

Effects of Reflection on Clinical Learning of Medical Students

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Abstract

Introduction

Reflection is considered as a critical characteristic in professional competitions. Despite propagation of reflection as an important educational issue and existence of several helpful patterns, instructions conducted by teachers to explaining and expanding of it, are very little. Studies related to this topic were mainly performed in the field of nursing. Therefore, we decided to evaluate the effects of reflection on medical students.

Materials and Methods

This study was conducted between August 2012 to January 2013, and 100 medical students who were training in Pediatric Department of Tabriz Children's Hospital, were included in this interventional (before and after) study. At the beginning a questionnaire was filled by participants as "pretest". Then, in the workshop, principles of reflection and learning domain were taught to them. A notebook entitled "What I have learned" was prepared by them and daily learning was recorded in three aspects of reflection (mirror, microscope and binocular). After three months the same questionnaires were filled as "posttest". Results obtained from comparing pretest and posttest and information acquired from students notebook were the basis for statistical analyze.

Results

There was statistically significant difference for each question ($P < 0.05$). Deepening the learning, reducing errors, organizing and integrating of individual knowledge, increasing confidence and responsibility, improved patient care and accuracy of interventions were some benefits of reflection method.

Conclusion

Reflection is very helpful educational strategy and can help the students in their communication and increasing skill and knowledge. It also helps to organize and integrate their learning by guiding them in clinical situations.

Key Words: Clinical learning, Medical student, Pediatric department, Reflection.

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Introduction

Reflection is defined as the pass from experience to comprehension. Reflection provides an area which people could gain a new insight through their experiences (1-3). In fact, repetition and practice will help our learning but it can't replace active thinking about what we have done, what we have done well, and what we haven't done that good. By bringing up a simple question as "what should I do better next time?" or "How should I perform differently?" we have the option to be our guide by considering present and past. Learning from previous experiences to maintain and improve eligibility in the process of life activities plays an important role (4-7). Students face different experiments daily and deepening these necessitate profound thinking and transition from theoretical knowledge to understanding and analysis. All of these won't be gained except by using reflection before, during and after action (8-15). Reflective learning can improve professionalism and clinical reasoning, and reflective practice can contribute to continuous practice improvement and better management of complex health systems and patients (16-17).

Reflective thinking will grant people with high levels of contemplation by equipping them with the following:

1 – Relating new knowledge with previous perceptions; 2 – Thinking both conceptual and abstract; 3 – Using specific strategies in particular situations; 4 – Understanding their thinking and learning strategies pretty well (18-24).

Because reflection is a familiar concept in everyday life, medical educators must distinguish the common usage of the term from the particular skill set associated with important educational outcomes (25).

Nowadays, activities that take place in order to promote reflection have been incorporated in bachelor, masters,

interrelated medical education and in health related professions. Evidence that represents and supports the intervention and educational innovations are mainly remained in theoretical level. Fundamentally, using reflection is a new method and few studies have been performed in respect of that. Also, performed researches are mainly in the field of nursing students (26-27). Therefore, we carried out this study to evaluate the effects of reflection on clinical learning of medical students to achieve a comprehensive model to use it as a guide in clinical education.

Materials and Methods

In 2012-2013, between August to January, one hundred medical students who were training in Pediatric Department of Tabriz children's Hospital, Tabriz-Iran, were included in this interventional (before and after) study. They filled a questionnaire as pretest at the beginning of study. Validity of questionnaire was confirmed by five experts, whom worked in Education Development Center (EDC) in Tabriz University of Medical Sciences. To determine the Validity the questionnaire, we used the content validity. So after consideration new articles about this study and incorporate comments of two experts, validity was confirmed. To determine reliability of this questionnaire, we used test-retest method. Thus, the questionnaire was completed on 10 medical students who were eligible and was repeated again after one week. The reliability of questionnaire was confirmed by Pearson's correlation using ($r=0.89$). Then we taught them principles of reflection and learning domain in a workshop. Students provided a notebook entitled "What I have learnt" and recorded their daily experiences in the terms of knowledge, attitude and practice. They were randomly asked to report their experiences in the following morning report and received appropriate feedback.

Those notebooks were also reviewed in different opportunities. At the end of study (after three months), they were asked to fill the same questionnaire as posttest. Results obtained from comparing pretests and posttests and information obtained from their notebooks were analyzed. The questionnaires were included 15 questions which inquired students' point of view in a triple spectrum (I agree, Have no idea, I disagree).

