

The Status of Providing Feedback in Clinical Education from the Perspective of Pediatric Residents and Medical Students at Mashhad University of Medical Sciences, Iran

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Abstract

Background

Feedback is a conscious, unbiased, and objective evaluation of performance in order to improve clinical skills, not to assess students' personal talents and values. This study aims to compare the views of pediatric residents and general medical students at Mashhad University of Medical Sciences regarding method of providing feedback in clinical education.

Materials and Methods

This cross-sectional study was conducted in the pediatric ward of hospitals affiliated to Mashhad University of Medical Sciences in 2018. The census method was used to select 35 pediatric residents and simple random sampling method was used to select 35 general medical students who had completed internship and apprenticeship. Data collection was carried out using a standard 21-item feedback questionnaire. Pediatric residents and general medical students were asked to identify the importance of feedback received during their clinical education using a 4-point Likert scale.

Results

The majority of residents believe that feedback was only sometimes expected (27.1%), clearly and explicitly outlined (17.1%), fair (21.4%), and useful in correcting their attitude (18.6%), performance (17.1%), and behavior (27.1%). Majority of general medical students believed that clear, explicit (24.3%) feedback was related with their future career (14.3%) and most of them received positive feedbacks (20). Apart from propositions items 20, 18, and 17, most medical students and residents have selected the Often and Sometimes options, respectively to respond to items.

Conclusion

Pediatric residents were less satisfied with the feedback received during the clinical education as compared to the general medical students.

Key Words: Clinical Education, Feedback, Pediatric Resident, Medical Student.

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1- INTRODUCTION

Evaluation is known as the only effective factor in shaping the learning process during higher education, and the quality of learning outcomes depends on the quality of such evaluation (1). This process is carried out in the form of formative and summative evaluation. The goal of the formative evaluation is to monitor the learning process during education and provide feedback to learners and teachers about the success and failure of learning. Giving feedback strengthens successful learning and identifies and corrects learning errors among learners (2). Historically, the term "feedback" has had a long history. Feedback as a feature of medical education is discussed in the writings of Hippocrates and other famous ancient Greek physicians. Today, the concept of feedback is interpreted and used in different ways. There seems to be little consensus on its definition (3).

In a review and meta-analysis on definitions of feedback provided between 1995 and 2006, van de Ridder et al. referred to the three main concepts. Taking into account the definition of feedback, he obtained concepts such as information and reaction that included information, and a cycle that included both the previous concepts, i.e. information and reaction (3). According to most of these definitions, feedback is introduced as an interactive process for the purpose of informing the learners about their performance, and the term "negative and positive feedback" is often used (4). Ende defined feedback as a conscious, unbiased, and objective evaluation of performance, in order to improve clinical skills, not to assess students' personal talents and values (5). Feedback, whether corrective/negative or reinforcing/positive, is an essential component of medical education that improves learning and ensures that the standards are met (5-7). On the other hand, clinical work constitutes a vital part of

medical education, and in order to make full use of clinical experiences, it is essential to give regular feedback on learners' performance. Unfortunately, it is difficult in the challenging clinical learning environment (4, 6-8). Based on findings from various studies, medical professors state that they frequently provide feedback to learners, while the learners' report shows just the opposite. This problem may be mainly due to feedback providers' and recipients' incorrect understanding of the definition, purpose, and techniques for providing effective feedback (9-11). The results of Liberman's study show that surgical professors believe that they have effectively given feedback to the residents in more than 80% of the cases, but less than 17% of their residents agreed with the effectiveness of the feedback (13).

While receiving feedback, the students know their educational status, reduce their learning errors, and carry out their assignments and duties more precisely, and improve their cooperation in ward activities (14-15). Providing constructive feedback develops teaching-learning process. Feedback is essential for growth, providing the path, increasing self-confidence, motivation, and self-esteem of students. Feedback will help students evaluate their work in a real clinical environment. If students are not provided with feedback, they may compare themselves with a senior student and then ultimately get an inaccurate self-assessment that could reduce their self-esteem and affect them negatively to continue their work. Therefore, with effective feedback, learners can improve their next assignments and increase their ability to judge their work. Helping learners to improve their assessment ability is key to achieving a successful learning process and, more importantly, ensures their commitment to a sustainable learning (4, 16). Despite the fact that

Mashhad University of Medical Sciences is one of the first-class universities in the country and is responsible for training experienced professors; there have been no studies on the extent to which university professors provide feedback to medical students and residents in clinical education, and whether this feedback is effective and constructive in improving students' performance from their point of view. Therefore, the aim of this study was to investigate the status of giving feedback to learners during clinical education through the lens of pediatric residents and general medical students of Mashhad University of Medical Sciences, Iran.

