

Test anxiety in objective structured clinical examinations (OSCEs) compared with traditional assessment methods in undergraduate midwifery students

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ABSTRACT

BACKGROUND: Final comprehensive exam is the most important examination for midwifery students to evaluate their professional ability and Test anxiety is a common phenomenon among college students. Because test anxiety is one of the problems of educational systems, this study was performed to compare test anxiety in objective structured clinical examinations (OSCEs) and traditional assessment methods (TAM) among Undergraduate Midwifery Students. **Methods:** In this descriptive-analytical study, 52 students of Babol Midwifery College were participated in the study. 20 students were evaluated using TAM in November 2010, and 32 students were evaluated using the OSCE method in July 2011. Data were collected via a two-component questionnaire including demographic data and the test anxiety inventory (TAI). **Results:** All of midwifery students were women; the mean age of students, ages of father and mother's were 23.1 ± 0.7 , 52.3 ± 3.5 and 47.8 ± 4.9 years, respectively. Most of the students were single (61.5%). The mean education levels of father and mother's were 11.6 ± 4.5 and 9.9 ± 4.0 years, respectively. The mean score of test anxiety in students was 42.51 ± 13.16 . The most of participants did have moderate test anxiety (56.9%), two present not had any test anxiety, 37.3% had low test anxiety, and 3.9% had severe test

anxiety. In sum, 98% had some degrees of test anxiety. There were the statistical differences in the mean score of text anxiety in OSCEs Compared with TAM in Undergraduate Midwifery Students (39.38 ± 13.81 vs. 47.35 ± 10.67 , $P = 0.033$). Also, the mean severity of anxiety was different in two groups. The mean of moderate/severe test anxiety was more in TAM compared with OSCEs (52.57% vs. 49.56%, $p = 0.000$). The test anxiety had a positive correlation with father's education, mother's education (0.286, $p = 0.042$), father's age, mother's age, marital status, residency (0.292, $p = 0.042$). Also, there are negative correlations with student age, satisfaction, total Grade Point Average (GPA) (-0.387 , $p = 0.007$), final score, type of assessment (-0.298 , $p = 0.033$). There is a significant difference between the severity anxiety residency in total ($p = 0.10$) and OSCEs ($p = 0.049$) groups, mother's education in total ($p = 0.005$) and OSCEs groups (0.012) and GPA ($p = 0.028$). **Conclusion:** OSCEs were superior to TAM in the reduction of test anxiety in midwifery students. The prevalence of test anxiety was in TAM than OSCEs method; therefore, using OSCEs is acknowledged as an effective assessment tool and is seen as the gold standard for evaluating clinical performance.

Keywords: Objective Structured Clinical Examination; Test Anxiety; Midwifery Student

1. INTRODUCTION

Test anxiety involves the unpleasant experience of worry and emotionality in situations where the person feels he or she is being evaluated. A small amount of anxiety acts as a motivator; it can enhance performance by encouraging the student to try. Conversely, too much anxiety has the opposite effect: it can disrupt mental processes that are needed for the student to perform well. This type of anxiety that is known debilitating test anxiety affects 10% - 30% of all students and it reduces their academic performance. Several factors affect on the incidence or severity of anxiety such as low self-esteem, poor reading, negative attitudes toward school, unpleasant feelings of nervousness and dread that stem from an intense fear of failure, and also methods of evaluation [1,2].

Various methods are used to assess students. An Objective Structured Clinical Examination (OSCE) is a modern type of examination often used in health sciences (e.g. Midwifery, medicine, nursing, and... [3,4]). It is designed to test clinical skill performance and competence in skills [5]. OSCEs have the potential to promote integration and consolidation of skills and are therefore used as part of assessment strategy for student midwives [6] and they are seen as valid and reliable tools for assessment with explicit criteria to assess knowledge and skills [7]. The OSCE's proved to be a valuable learning tool and it had many benefits. Studies suggest that student midwives perceive OSCE's as a valid means of assessment and increase confidence in performing clinical skills [6]. The use of OSCEs is acknowledged to be effective assessment tool and is seen as the gold standard for evaluating clinical performance [8]. Many studies have shown that OSCE is the useful method for assessing medicine students. The main advantages of OSCE are fairness, objectivity, and similar to actual clinical settings. In the same study, 75% of psychiatry residents expressed their satisfaction at this exam [9]. On the other hand, one of the other methods for assessing academic performance is the traditional clinical final examination [TAM]. Studies showed that it is not standardized to assess clinical skills. Also in TAM, patients soon become uncooperative and fairness when the judgment becomes least to say, difficult. Not only patients are disturbed by the repeated examinations, students are also under repeated stress, and the examination is resource-intensive [10].

