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Examiners' and students' perceptions of a pediatric orthopedic surgery OSCE: A pilot study

THESIS

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BY

Ms. Meryam AHRA

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TO OBTAIN THE DEGREE OF DOCTOR OF MEDECINE

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JURY

Mr.	R. EL FEZZAZI Professor of Pediatric Surgery	PRESIDENT
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وقل رب زدني علما

The Hippocratic Oath

At this time of beingadmitted as a member of the medical profession,

I solemnlypledgemyself to consecratemy life to the service of humanity;

I willgive to myteachers the respect and gratitude whichistheir due;

I will practice my profession with conscience and dignity; The health of my patients willbemy first consideration;

I will respect the secrets which are confined in me;

I willmaintain by all means in my power, the honor and noble traditions of the medical profession; Mycolleagueswillbemybrothers and sisters;

I will not permit consideration of religion, nationality, race, gender, politics, socioeconomic standing or sexual orientation intervenebetweenmyduty and my patient;

I willmaintain the utmost respect for human life; evenunderthreat,

I will not use mymedicalknowledgecontrary to laws of humanity;

I makethese promises solemnly, freely and uponmyhonor.

Déclaration Genève, 1948

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Nom et Prénom	Spécialité	Nom et Prénom	Spécialité
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ELBAZ Meriem	Pédiatrie	ZOUIZRA Zahira	Chirurgie Cardio-vasculaire
FDIL Naima	Chimie de CoordinationBio-organique		

Professeurs Assistants

Nom et Prénom	Spécialité	Nom et Prénom	Spécialité
AABBASSI Bouchra	PédoPsychiatrie	ELJAMILI Mohammed	Cardiologie
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CHETTATI Mariam	Néphrologie	ROUKHSI Redouane	Radiologie
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DARFAOUI Mouna	Radiothérapie	SALLAHI Hicham	Traumatologie-orthopédie
DOUIREK Fouzia	Anesthésie-réanimation	SAYAGH Sanae	Hématologie
DOULHOUSNE Hassan	Radiologie	SBAAI Mohammed	Parasitologie-mycologie

EL- AKHIRI Mohammed	Oto- rhino-laryngologie	SBAI Asma	Informatique
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LISTE ARRÉTÉÉ LE 26/09/2022

DEDICATIONS

"I want to thank me for believing in me,

I want to thank me for doing all this hard work,

I wanna thank me for having no days off.

I wanna thank me for never quitting.

I wanna thank me for always been a giver and trying to give more than I receive.

I want to thank me for trying to do more right than wrong.

I want to thank me for just being me at all times."

Snoop Dogg

To my dear mother and father:

Bouchra ETTAQI and Mohamed AHRA

I dedicate this work to you, which is the result of your efforts and the immense sacrifices you have made, and continue to make.

No matter what I do, I will never equal the tenderness and dedication that you have devoted to us. I am very fortunate to have been born into such a generous family. May this work be a token of my gratitude, and a testimony of my love.

May God keep you and preserve you. No dedication, no words could express the gratitude and love I have for you. It is through your sense of values that I have been able to build myself, both as a person and as a doctor. I place in your hands the fruit of long years of study. Each line of this thesis, each word and each letter expresses to you the respect, esteem and gratitude for being my parents.

To my brothers:

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I wish you all the success and happiness throughout your lives.

To the AHRA, ETTAQI and NAJMI Family:

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To my kindred spirit and my Person:

Ouidad ARAICH

We started this journey together From Day 1 and I couldn't have hoped for a better companion. I can't wait to see where life is taking us next.

To my friend and partner in crime

Ayoub ABOUBAIGI

Our journey was simply extraordinary. Thank you for all the support and unconditional love. I've grown so much by your side and I hope we can keep challenging each other and make each other better people.

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May your life be as successful and joyful as you deserve it to be.

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May they find here the expression of my sincere thanks.

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Professor Redouane ELFEZZAZI

Head of the department of Orthopedic Pediatric surgery at the University Hospital Mohammed VI in Marrakech

Vice dean of pedagogical affairs of the Faculty of Medicine and Pharmacy of Marrakech, Cadi Ayyad University

Thank you for the honour you have done us by accepting to chair in this jury.Your undeniable competence, sense of duty and your human qualities have earned you the respect of all. Thank you for so many years of effort and dedication, for all the reforms introduced in our faculty in order to improve the quality of medical training, the fruits of whichwe are reaping today at the FMPM. This work is an opportunity for us to express our deep gratitude.

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Professor Tarek SALAMA

Professor of of Orthopedic PediatricSurgery

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To Professor and jury member,

Professor Ahmed Rhassane EL ADIB

Professor and Head of department of Anaesthesia and maternal Intensive Care at the Mohamed VI University Hospital Mohammed VI in Marrakech We have the best memories of your brilliant and precious teaching. We are always impressed by your human and professional qualities. Thank you for the great honor you do us by agreeing to be part of this jury. Please find here the expression of our esteem and consideration.

To our Master and jury member

Professor El Mouhtadi AGHOUTANE

Professor of OrthopedicPediatricSurgery

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ABBREVIATIONS

List of abbreviations

FMPM	:	Faculty of Medicine and Pharmacy of Marrakech
OSCE	:	Objective Structured Clinical Examination
SP	:	Standardized patient
TCE	:	Traditional Clinical Examination
MCQ	:	Multiple Choice Questions

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INTRODUCTION

Assessment plays a major role in the process of medical education, in the lives of students, and in society by certifying competent physicians who can take care of public health. Therefore, it is a matter of accrued interest and of continuing concern to professors.

For many years now, the method of choice was the use of conventional assessment examinations such as long case examinations, where candidates are asked to take a history and perform a complete physical examination on a real patient, frequently chosen from the current in-patient or outpatient cohort.

This method have been proven impractical due to their multiple drawbacks such as the lack of structured questioning and standardisation of scoring, inter-case variability and real patient variance of case presentation ; which induce subjectivity und unreproductibility of results between cadidates.[1]

It was therefore imperative to look for a new evaluation method, and in this context, the Structured Objective Clinical Examination (OSCE) presented itself as the instrument closest to the ideal assessment of competence meeting the criteria of objectivity, reproducibility and multi-dimensionality.Nowadays its usage has gone beyond assessing the clinical performance of medical students in their final year, offering a strikingly new and exciting way of making valid assessments of the clinical performance of medical students in clerkships, residents, and fellows

Since its development in the 1970s, the OSCE has gained acceptance worldwide as a benchmark for clinical skills assessment, nonetheless the experiment of this type of exam is still limited in Morocco.

Our study aims to report the development and implementation of the OSCE as an end of clerkship examination by the orthopedic pediatric surgery department in the University Hospital Mohamed 6, while assessing the overall perception and acceptance of the students and examiners regarding this new assessment tool and to identify its strengths and weaknesses through their feedback.

MATERIAL AND METHODS

I. Participants:

1. Type of study:

Our work is a cross-sectional study asserting the perceptions of medical students in their 4th year of clinical clerkship and examiners who have participated in an OSCE orthopedic pediatric surgery from February to July 2022.

2. Setting of study:

The study was conducted at the department of orthopedic pediatric surgery department in the University Hospial of Marrakech, Morocco. The professors, examiners and students were asked to complete the survey in the pedagogical staff room after their completion of theOSCE.

3. Duration of study:

The study was conducted from February to July 2022.

4. Subjects of the study:

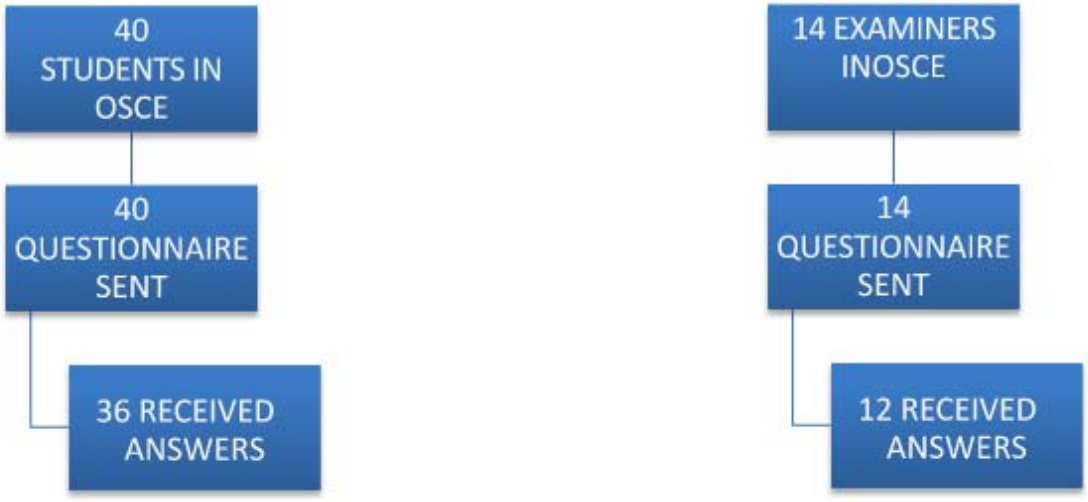
This study includes all medical students in the 4th year of their curriculum who have taken part of the OSCE in othopedic pediatric surgery at the end of their clerkship in the department in the period of the study. There was no age or gender restriction. A total of 40 students participated in these sessions of OSCEs. A total of 36 students participated in our survey.

It included in addition, 10 residents and 2 professors from the departement who participated as examiners in the OSCEs

- Inclusion criteria:
    - Students and examiners who participated in an OSCE in orthopedic pediatric surgery from February to July 2022
    - Students being part of a clerknship in the department of orthopedic pediatric surgery
    - Students being in the 4th year of medical studies

- **Exclusion criteria :**

The students and staff who have not taken part in the OSCEs.



Flow chart1: Students and professors filling out the questionnaire

Flow chart2 : Paper VS. Online questionnaire

II. Method:

1. Data collection:

- **Survey :**

***Self-administrated questionnaire to assess students' perception about OSCE:**

We used a validated questionnaire (see appendices) with various sections, modified from asstudy by Pierre et al. (2004)

The questionnaire is comprised of 5 sections and 32 questions to evaluate the students'perceptions of the nature, content, structure and organization of the OSCE, objectivity of the OSCE process; perceptions of OSCE validity and reliability, and overall learning experience.

The questionnaire was created using Google forms.

- **Section 1:**

This section assesses medical students' evaluation of the OSCE attributes, and it includes 6 items such as the fairness of the exam, level of stress, exam maximizes chances of passing and exam being intimidating.

- **Section 2:**

This section reports students' level of preparation of the exam with items such as being well informed of the nature of the exam, of the level of knowledge needed to pass the exam, difficulty to prepare for the exam, impact on learning.

- **Section 3:**

This section discusses the environnement in which the examination took place.

- **Section 4:**

This section discusses the organization of the exam with items about the number of stations, the time allocated to each stations, the instructions and the realness of stations with SPs.

- **Section 5:**

This section discusses the content of the examination with items about the knowledgecovered by the evaluation, the clinical skills reflecting the ones taught and being the ones neededforageneralpractice.

The questionnaire also included an open-ended question inquiring about the students' own point of view regarding the strenghts and weaknesses of the OSCE as a tool of assessment, the major reason for their potential dissatisfaction with OSCEs and their suggestions for futher improvement.

A psychometric five-level Likert scale that indicates degrees of agreement was used to assess most of the dimensions in the questionnaire, where Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3 , Disagree (D)=2, Strongly Disagree (SD)=1.

A Perceived Stress Scale (PSS) was used to measure the stress level of students during the exam. A ten-item PSS was used with 1 being very low level of stress and 10 being very high levelofstress.

***Self-administrated questionnaire to assess examiners' perception about OSCE:**

The questionnaire items were constructed based on a previous study by Idris et al., who assessd teachers' perception in pediatric surgery OSCE exam.

The questionnaire is comprised of 5 sections and 35 questions to evaluate the teachers' perceptions of the nature, content, setting, administration and organization of the OSCE; quality of performance and objectivity of the OSCE process; and perceptions of OSCE validity and reliability.

The questionnaire was created using Google forms.

- **Section1:**

This section assesses examiners'evaluation of the OSCE attributes. It includes items such as the fairness of the exam, level of stress, exam maximizing chances of passing and exam being intimidating.

- **Section 2:**

This section reports the examiners' perception of the preparation required to carry out this examination with elements such as the importance of ongoing training process and material and resources as well as their perception of students' preparation and readiness for the exam.

- **Section 3:**

This section discusses the environnement in which the examination took place .

- **Section 4:**

This section discusses the organization and the course of the examinations with items aboutthe number of stations, the time allocated to each stations, the circuit and the instructions at each station.

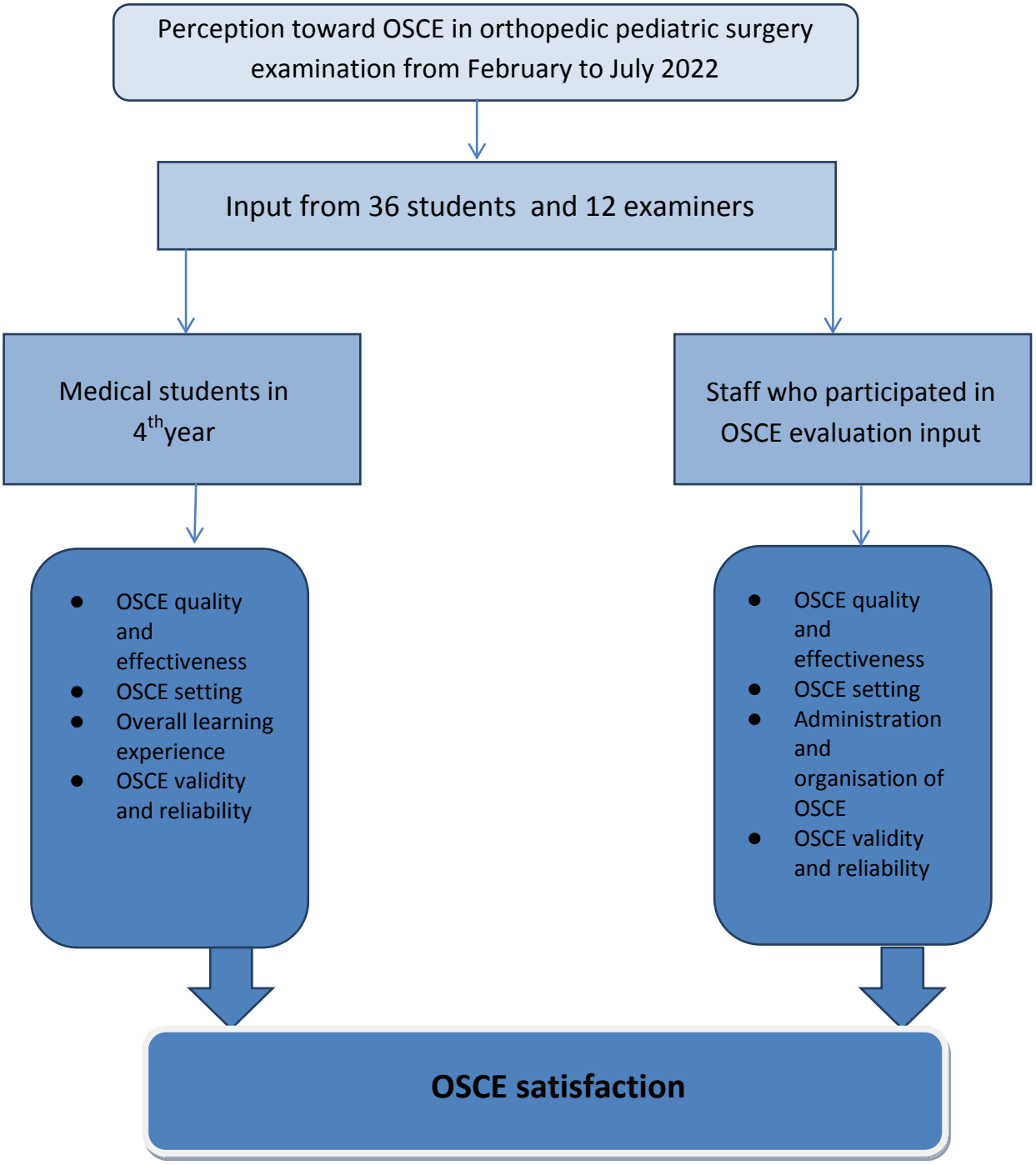
In addition, items such as comprehension of scoring scheme and checklists, evaluation of the briefing and training received before the exam are discussed in examiners' questionnaire.

- **Section 5:**

This section discusses the content of the examination with items about the knowledge and clinical skills covered by the evaluation, the clinical skills evaluated reflecting the real competencies of students and clinical skills evaluated being the ones needed for a general practice.

The questionnaire also included an open-ended question inquiring about the examiners' own point of view regarding the strenghts and weaknesses of the OSCE as a tool of assessment, the major reason for their potential satisafction or dissatisfaction with OSCEs and their suggestions for futher improvement.

A psychometric five-level Likert scale that indicates degrees of agreement was used to assess most of the dimensions in the questionnaire, where Strongly Agree (SA)=5, Agree (A)=4, Neutral (N)=3, Disagree (D)=2, Strongly Disagree (SD)=1.



Flow chart 3: The conceptual framework of the OSCE evaluation process

2. Data collection:

The questionnaire was in online and paper form. It was administrated to students immediately after completing the OSCE circuit and before leaving the examination venue , and to examiners after the end of the examination.

The students were quickly briefed about the objectives of the survey. They were also informed that the responses they provide would remain confidential and their identity would not be disclosed, and if they chose not to participate; they would not be pressured to do so.

3. Collected variables:

- Attributes of OSCE
- Preparation for OSCE
- Organization of OSCE
- Content of OSCE

4. Statistical analysis:

Data collection was carried out with Google forms and transferred for analysis toMicrosoft Office Excel 2007 using SPSS-16 version. The analysis was descriptive. The quantitative variables were expressed as frequencies and percentages. The comparison between the two subgroups was done using the Fisher exact test with a statistically significant threshold (P)=5%. Basic statistical analysis of the Likert items was conducted by calculating frequencies and percentages.

5. Study limits:

The study was limited due to:

- Inappropriately filled questionnaire
- Unwillingness to fill out the questionnaire

- Answers may be altered because of lack of memory on the subject,or even boredom
- Answers may be altered by the stress of the exam
- Simulated Patients feedback was not evaluated

6. Ethical consideration:

The permission required to conduct the study was obtained from the ethical committee ofthe Faculty of Medicine of Marrakech after explaining the purpose of the study. The participants'approval was obtained by explaining the significance of the study to them and assuring their confidentiality of data collection.

RESULTS

I. Students Profile:

The students in our study group, were all in their 4th year, enrolled in a clerkship in orthopedic surgery department.

100% percent of the students surveyed said they already had an ECOS experience of OSCE during hospital clerkships at the Mohamed 6 University Hospital in Marrakech.

II. Perception and feedback:

1. Students' perception

1.1. OSCE attributes:

a. Exam's fairness:

The majority of our study group (80%) felt that the exam was fair, while only (9%) viewed the exam as unfair.

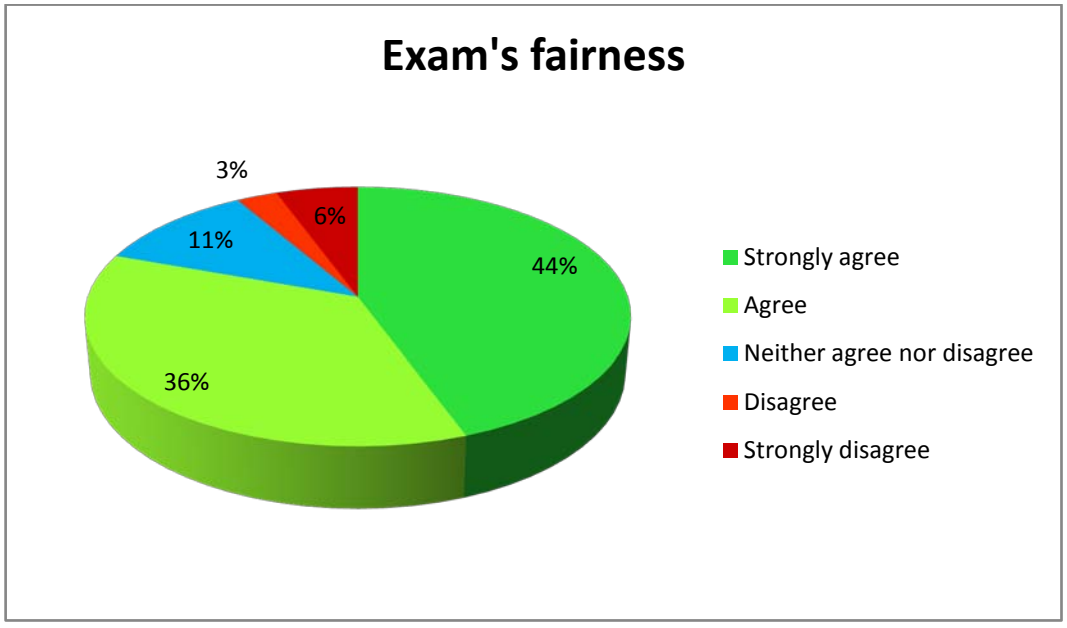


Figure 1: Student's view on exam's fairness

b. Stress level :

One third of our study group (33%) felt that the OSCE was more stressful than exams' format, while approximatively one third (31%) viewed the exam as not stressful, the rest were neutral (36%).

The level of stress of the students also varied, with (22.2%) feeling a level 4 out of 10 of stress, while a third of students (33.4%) felt a stress level of 7+ out of 10.