2- MATERIALS AND METHODS

2-1. Study design

This cross-sectional study was conducted during the year 2018 in the pediatric department of hospitals affiliated to Mashhad University of Medical Sciences, Iran. The study method was approved by the Pediatric Research Council. The researchers also committed to adhere to the confidentiality principles during the study.

2-2. Study population

To select the sample size based on the opinion of the statistical advisor, census method was used to select 35 pediatric residents and simple random sampling method was used to select 35 general medical students. All the residents of the pediatric department of Mashhad University of Medical Sciences who worked in this specialty throughout the study, as well as general medical students who were intern students and interns at the Pediatric Department of Mashhad Educational Hospitals were able to enter the study. Unwillingness to participate in the study or incomplete completion of the questionnaires was considered as the exclusion criterion.

2-3. Data collection

To obtain information on method of providing feedback, a standard 21-item feedback questionnaire was used (17). Pediatric residents and general medical students were asked to determine the importance of feedback received during their clinical education based on a 4-point Likert scale, which includes Always (score 4), Often (score 3), Sometimes (score 2), and Rarely (score 1). The tool questions assessed aspects of feedback including constructiveness, fairness, and relevance to the future profession, usefulness for modifying the attitude, behavior and performance, clarity, and so on. The questionnaires were anonymous and were distributed among medical students and pediatric residents by the project researchers after the morning report sessions or the case report, and giving necessary explanations, and collected the next session.

2-4. Ethics in research

Participants' information was extracted in general and they were not required to write their first and last names. Only general medical students and pediatric residents who were in clinical training course entered the study. The participants were not interfered with during the data collection process, and the results of the study were given to participants upon their request.

2-5. Reliability and Validity

Validity of the questionnaire was determined using content validity through consultation with experts (3 medical education faculty members and two pediatric faculty members). To determine the reliability of the tool, the Cronbach's alpha coefficient of the feedback questionnaire was calculated 87%, which indicates appropriateness of internal consistency of the questionnaire (17).

2-6. Statistical analysis

Data analysis was carried out using SPSS software (version 21.0). To describe the variables studied (tool questions), descriptive analysis, including frequency indices and percentages were used. Chi-square test was also used to compare the frequency of response to various options related to questionnaire questions. A p-value less than 0.05 was statistically significant.

3- RESULTS

A total of 35 pediatric residents and 35 general medical students at Mashhad University of Medical Sciences participated in this study. Among the residents, 15 (42.8%) were in the first year, 10 (28.5%) in the second year and 10 (28.5%) in the third year of residency. Twenty (57.2%) of the general medical students were interns and 15 (42.8%) were apprentice. A total of 22.9% of students

(n=16), and 24.3% (n=17) of the residents believed that feedback was helpful overall. Also, 27.1% of residents believed that feedback was often related to their future career, while 24.3% of medical students stated that feedback was often related to their future career. Most of the residents believed that feedback was only sometimes expected (27.1), clear and explicit (17.1), fair (21.4), and useful to modify their attitude (18.6), performance (17.1), and behavior (27.1). Also, this feedback was sometimes related to a specific topic (24.3) or related to one or two topics (21.4) and helped modify their behavior (27.1). Most general medical students believed that received feedback was clear and explicit (24.3) and related to their future career (14.3). Sometimes feedbacks was also related to clinical skills (22.9) and most of them received positive feedback (20) (**Table.1**).

Table-1: Distribution of the General medical students and Pediatric residents' ranking on feedback.

