

The Logbook Effect on Clinical Learning of Interns in Internal Ward Rotation in Shiraz University of Medical Sciences

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Abstract

Background and purpose: The learning experiences of medical students happen in diverse settings. Logbook is a long known tool to manage and guide these experiences but the studies had varying results this study is an attempt to examine the educational benefits of logbooks .

Methods: In this quasi-experimental study the externs were divided into two equivalent groups as intervention and control group. For the controls the routine program was delivered while logbook was used in addition to routine learning activities for intervention group. The students were examined with an OSCE and MCQ exam at completion of rotation. The results were compared.

Results: Of 53 subjects, 28 were assigned in control groups and 25 were placed in intervention groups. The intervention groups' performance on OSCE was not significantly different from control group (14.84 ± 1.87 vs 13.93 ± 2.15 , $P > 0.05$). The intervention groups performance on 5 stations of OSCE assessing clinical skills compared with the control groups performance on these stations showed a significant difference of 6.4 out of 20 ($P < 0.0001$) while the intervention groups performance on 7 stations assessing factual knowledge compared with the control groups performance on these stations showed no significant difference (0.2, $P > 0.05$).

Conclusion: The introduction of logbook was associated with increased clinical skills while no improvement of factual knowledge was observed.

Key words: LOGBOOK, CLINICAL SKILL TRAINING, ASSESSMENT

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Introduction

The close student-teacher relation helps organize and structure the students learning experience. This relation has been faded up. Today students

learn their clinical skills in various settings so expecting that clinical teachers have a complete understanding of students' and interns' learning experiences is not practical(1-3).

Medical schools have a long experience in using logbook as a tool for documenting interns, residents and fellows learning experience which facilitates monitoring students' clinical learning (4-6). Many studies have examined different uses of

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logbooks in different setting with various results (6-11). Some approved its efficacy and some said that problems in using logbook were intimidating. Most of these studies are case reports and descriptive. The difference in setting and curriculum has occasionally led to controversial results.

In this study we attempted to examine logbook effects on clinical learning of externs in their internal ward rotation.

Methods

In this Quasi-experimental study externs passing their internal medicine rotations participated in 2 consecutive 2-month rotation. In the first rotation no intervention was introduced. In the second rotation the students completed a logbook. At the end of each rotation students took an OSCE, and a multiple choice question (MCQ). The exam results was analysed with SPSS software ver. 12.

The logbook used was developed based on internal medicine rotation in collaboration with clinical teachers of internal medicine group. The logbook was prepared in A5 size facilitating its use. In the introduction course goals, settings and how to fill the logbook were explained. Five forms including form for students' and teachers' and residents' information; form 2 for writing down the procedures and externs' role on performing the procedure; form 3 for reporting the patients they cared for; form 4 for reporting other patients of the ward, and form 5 for reporting the lectures delivered by the student. Before we used the form for the subjects a group of interns used it for a month. This pilot study helped us to rectify problems of logbook forms.

The OSCE exam had 12 stations. Each station was randomly selected from a pair of equivalent stations developed by internal medicine group.

For MCQ exam, 50 pairs of questions were developed based on the rotation objectives and two equivalent forms of 50 questions were made out.

The students who attended in 2 consecutive months (in study interval), attending in OSE and MCQ exams and returning the completed logbook.

Results

In this study, of 59 extern passing internal medicine rotation 53 were included. Of these subjects 28 were assigned in control groups and 25 were placed in intervention groups. Based on GPA of 8 modules of internal medicine in physiopathology phase and the students scores on comprehensive

Table 1: The mean 8 of internal medicine modules GPA and basic science comprehensive exam marks of intervention and control group

Exam marks	Mean (SD)	P-value
The 8 IM module GPA of control group	14.9 (1.4)	0.3
The 8 IM module GPA of intervention group	14.2 (1.3)	
BSCE of control group	133.6 (15.2)	0.5
BSCE of intervention group	125.2 (11.5)	

basic science exam, the control and intervention group prior knowledge were equal (table 1).