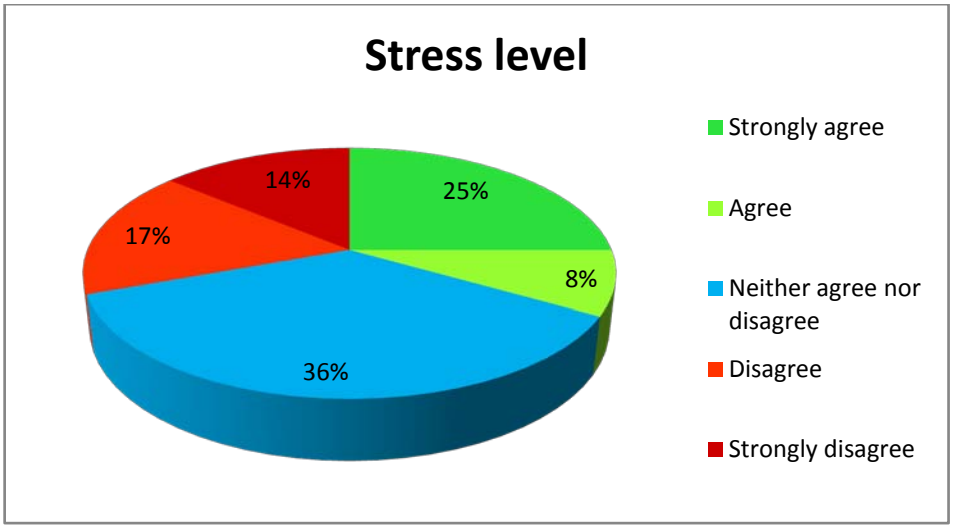


Figure 2 : Students' view on stress level of OSCE compared to other exams' format.

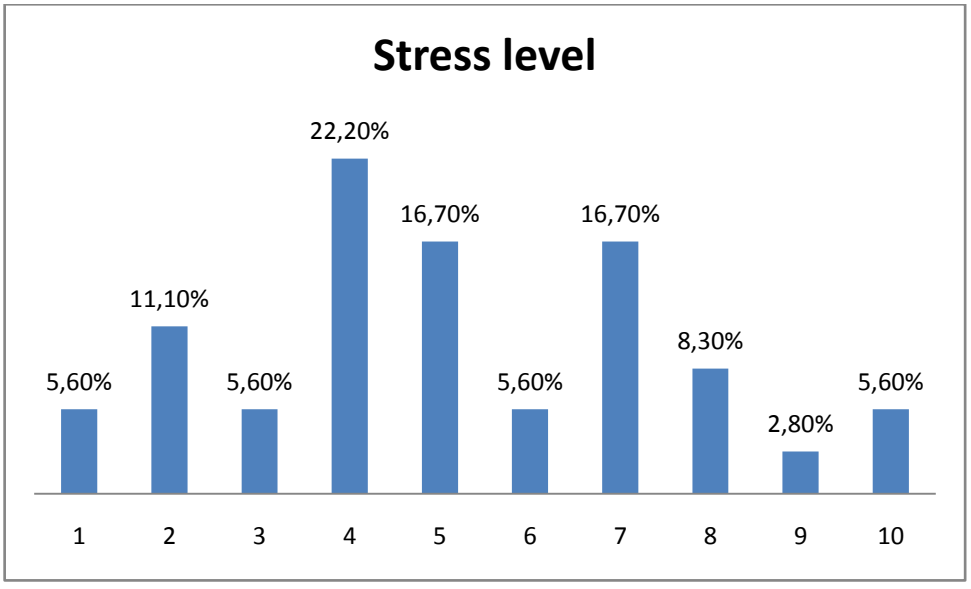


Figure 3: Student's estimation of level of stress during the exam

c. ***Exam is intimidating :***

31% of the participants felt the exam to be more intimidating than other exams formats, while almost the half (47%) felt that it wasn't.

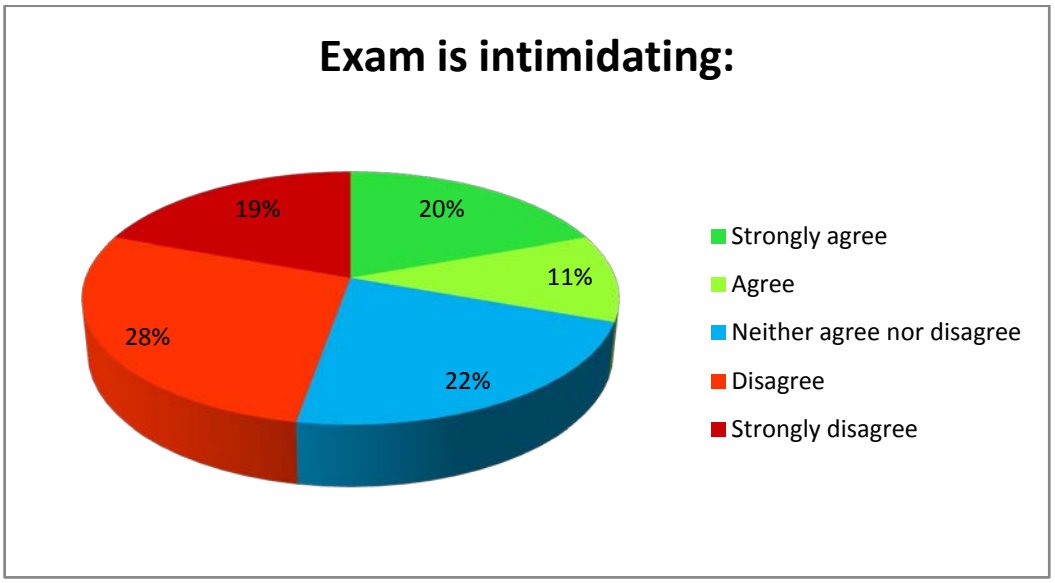


Figure 4: Exam is intimidating

d. ***Exam increases chances of passing :***

In our study, (42%) of students felt that the OSCE increased chances of passing while (25%) disagreed. The remaining third (33%) neither agreed nor disagreed.

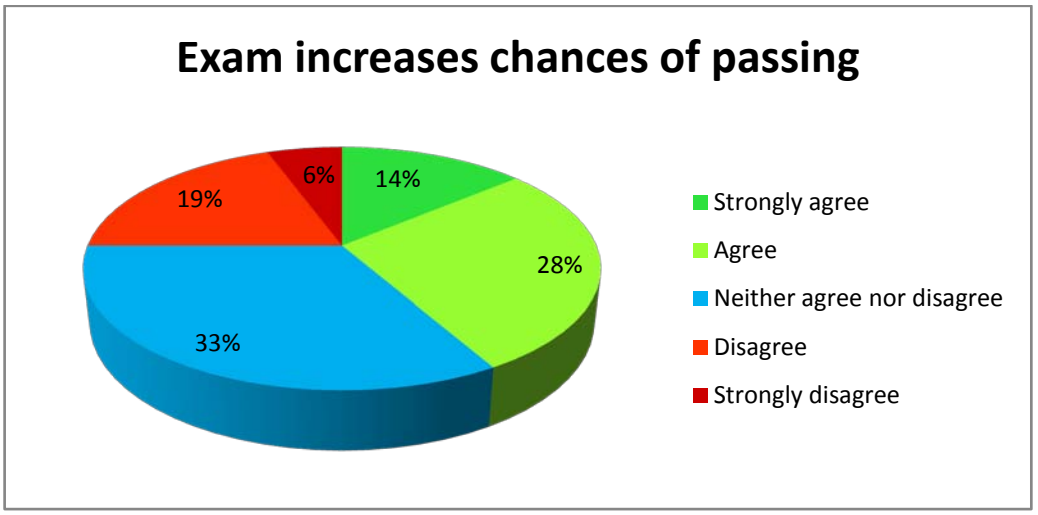


Figure 5: Exam increases chances of passing

e. ***External factors affecting OSCE scores :***

In our study (39%) of examinees felt like external factors such as ethnicity, gender and personality can affect OSCE scoring, while (42%) felt the opposite. (19%) neither agreed nor disagreed.

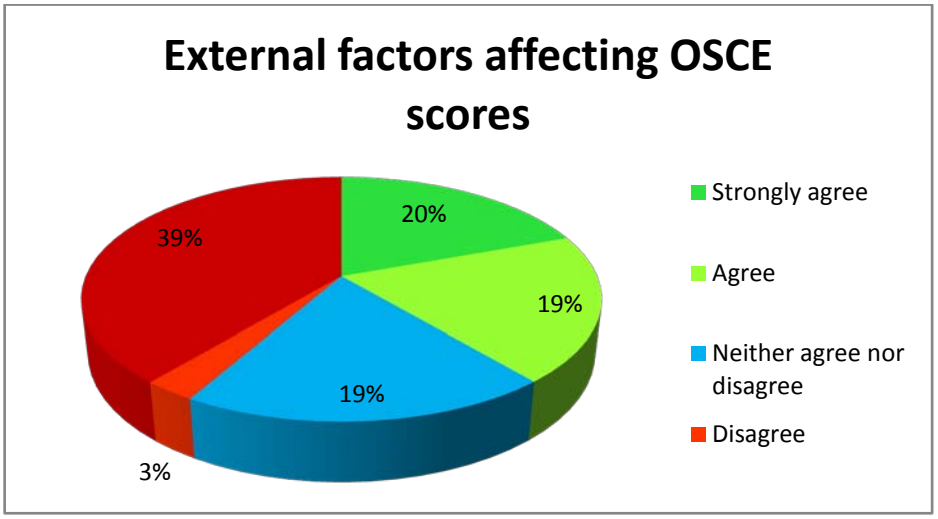


Figure 6: Students' perception of external factor possibly influencing OSCE scores

1.2. Preparation for the exam:

a. ***Awareness of nature of the exam***

In our study group, an average of (55%) of the participants felt that they were fully aware of the nature of the exam, while an average of (20%) felt the opposite. (25%) were neutral.

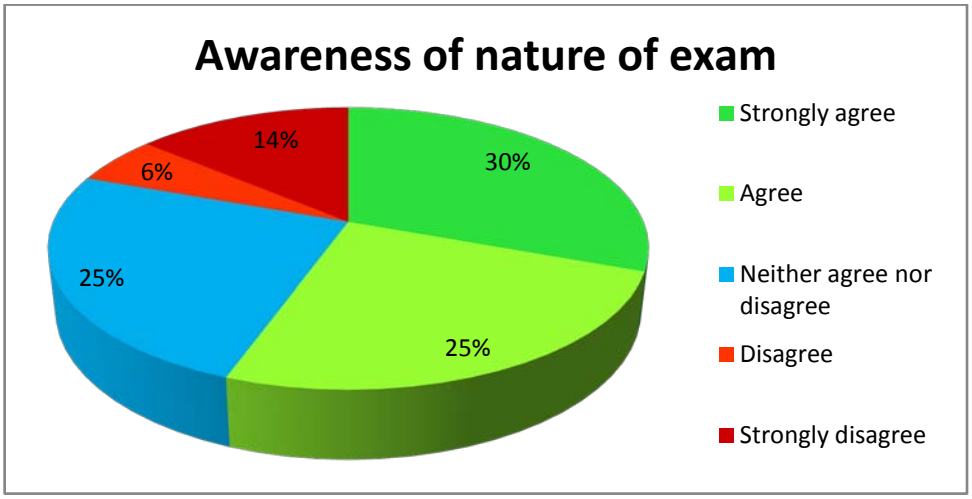


Figure7: Student's awareness of the nature of the exam

b. Awareness of level of knowledge needed:

(55%) of the participants felt they were fully aware of the level of knowledge needed to pass the OSCE, while only (14%) felt that they were not aware enough.

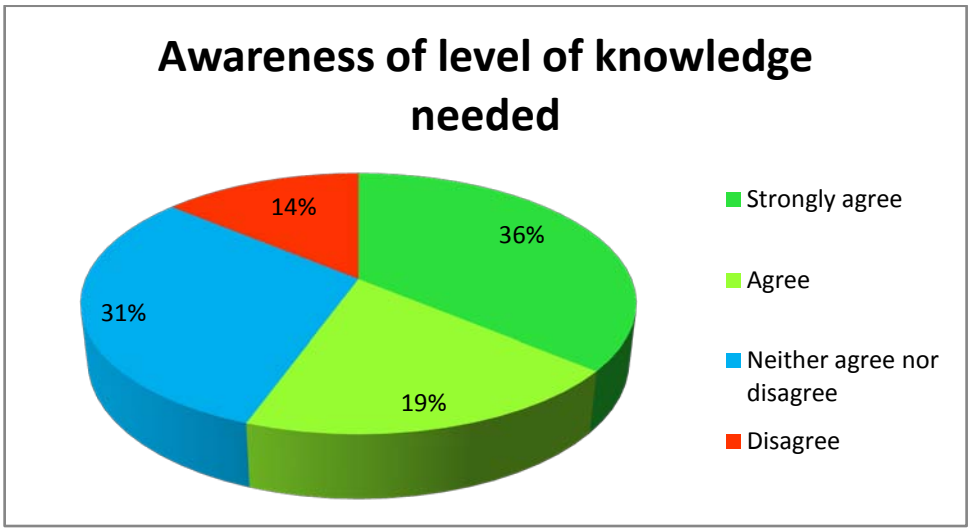


Figure 8: Students'awareness of level of knowledge needed for the exam

c. Exam provided opportunities to learn

In our study group, the majority of the students felt that the OSCE provided them with an opportunity to learn some competencies in a better way, with (39%) strongly agreeing, (28%) agreeing, and only (11%) disagreeing.

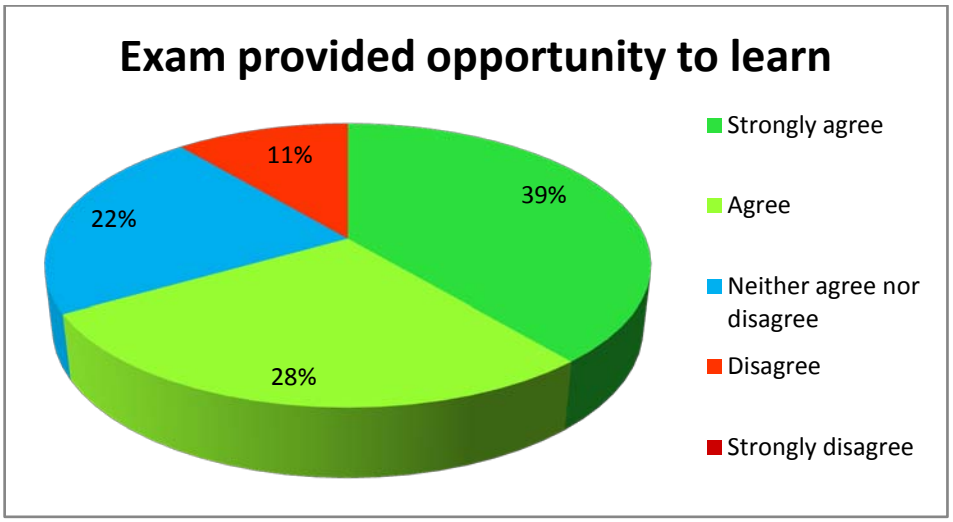


Figure 9: Students' perception of exam providing opportunity a better way to learn some competencies

d. ***Exam helped identify gaps in students' knowledge :***

In our study group, the majority of the students felt that the preparation for the OSCE helped themidentify gaps in their knowledge, with almost half (47%) strongly agreeing, (30%) agreeing, and only (6%) disagreeing.

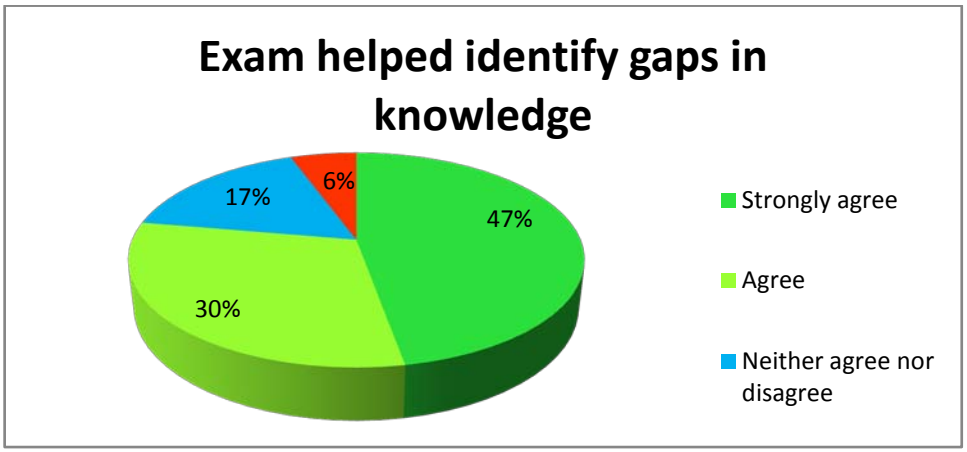


Figure10: Students' perception of exam helping them identify knowledge gaps

e. ***Exam helps identify weaknesses in communication and patient care skills :***

The majority of students (66%) agreed that the OSCE preparation helped them identify weaknesses in communication with patients and care skills, while only 3% disagreed . The remaining (31%) neither agreed nor disagreed.

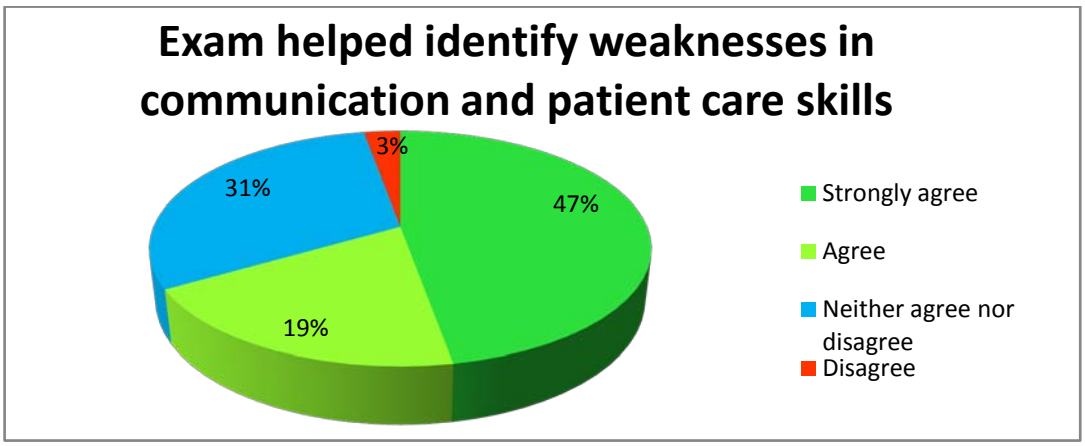


Figure 11: Students' perception of exam helping them identify weaknesses in communication

f. ***Difficulty to prepare for exam:***

In our study, half (50%) of the respondents didn't find it difficult to prepare for the exam and (25%) felt the opposite.

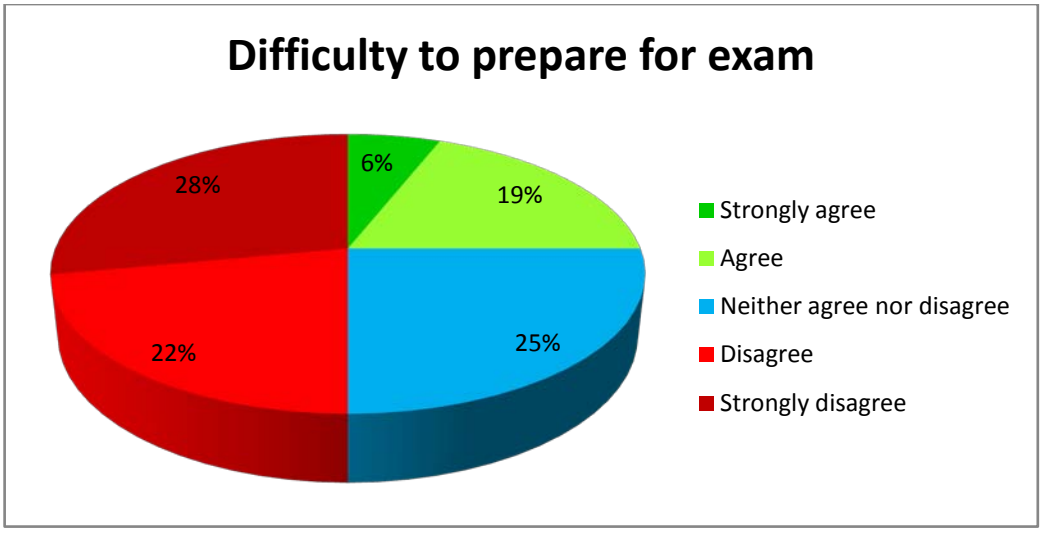


Figure12: Difficulty to prepare for the exam

g. ***The clerkship guide as a reference for exam preparation :***

The majority (72%) of the participants felt that the clerkship guide was not helpful as a reference for the OSCE preparation, while only (17%) felt that it was sufficient to guide their preparation for the exam.