N	My Feedback	Resident				General Medical Student			
		Always	Often	Sometimes	Seldom	Always	Often	Sometimes	Seldom
1	was constructive	1.4	32.9	14.3	1.4	4.3	31.4	11.4	2.9
2	was as expected	2.9	17.1	27.1	2.9	4.3	22.9	21.4	1.4
3	worked as a motivation for education	1.4	24.3	20	4.3	8.6	18.6	20	2.9
4	emphasized postgraduate skills	2.9	27.1	20	0	4.3	21.4	17.1	7.1
5	corrected my thinking	4.3	22.9	18.6	4.3	2.9	30	15.7	1.4
6	corrected my performance	2.9	27.1	17.1	2.9	2.9	32.9	12.9	14.
7	corrected my behavior	1.4	18.6	27.1	2.9	2.9	30	15.7	1.4
8	made me feel ashamed	0	8.6	27.1	14.3	1.4	12.9	24.3	11.4
9	was applicable to future work	5.7	27.1	17.1	0	10	24.3	14.3	1.4
10	was specific to one subject	5.7	18.6	24.3	1.4	4.3	20	18.6	7.1
11	was more concerned with clinical skills	4.3	24.3	20	1.4	4.3	20	22.9	2.9
12	was limited to one or two items only	2.9	18.6	21.4	7.1	1.4	17.1	24.3	7.1
13	was to correct behavior	2.9	15.7	27.1	4.3	1.4	25.7	15.7	7.1
14	was concerned with the time & place	2.9	27.1	17.1	2.9	5.7	15.7	22.9	5.7
15	encouraged me to assess myself	5.7	17.1	17.1	10	7.1	15.7	24.3	2.9
16	was clear	7.1	21.4	17.1	4.3	7.1	12.9	24.3	5.7
17	considered security	5.7	12.9	18.6	12.9	2.9	15.7	17.1	14.3
18	considered justice	1.4	20	21.4	7.1	1.4	15.7	18.6	14.3
19	was positive	0	22.9	15.7	11.4	7.1	17.1	20	5.7
20	was negative	2.9	11.4	20	15.7	2.9	14.3	17.1	15.7
21	was overall useful	2.9	24.3	17.1	5.7	4.3	22.9	17.1	5.7

N= number of question.

The results showed no statistically significant relationship between gender and education levels and comments made on status of giving feedback. Chi-square test showed a significant relationship between the responses of pediatric residents and general medical students to items 4, 7, and 19 ($P < 0.05$). In addition to

items 17, 18 and 20, most medical students have selected the Often option, and most residents have chosen the Sometimes option (**Figures 1 and 2**). Residents were less satisfied with the feedback received as compared to general medical students during their clinical education (**Table.2**).

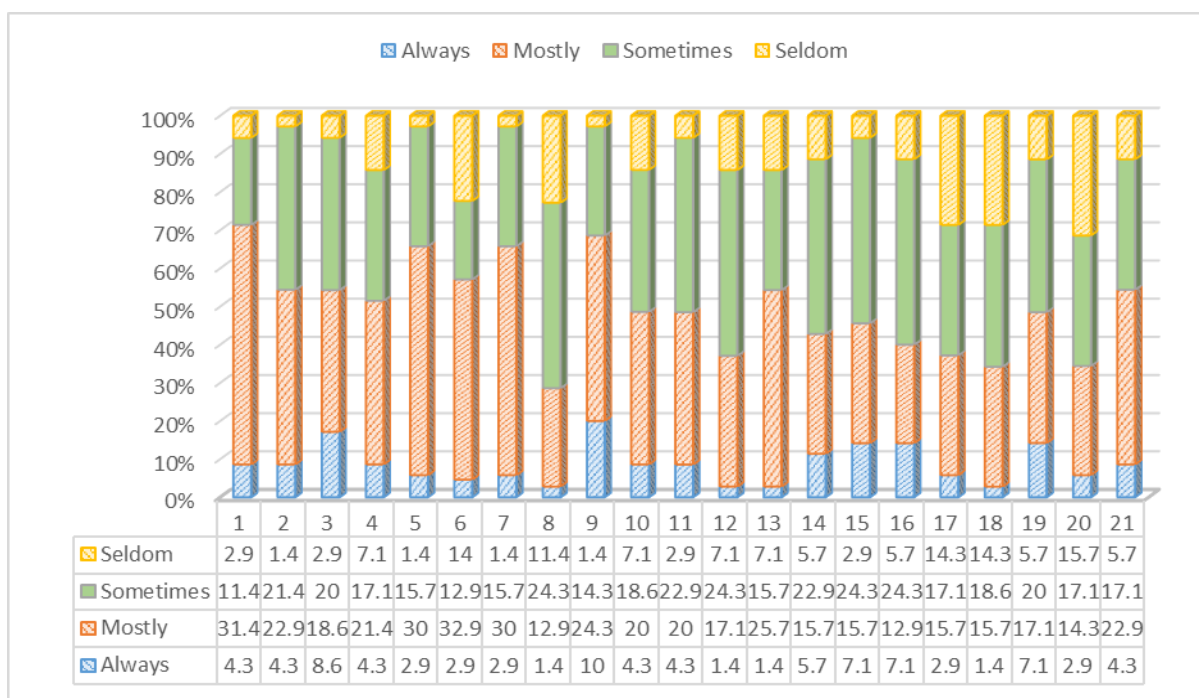


Fig.1: Frequency distribution of general medical students' responses to feedback (in percentage).

