(15)	14(70)
5	9(45)	7(35)	4(20)	7(35)	1(5)	12(60)
6	4(20)	8(40)	8(40)	5(25)	3(15)	12(60)
7	7(35)	7(35)	6(30)	3(15)	4(20)	13(65)
8	11(55)	5(25)	4(20)	3(15)	3(15)	14(70)
9	10(50)	6(30)	4(20)	6(30)	4(20)	10(50)
10	12(60)	3(15)	5(25)	5(25)	4(20)	11(55)
11	8(40)	7(35)	5(25)	2(10)	7(35)	11(55)
12	11(55)	4(20)	5(25)	7(35)	4(20)	9(45)
13	11(55)	4(20)	5(25)	7(35)	6(30)	7(35)
14	9(45)	7(35)	4(20)	5(25)	7(35)	8(40)
15	3(15)	8(40)	9(45)	4(20)	1(5)	15(75)
16	8(40)	7(35)	5(25)	10(50)	2(10)	8(40)
17	9(45)	9(45)	2(10)	5(25)	7(35)	8(40)
18	11(55)	5(25)	4(20)	4(20)	5(25)	11(55)
19	10(50)	6(30)	4(20)	14(70)	3(15)	3(15)
20	12(60)	5(25)	3(15)	12(60)	5(25)	3(15)

4- DISCUSSION

Teaching clinical skills to interns is among the residents' responsibilities during their own education. Therefore, due to the importance of residents' role, an awareness as to their educational condition based on the idea of the interns and residents is vital for improving this skill and setting an educational plan, in a way that interns' educational quality highly depends on residents' capability in teaching. (17). The present study examined the attitude of 40 residents and medical students of pediatric wards regarding the residents' educational role. Based on the results of this study, the residents attribute a higher importance to educational role in comparison to the medical students. In this study, 32.5% of the residents and medical students agreed and 32.5% of them disagreed with residents' educational role. Most medical students believed that residents have a significant role in clinical training and about 30% of the interns' practical training is delivered by residents (18, 19). However, the lowest amount of agreement was associated with residents' allocation of sufficient time for training and use of teaching aids. Issues such as resource shortage, residents' high workload, and the stressful and crowded hospital environments might be among the reasons for residents' inability to spare enough time to use their teaching skills (20). According to the study, 50% of the residents and 70% of the medical students agreed that professors taught more effectively than residents, which is consistent with Busari's results that highlighted the educational role of professors rather than that of the residents (21). However, the results of Reese et al.'s review study indicated no significant difference between being taught by faculty members and residents (22). On the other hand, the present study indicates that from the medical students' viewpoint, the residents have not been able to fill the educational gap. Results of Mohammadi et

al.'s study exploring the quality of residents' teaching interns and stagers in Iran revealed that from the interns' point of view, residents were completely capable to carry out their teaching responsibilities and to reduce the educational gap; while Vahishahi et al. indicated that the residents have failed to fulfill their teaching responsibilities from the interns' point of view (10, 23). One of the influential factors in this regard might be the residents' heavy workload and their prioritization of treatment over teaching.

On the other hand, given that 60% of the interns disagreed that residents have sufficient teaching skills for scientific teaching, it can also be mentioned that residents do not have teaching experiences and learning teaching skills is not in their curriculum, leaving them no choice but to develop the teaching skills with the help of their own experience, which renders them insecure about carrying out their duties as a teacher (17, 24). It appears that holding training courses for residents of different clinical departments during their residency must be taken into consideration by medical faculties, and it would be better to consider the educational plans and teaching skills based on the existing needs before entering the residency (20).

The fact that residents found it helpful to learn the specialized principles at the department, and that more than half of the interns did not believe so might reflect residents' lack of teaching experience (24). Educational interventions in residents' teaching for the purpose of promoting educational role can improve the interns' attitude towards residents' training (17), and improve interns' satisfaction with residents' educational role (20). Most residents and interns believe that residents' teaching can be helpful to the residents themselves as well. Results of the studies conducted by Pien and Berger indicated that residents' teaching will improve their clinical skills and knowledge, which is consistent with the results of the present study (25, 26). There is also evidence that indicates the existence of a positive relationship between the residents' professional competence and knowledge and their teaching capabilities, and residents who teach more effectively are more likely to become capable physicians (27). Additionally, Habboush et al.'s study reported that residents' teaching improves their communication skills and patient education, residents' self-confidence in teaching satisfaction and job satisfaction (28). Gararakyaraghi's study exploring interns' viewpoint towards the educational role of the residents indicated that first-year residents are more motivated to teach, while results of an American study revealed that senior residents are more involved in teaching (29).

The present study indicates a significant difference between the educational role of junior residents ($p=0.04$), and senior residents ($p=0.01$). One of reasons for junior residents' higher teaching responsibility might be their lighter workload. On the other hand, as residents move further along their training course, they achieve higher scientific capability and skills which might be the reason for the increase in their educational role.

The significant difference between the two groups regarding residents having sufficient time for teaching" might be due to the hospitals' crowded environment and residents' roles in treating patients. However, interns believed that residents who can manage between the crowded training hospitals' emergency department and wards have high management and organization skills, which enables them to balance their educational and therapeutic roles, to provide education of quality, to remain available, and to guide the interns on patient management (30). Although 55% of the residents believed they were motivated enough to teach, 70% of the medical students disagreed with this fact.

In a review study, Sutkin et al. reported five characteristics for residents' effective teaching of medical knowledge, clinical skills, establishing positive relationships with interns in the educational-supportive environment, communicational skills, and motivation. It appears that conflicting views regarding residents' teaching motivation arise when effective relationships are not established between the interns and the residents (31). Proper and effective training for interns promotes and maintains society's health, and the significant role of residents in training interns is undeniable (20). Also, residents can be effective teachers for medical students, and even increase their interest and facilitate their entrance in their specialty (32, 33).

5- CONCLUSION

The present study's results revealed that residents attribute more importance to educational role in comparison to the medical students. The educational role of the residents in teaching the interns must be considered of great importance as an exemplary policy in medical universities. Holding pedagogical workshops for the residents with the aim of introducing them to teaching methods, improving their skills in clinical training during residency, introducing ways to improve residents' motivation, reducing the residents' workload, exploring the barriers to training improvement, publishing interns' feedback, and conducting periodical evaluations of the residents' performance by the faculty members are recommended to improve residents' educational role.

6- CONFLICT OF INTEREST: None.

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