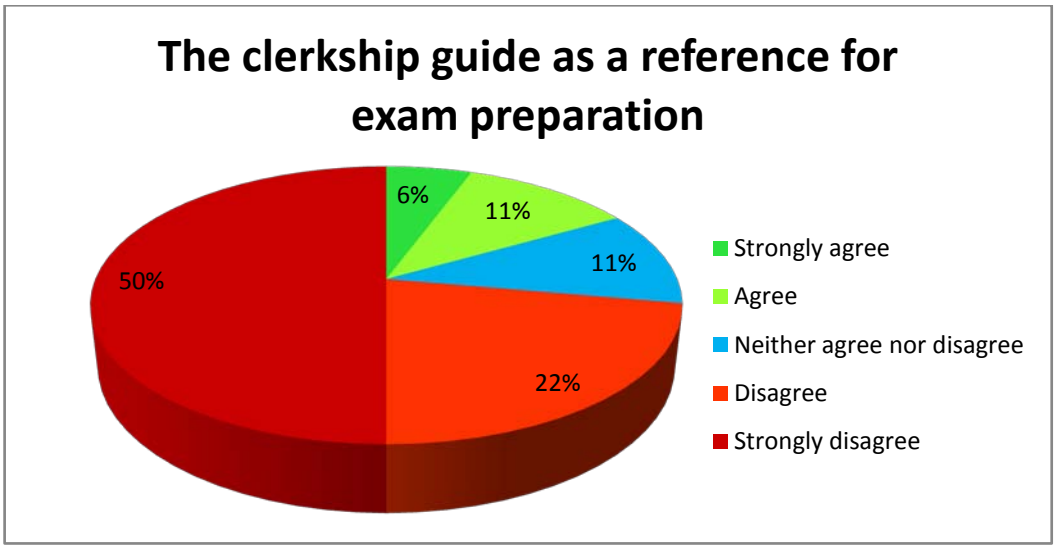


Figure 13: Student's opinion about the clerkship guide as a reference for OSCE preparation

1.3. OSCE organization and set-up:

a. Organization and venue of the OSCE:

In our study group, (89%) of the participants felt that the OSCE venue was silent and quiet , while only (3%) felt it wasn't.

(72%) agreed that the venue was lit enough during stations, while (13.9%) disagreed.

Approximately (70%) felt that the venue was adequate for an OSCE while 16% felt it was not.

The majority (83%) felt that the staff was helpful in guiding them through the exam, 17% neither agreed nor disagreed.

(72%) of students felt that the supervision during the course of the exam was appropriate, while only 2.8% felt the opposite.

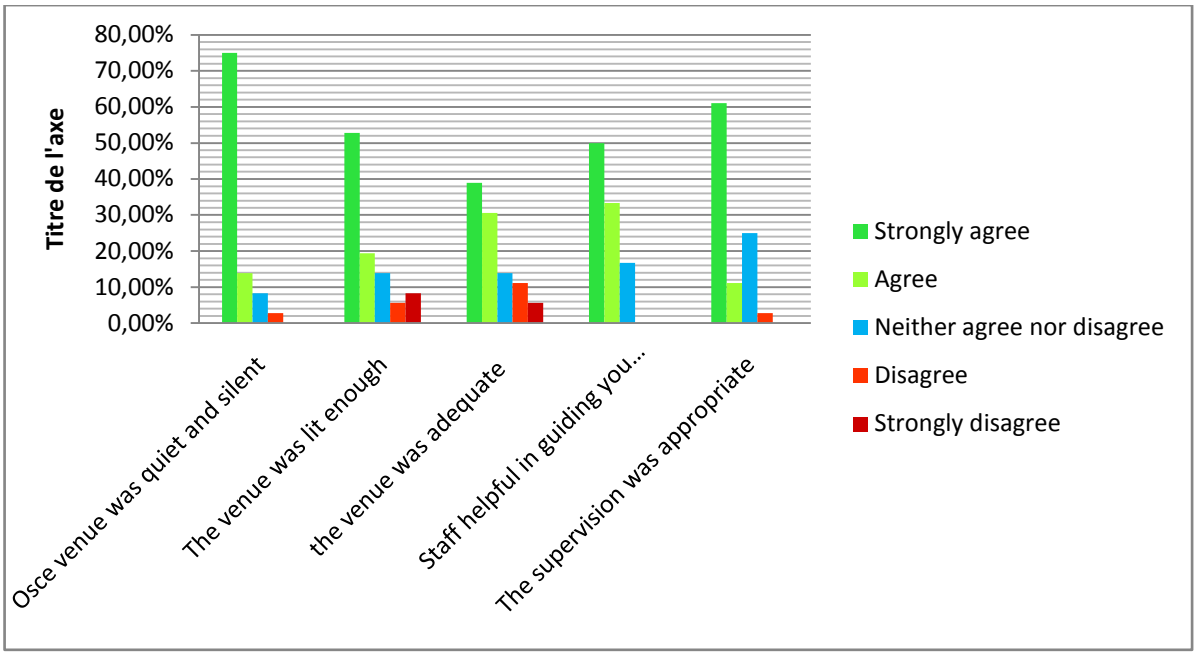


Figure 14: Student's opinion about the organisation and venue where the OSCE took place

b. Instructions were clear and unambiguous:

Over half of the examinees (69%) felt that instructions and guidelines for each station were clear and unambiguous and only (3%) felt the opposite.

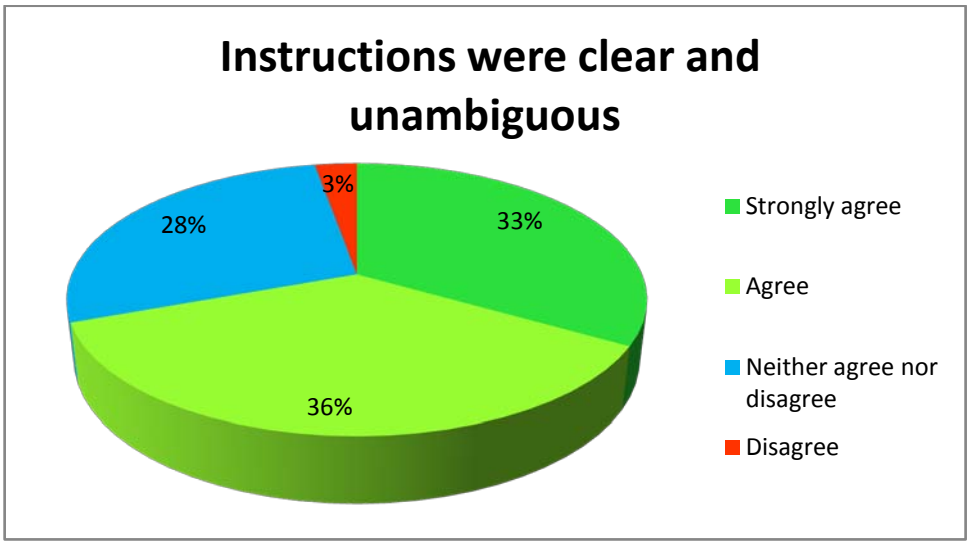


Figure15: Student's opinion about the instructions at each station

c. Time allocated for each station:

In our study, (64%) felt that the time allocated to each station was enough, while just (14%) felt the opposite.

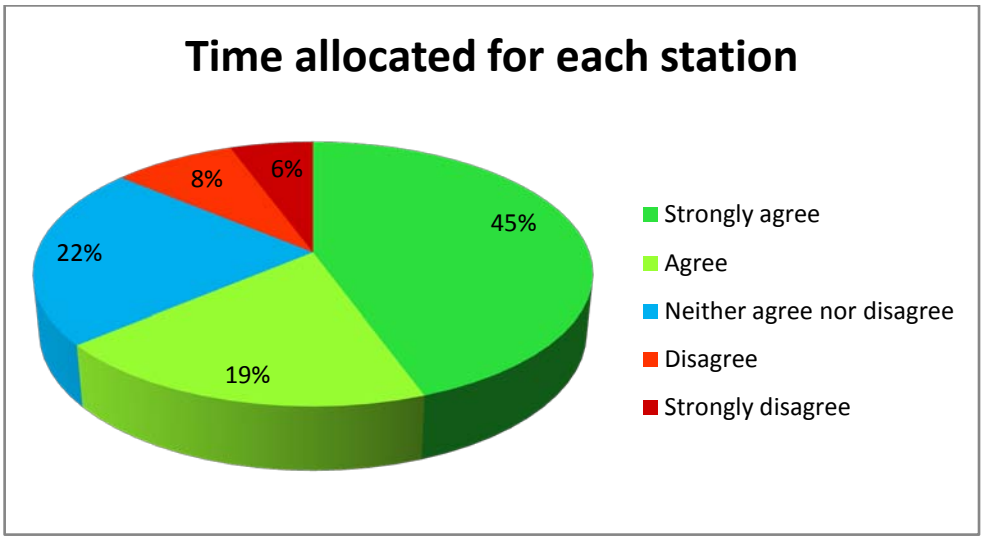


Figure 16: Student's opinion about time allocated to each station

d. Number of stations:

The vast majority of the examinees (89%) felt that the number of stations was adequate and (8%) feeling it was not.

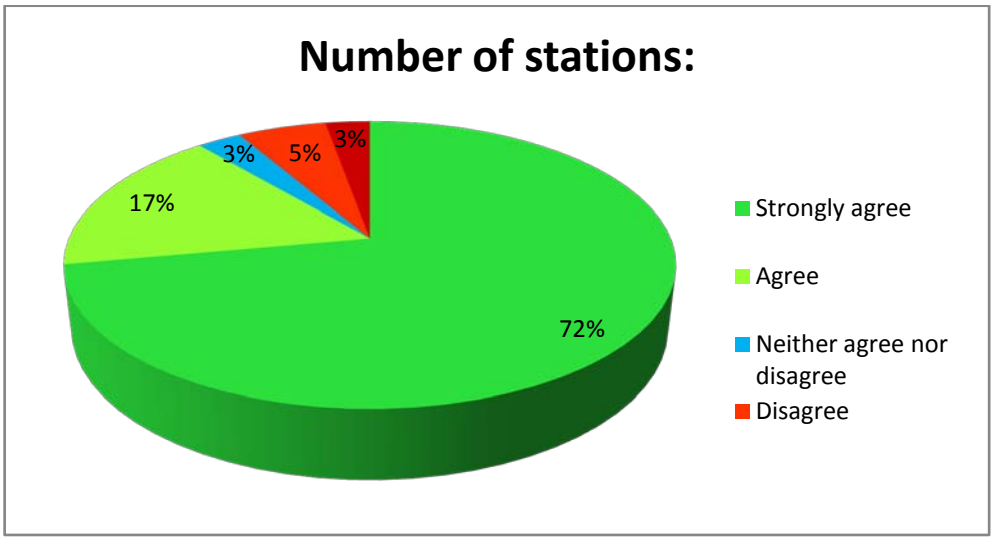


Figure 17: Student's opinion about the number of stations

e. Circuit of stations:

The majority of the examinees (72%) felt that the circuit of stations was logical and appropriate, while (9%) felt the opposite.

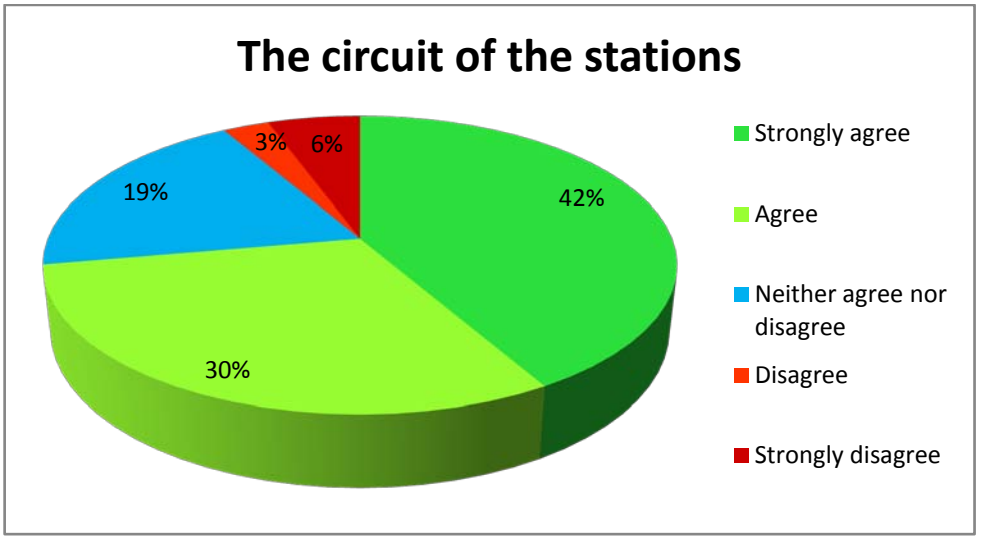


Figure 18 : Student's opinion about the circuit of stations

f. Feedback on performance

In our study, (69.4%) of examinees got a feedback on their performance, while (30.6%) didn't.

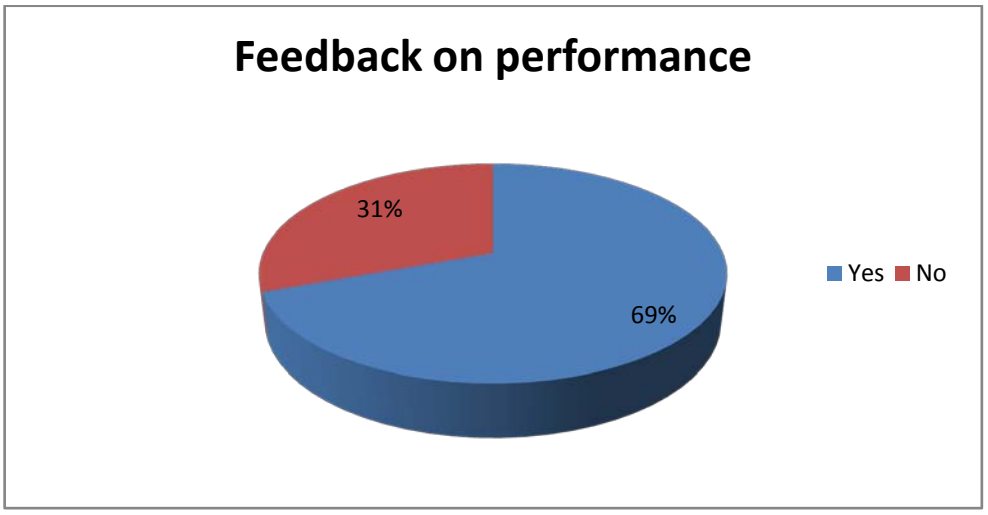


Figure 19: Feedback on performance

1.4. Content of OSCE:

a. Exam covers a wide range of knowledge:

Half (53%) of the examinees felt that the OSCE covered a wide area of knowledge, while (11%) felt the opposite. (36%) neither agreed nor disagreed.

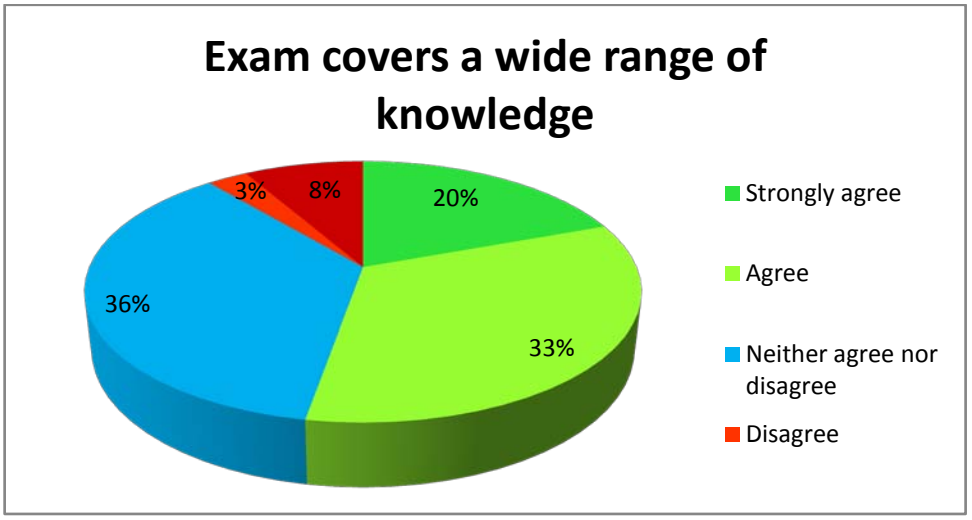


Figure 20: Exam covers a wide range of knowledge

b. Exam covers a wide area of clinical competencies :

More than half of the examinees (56%) felt that the OSCE covered a wide area of knowledge, while (8%) felt the opposite. (36%) neither agreed nor disagreed.

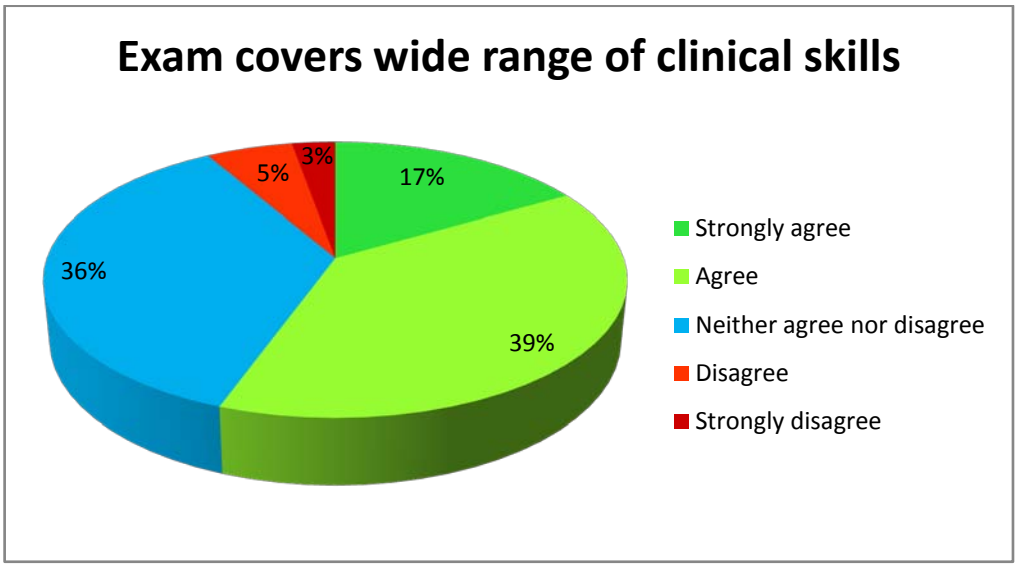


Figure 21: Exam covers a wide range of clinical skills

c. Competencies assessed reflect those taught :

(75%) of particpiants felt that the clinical competencies evaluated reflected those taught in lectures and clerkship, while only (8%) felt the opposite.

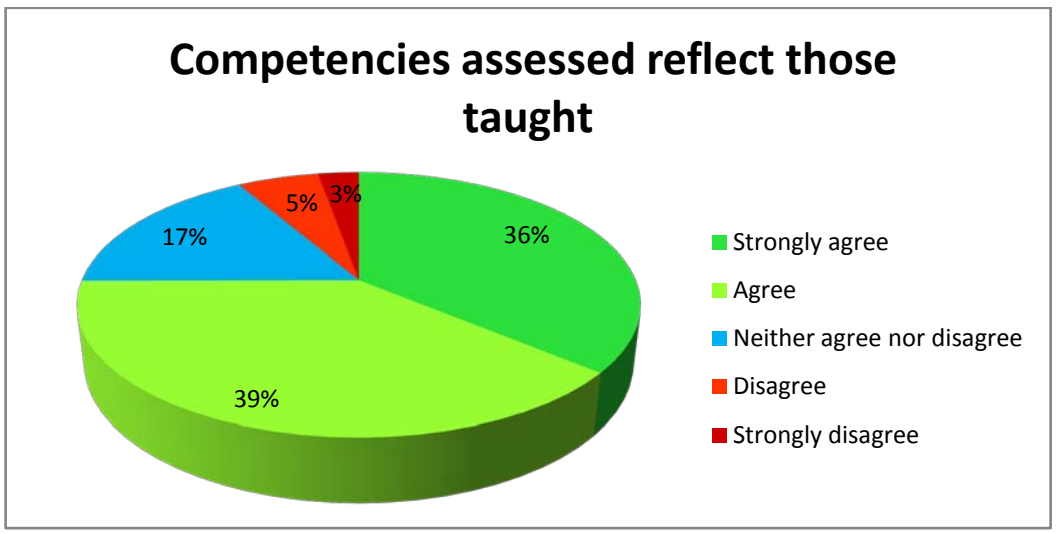


Figure 22: Clinical competencies reflected those taught

d. Clinical competencies evaluated reflected those needed for general practice

The majority of the students (66%) felt that the competencies evaluated during the OSCE were the ones needed for a general practitioner. Only 3% felt the opposite, with 30% neither agreed nor disagreed.

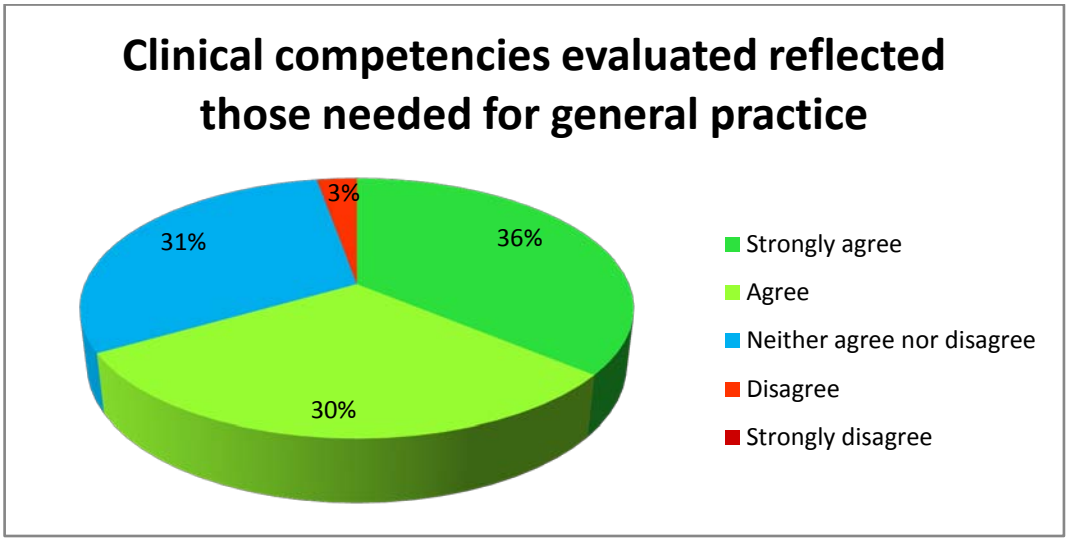


Figure 23: Clinical competencies evaluated reflected those needed for a general doctor

e. Exam provides a valuable learning experience :

The vast majority of the students (78%) felt that the exam is practical and provides a precious learning experience. Only 3% felt the opposite.