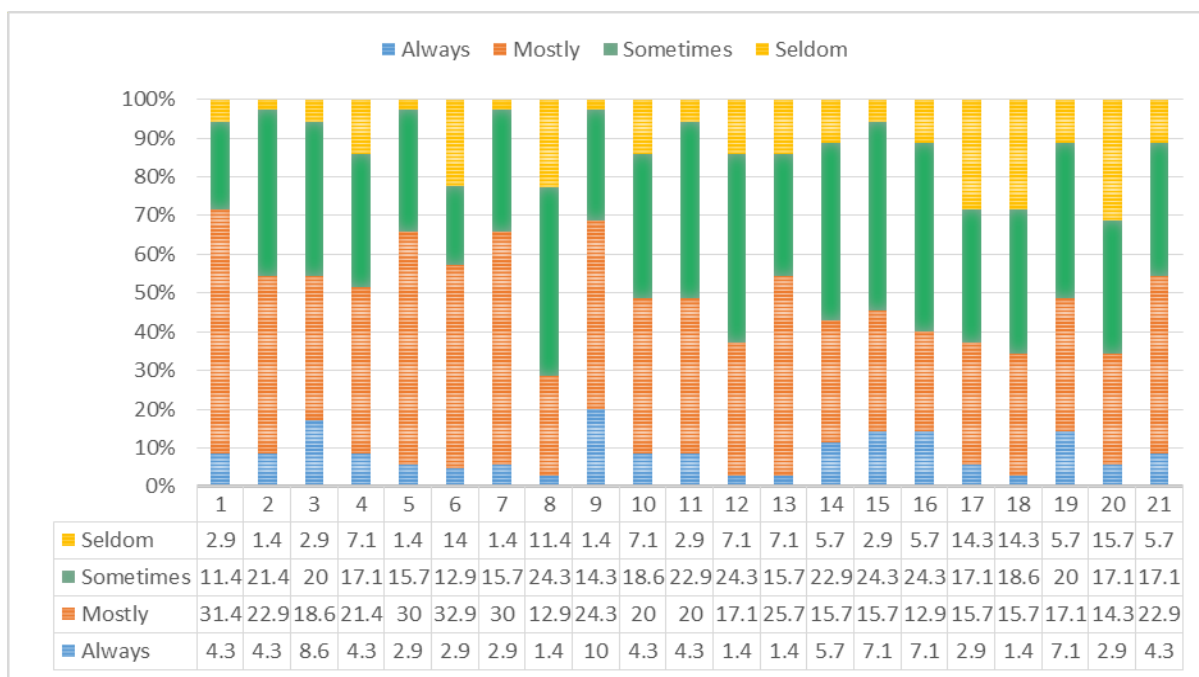


Fig.2: Frequency distribution of pediatric residents' responses to feedback (in percentage).

Table-2: Compared suggestions for feedback received from Pediatric residents and General medical students.

N	My Feedback	Resident				Medical Student				*P-value
		Always	Mostly	Sometimes	Seldom	Always	Mostly	Sometimes	Seldom	
7	Corrected my behavior	1.4	18.6	27.1	2.9	2.9	30	15.7	1.4	0.04
4	Emphasized postgraduate skills	2.9	27.1	20	0	4.3	21.4	17.1	7.1	0.05
19	Was positive	0	22.9	15.7	11.4	7.1	17.1	20	5.7	0.02

N= number of question. *Chi-square test.

4- DISCUSSION

The aim of this research was to investigate the status of giving feedback to learner during clinical education from the viewpoint of pediatric residents and general medical students at Mashhad University of Medical Sciences. The results of this research showed that pediatric residents believed that they did not receive appropriate feedback in clinical education, but general medical students were more satisfied with feedback being provided in clinical settings. Feedback is an important component of learner's development and clinical instructors and professors should be trained on the importance of providing feedback and be provided with appropriate tools to do it effectively (18). Appropriate feedback must focus on individual performance rather than the individual. It must be explicit, specific, based on direct observation, and presented in an unbiased manner. It is better to emphasize the positive aspect of the work and mainly describe the work process rather than evaluating it. Also, feedback in clinical education should be aimed at confirming or reinforcing learner's behavior, correcting behavior, and improving the future performance of the individual (19, 20). Zarenahand et al. showed that providing written and delayed feedback to medical residents in the form of presenting deficiencies in the medical records, the patient's or medical staff's dissatisfaction,