There is very limited research and no published research in relation to the student midwives' test anxiety in OSCE and traditional assessment. Because test anxiety affects academic performance of midwifery students, this study was performed to determine test anxiety in OSCEs compared with TAS in Undergraduate Midwifery students.

2. METHODOLOGY

2.1. Data Collection

In this descriptive-analytical study, 52 students of Babol Midwifery College were participated in the study. All participants were healthy without any history of severe stress. Data were collected via a two-component questionnaire including demographic data and the test anxiety inventory (TAI) that was completed self-directed before the final exams. Two groups of midwifery students from faculty of midwifery Babol University of Medical Sciences participated in the process during the final examination. 20 students were evaluated using the traditional method (TAM) in November 2010. They was conducted in delivery room, clinical gynecology unit, prenatal care unit and mothers and children health, in the second trial, 32 students were evaluated using the OSCE method in July 2011. They had two briefing session before the OSCE, and included an orientation about the examination process. Ethical approval was obtained from the relevant ethics committee within the University Babol Medical Science. In the OSCE, students complete 16 stations, each of which takes 6 minutes.

2.2. Measures

The anxieties of students evaluated by using TAI that validity it's confirmed in Iranian population [11]. The anxiety scale is one of the most popular inventories that are used to determine the level of one's anxiety. The test is a self test inventory indicating that the person can take up the test independently, without the psychiatrists help. The test is easy to administer and can be completed within a few minutes. All students had completed the test anxiety (TAI) before exam. The anxiety scale consisted of 25 multiple choice questions. The four answers that were available for each question were the same and they help to assess the degree of anxiety. The level of anxiety was determined using this scale. The four possible answers, that the students allowed to choose from for each question, were 1) Not at All 2) Mildly 3) Moderately 4) Severely. The inventory then was scored to determine the level of anxiety. The inventory provided a score that ranges from 0 to 75. The questionnaire that was obtained from the students was scored and the total score then be calculated. The level of anxiety based on the score obtained was understood as follows:

S. No	Score	Inference
1	≤12	No Anxiety
2	13 - 37	Mild Anxiety
3	38 - 62	Moderate Anxiety
4	≥63	Severe Anxiety

2.3. Ethical Approval

Ethical approval was granted by the Department of Psychology Sciences Ethics Committee at Islamic Azad University Tonekabon Branch and by the Medical Ethics Committee at Babol University of Medical Sciences.

2.4. Analysis

All analyzes were performed using SPSS software (version 17.0). Descriptive statistics were used to describe the mean scores and proportion. To compare students' anxiety regarding two methods of final examination were done using *t* test and qui-square. Pearson correlation coefficient and Spearman rho correlation coefficient were used to evaluate the correlation some of variables with the text anxiety. All analyses were performed with level of significant set at <0.05.

3. RESULTS

All of midwifery students were women; the mean age of students, father and mother's students were 23.1 ± 0.7 , 52.3 ± 3.5 and 47.8 ± 4.9 years, respectively. The most of students were single (61.5%). The mean education father and mother's students were 11.6 ± 4.5 and 9.9 ± 4.0 years, respectively.

The mean score of test anxiety in students was 42.51 ± 13.16 . The most of participants did have moderate test anxiety (56.9%), two percent not had any test anxiety, 37.3% had low test anxiety, 3.9% had severe test anxiety. In sum, 98.04% had some degrees of test anxiety.

There were the statistically difference in the mean score of text anxiety in OSCEs Compared with TAM in Undergraduate Midwifery Students (39.38 ± 13.81 vs. 47.35 ± 10.67 , $p = 0.033$). Also, the mean severity of anxiety was different in two groups. The percentage mean of moderate/severe test anxiety was the more in TAM than compared with OSCEs [$p = 0.000$] (Figure 1).

Results showed that test anxiety had positive correlation with father education, mother education, father age, mother age, marital status, and residency. Also, there was negative correlation with student age, satisfaction, total Grade Point Average (GPA), final score, type of assessment (Table 1).

There were a significant different between the severity of anxiety and residency in total and OSCEs groups. The severity of Mod/Sever anxiety was less in students who lived in dormitory than non-dormitory (Table 2).

Also, the severity of Mod/Sever anxiety was the more in married students than those who were single in total (73.7% vs. 53.1%) and in OSCEs (80% vs. 42.9%) groups. Although, there weren't the significantly difference.