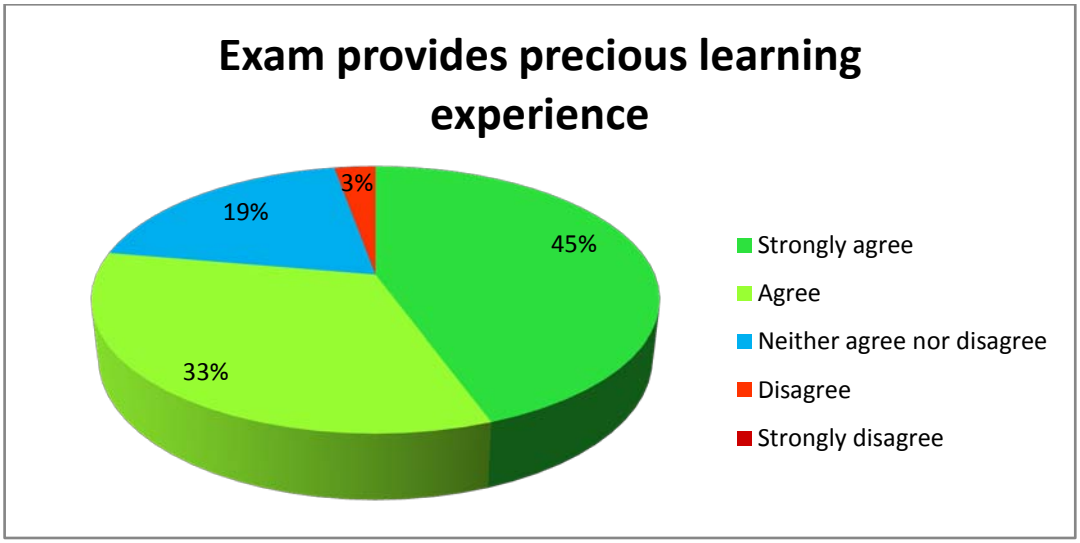


Figure 24: Exam provides precious learning experience

f. OSCEs as the form of assessment in clinical examinations :

(67%) of examinees agreed that OSCEs should remain the form of assessment in the final year clinical examinations, while only (8%) disagreed. (25%) of students neither agreed nor disagreed.

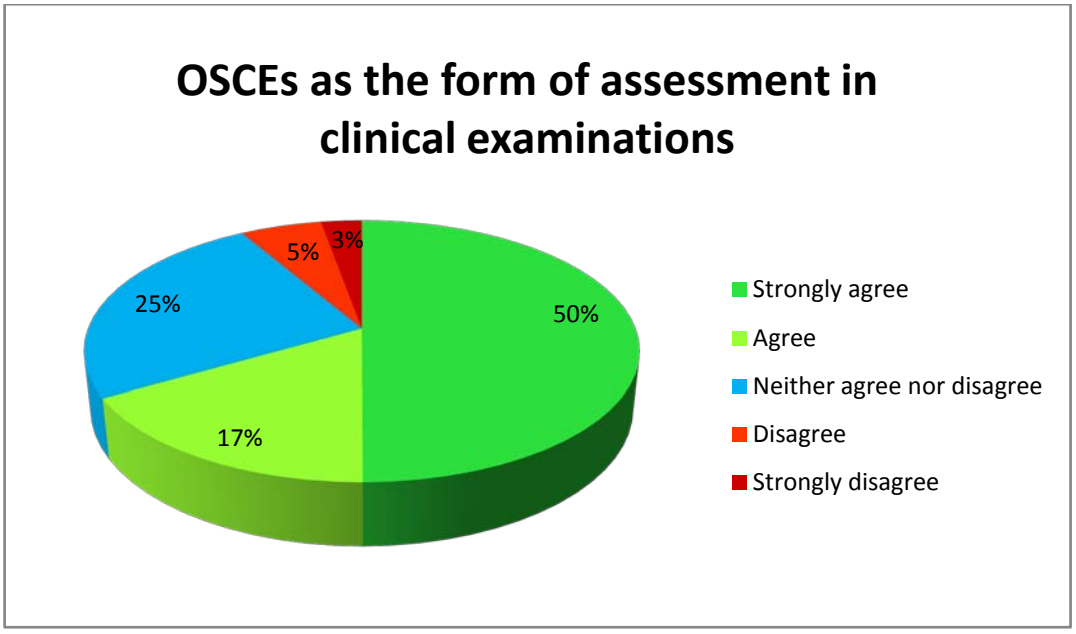


Figure 25: Students' perception on OSCEs as the form of assessment in clinical examinations

Table I: Medical undergraduates' students' evaluation of OSCE attributes

Survey Items	Degree of response		
	Agree (%)	Neutral (%)	Disagree (%)
Exam was fair	80.5%	11.1%	8.4%
OSCE is more stressful than other exams	33.3%	36.1%	30.6%
Exam was intimidating	30.5%	22.2%	47.2%
Exam increases chances of passing	41.7%	33.3%	25%
Awareness of the nature of the exam	55.6%	25%	19.4%
Awareness of level of knowledge needed	55.5%	30.6%	13.9%
Exam helped identify gaps in knowledge	77.8%	16.7%	5.5%
Exam provided opportunities to learn	66.7%	22.2%	11.1%
Exam helps identify weaknesses in communication and patient care skills :	66.6%	30.6%	2.8%
Difficulty to prepare for the exam	25%	25%	50%
The clerkship guide can be a reference for exam preparation	16.7%	11.1%	72.2%
The OSCE venue was adequate	69.4%	13.9%	16.7%
The OSCE venue was silent and quiet	88.9%	8.3%	2.8%
The OSCE venue was lit enough	72.2%	13.9%	13.9%
The staff was helpful through the exam	83.3%%	16.7%	0%
The supervision during the exam was appropriate	72.2%	25%	2.8%
Instructions were clear and unambiguous	69.4%	27.8%	2.8%
Time at each station was adequat	63.9%	22.2%	13.9%
Number of stations was adequate	88.9%	2.8%	8.3%
The circuit of stations was logical and appropriate	72.3%	19.4%	8.3%
External factors (such as ethnicity, gender and personality) can affect OSCE scoring	38.9%	19.4%	41.7%
Wide area of knowledge covered	52.8%	36.1%	11.1%
Wide area of clinical competencies covered	55.6%	36.1%	8.3%
Tasks reflected skills taught	75%	16.7%	8.3%
Tasks reflected skills required for a general practitioner	66.7%	30.5%	2.8%
Exam provides a valuable learning experience	77.8%	19.4%	2.8%
OSCEs should remain as the form of assessment in clinical examinations	66.7%	25%	8.3%

2. Examiners'and staff's perception :

2.1. OSCE attributes:

a. Exam's fairness:

The majority of our study group (76%) felt that the exam was fair, while only (16%) viewed the exam as unfair.

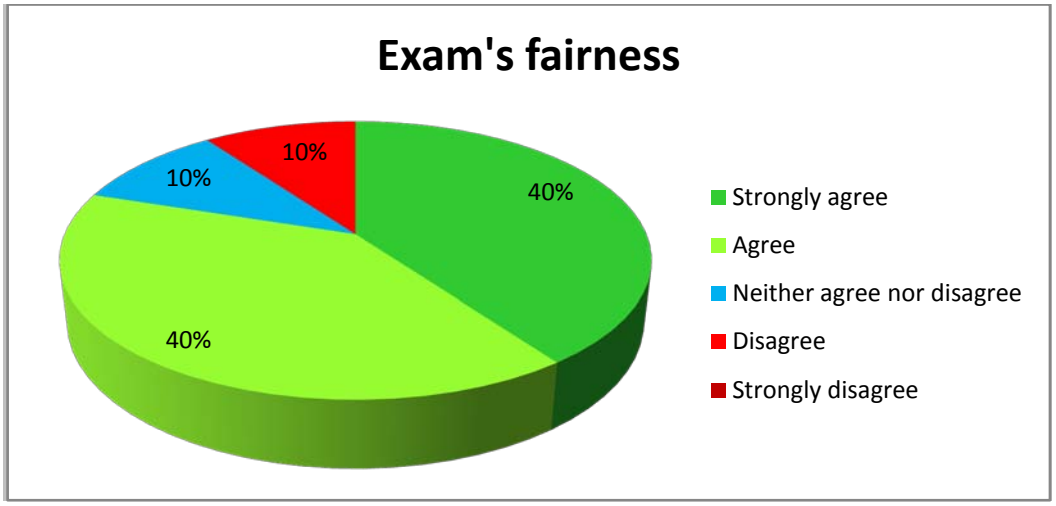


Figure 26: Examiners' view on exam's fairness

b. Stress level :

One one quart (25%) of our examiners in the study group felt that the OSCE is more stressful than exams' format, while (42%) viewed the exam as not stressful,the rest were neutral (33%).

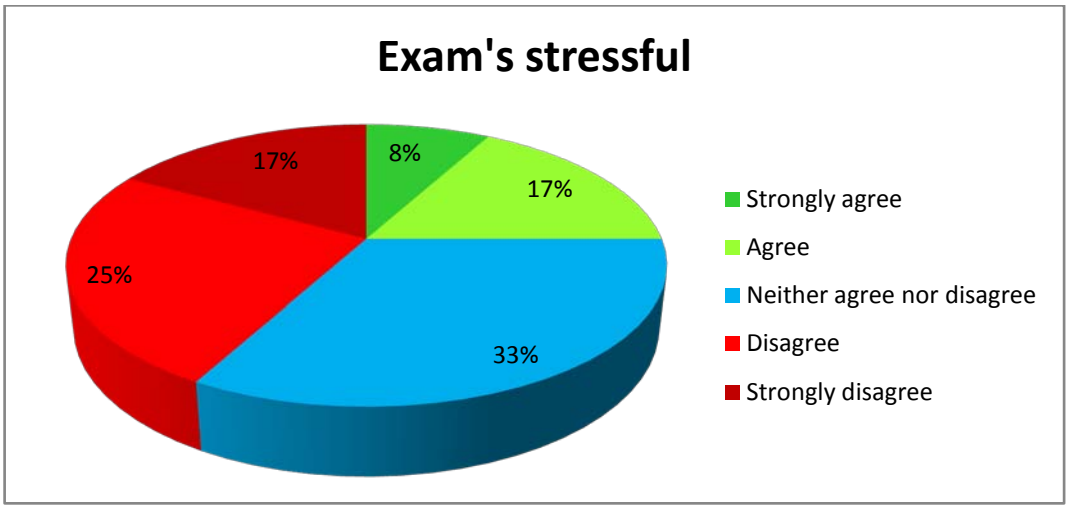


Figure 27: Examiners' view on stress level of OSCE compared to other exams' format.

c. ***Exam is intimidating :***

In our serie, (33%) of the examiners felt the exam to be more intimidating for students than other exams formats, while half of the examiners (50%) felt that it wasn't.

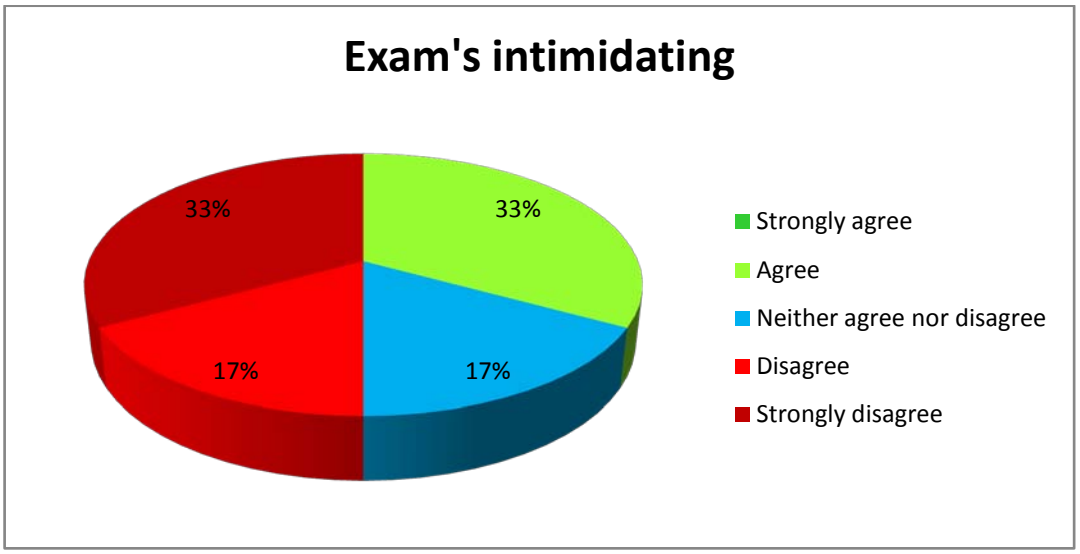


Figure 28: Exam is intimidating

- Internal and external factors affecting OSCE scores :

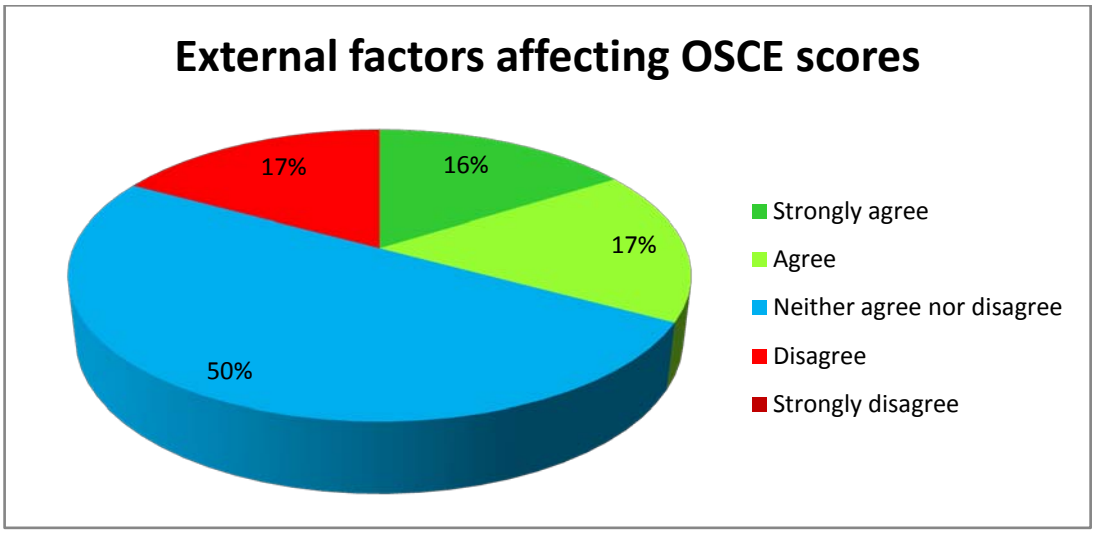


Figure 29: Internal and external factors affecting OSCE scores

In our study (33%) of examinres felt like internal factors and external factors such as ethnicity, gender and personality can affect OSCE scoring, while (17%) felt the opposite. The remaining half of examiners (50%) neither agreed nor disagreed.

2.2. Preparation for the exam

a. Preparation of stations requires more resources and a continuous process

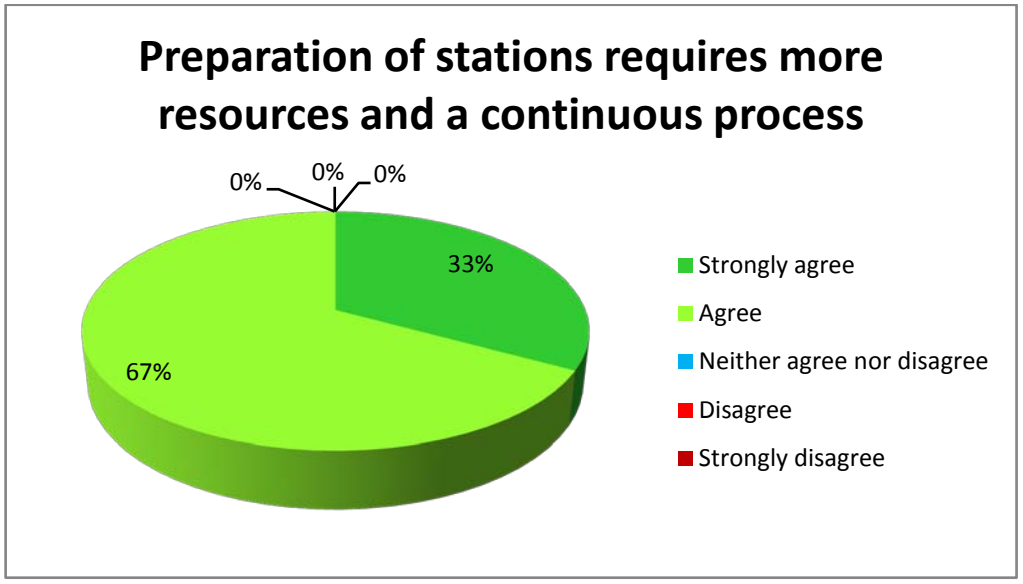


Figure 30: Preparation of stations requires more resources and a continuous process

In our study, (100%) of examiners felt that the preparation of the exam requires more resources, a continous process and is time consuming.

b. Adequate training was given to residents prior to the examination

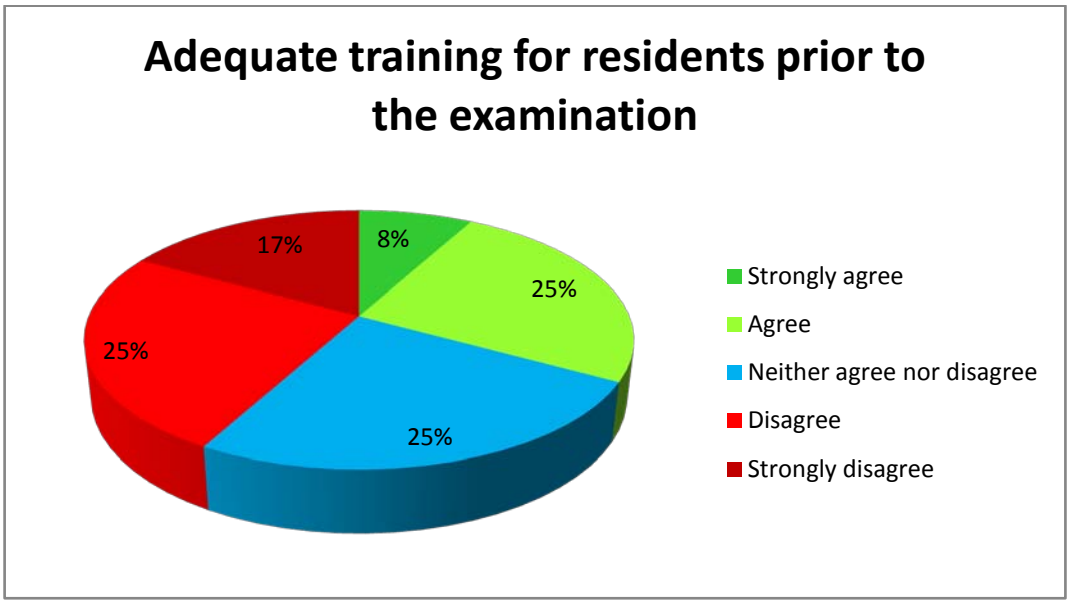


Figure 31: Adequate training for residents prior to the examination

In our study, (42%) of the examiners disagreed that the training for residents prior to the examination was sufficient, and (33%) agreed that the training was adequate. While (25%) of examiners neither agreed nor disagreed.

c. Students are well informed about the nature of the exam :

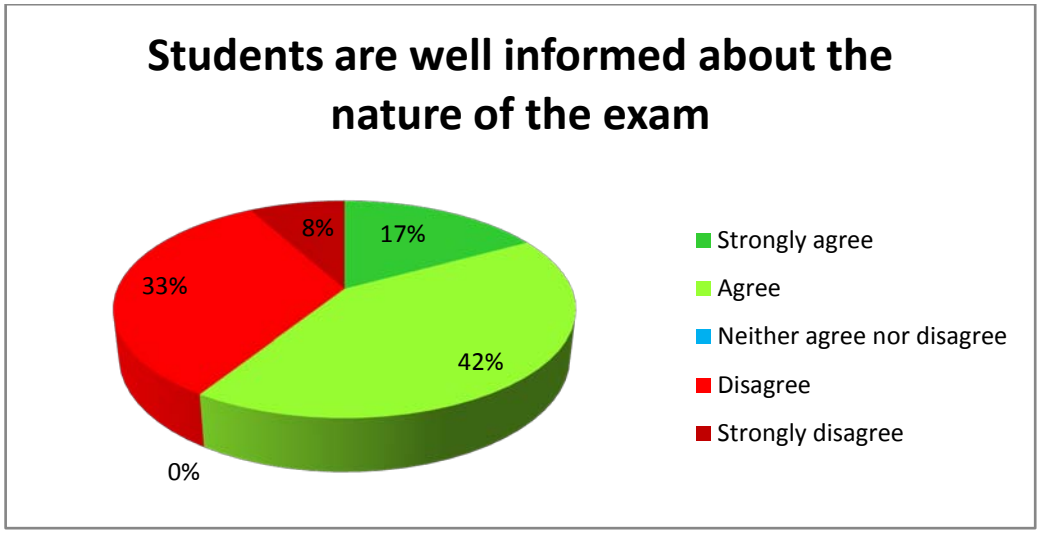


Figure 32: Students are well informed about the nature of the exam

More than half of the examiners (59%) in our study agreed that students are well informed about the nature of the exam, while (41%) of participants felt otherwise.