The questions were as follows:

1. Reflection's experience is different from other ones;
2. Reflection's activity deepens my learning;
3. Reflection makes me aware of possible errors;
4. Reflection reduces medical errors;
5. Reflection reorganizes my previous knowledge;
6. Reflection increases my self-confidence;
7. Reflection deepens patient's care
8. Reflection makes my communication purposeful
9. Reflection makes me more responsible;
10. Reflection connects my theoretical, practical and attitude all together;
11. Reflection makes me to do the right thing;
12. Reflection makes me to do the right thing precisely;
13. Reflection makes me to consider the better alternatives in any moment;
14. Reflection makes my interventions need based.
15. I will use this method in other wards too.

Statistical analyses were performed using the Statistical Package for Social Science,

version 17.0 (SPSS, Chicago, Illinois). Qualitative data were demonstrated as frequency and percent (%). The categorical parameters were compared by chi-square test. A P- value of <0.05 was considered statistically significant.

Results

Differences between the results of pretest and posttest were statistically significant in all of the questions ($P < 0.05$). Students believed that reflection is different from other experiences. It should be said that students agreed about the effects of reflection on the deepening their learning. Questions number 6 and 9 shows the efficacy of this method on enhancing responsibility and self-confidence of the students, which are both critical tools for a physician. Effects of reflection on awareness of their errors (question 3), reducing error rate (question 4), enhancing patients' care (question 7), making doctor-patient relation purposeful (question 8), doing the right thing and doing it precisely (question number 11 and 12), choosing alternatives and performing the interventions based on a need (question number 13 and 14) all together will result in improvement of health care. The last question can be assumed as a guaranty for continuing implementation of this method in other educational fields. Table.1 shows the comparison between pretest and posttest.

Table 1: The comparison between pretest and posttest study

Questions	Pretest			Posttest			P value
	I agree	No comment	I disagree	I agree	No comment	I disagree	
1	23%	48%	29%	71%	20%	9%	$P < 0.05$
2	43%	27%	30%	71%	12%	17%	$P < 0.05$
3	45%	25%	30%	69%	2%	29%	$P < 0.05$
4	41%	40%	19%	71%	12%	15%	$P < 0.05$

5	48%	23%	29%	71%	8%	21%	P< 0.05
6	35%	31%	34%	52%	6%	42%	P< 0.05
7	27%	40%	33%	64%	6%	30%	P< 0.05
8	37%	29%	43%	75%	14%	11%	P< 0.05
9	37%	29%	31%	71%	16%	13%	P< 0.05
10	33%	33%	34%	71%	14%	15%	P< 0.05
11	25%	44%	31%	69%	18%	13%	P< 0.05
12	29%	41%	30%	69%	13%	18%	P< 0.05
13	25%	44%	31%	71%	16%	13%	P< 0.05
14	31%	35%	34%	66%	6%	28%	P< 0.05
15	19%	12%	69%	65%	8%	27%	P< 0.05

Discussion

Emphasis on using reflection in education is aroused from the need to use previous experiences to achieve a new understanding. In other words, implementing theory in practice is the main goal of reflection. Atkins believed that promoting reflective action enables individuals to react in specific challenging situations (28). Freire expressed that reflection will help us to understand the world we live in, what we experience and how we perform by introducing us to our self (10). Researchers have already implemented reflection as an additional educational tool and learning element to help students to merge theory and practice in nursing field (26-27). Moattari and Abedi studied reflection mechanisms affecting clinical experience (26). Common point of these researches was implementing reflection in nursing students and finally encouraging the authorities to incorporate reflection in nursing programs. Regarding to the importance of implementing reflection in clinical education, after a precise review of literature, we decided to evaluate the role of a comprehensive model of reflection

among medical students in pediatric educational ward. Our findings show that using reflection in clinical learning of medical students has been very effective and useful and have faced them with some new experiences. In the Self level (mirror), they resolved challenges related to their selves, in Microscope level they understood the effects of personal activities on society, and finally in Binocular level, they were informed about more extended issues which have experienced but had no role in development of it, and their understanding about reasons, consequences and influences was enhanced.

The most important subjects which represent direct and beneficial effects of reflection on students' promotion was their positive responses, for example: effects of reflection on deepening their learning, better doctor-patient relationship, more responsibility, reduced medical errors and better understanding of educational issues. The sum of all these, encourage the students to continue this method in other educational fields during academic course and in future career.

Conclusion

Reflection is very helpful educational strategy and helps the students in communication and increase their skill and knowledge. It also helps to organize and integrate students' learning by guiding them in clinical situations

Conflict of interests: None.

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