There are a significant different between the severity of anxiety and GPA. The severity of Mod/Sever anxiety was more in students who had less GPA than more GPA (Table 3).

There are a significant different between the severity of anxiety and final score. The severity of Mod/Sever anxiety was more in students who had less final than more final score (Table 4).

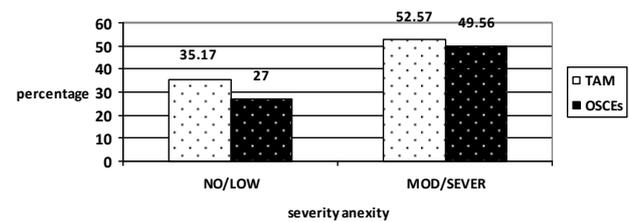


Figure 1. The mean of severity anxiety in TAM and OSCE group ($p = 0$).

Table 1. The correlation of anxiety with demographic characteristics.

Variable	Positive Correlation		Negative Correlation	
	Correlation	p-Value	Variable	Correlation-p-Value
Father Age	0.180	0.205	Student age	-0.153 0.284
Mother Age	0.070	0.627	Satisfaction	-0.180 0.206
Father Education	0.090	0.532	Final Score	-0.145 0.117
Mother Education	0.286	0.042*	Total GPA	-0.387 0.007*
Marital Status	0.222	0.118	Type of Assessment	-0.298 0.033*
Residency	0.292	0.042*	-	- -

*Correlation is significant at the 0.05 level (2-tailed).

Table 2. Frequency of the severity anxiety according to residency in groups.

Residency \ Severity Anxiety	Total Group [$p = 0.010$]				OSCEs Group [$p = 0.049$]				TAM Group [$p = 0.052$]			
	No/Low		Mod/Sever		No/Low		Mod/Sever		No/Low		Mod/Sever	
	N	%	N	%	N	%	N	%	N	%	N	%
Dormitory	10	66.7	5	33.3	6	75	2	25	4	57.1	3	42.9
Non Dormitory	10	27.8	26	72.2	8	34.8	15	65.2	2	15.4	11	84.6
Total	20	39.2	31	60.8	14	45.2	17	54.8	6	30	14	70

Table 3. Frequency of the severity anxiety according to GPA in groups.

GPA	Severity Anxiety	Total Group [p = 0.028]				OSCEs Group [p = 0.063]				TAM Group [p = 0.077]			
		No/Low		Mod/Sever		No/Low		Mod/Sever		No/Low		Mod/Sever	
		N	%	N	%	N	%	N	%	N	%	N	%
≥16		14	53.8	12	46.2	8	66.7	4	33.3	6	42.9	8	57.1
<16		5	22.7	17	77.3	5	31.2	11	68.8	0	0	6	100
Total		19	39.6	29	60.4	13	46.4	15	53.6	6	30	14	70

Table 4. Frequency of the severity anxiety according to final score in groups.

Final Score	Severity Anxiety	Total Group [p = 0.070]				OSCEs Group [p = 0.061]				TAM Group [p = 0.892]			
		No/Low		Mod/Sever		No/Low		Mod/Sever		No/Low		Mod/Sever	
		N	%	N	%	N	%	N	%	N	%	N	%
≥16		7	63.6	4	36.4	6	75	2	25	1	33.3	2	66.7
<16		13	33.3	26	66.7	8	36.4	14	63.6	5	29.4	12	70.6
Total		20	40	30	50	14	46.7	16	53.3	6	30	14	70

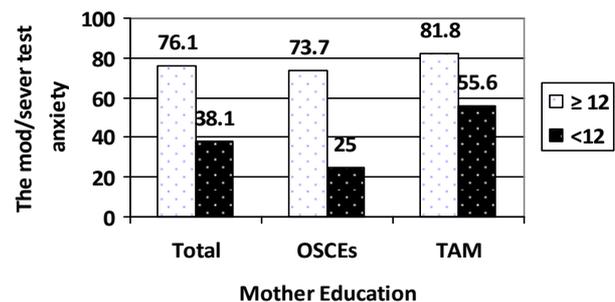
There are a significant different between the severity of anxiety and mother education. The severity of Mod/Sever anxiety was more in mothers who had the more education than less education (**Figure 2**).