d. Students are well informed about the knowledge required to pass the exam :

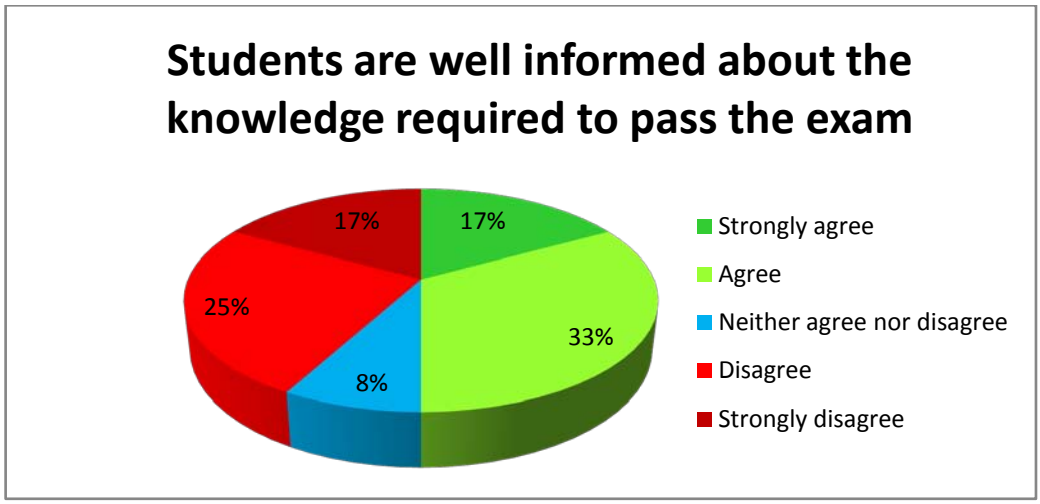


Figure 33: Students are well informed about the knowledge required to pass the exam

Half of the examiners (50%) believed students are well informed about the knowledge required to pass the exam, while (42%) believed that they were not.

e. Exam helps improve the teaching and learning process :

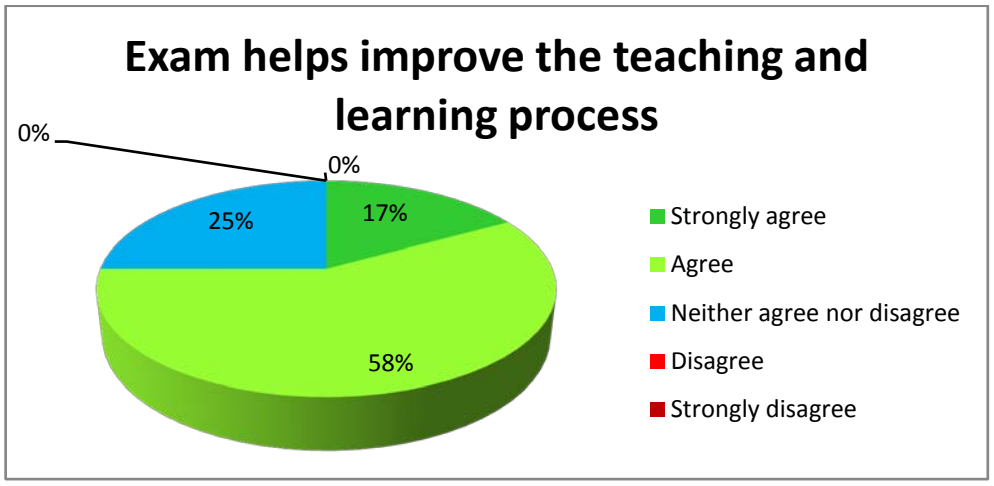


Figure 34: Exam helps improve the teaching and learning process

The majority (75%) of the participants felt that the exam helps improve the teaching and learning process. The remaining (25%) neither agreed nor disagreed.

2.3. OSCE organization and set-up:

a. The OSCE venue :

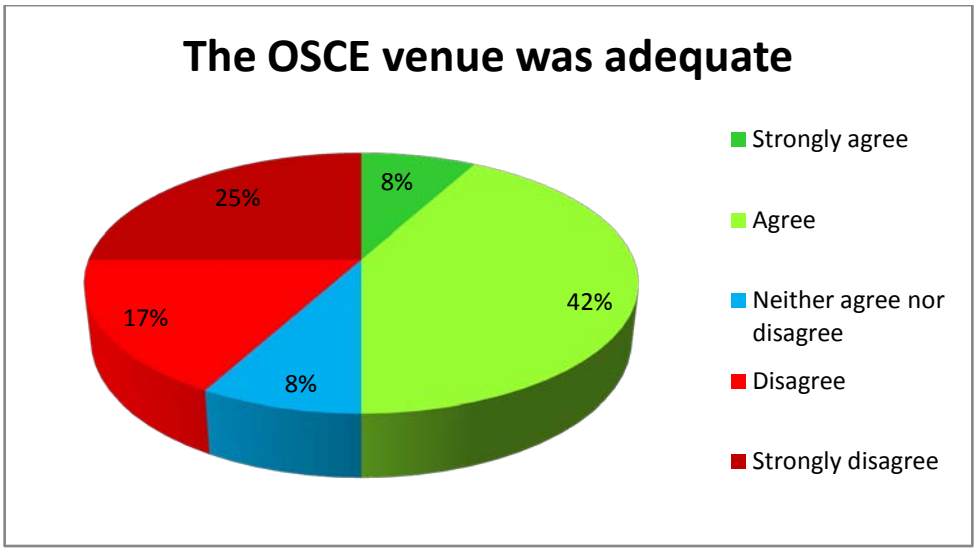


Figure 35: The OSCE venue was adequate

In our study group, (50%) of examiners felt that the OSCE venue was adequate, with (25%) strongly disagreeing, (17%) disagreeing, and only (8%) neither disagreeing nor agreeing

b. The OSCE organisation :

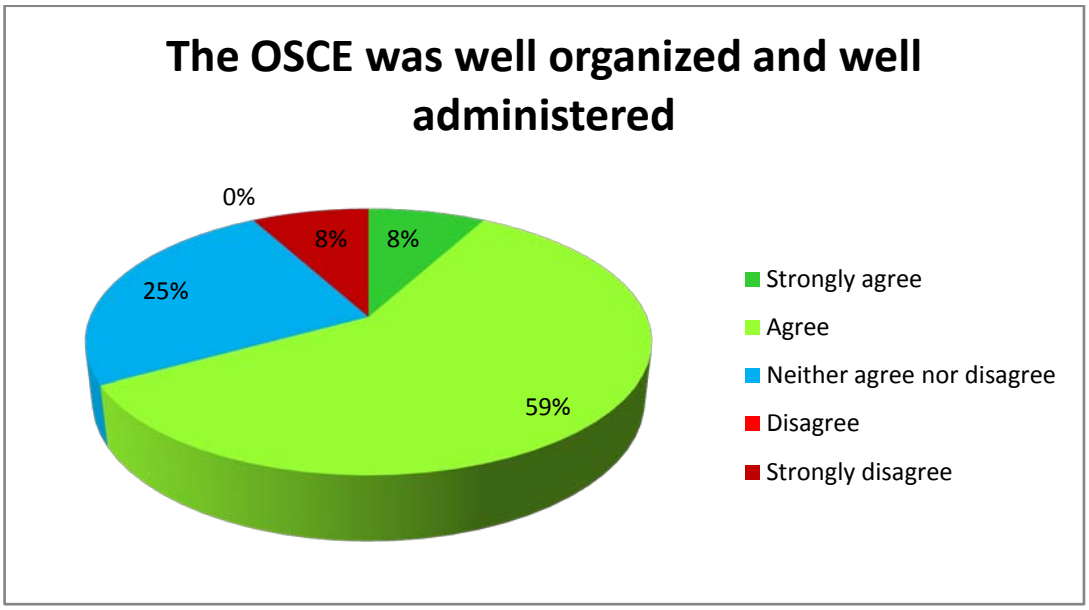


Figure 36: The OSCE was well organized and well administered

Approximately two thirds of the examiners (67%) felt that the OSCE was well organized and well administrated and only (8%) felt the opposite.

2.4. Content of the OSCE

a. Exam coverswide area of clinical competencies

In our studey, only (34%) of the examiners felt that the OSCE covered a wide area of clinical competencies, while (33%) felt the opposite and (33%) neither agreed nor disagreed.

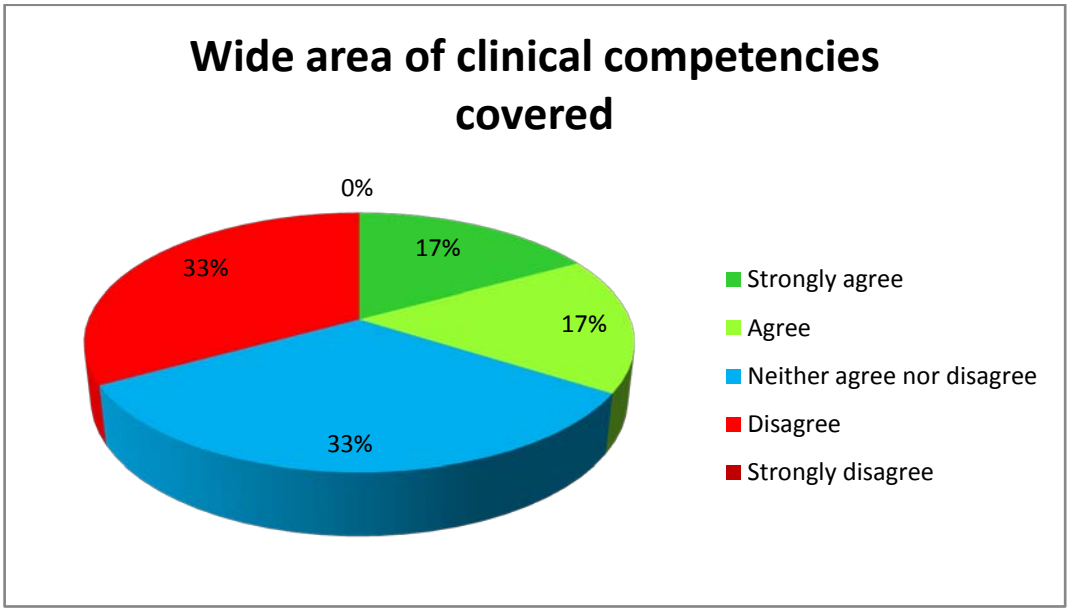


Figure 37: Wide area of clinical competencies covered

b. OSCEs to other evaluation formats :

The vast majority (83%) of examiners agreed that OSCEs are preferable to other evaluation formats, while the rest of the participants (17%) neither agreed nor disagreed.

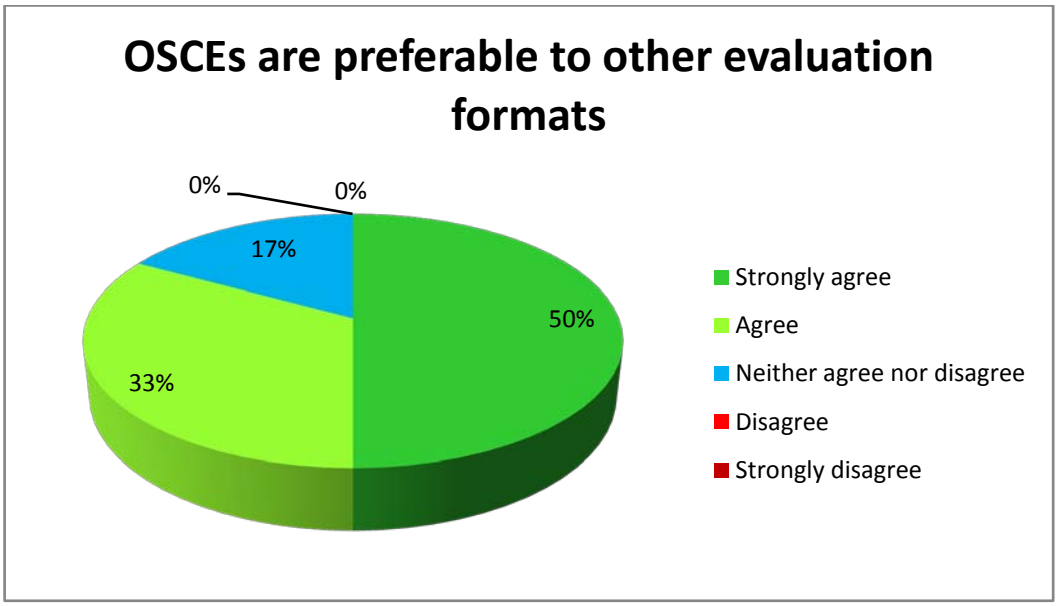


Figure 38: OSCEs are preferable to other evaluation formats

c. ***OSCEs should be used more often in clinical training :***

In our study, (75%) of examiners prefere OSCEs to other evaluation formats. The remaining (25%) neither agreed nor disagreed.

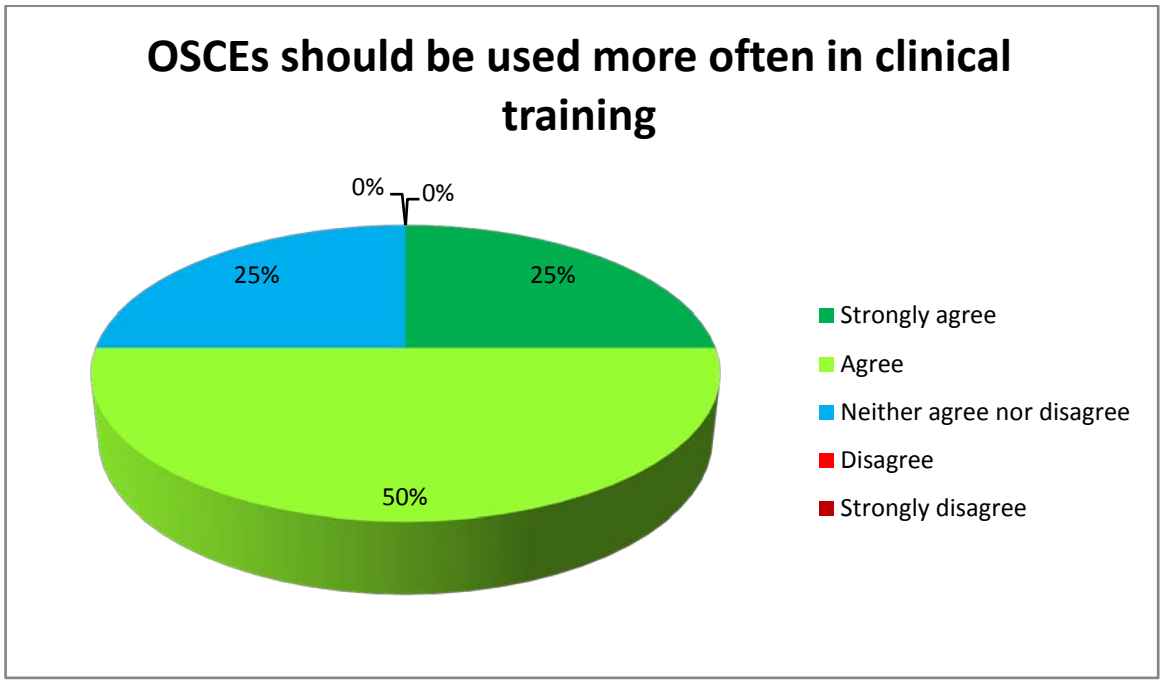


Figure 39 :OSCEs should be used more often in clinical training

Table II : Examiners'perception and satisfaction of OSCE attributes

Survey Items	Degree of response		
	Agree (%)	Neutral (%)	Disagree (%)
Exam was fair	75%	8.3%	16.6%
OSCE is more stressful than other exams	25%	33.3%	41.7%
Exam was intimidating	33.3%	16.7%	50%
Exam increases chances of passing	66.7%	25%	8.3%
Preparation of stations requires more resources and a continuous process	100%	0%	0%
OSCEs require specific training and standardization among faculty members	41.6%	25%	33.4%
Students are well informed about the nature of the exam	58.3%	0%	41.6%
Students are well informed about the knowledge required to pass the exam	50%	8.3%	41.7%
Exam helps students identify weaknesses in communication and patient care skills	33.3%	8.3%	58.3%
Exam helps improve the teaching and learning process	75%	25%	0%
The OSCE venue was adequate	50%	8.3%	41.7%
The OSCE venue was silent and quiet	50%	33.3%	16.7%
The OSCE was well organized and well administered	60%	30%	10%
Instructions were clear and unambiguous	75%	8.3%	16.7%
The briefing before the exam gave me the information I needed	58.3%	16.7%	25%
Time at each station was adequat	75%	16.7%	8.3%
Number of stations was adequate	83.3%	0%	16.7%
The circuit of stations was logical and appropriate	50%	33.3%	16.7%
It's important to give students feedback	90%	0%	10%
The scoring scheme was well understood	75%	8.3%	16.7%

Adequate training was given to residents prior to the examination	33.3%	16.6%	50%
Internal and external bias can affect OSCE scoring	33.3%	50%	16.7%
Wide area of knowledge covered	58.4%	16.7%	25%
Wide area of clinical competencies covered	33.4%	33.3%	33.3%
OSCE adequately reflect the clinical competencies of students	41.6%	33.3%	25%
Clinical competencies evaluated are the ones required for a general practitioner	50%	25%	25%
Some clinical competencies are difficult to assess by OSCE	66.6%	16.7%	16.7%
A pattern of hypersortable questions can be formed by students	41.7%	41.7%	16.7%
OSCEs are preferable to other evaluation formats	83.3%	16.7%	0%
OSCEs should be used more often in clinical training	75%	25%	0%

Table III: OSCE perception throughopen questions and semi-structured interview quotations with students and staff

Theme	Subthemes	Quotes
OSCE strenghts	OSCE validity and reliability	« A better tool of clinical assessment that assesses a wide range of clinical skills » **Students quotes**
	OSCE fairness	« Fair, better than other exam formats, less stressful » **Students quotes**
	OSCE effectiveness	« Practical method for learning and assessment of communication skills within clinical setting » **Students quotes** « Encourage us to be more confident when communicating with patients » **Students quotes** « OSCE is very beneficial for managing the stress of interacting with patients in real life. »**Students quotes**
OSCE suggested areas of improvement	OSCE setting	« Expand the space where the examination takes place » **Students quotes**
	OSCE content	« It would be better to have more clinical skill assessment stations than stationsassessing theoretical knowledge » **Students quotes**
	OSCE preparation	«More orientation sessions from clinical departments for their residents as evaluators » **Staff quotes** « OSCEs are very convenient and practical but I think we need more mock exams and orientation sessions at the faculty. »**Students quotes** « OSCEs are an enriching experience but should be reinforced by simulation and practical situations on models before the end-of-course examination » **Students quotes** « Using more real or trained simulated patients»**Staff quotes**
Causes of stress and dissatisfaction among students	« There is not enough time for some stations, which creates even more stress and causes some answers to be forgotten »**Students quotes**	
	« I think that the curriculum needed to pass the pediatric orthopedic surgery needs to be better defined » **Students quotes**	

DISCUSSION

I. Reminder :

1. A brief history of the OSCE:

Prior to the development of the OSCE in the 1970s by Harden (1975), combinations of 'short case' and 'long case' examinations were used in an attempt to assess performance of medical students. (1)

In long case examinatons:

- Candidates are asked to take a history and perform a complete physical examination on a real patient, frequently chosen from the current in-patient or outpatient cohort.
- Candidates at different examination sittings may be allocated different patients with varying conditions and clinical signs.
- Candidates are asked to take a history and perform a complete physical examination in the first 30- 45 min, often unobserved by the examiners.
- Unstructured questioning of the candidates follows this, which is usually focused on their clinical findings, diagnosis and management plan of the patients' problems.
- The candidates' interaction with the patient, including history taking, general communication and clinical skills is often not observed.
- The discussion after with the board of examiners is based on the theoretical aspects of the case in question and their knowledge and the management plan for the patient.
- The candidate's assessment could be affected by the patient's performance, examiner bias, a non-standardised marking schemeand the candidate's actual performance.

While limitationsand shortcomings in the conventional or traditional clinical examinations have been clearly identified, (2), (3), the need for a more objective approach to the assessment of clinical competence has been widely advocated. (4)

In this context, the OSCE was designed for the first time in 1975 by Harden (5)to introduce standardisation and reduce the number of variables that could impact the assessment of performance, which would later be considered the "gold Standard"for evaluating clinical competence.(6)

Since then, the OSCE has come to dominate performance assessment (7) and is recognised as the best method of formally assessing clinical skills (8). The OSCE has proved to be a useful tool in both undergraduate and postgraduate examinations in more than 239 universities, institutions and establishments. The OSCE has also been used extensively in the evaluation of curricula, courses or teaching methods and now as a tool to select students for admission to medical studies.