The externs training program in this rotation includes various seminars and rounds. Similar teachers in similar settings trained both groups. Both groups attended the exam sessions of MCQ and OSCE in 24th day of the second month.

The OSCE for both groups consisted of 12 5-minutes stations. The intervention groups' performance on OSCE was not significantly different from control group (14.84±1.87 vs 13.93±2.15, $P > 0.05$).

Some stations of OSCE assessed clinical skills while others assessed factual knowledge. The intervention groups performance on 5 stations assessing clinical skills compared with the control

groups performance on these stations showed a significant difference of 6.4 out of 20 ($P < 0.0001$) while the intervention groups performance on 7 stations assessing factual knowledge compared with the control groups performance on these stations showed no significant difference (0.2, $P > 0.05$).

The students' performance on MCQ test was not significantly different in intervention and control group (13.96 ± 1.87 vs 15.8 ± 1.88 ; $P = 0.3$).

The Pearson correlation coefficient of students scores in OSCE MCQ tests, GPA of internal medicine modules, comprehensive basic science exam are shown in table (2). The OSCE result had no correlation with other tests.

Table 2: the correlation of the 8 IM module GPA, BSCE, MCQ, OSCE marks with each other

Exam markas	The 8 IM module GPA	BSCE	MCQ	OSCE
The 8 IM module GPA	1			
BSCE	R= 527/0 P < 001/0	1		
MCQ	R= 0.357 P < 009/0	R= 310/0 P < 07/0	1	
OSCE	R= 180/0 P < 2/0	R= 069/0 P < 7/0	R= 153/0 P < 3/0	1

The score of set of stations assessing knowledge was correlated with, CBSE, MCQ tests, and GPA of internal medicine modules while the score of set of stations assessing clinical skills had no sig-

Table 3: the correlation of the 8 IM module GPA, BSCE, MCQ, OSCE marks with the clinical set of OSCE stations and knowledge-based set of OSCE stations

Exam markas	clinical set of OSCE stations	knowledge-based set of OSCE stations
The 8 IM module GPA	12/0- R= P < 3/0	427/0R= P < 002/0
BSCE	028/0 R= P < 8/0	092/0R= P < 5/0
MCQ	512 /0- R= P < 0001/0	481/0R= P < 0002/0
OSCE	153/0- R= P < 3/0	39/0 R= P < 02/0

nificant with CBSE, MCQ test, and GPA of internal medicine module. table (3)

Discussion

The introduction of logbook was associated with increased clinical skills while no improvement of factual knowledge was observed. In most experiences of logbook, this tool has been used to assess clinical skills. This may be explained by more attention to the kind of patients students visited (16,17).

In a study in 1995 in Alberta, Canada, the number of clinical experiences reported in logbook was correlated positively with OSCE score (18).

Although the logbook had no effect on students' performance in area of factual knowledge, the correlation of OSCE stations assessing knowledge and MCQ test is evidence of concurrent validity. In other words there is no need to test factual knowledge in OSCE stations where other tests of knowledge are given independently. Other students also showed that the number of visited patients by students had not associated with performance on tests of knowledge (12, 20).

The logbook uses in different program is varied

including:

1. Objective-orienting of students learning experience (21, 22, 23).
2. Documenting the learning experience of students (7, 9)
3. Monitoring
4. Management of feedback to students (10, 24)
5. Program evaluation (12, 25)
6. Reflection on experiences (26)

In this study logbooks were developed to cover uses 1, 2, 4, 6. Our students believed that the logbook was successful in objective orientation of learning experiences, documenting these experiences, and reflection on experiences but it seems that no improvement on students-teacher interaction happened. This was a limitation of this study which might be due to lack of education on logbook in part of clinical teachers. Further study of whole of logbook would be useful.

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