4. DISCUSSION

The results of this study showed that 98% of mid-wifery students had some degrees of test anxiety. The mean score of test anxiety in students was 43.365 ± 12.240 . In the same study, the mean of test anxiety was 43.21 ± 13.3 [12]. Basically, the evaluation of academic achievement by tests is an important subject [1,2] and test anxiety is a common phenomenon among college students and it is one of the problems of educational systems [13,14].

The finding of this study showed that the students had the difference level of test anxiety. The most of participants did have moderate test anxiety [56.9%]. Different levels of test anxiety were associated with the assessment, a finding echoed in other research [12,13]. The other investigations also showed that most students experience some level of anxiety during the exam, and medical students generally present moderate level of test anxiety. Principally, anxiety was defined as an uneasiness that is caused as a result of a fear of misfortune or of danger. Although, anxiety within permissible limits is normal and understandable but, when the level of anxiety is increased, then help is required to calm those individuals [6]. Test anxiety turns into a problem when it becomes so high that it interferes with test performance [15].

The Gathering data showed that there were the statistically difference in the mean score of text anxiety in

**Figure 2.** Frequency of the severity anxiety according to mother education in groups.

OSCEs compared with TAM in undergraduate mid-wifery students. The mean score of text anxiety in OSCEs was less than TAM. Also, there was the negative correlation of anxiety with type of assessment. Barry and *et al.* reported that student midwives perceive OSCE's as a valid means of assessment and increase confidence in performing clinical skills [6]. The use of OSCEs is acknowledged as effective assessment tool and is seen as the gold standard for evaluating clinical performance [8]. OSCEs as a means of assessment can also provide the student with confidence when faced with challenges in practice [16]. Many of the students [2004] reported that OSCEs heightened awareness of key skills necessary for the competent practitioner and were a generally positive experience despite the anxiety surrounding the assessment [17-19]. In another study, participants identified OSCEs as a valuable learning experience, despite the stressful nature of the assessment [6]. A possible explanation for perception is being several problems in the traditional clinical final examination and is not standard-

ized to assess clinical competency and clinical reasoning skills [20]. The traditional final examination is not suitable tool in the evaluation of clinical competence in midwifery.

The results approved that test anxiety has negative correlation with final score. There were not significantly difference, but the students with more moderate/high anxiety had less final score. In the similar study showed that test anxiety is a significant problem among university students which is frequently accompanied by a decline in performance and severe psychological problems [14]. Mosaviy and *et al.* reported a poor academic performance in students that had high test anxiety score [12]. With increasing test anxiety, academic performance of students and their grades was decreased [13]. Besides, Cassady Johnson [2002] stated that it is not clear whether academic performance causes test anxiety or it is caused by a low academic proficiency [21].

This research showed that test anxiety had the significant negative correlation with GPA. The students with less GPA had more moderate/high anxiety. Clark and *et al.* reported that test anxiety occurs as a result of poor performance and its cause is not [22]. Some scholars found a negative correlation [$p < 0.01$] between test anxiety and students' performances [23,24]. However, other scholars think that test anxiety happens because of the lack of competency in students rather than mentioned reasons [21].

Present study showed the significantly difference between residency and test anxiety in total and OSCEs groups. The no/low anxiety was more in students that lived in dormitory. Mosaviy and *et al.* believed that one of the factors influencing on the test anxiety is study space and environment of students [12].

The results approved that the severity of test anxiety was more in married than single students. There was not the significantly difference between the test anxiety and marital status. Cheraghian *et al.* (2008) also contended that the mean score of test anxiety was more in married student in comparison with Single students (36 vs. 27), however, they found out no meaningful relationship between test anxiety and marital status [13].

The gathering data showed that there were the statistically difference between the test anxiety and mother education in total and OSCEs groups. The med/high test anxiety was the more in students that their mother had the high level education. With higher levels of education in the mothers, their levels of anxiety were measured to be higher. Engelhard believed that there is a three-way interaction between anxiety, mother's education, and gender in Thailand [25]. It seems that mothers' concerns, high expectation and anxiety levels may increase with increasing levels of their education levels. We recommend providing detailed information regarding the effect

of the mother education on the test anxiety student in the further research. Also, in another study showed that higher education levels of mothers were associated with lower levels of anxiety [26,27].

5. SUMMARY

In summary, OSCE was superior to TAM in the reduction of test anxiety in midwifery students. The high prevalence of test anxiety was in TAM than OSCEs method, therefore, using OSCEs is acknowledged as an effective assessment tool and is seen as the gold standard for evaluating clinical performance and also further research is recommended to identify factors relevant to this phenomenon and to present strategies to reduce it.

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