Additionally to medical studies,different healthcare fields such as nursing(9), dentistry (10)orthodontic education(11), physiotherapy(12), pharmacy(13)and midwifery(14) have been introduced to this form of examination .

Figure 4.2 Geographical spread of the OSCE.

Figure 40 : Geographical spread of the OSCE

2. Definition of the OSCE

The objective structured clinical examination, or the OSCE for short, can be defined as(1)an assessment tool based on the principles of objectivity and standardisation, in which the candidates move through a series of time-limited stations in a circuit for the purposes of assessment of professional performance in a simulated environment. At each station candidates are assessed and marked against standardised scoring rubrics by trained assessors.

Figure 41: OSCE students rotation around a series of stations.

In any clinical examination there are three variables: the patient, the examiner and the candidate. In the OSCE, any bias as a result of the patients seen and the examiners is reduced so that the result is a truer assessment of the examinee's clinical competence.

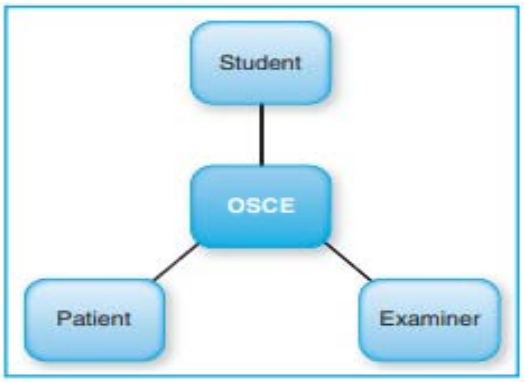


Figure 42 : The three variables of any clinical examination

The examination is designed to be :

- Objective:
  - A number of stations : may be as low as 5 or as high as 40. What is known, however, is that the reliability of the examination increases as the number of stations increases.
  - Examinees assessed on the same stations : For exmaple, in one circuit of 20 stations, 20 candidates can be assessed in an examination. Where more than 20 candidates have to be assessed, two or more circuits with matched stations can be run in parallel.
  - Clear specification of what is assessed :What is to be assessed will be reflected in the checklist and rating scale to be used by the examiner at the station and validated in advance by a pedagogical committee
  - A number of examiners : Each examiner is briefed as to what is expected of them at the station and training is given in advance of the OSCE with regard to what the examiner should be looking for and how the checklist and rating scale should be interpreted.
  - Specification of standards required: The standard expected of the examinee in the overall examination and in individual stations is specified.

- Structured:

OSCE blueprint: prepared in advance and outlines the learning outcomes and core tasks to be assessed at each station in the OSCE. The grid maps on one axis the key learning outcome domains and on the other axis the elements of the course, e.g. the body systems or context in which the learning outcomes are to be assessed. (See table 1.3)

- Clinical:

Students watched performing a clinical task on real and standardised patients. At each station, the student must perform specific functions, so OSCE estimates that a candidate is able to "show how" by performing in a simulated situation rather than testing the students' knowledge with written assessments.

Representing the bottom of Miller's Pyramid (Miller 1990) at the 'knows' and 'knows how' levels ' as described below. The OSCE is a performance measure of what the individual would do in a clinical context. Examples of the range of clinical skills that can be assessed in an OSCE are given in Table 1.5.(15)

It is therefore considered the closest instrument to the ideal assessment of clinical competence. Each competency is broken down into several easily assessable tasks that can be easily assessed..

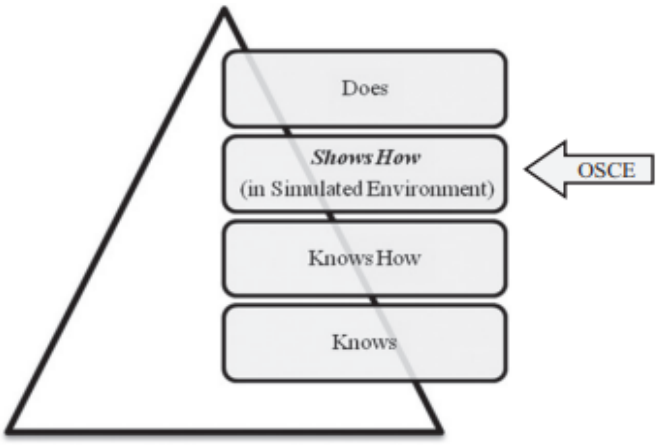


Figure 43: The OSCE in realtion to Miller's pyramid of assessemnt

The simulated environment itself can influence the performance of candidates; therefore, the performance of the candidates in the OSCE might not be the same as their performance in the workplace on identical tasks(1), hence it is important to bear this in mind when interpreting the results. A number of other factors also influence performance in the health care setting as outlined in (Figure 29).

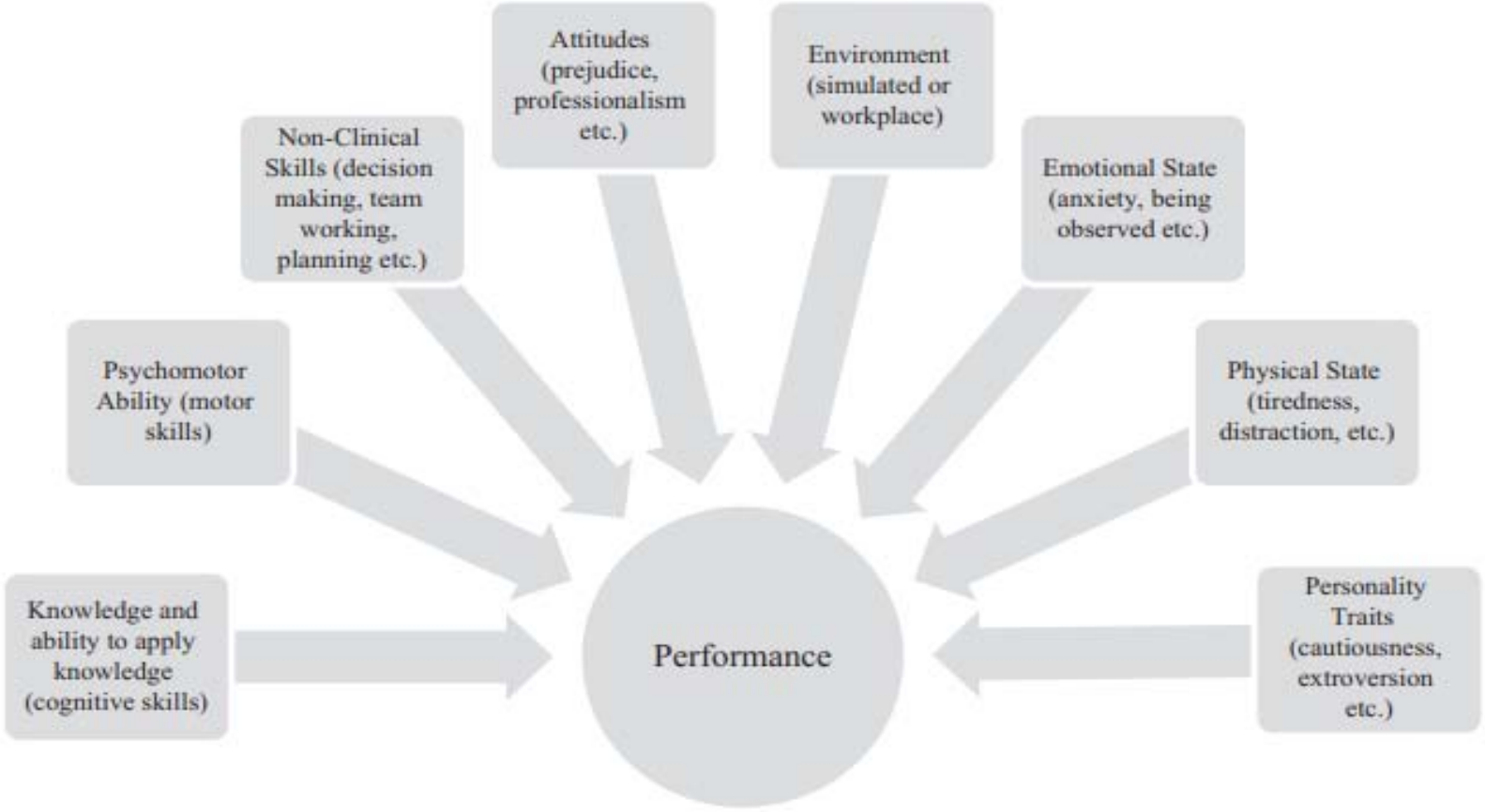


Figure 44: Factors influencing performance. Modified from Khan & Ramachandran (2012).

Table IV : Examples of clinical skills assessed in an OSCE (Harden 1988)

Table 1.5 Examples of clinical skills assessed in an OSCE (Harden 1988)

Skill	Action	Example
History taking	History taking from a patient who presents a problem	Abdominal pain
	History taking to elucidate a diagnosis	Hypothyroidism
Patient education	Provision of patient advice	Discharge from hospital following a myocardial infarction
	Educating a patient about management	Use of an inhaler for asthma
	Provision of patient advice about tests and procedures	Endoscopy
Communication	Communication with other members of healthcare teams	Brief to nurse with regard to a terminally ill patient
	Communication with relatives	Informing a wife that her husband has bronchial carcinoma
	Writing a letter	Referral or discharge letter
Physical examination	Physical examination of a system or part of the body	Hands of a patient with rheumatoid arthritis
	Physical examination to follow up a problem	Congestive cardiac failure
	Physical examination to help confirm or to help confirm or refute a diagnosis	Thyrotoxicosis
Diagnostic procedure	Diagnostic procedure	Ophthalmoscopy
Interpretation	Interpretation of findings	Charts, laboratory reports or findings documented in patient's records
Patient management	Patient management	Writing a prescription
Critical appraisal	Critical appraisal	Review of a published article or pharmaceutical advertisement
Problem solving	Problem solving	Approach adopted in a case where a patient complains that her weight as recorded in the hospital was not her correct weight

3. Preparation and Organization of the OSCE

3.1. Organisation of the OSCE according to Harden(5,15,16)

The organization of an objective structured clinical examination has many features in common with the organization of the traditional clinical examination. The delivery of an OSCE requires input from a number of people and the process may appear complicated and demanding.

Harden places too much emphasis on the need for advance planning. To allow insufficient time for the preparation of an OSCE is to court disaster. The decisions and required actions of the OSCE are listed below:

- Advance and advance planning is essential: During this phase:
    - Identify and agree on the individuals and committee members responsible for the OSCE
    - All of the stakeholders should be engaged and briefed, including:
        - OSCE Lead.
        - Committee members.
        - Venue/circuit organisers.
        - Examiners.
        - Patients and sps; and
        - Examinees.
    - A blueprint should be prepared for the examination together with a list of stations. This should include the specific requirements for each station. Checklists and rating scaled should be decided (Table 1 and 2)
    - Stations should be developed and reviewed as specified in the blueprint. (see figure below)
    - Arrange a suitable venue organise resources,prepare a map of the OSCE circuit, the list of candidates and inform candidates in advance with regard to the format of the examination

Table V: An example of an OSCE blueprint :

Table 1. An example of an OSCE blueprint.

Topics	Procedural skills	Clinical examination skills	History taking	Total number of questions
Acute medicine	Q.1			1
ENT		Q.2 Q.3	Q.4 Q.5	4
Paediatrics	Q.6 Q.7			2
Geriatrics		Q.8 Q.9	Q.10	3
Total number of questions	3	4	3	10

Table VI: Comparison of binary checklist and rating scale:

Table 4. Comparison of binary checklist and rating scale.

Station on history and examination of an asthmatic patient: two possible types of checklist for scoring the examination of the chest

Binary check list	Checklist using rating scales
Candidate performs an examination of the chest	Candidate performs an examination of the chest
1. Introduction	1 [] 2 [] 3 [] 4 [] 5 []
Yes [] No []	1. Unstructured approach
2. Obtaining consent	2. Structured approach but completes less than 50% of key steps.
Yes [] No []	3. Structured approach but completes more than 50% of key steps.
3. Appropriate exposure	4. Structured approach and completes a majority of key steps.
Yes [] No []	5. Structured approach and completes all key steps.
4. Professional approach	
Yes [] No []	Such a check list should then be accompanied by a list of key steps.
5. General physical examination	Uses alcohol rub before and after examination and, when appropriate uses gloves
Yes [] No []	Seeks permission to examine, and explains the nature of examination
6. Inspection	Offers/Asks for chaperone where appropriate
Yes [] No []	Asks the patient if any areas to be palpated or moved are painful
7. Palpation	Positions the patient correctly and comfortably, then uses a methodical, fluent and correct technique
Yes [] No []	
8. Percussion	Does not distress, embarrass or hurt the patient unduly
Yes [] No []	Examines, or suggests examining, all the relevant areas
9. Auscultation	Completes the task, covers up the exposed areas and thanks the patient
Yes [] No []	
10. Advising patient at the end to cover up the exposed areas and thank for cooperation.	
Yes [] No []	
Score awarded X/10	
Add the scores and award out of 10	

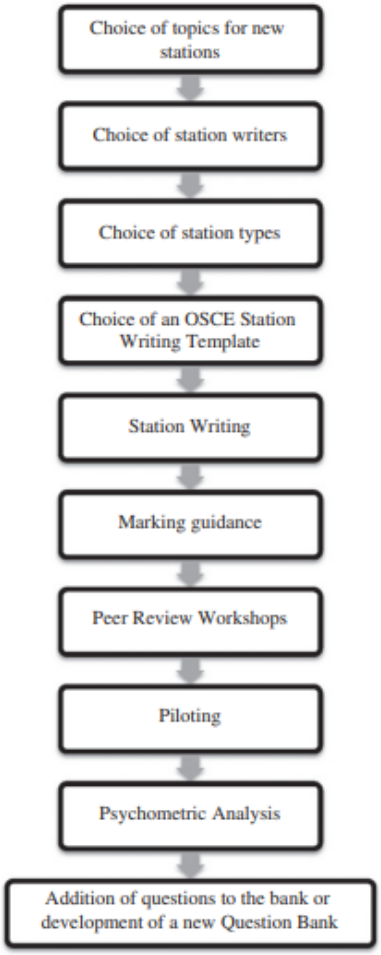


Figure 45: Flow diagram for the development of an OSCE question bank

- The day before the exam: Preparations at stations must be checked and final documentation given to each examiner.
- On the day of the exam: The organizer or coordinator of the exam must check that all equipment is in the right position ensure that the signposts are clear, and the examinees, examiners and patients are briefed.
- After the exam:
    - Score sheets must be collected,
    - Students should be informed of their performance

- All concerned should be thanked and expenses for patients arranged
- A record of the examinationshould be kept by the OSCE lead and any problems that have occurred documented

- Post-OSCE considerations :
  - Results are put in appropriate spreadsheets and cross-checked again in preparation for the examination boards for ratification and signing them off as accurate.
  - After the ratification the publication of accurate results is the final responsibility of the Assessment Team. The results could be made available online as well as sent to the students as hardcopies
  - Complaints and appeals made by candidates or examiners need to be dealt with fairly and promptly after each examination
  - The quality assurance of each examination is a continuous process repeated with each examination cycle.
  - Post-hoc analysis of OSCE results allows the determination of the reliability of scores generated by the examination.
  - The feedback on the examination process provided by the examiners and examinees can be used to improve the quality of the stations and organisation of the future examinations.

Figure 46: Elements of OSCE quality assurance

3.2. Preparation and organization of the OSCE at the department of pediatric orthoped surgery at CHU Mohamed 6 (17)

The organization of the OSCE at the department of pediatric orthoped surgery at CHU Mohamed 6 requires considerable financial resource and faculty time and effort.

It could be divided into three separate steps:

a. First step :

An evaluation committee composed of exam officers was appointed. This committee determined:

- The skills to be evaluated
- The number of stations required for the exam, as well as their characteristics according to the clinical skills selected.

- The calendar of events which must include the dates of the informative sessions to the students, to the evaluators and the schedule of the meetings for the final rating.
- The designation of the managers of each station.

An OSCE coordinator is designated as well and its principal roles are to:

- Prepare the venue of the examination with the help of the depatment's staff.
- Supervise the confidentiality of the print media.
- Send reminders to the teachers, residents and interns
- Make a report to the head of the department of pediatric orthopedic surgey Pr El Fezzazi.

Frequent meetings are organized a month ahead of the exams at the department of pediatric orthopedic surgey in university hospital Mohamed 6 of Marrakech.

b. Second step :

It consists of preparation of the examination venue and to chaperon the progress of the examination. All persons involved in the examinations are required to report to the examination site in advance.

- Pedagogical and administrative staff: One hour before
- Students: 30 minutes before
- Teachers: 20 minutes before
- SPs: 15 minutes before

Enough space is required for circuit running and to accommodate the various stations, equipment and materials for the exam. It should be able to accommodate an examiner, a student and possibly the SP and also allow for enough privacy of discussion so that the students performing other tasks are not distracted or disrupted.

The department has opted for a venue in the administrative wing of the department which consists of 5 rooms/offices each accomodating one station.

Figure 47, 48 and 49 : Exemples of OSCEs sations taking place in the administrative wing of the departement

The number of each station and the direction to the next one was clearly marked so not to confuse the student. In addition, the coordinator stands in between the rooms to guide the students to the next station.

The stations were then equipped, according to the necessity of the stations, with patient beds and examination tables, diagnostic instruments and digital audio-visual monitoring system.

Upon arriving at the examination venue, the students are quickly briefed about the OSCE in the department's lecture room by the OSCE marshal, Pr Salama. The first groups are called upon and each student is guided to their starting station. The student rotates round a number of stations, usually about 5.

The time allowed is the same for all the stations which is usually about 5 minutes. An additional 30 seconds was allowed for the examiner to finalize the marking scheme and for the student to move to the next station. This is done until every candidate has visited each station. n a bell signal, the student moves on to the next station and so on.

At the end of the exam, each station manager will give the pedagogical manager the complete file of the evaluation grids for each student and the grade obtained by the student.

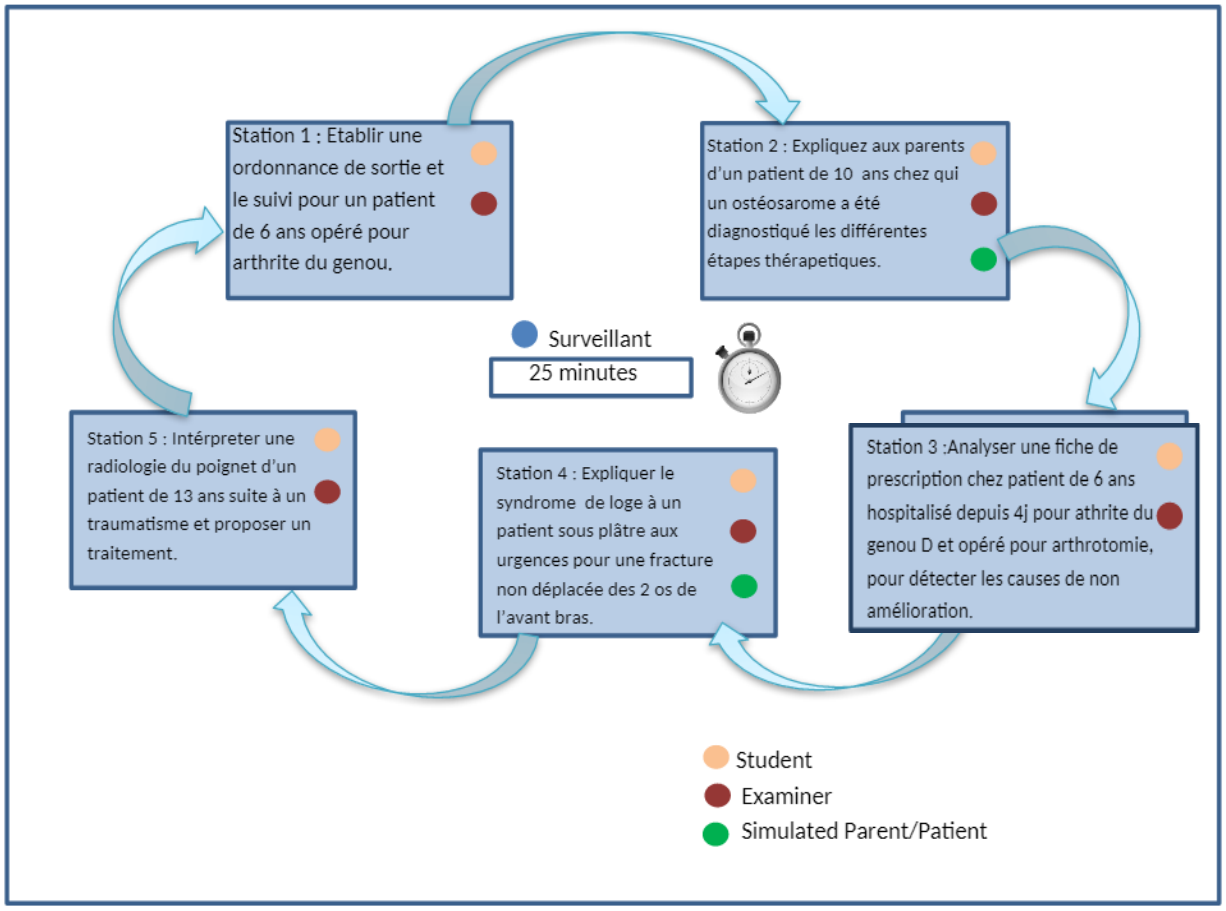


Figure 50: Diagram of the circuit adopted during the OSCE at the pediatric surgical departement

c. The third and final step :

It consists of deliberations and validation of final marks. It is usually done on the same day right after the examination. The teachers agree on the number of stations required to pass the exam.The OSCE coordinator moderate the deliberation session. The verification of the number of validated stations as well as the grade is discussed for each student. At the end of the deliberations, the grades are announced on the same day orally and on the clerkship evaluation booklet a week later.