copying the documentation in the medical records, and providing guidance required for reducing and preventing subsequent mistakes, would enhance the residents' satisfaction and their learning outcomes (21). Noorfrootaghe et al. also showed that written, urgent, and repetitive feedback increased the accuracy and dominance of Cardiology physician residents in the interpretation of the electrocardiogram, and increased the retention of the learned material (22). Bazrafkan et al. also showed in a study in Shiraz that residents of different specialties had a positive perception of receiving feedback during their education (17). The results of this study, consistent with other relevant studies, show that the results of feedback are still not ideal (24-26). Moaddab et al., also stated that feedback provided to general medical residents and students was not optimal (27). The present study showed higher satisfaction among general medical students with feedback received as compared to pediatric residents. In Ende's view, mistakes will not be corrected without giving feedback, proper clinical function will not be strengthened, and clinical competencies are either empirically acquired or not learned at all (5). Molloy et al. (16), and Boud et al. (23) stated in their research that learners do not receive useful feedback in clinical education. Most students and educators considered it necessary to provide feedback, and tended to receive and

provide more feedback (28). The results of the present research are consistent with the results of studies carried out by Anderson (18), Mcilwrick et al. (8), Molloy et al. (16), Boud et al. (23), and Tayebi et al. (28). The results of this study also showed that the pediatric residents of Mashhad University of Medical Sciences were less satisfied with the feedback received as compared to the general medical students during their clinical education ($P < 0.05$). This difference may be due to the fact that the pediatric residents who have maximum experience and interaction after starting to work regard feedback received during the general medicine course as useless and ineffective, but general medical students with lower levels of experience have not yet understood the effectiveness of feedback as they should.

On the other hand, the development of clinical competencies in health-related students is a fundamental objective of education and meaningful and constructive feedback is essential for obtaining constructive information. Therefore, feedback is an essential aspect of teaching and learning to the extent that the importance of feedback for learning is as important as blood for life (4).

Many researches and articles have proven that providing feedback is a factor that, if properly presented based on appropriate information, will correct the performance (4). Therefore, in addition to emphasizing the importance of providing feedback, it is necessary to teach the correct principles of providing feedback to faculty members and medical educators because the incorrect provision of feedback will have more inappropriate consequences than non-provision of feedback. Some studies have suggested that feedback will only be effective and thus constructive if it is presented in a positive manner (29). However, others have said that feedback should be balanced in terms of positive and negative sentences (30, 31). Most

studies have shown that feedback that points to the weaknesses of performance rather than its strengths will more frequently be ineffective and detrimental (29, 32). Brinko also stated that feedback should be provided at the earliest opportunity (33). In addition, it should be noted that feedback should be given when the learners have the opportunity to change or modify their behavior, since the main purpose of providing feedback is to provide learners with the opportunity to modify behavior and progress in learning. If feedback is provided at a time when the learner does not have the opportunity to modify behavior and progress, the correction goal of this feedback, which is the most important feature of providing feedback, is ignored (30). Overall, feedback should be planned and the educator should first think about its provision procedure and the related principles and features (34). Feedback recipients should also have the opportunity to respond and react to the feedback and be engaged in the feedback process (30).

4-1. Study Limitations

The most important limitation of this research was the use of the closed-ended self-reporting method for data collection. In this method, one can evaluate him/herself and others better or worse than they really are. On the other hand, the limited options have denied the possibility of providing other answers and s/he is thus limited to choosing the answer, which may not have been exactly what he was looking for or for which they can add an extra explanation. The present study was conducted only in pediatric departments of educational hospitals affiliated to Mashhad University of Medical Sciences and is not representative of the overall study population of pediatric residents and medical students throughout the country.

5- CONCLUSION

The results of this study show that despite the importance of feedback in medical education and its role in clinical skills learning, the status of giving feedback in clinical education, especially in pediatric residents, is not very appropriate, so that general medical students are more satisfied with providing feedback in clinical settings as compared to the pediatric residents. Feedback facilitates clinical education and should be considered as an important factor in creating and reinforcing rethinking, which is one of the essential principles of clinical education. The feedback given to learners should provide a clear understanding of what learners should do and provide them with the point they need in practice. To achieve such a clear understanding, learners need to be well-identified because, depending on the personality and capabilities of the learners, some learners can easily achieve learning goals, while others need more effort to achieve such goals.

6- CONFLICT OF INTEREST: None.

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