4. Design of an OSCE station :

4.1. Type of stations :

There are different classifications of OSCE and many type of stations. We follow this classification: Type of stations:

- Anamnesis stations: the student is required to gather history of patient.
- Dry stations: the student is required to interpret laboratory tests or medical imagery and conclude to a diagnosis. This station could require some material such as audio-video system, pictures or x-rays.
- Manikin stations: or procedural stations; the student is required to accomplish a medical procedure such as …
- Communication skills stations: the student is required to demonstrate his communication skills through tasks such as announcement of a cancer diagnosis, explication of a treatment and the medical management to a patient or therapeutic education.

Figure 51: Communication skills station : Explaining a treatment

Figure 52 : Dry station : Interpretation of a wrist X-ray

4.2. Guidelines for writing a station:

- Choose the topic of the station and its aim
- Choose the station writers
- Identify the skills to be assessed
- Choose the station type based on the evaluated skills to be assessed
- Follow a station template for the type of station chosen
- Establish the instructions for the stations (see appendices)
- Establish the instructions for SPs and prepare the scenarios to follow
- Establish the marking grid and schemes (see appendices)
- Prepare a checklist for the station: material, room setting requirements

II. Discussion of the results:

Despite the nearly 3-year experience with pediatric surgery OSCE, no attempt has been made to look into the examiners' and students' perception of the validity, acceptability and usefulness of the test. Understandig the examiners' and students' perspective is particularly important to narrow this apparent gap in an effort to refine the test and derive the maximum out of the suggested benefits. This cross-sectional survey was conducted on teachers and medical students with the major objective of evaluating their perception about the validity, objectivity, comprehensiveness and overall organization of OSCE in the department of Pediatric Orthopedic surgery

1. Students' perception and feedback of the OSCE:

Correspondingly to other studies of student's perception of the OSCE, we tried to acknowledge different aspects of students' perception of this method of examination.Most of the students favored this type of examination.

The consequences of the assessment tool were examined qualitatively, with the majority of students supporting the OSCE as a reasonable clinical performance assessment tool. This was demonstrated by the favourable responses concerning its accuracy in measuring knowledge and skill, fairness of the examination process, additional experience, and learning from the OSCE and its enhancement of communication skills,in addition to organisaton and set up factors. These levels of acceptance of the OSCE by students have been described in previous studies

1.1. OSCE attributes:

The majority of our study group (80%) felt that the exam was fair,our exam score high compared to other reports [18,19,20,21,22]. (See Table below)

Table VII : Exam's fairness compared to other studies

Authors	Agree	Neutral	Disagree
Our study	80%	11%	9%
Pierre (Jamaica, 2004) (18)	68%	19%	12%
Idris (Sudan, 2014)(19)	90%	4%	6%
Al Nazzawi (Saudi Arabia, 2018)(20)	47.1%	16.8%	36.1%
Khaoua (Marrakesh,2018)(21)	52%	24%	24%
Fouad (Egypt, 2019)(22)	74%	13%	12%

The observation that the OSCE is much more intimidating (31%) than other written examination methods, isrelatively lessthen other studies [18,19,20,21,22]. (See Table VIII)

Table VIII : Exam more intimidating compared to other studies

Authors	Agree	Neutral	Disagree
Our study	31%	22%	47%
Pierre (Jamaica, 2004)(18)	48%	32%	20%
Jindal (India, 2016)(23)	57,1%	28,5%	8,5%
Saeed (Sausi Arabia, 2016)(24)	65.4%	24.4%	10.3%
Al Nazzawi (Saudi Arabia,2018)(20)	62.2%	17.8%	17.8%
Khaoua (Marrakesh,2018)(21)	40%	23%	37%

Similraly to OSCE being intimidating, (33%) of students felt the OSCE to be less stressful than other evaluation methods. This is not consisting with other studies with relatively high rates on this fact (See Table IX)

A possible explanation is that a written examination is undertaken in relatively anonymity, whereas the constant monitoring and observation during an OSCE may increase anxiety levels,fear that external factors such as their personality ,ethnicity or gender will affect their scores.(25) Also, in a written examination, there is no time limit for each question and

students can spend their time on any question, and if they do not know the answer to one question, they can think about it at the end of the exam. However, during an OSCE, usually each station has its own time, which cannot be extended; and if the students are not able to answer one station, they do not have time to think about it.

OSCEs appear to be an anxiety-provoking experience but one that can regress while progressing through the examination, placing greater emphasis on the role of experience and exposure to OSCE. (26,27)

Our study has the lowest rate on this fact, which may be explained by the accumulated experience the students had, dealing with OSCEs as a regular end-of-course exam in several departments.

Table IX: OSCE less stressful than other exams

Authors	Agree	Neutral	Disagree
Our study	33%	36%	31%
Pierre (Jamaica, 2004)(18)	15%	40%	35%
Ali (Egypt, 2012)(28)	70,7%	10,3%	17,2%
Jindal (India, 2016)	82,8%	17,1%	0%
Al Nazzawi (Saudi Arabia, 2018)	22.7%	26.9%	49.6%
Khaoua (Marrakesh, 2018)	71,2%	0%	28,8%

Only 55% of students felt they were aware of the nature of the exam, despite two debriefing sessions before the exam. Our findings are consistent with those of some studies in which students were confronted with OSCEs for the first time, whereas in other studies the percentages were higher on this fact. (See Table X)

Table X :Degree of awareness of nature of exam compared to other studies

Authors	Agree	Neutral	Disagree
Our study	55%	25%	20%
Pierre (Jamaica, 2004) (18)	87%	9%	4%
Ameh (Nigeria, 2014)(29)	72,4%	20,5%	7,1%
Khaoua (Marrakesh,2018)(21)	55%	18%	27%
Al Nazzawi (Saudi Arabia, 2018)(20)	54.6%	25.2%	20.2%
Fouad (Egypt, 2019)(22)	72%	9%	19%

Moreover, (55%) of the participants felt that they were aware of the level of knowledge needed to pass the exam. These findings are more or less consistent with reports by other studies []. (See Table) The causes of low student satisfaction reported in Al Nazzawi and Khaoua, were related to the objectives of the exam not being defined before the exam and the respondents felt that the questions were not oriented by objectives adapted to their level of study. This difficulties were also reported in our study in preparing for the exam, with the majority (72%) of the participants feeling that the clerkship guide was not helpful as a reference for the OSCE preparation.

Table XI : Degree of awareness of level of knowledge needed compared to other studies

Authors	Agree	Neutral	Disagree
Our study	55%	31%	14%
Pierre (Jamaica, 2004)	53%	26%	21%
Ameh (Nigeria, 2014)	54.5%	30.8%	11.5%
Jindal (India, 2016)	74.2%	14.2%	11.4%
Khaoua (Marrakesh, 2018)	36%	20%	44%
Al Nazzawi (Saudi Arabia, 2018)	18.5%	50.4%	29.4%

Inspite all of this, an overwhelming proportion of students (77%) admitted that the OSCE helped them identify gaps in their knowledge (See Table). In addition (66%) agreed that the OSCE

preparation helped them identify weaknesses in communication with patients and care skills. The finding werecongruent with similar studies reported elsewhere.

Table XII: Exam helped identify gaps in knowledge

Authors	Agree	Neutral	Disagree
Our study	77%	17%	6%
Pierre (Jamaica, 2004)(18)	78%	13%	9%
Shitu (Ethiopia, 2008)(30)	59%	21.3%	19.7%
Nasir (Nigeria, 2014) (31)	56.9%	28.5%	11.9%
Al Nazzawi (Saudi Arabia, 2018)	21%	36.1%	42%
Fouad (Egypt, 2019)	71%	12%	17%

a. Organization and set-up of OSCE:

Students offered a positive feed-back on the OSCE venue and organization of the process, and tought the exam was overall well administrated. (72%) of the participants felt that the exam was well organized with logical and appropriate sequence of stations, which confirmed the findings of other studies(18,23,24,29,32,33).

With regard to the instructions at the stations, the majority of the examinees (69%) felt that instructions and guidelines for each station were clear and unambiguous and only (3%) felt the opposite, which was consistent with the results of Pierre, Ali, Ameh, Fouad and Bounid (18,22,28,29,34) (See Table XIII)

Table XIII: Perception on instructions compared to other studies

Authors	Agree	Neutral	Disagree
Our study	69%	28%	3%
Pierre (Jamaica, 2004) (18)	58%	27%	15%
Ali (Egypt, 2012) (28)	50%	37.9%	12.1%
Ameh (Nigeria, 2014) (29)	88.5%	9%	2.6%
Khaoua (Marrakech, 2018) (21)	35.5%	20.7%	43.8%
Al Nazzawi (Saudi Arabia, 2018) (20)	28.8%	38.1%	33.1%
Fouad (Egypt, 2019) (22)	67%	13%	20%
Bounid (Marrakesh, 2020)	58.8%	39.4%	3.78%

(89%) of students in our study felt that the number of stations which was limited to 5 was adequate,and (64%) felt that the time allocated to each station was enough and only (14%) felt it wasn't. Review of the literature differs widely , the majority of studies concluded that the time allocated to the stations which is normally limited to 5 min each, was insufficient (18,21,23,28,29,32), affirming that it should be lenghtened by 5 min to allow for a better response to the totality of the questions asked or gestures requested(34), nonethelessthe the results ofthe study by Jawaid(35) was consistent with our findings. (See Table XIV)

Table XIV: Perception on station time compared to other studies

Authors	Agree	Neutral	Disagree
Our study	64%	22%	14%
Pierre (Jamaica, 2004)(18)	21%	35%	44%
Awaisu (Malaysia, 2007)(32)	32%	22%	4%
Ali (Egypt, 2012)(28)	44.8%	37.9%	17.2%
Ameh (Nigeria, 2014)(29)	47.4%	29.5%	22.4%
Jawaid (Pakistan, 2014)(35)	64.2%	14.7%	2.8%
Jindal (India, 2016)(23)	20%	20%	59.9%
Khaoua (Marrakesh, 2018) (21)	45%	14%	41%
Bounid (Marrakesh, 2020)(34)	48%	0%	52%

b. Content of the OSCE :

(56%) students in our study felt that the OSCE tested a wide range of knowledge and skills which was not as high satisfaction showed in other studies. (See Table XV)

Table XV: Wide area of knowledge covered

Authors	Agree	Neutral	Disagree
Our study	53%	36%	11%
Pierre (Jamaica , 2004)	95%	5%	0%
Awaisu (Malaysia, 2007)	79%	20%	2%
Ali (Egypt, 2012)	72,4%	5,2%	22,4%
Saeed (KSA, 2016)	82,1%	11,5%	6,4%
Jindal (India, 2016)	94,2%	5,8%	0%
Khaoua (Marrakesh, 2018)	73%	17%	10%
Fouad (Egypt, 2019)	71%	11%	18%

On the other hand, (75%) of particpiants in our study felt that the clinical competencies evaluated reflected those taught in lectures and clerkship, this was consistent with other studies findings such as Pierre, Ameh, Jawaid and Fouad. (See Table XVI)

Table XVI: Skills evaluated reflected skills taught

Authors	Agree	Neutral	Disagree
Our study	75%	17%	8%
Pierre (Jamaica, 2004)	73%	23%	4%
Ameh (Nigeria, 2014)	76.9%	18.6%	22.4%
Jawaid (Pakistan, 2014)	61.5%		
Khaoua (Marrakesh, 2018)	33%	22%	45%
Al Nazzawi (Saudi Arabia, 2018)	23.5%	57.1%	19.3%
Fouad (Egypt, 2019)	75%	13%	12%

Overall, our study shows a good level of satisfaction among students with the OSCE as a valuable learning experience. (78%) of our group perceived that the OSCE provided an opportunity to better learn skills and competencies and very good impression of their own strenghts and weaknesses, increasing the students' perceptions of OSCESs validity. It must be remembered that students are reporting "subjective validity" rather than validity in a psychometric sense. (36)

The finding that an overwhelming proportion of students agrees that the OSCE provided a useful and practical learning experience when compared to written examinations, and that the OSCE stimulated learning and gave students a greater level of realistic self-assessment, was consistent with similar studies reported elsewhere.

Table XVI: Exam is a valuable learning experience

Authors	Agree	Neutral	Disagree
Our study	78%	19%	3%
Pierre (Jamaica, 2004) (18)	69%	21%	11%
Ameh (Nigeria, 2014) (29)	74.4%	1.9%	5.8%
Saeed (Saudi Arabia, 2016) (24)	79.5%	0%	20.5%
Khaoua (Marrakesh, 2018) (21)	82%	9%	9%
Fouad (Egypt, 2019) (22)	70%	15%	15%
Pruyer (UK, 2019) (36)	80.1%	0%	19.8%

When compared to other means of assessment, the majority of participants in our study (67%) believe that OSCEs should remain as the form of assessment in clinical examinations which was also consistent with what we find in other studies such as Fouad and Idris.(19,22)

Some reservations still exist, (39%) of participants in our study expressed concerns when it comes to potential external factors such as personality, ethnicity and gender affecting OSCEs score. Review of the literature found concerns of differences in communicating styles rather than discrimination, may be responsible for some of the variation in performance(37).

This represents a non-negligibale fear, influencing students' perceptions validity of the exam. Nonetheless, the literature on this matter differs widely.

Table XVIII : External factors affecting OSCE scoring :

Authors	Agree	Neutral	Disagree
Our study	39%	19%	42%
Pierre (Jamaica, 2004) (18)	18%	19%	63%
Shitu (Ethiopia, 2007) (30)	71%	10%	19%
Awaisu (Malaysia, 2007) (32)	46%	27%	27%
Ameh (Nigeria,2014) (29)	86.5%	7.7%	5.8%
Al Nazzawi (KSA, 2019) (20)	24%	45%	31%

Overall, the majority of our students in the present study (67%) gave their absolute approval towards the continued use of OSCE for final clinical. This would highlight the need for student participation in the development of new assessment tools in medical curricula, as their acceptance will be more favourable for assessment formats that they perceive to be transparent, authentic and valid.

2. Examiners' and staff's perception and satisfaction of OSCE:

2.1. OSCE attributes and content :

The staff satisfaction regarding the OSCE revealed that they agreed to use OSCE to measure the clinical competencies of the students, fair, reduce the bias in clinical exams and that its stations were clearly written and reviewed.

This finding is consistent with those of the Sloan et al. study, which revealed that the staff considered the OSCE to be a suitable tool for assessing the students' individual skills and that it is a useful performance-based assessment tool (38). The findings are also consistent with those of Omu et al., which reports that the majority of examiners agree that the evaluation of acquired skills revealed a high degree of perception of OSCE as a method of assessing clinical skills, communication skills, patient care and assessment of knowledge. The transparency of the process or lack of bias was ascertained to be high and objective (39).

Similar results to those of the Fouad et al study, where examiners agreed that the OSCE is fair compared with Traditional Clinical Exam (TCE), covered a wide range of clinical knowledge and skills compared with TCE, and 76.5% of them agreed that using OSCE reduces the bias in clinical evaluation. (22)

2.2. OSCE's preparation :

Most of the staff (50%) suggested that they required more training for their role as an OSCE examiner to achieve more valid and reliable results, and they agreed that OSCE is more time consuming compared to other methods of performance assessment. This finding is consistent with what was reported in a systematic review about OSCE feasibility, in which staff perception toward OSCE was uncertain concerning using the OSCE as an assessment tool, and they may be discouraged due to its complexity, associated costs and time required. This time demand is justified both by the need to assess students' clinical competence and by the provision of an important learning experience for students with feedback being given after the OSCE. (40) The findings are also consistent with those of Fouad and al., which revealed that (80.4%) of the staff agreed that faculty staff members need specific training to achieve more valid and reliable results when using OSCE as an assessment tool.

When it comes to OSCE preparation, (100%) of the examiners agreed that the preparation of stations requires more resources and a continuous time consuming process. This was also reported in a review article, which demonstrated that the high costs are primarily related to manpower (examiners, patients, coordinators), resources, time, space, and the extensive organisation required.(41)

In the examiners' points of view, (83%) of our participants agreed that OSCEs are preferable to other evaluation formats and should be continued to be used as an assessment tool, and (75%) agree that it should be used more often in clinical training. This findings are coherent with the findings of the Idris et al study, which reports that (90%) of examiners think that OSCE should be followed as the method of assessment in Surgery and that (95%) agree that

OSCE was better a better assessment form compared to TCE. (19) The same findings were reported by Majumder et al, where the study showed that 55% of examiners OSCE prefer to other formats of clinical examination and should be used more often in the clinical years. (42)

3. Limits and strengths of osce

Evaluation and quality control of an OSCE is important, and constant monitoring and improvement are necessary.

Validation of the OSCE is important and should be an ongoing responsibility for those organising the examination, providing guidance for quality improvement. The evaluation of the OSCE should be seen as an ongoing process throughout the OSCE cycle and not just as something that happens after the examination has taken place. All of the stakeholders, including examiners, teachers, examinees and patients, should be engaged with the evaluation process.

- In our study, students' evaluation of OSCE in this study was very positive. This was demonstrated by favorable responses concerning its accuracy in measuring knowledge and skill, fairness of the examination process, additional experience, and learning from the OSCE and its enhancement of communication skills.
- The majority of students saw the OSCE as an unprecedented opportunity to encounter reallife scenarios. It also provided students with feedback mechanism to measure their strengths and weaknesses in clinical skills.
- Another advantage of OSCE is that it can be adapted according to the local needs, departmental policies and availability of resources.

In this light, it becomes clear that the OSCE has an important role to play in the assessment of the learner's competence. However, its limitations should be recognised.

- The OSCE is not a panacea and should be used as part of a cocktail of tools alongside other assessment approaches, such as portfolios and work-based assessment tools.

- Another recurrent concern of this approach is that the student's skills and knowledge are being put into compartments and that he is being discouraged from looking at the patient as whole. Whilst it is valuable to assess the learner's competence in discrete tasks in an OSCE, there is a need also to assess the learner's overall performance with patients.
- The OSCE may be seen as demanding to organise and expensive to run in terms of resources and time. This is not surprising given the important goals of the examination. However, the OSCE can be administered where resources are limited.
- Behaviours of students in an OSCE may not reflect their later behaviours in clinical practice. The closer the OSCE approach is to clinical practice, the more valuable the assessment will be to assess students' competence.
- Students expressed considerable concern that examiners were a major sources of bias in scores. Checklist is meant to reduce this evaluator variability but no matter what version of scoring is used, there is always concern for evaluator reliability and differences between evaluator evaluations. A common evaluator erroris leniency. Despite intensive evaluator training and experience, we have some examiners being more stringent and requiring a higher performance than other examiners who are more lenient, a phenomena known as the hawk-dove problem
- The majority of students didn't get feedback on their performance, whichhas an important role to play in the OSCE. Through feedback to the student or trainee, the OSCE can promote learning and not just measure it.
- If the full benefits of the OSCE are to be obtained, the assessment should be closely integrated with the curriculum, recognising 'assessment for learning' and 'assessment as learning', as well as 'assessment of learning'.
- Due to COVID-pandemic conditions and necessary health guidelines in 2020 and 2021, logistical issues inherent with OSCE delivery were exacerbated for our faculty and many institutions across the globe. As a result we were forced to go back to traditional clinical

assessment strategies to guide decision-making regarding student progression.There is an evident need to creatively restructure the OSCE to reduce curriculum disruptions.

4. Recommendations for improvement of the osce

This study highlights the importance of supporting students encountering new forms of assessment to help with anxiety levels.It reminds us that teaching and assessment need to be constructively aligned in order to maximise learning .

* This may be achieved by ensuring that handbooks are fit for purpose, clear and concise and up-to-date, as handbooks that contain excessive infor mation may not be read.

It would be also sensible to provide students with a "checklist" of skills on which they may be tested and to ensure that students have had sufficient time in which to practise these skills.

* The introduction of "mock" OSCEs would be sensible for junior students in different departements as it was the unfamiliar format of the OSCE that helped contribute towards student anxiety. As well as familiarising students with the OSCE format, a "mock" OSCE would help provide formative feedback on student learning. Furthermore, a "mock" OSCE would allow students to view their familiar teachers in the new role of examiners.

This mock test can also take a virtual format as an online serious game (OSCEGame) was developed and implemented within the OSCE curriculum.(43)

Figure53: OSCE-Game screenshots

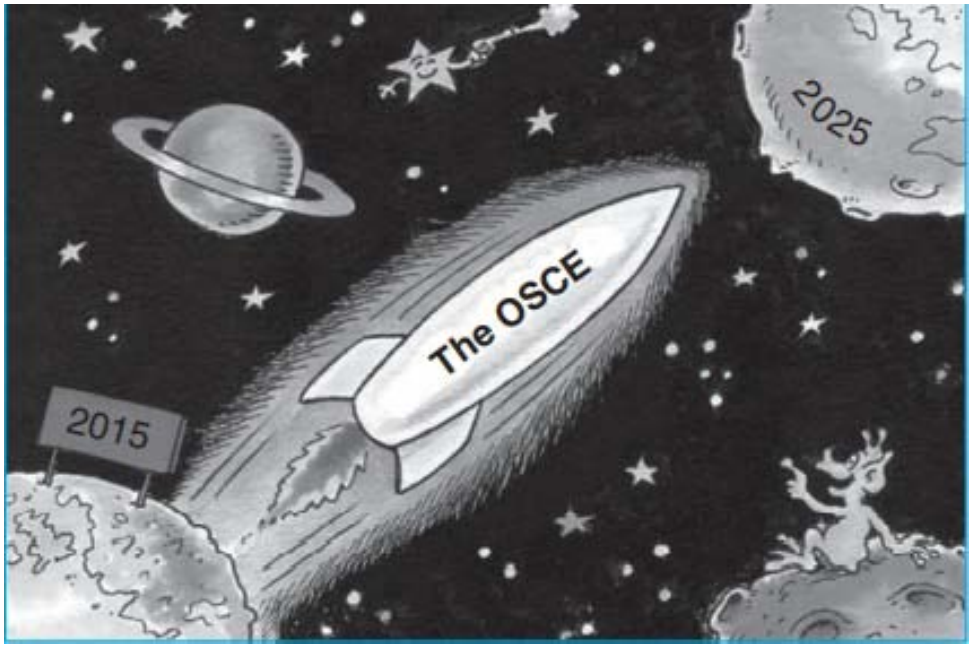
A. Screenshot of the surgery station. Two activities are presented by an avatar. Detailed instructions are also available in the menu in the upper left hand corner of the screen, highlighted by an orange spot. B. Screenshot of the bonding procedure station. The student is asked to select the necessary equipment in the correct order. In the upper right hand corner, a timer indicates the time left to complete the station. When the student is satisfied with his/her answer, he/she can validate on the orange button at the lower right hand corner, or reset and try again with the blue button.

*It may also be beneficial to involve senior students in the preparation of junior students for their first OSCE, thus making use of the strong peer culture that exists within the student body. This would also ensure that all junior students were able to access this near-peer guidance and a peer-led mock OSCE have shown to improve student confidence for summative OSCE assessments. (44)

* Examiner training is key, not just in terms of making appropriate judgments about student performance, but also towards their attitudes towards students and their awareness of possible student anxiety levels.

*Developing a secure, regularly updated (20% of new questions per year) bank of robust and quality assured OSCE stations can contribute significantly towards lightening the difficulties to prepare for an OSCE in hospital departments.

*With careful planning, developping and implementing an online OSCE can also be benefecial during pandemic times and physical distancing restrictionsas the same way lectures and case presentations were able to be transitioned into e-learning through platforms like Zoom.**(45-48)**


2025
The OSCE
2015

CONCLUSION

The medical students' and staff's satisfaction using OSCE as a performance assessment tool at the level of "shows how" according to Millar's pyramid in undergraduate medical education is still debatable in the literature. Therefore, the current study has added evidence regarding the OSCE evaluation from students, examiners and staff's points of view.

The study revealed that OSCE is a valuable practical learning experience and most of the students agreed that OSCEwas fair, unbiased and helped them to identify gaps in their clinical knowledge. There were different causes of dissatisfaction among students regarding the OSCE exam, including the exam's format being more intimidating and no feedback received from the staff in some stations after the end of the exam.The students also noted that, the exam was well-structure and sequence, provide opportunities to learning experience and reflected real life situation. Also the majority of examinees was satisfied with conduct, organization and administration of the OSCE; as well prefer using the OSCE exam more in the clinical exams than other assessment tools. The survey further highlighted for future refinement, the strengths and weaknesses associated with the development and implementation of an OSCE.

Additionally, the study concluded that the staff members agreed that OSCE reduces the bias in other clinical exams, such as oral and long cases, and OSCE provides a fair assessment of the students more than long cases but they suggested that staff members involved in OSCE need more practical training sessions on their roles as OSCE examiners to achieve more valid and reliable exam results.

This study was the first to obtain the perception of students, staff and medical interns on OSCE implementation in all clinical departments at FOM-SCU and receive feedback and suggestions for improvement from the staff, who share in this type of exam. Both staff and students became familiar with this type of clinical exam after a long period of resistance from both populations, and the results showed that OSCE can be successfully implemented considering the different suggestions provided by staff, students and medical interns regarding OSCE organisation, preparation, and implementation. This study confirms that OSCE is a reliable,

valid, honest and fair method of medical examination. The objective to reduce resistance was achieved, as staff and students' attitudes became increasingly positive towards OSCE during the implementation and evaluation process.

In light of this finding, it is recommended that the OSCE must be used as an integral part of the overall assessment strategy and introduced to students earlier in their studies; moreover, the OSCE shouldn't be relied on solely and should be used it in conjunction with other classical clinical examination methods. More studies are required involving larger number of students and teachers to further establish the effectiveness of the OSCE within the undergraduates' medical curriculum.

ABSTRACT

Abstract

Nowadays the Objective Structured Clinical Examination (OSCE) is widely used to assess the clinical performance of medical students. The aim of this study was to investigate the students' and examiners perception towards the OSCE as part of an evaluation of clinical skills in undergraduates' medical students in their end-of-clerkship examination .Two self-administered questionnaires inspired by a Pierre et al.questionnaire weredistributed to students and examiners right after the completion of the OSCE; also, semi-structured interviews with the staff and medical students were conducted.

When it comes to students, the results of this study indicates that OSCE has been widely viewed as a fair assessment tool (80%), that it helped identifying gaps in knowledge (78%) and weaknesses in communication and patient care skills (67%). However, some students felt that OSCE was intimidating (31%) more stressful than other exams (33.3%) , that it was relatively difficult to prepare for the exam (25%) with (73%) of students thinking the clerkship guide wasn't helpful as a reference for exam preparation. Moreover, the students felt that the OSCE provided opportunities to better learn skills (67%) and felt that the skills evaluated reflected indeed those which were taught (75%), The majority (73%) of students reported that the stations were well organized and of logical sequence, (67%) of them agreed that the skills evaluated reflected those needed for a general practitioner and overall that the OSCE provided a valuable learning experience (78%) and supported that OSCEs should remain as the form of assessment in clinical exmaination(67%) . Student feedback confirmed an overwhelming acceptance of OSCE as an evaluation tool for their clinical skills, so as to fairness and unbiased, cover a wide range of knowledge and comprehensive, provide opportunities to leaning. Also the majority of examinees was satisfied with organization and administration of the OSCE, they preferred using the OSCE exam more in the clinical exams than the other assessment. Approximately (50%) of the staff emphasised that faculty members need specific training to achieve more valid and reliable results when using OSCE as an assessment tool, and (75%) of them agreed that OSCE is fair and

using it reduced the bias in clinical assessment. The majority (83%) agreed that OSCE is preferable to other evaluation formats and (75%) believes it should be used more often in clinical training.

The study population point of view concluded that OSCE is the most valid and reliable tool for assessing the clinical performance of students; however, it requires comprehensive planning and training with collaborative work from all the stakeholders involved in its organisation and implementation. More studies are required involving larger number of students and examinersto further establish the effectiveness of OSCE within medical curriculum.

Résumé

De nos jours, l'examen clinique objectif structuré (ECOS) est largement utilisé pour évaluer les performances cliniques des étudiants en médecine. L'objectif de cette étude était d'étudier la perception des étudiants' et des examinateurs à l'égard des ECOS dans le cadre d'une évaluation des compétences cliniques des étudiants en médecine de premier cycle lors de leur examen de fin d'externat. Deux questionnaires auto-administrés inspirés d'un questionnaire de Pierre et al. ont été distribués aux étudiants et aux examinateurs juste après la fin de l'ECOS ; des entretiens semi-structurés avec le personnel et les étudiants en médecine ont également été menés.

En ce qui concerne les étudiants, les résultats de cette étude indiquent que les ECOS ont été largement considérés comme un outil d'évaluation équitable (80 %), qu'ils ont aidé à identifier les lacunes dans les connaissances (78 %) et les faiblesses dans les compétences en matière de communication et de soins aux patients (67 %). Cependant, certains étudiants ont estimé que les ECOS étaient intimidants (31%), plus stressants que d'autres examens (33,3%), qu'il était relativement difficile de se préparer à l'examen (25%) et que 73% des étudiants pensaient que le guide d'externat n'était pas une référence utile pour la préparation de l'examen. En outre, les étudiants ont estimé que l'OSCE leur avait permis de mieux acquérir des compétences (67%) et que les compétences évaluées reflétaient effectivement celles qui étaient enseignées (75%),La majorité (73%) des étudiants ont déclaré que les stations étaient bien organisées et dans un ordre logique, (67%) d'entre eux ont convenu que les compétences évaluées reflétaient celles nécessaires à un médecin généraliste et, dans l'ensemble, que l'OSCE constituait une expérience d'apprentissage précieuse (78%) et ont soutenu que les OSCE devraient rester la forme d'évaluation dans l'enseignement clinique (67%).

Les commentaires des étudiants ont confirmé une acceptation massive des ECOS en tant qu'outil d'évaluation de leurs compétences cliniques, de manière à ce qu'ils soient équitables et impartiaux, qu'ils couvrent un large éventail de connaissances, qu'ils soient complets et qu'ils

offrent des possibilités d'apprentissage. La majorité des participants à l'examen étaient également satisfaits de l'organisation et de l'administration de l'ECOS, ils préféraient utiliser l'examen ECOS dans les examens cliniques plutôt que d'autres évaluations. Environ (50 %) du personnel a souligné que les membres de la faculté ont besoin d'une formation spécifique pour obtenir des résultats plus valides et plus fiables lorsqu'ils utilisent l'OSCE comme outil d'évaluation, et (75 %) d'entre eux ont convenu que l'OSCE est juste et que son utilisation réduit les biais dans l'évaluation clinique. La majorité d'entre eux (83 %) ont convenu que les ECOS sont préférables à d'autres formats d'évaluation et (75 %) pensent qu'ils devraient être utilisés plus souvent dans la formation clinique.

Le point de vue de la population étudiée a permis de conclure que l'ECOS est l'outil le plus valide et le plus fiable pour évaluer les performances cliniques des étudiants ; cependant, il nécessite une planification et une formation complètes ainsi qu'un travail de collaboration de la part de toutes les parties prenantes impliquées dans son organisation et sa mise en œuvre. D'autres études sont nécessaires, impliquant un plus grand nombre d'étudiants et d'examinateurs, pour mieux établir l'efficacité des ECOS dans le cadre du programme d'études médicales.

ملخص

في الوقت الحالي، يُستخدم الاختبار السريري الموضوعي المنظّم (OSCE) على نطاق واسع لتقييم الأداء السريري لطلاب الطب. وكان الهدف من هذه الدراسة هو التحقق من تصورات الطلاب والممتحنين تجاه الـ OSCE كجزء من تقييم المهارات السريرية لطلاب الطب في نهاية امتحاناتهم السريرية. تم توزيع استبيانين مصممين ذاتيًا مستوحين من استبيان بيير وآخرون على الطلاب والممتحنين مباشرة بعد انتهاء الـ OSCE، كما تم إجراء مقابلات شبه منظّمة مع الأساتذة وطلاب الطب.

فيما يتعلق بالطلاب، تشير نتائج هذه الدراسة إلى أن الـ OSCE اعتُبر على نطاق واسع أداة تقييم عادلة (80%)، وأنها ساعدت على تحديد الثغرات في المعرفة (78%) والضعف في مهارات التواصل والرعاية الصحية للمرضى (67%). ومع ذلك، شعر بعض الطلاب أن الـ OSCE كان مخيفًا (31%) وأنه أكثر إجهادًا من الامتحانات الأخرى (33.3%)، وأنه كان صعبًا نسبيًا للتحضير له (25%) مع اعتقاد (73%) من الطلاب بأن دليل الأرشاد للفترة العملية لم يكن مفيدًا كمرجع لإعداد الامتحان. وعلاوة على ذلك، شعر الطلاب أن الـ OSCE قدم فرصًا لتعلم المهارات بشكل أفضل (67%)، وشعروا أن المهارات التي تم تقييمها تعكس تمامًا تلك التي تم تدريسها (75%)، وأفاد (73%) من الطلاب بأن المحطات كانت منظمة بشكل جيد ومنطقية، ووافق (67%) منهم على أن المهارات التي تم تقييمها كانت تعكس تلك المطلوبة للأطباء العامين، وفي النهاية، وجد الطلاب بأن الامتحان السريري الموضوعي المُنظَّم قدم تجربة تعليمية قيمة (78%)، وأيّدوا استمرار استخدامه كأداة تقييم في الامتحان السريري (67%).

وأكدت ردود الطلاب على أن الامتحان السريري الموضوعي المُنظَّم هو أداة تقييم عادلة وغير متحيزة، وتغطي مجموعة واسعة من المعرفة وشاملة، وتوفر فرصًا للتعلم. كما أن معظم الممتحنين كانوا راضين عن تنظيم وإدارة الامتحان السريري الموضوعي المُنظَّم، وأفضلوا استخدامه في الامتحانات السريرية بدلاً من الطرق التقييمية الأخرى.

حوالي (50%) من أفراد الهيئة التدريسية أكدوا أن أعضاء الهيئة التدريسية يحتاجون إلى تدريبات محددة لتحقيق نتائج أكثر صحة وموثوقية عند استخدام OSCE كأداة تقييم، و(75%) منهم اتفقوا على أن OSCE عادل وأن استخدامه يقلل من التحيز في التقييم السريري. والأغلبية (83%) اتفقوا على أن OSCE هو الشكل التقييمي المفضل على الآخرين و (75%) يعتقدون أنه يجب استخدامه بشكل أكثر في التدريب السريري.

توصلت نتائج وجهة نظر مجتمع الدراسة إلى أن الاختبار السريري الموضوعي المنظم (OSCE) هو الأداة الأكثر صحة وموثوقية لتقييم الأداء السريري للطلاب. ومع ذلك ، يتطلب الأمر تخطيطًا شاملاً وتدريبًا محددًا وعملًا تعاونيًا من جميع الأطراف المعنية في تنظيمه وتنفيذه. ويتطلب المزيد من الدراسات التي تشمل عددًا أكبر من الطلاب والممتحنين لتأكيد فعالية OSCE داخل المنهاج الطبي..

APPENDICES

Appendix : Questionnaire adressed to students :

Appendix : Questionnaire adressed to examiners :

Appendix : Pediatric orthopedic surgery SAMPLE STATION

ECOS de Chirurgie orthopedic pédiatrqiue

Station :

1. Type de station : Interprétation d'une radio du poignet
2. Durée : 05 minutes
3. Matériel nécessaire :
   - Négaotoscpe
   - Radiograpie du poignet
4. Documents
   - Feuille de l'énoncé putr le candidat : Vignette clinique
   - Scénario
   - Grille d'évaluation
5. Scénario :

Situation clinique :

Enoncé : Un enfant agé de 13 ans antécédents particuler se pésente pou un traumaisme du poignet gauche ar chute sur la main en extension. Après examen, une radio a été demandée.

1. Inerpréter la radio ?
2. Quel est votre diagnostique ?
3. Quel est le nom de la clasification de votre diagnostqiue ?
4. Seon la clasification préalablement citée : de quel stade s'agit-il ?
5. Quel traitement proposez-vous ?

Appendix : Exemple of a clinical vignette

Vignette clinique :

Un enfant de 6 ans est hospitalisé pour arthrite septique du genou droit

Au bloc opératoire il a bénéficié d'une ponction lavage de l'articulation ; le prélèvement de liquide articulaire a été adressé au laboratoire pour étude cytobactériologique

Une antibiothérapie par voie intraveineuse a été administrée.

3 jours après son admission, le patient est toujours fébrile à 39°

La CRP est toujours proche de la valeur initiale

Directives :

Vous avez **5 mn** pour :

Enumérer les différentes hypothèses à l'origine de l'échec thérapeutique

Identifier certaines de ces hypothèses sur la fiche de prescription médicale

Appendix: Marking sheet sample for the evaluator (without scoring)

GRILLE NON PONDEREE

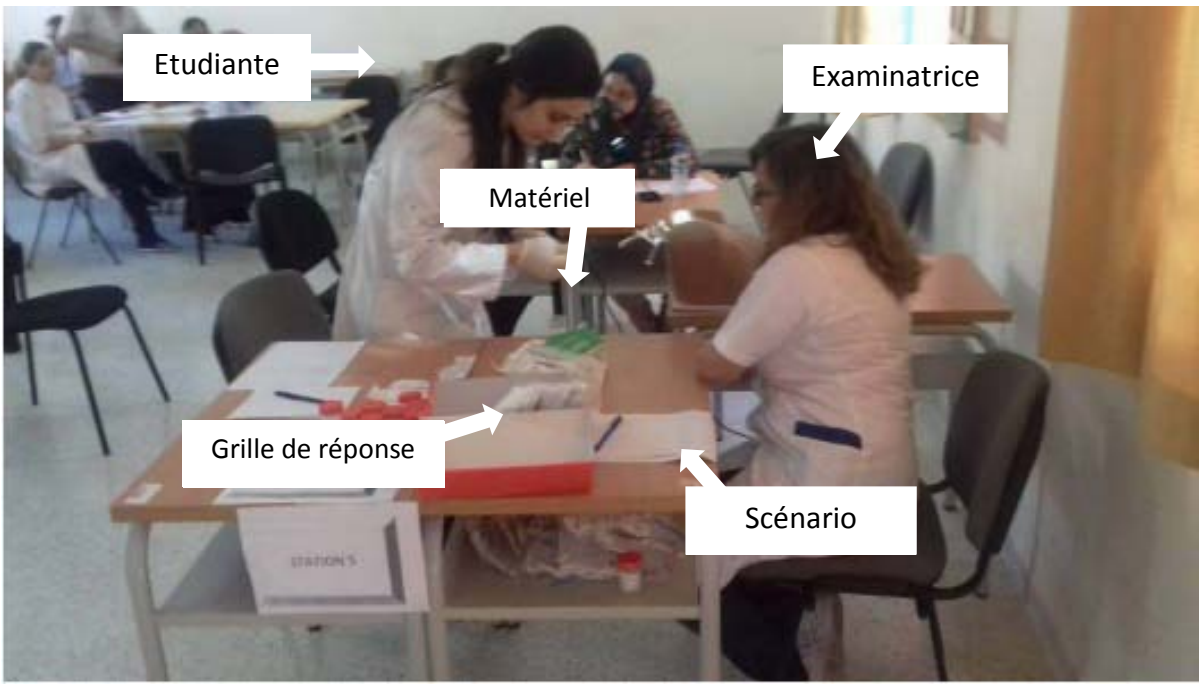
ITEM		FAIT	NON FAIT
	Le candidat a évoqué		
1	la sensibilité ou la résistance à l'ATB		
2	le dosage de l'antibiotique		
3	l'observance (l'administration par les infirmiers) de l'ATB		
4	La voie veineuse fonctionnelle ou pas		
5	Mauvais drainage de l'articulation		
6	Autres localisations		
	Le candidat a identifié		
7	L'absence de gentamycine		
8	Le sous dosage de l'Amox/ Ac Clav		
	Le candidat a adapté les doses de l'ATB		
9	gentamycine		
10	Amox/Ac Clav		

Appendix: Marking sheet sample for the examiner responsible for the station (with scoring)

GRILLE PONDEREE

ITEM		POINTS
	Le candidat a évoqué	
1	la sensibilité ou la résistance à l'ATB	3
2	le dosage de l'antibiotique	2
3	l'observance (l'administration par les infirmiers) de l'ATB	1
4	La voie veineuse fonctionnelle ou pas	1
5	Mauvais drainage de l'articulation	1
6	Autres localisations	2
	Le candidat a identifié	
7	L'absence de gentamycine	3
8	Le sous dosage de l'Amox/ Ac Clav	3
	Le candidat a adapté les doses de l'ATB	
9	Gentamycine 3 à 5 mg/kg/j en 1 prise	2
10	Amox/Ac Clav 100mg/kg/j	2
TOTAL		/20

Appendix : Configuration of a station



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قسم الطبيب

أقْسِم بالله العَظِيم

أن أراقبَ الله في مِهْنَتِي.

وأن أصُونَ حياة الإنسان في كآفّةِ أطوَارهَا في كل الظروف والأحَوال باذلة وسْعِي في إنقاذها مِن الهَلاكِ والمرَضِ والألَم والقَلَق.

وأن أحفَظَ لِلنَاسِ كرَامَتهُم، وأسْتر عَوْرَتهُم، وأكتمَ سِرَّهُمْ.

وأن أكونَ عَلى الدوَام من وسائِل رحمة الله، باذلة رِعَايَتي الطبية للقريب والبعيد ،للصالح والطالح، والصديق والعدو.

وأن أثابر على طلب العلم، وأسَخِّرَه لِنَفْعِ الإِنْسَان لا لأذَاه.

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وأكون أختاً لِكُلّ زَميل في المِهنَةِ الطِّبِّيَة مُتعَاونِين عَلى البرِّ والتقوى.

وأن تكون حياتي مِصْدَاق إيمَاني في سِرّي وَعَلانيَتي،نَقِيَّة مِمّا يُشينهَا تجَاهَ

الله وَرَسُولِهِ وَالمؤمِنين.

والله على ما أقول شهيد

كليـــــــة الطب
والصيدلة - مراكش
FACULTÉ DE MÉDECINE
ET DE PHARMACIE - MARRAKECH
MARRAKECH
جامعة القاضي عياض
UNIVERSITÉ CADI AYYAD

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تصورات الممتحنين و الطلاب حول التقييم السريري موضوعي البناء في جراحة عظام الأطفال : دراسة استطلاعية

الأطروحة

قدمت ونوقشت علانية يوم 2023/03/22

من طرف

السيدة مريم أهرة

المزدادة في 02 فبراير 1995 بأكادير

لنيل شهادة الدكتوراه في الطب

الكلمات الأساسية:

ممتحنين - طلبة الطب - تقييم - تعليم طبي - تقييم سريري
تقييم سريري موضوعي بناء

اللجنة

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السيد	ط. سلامة أستاذ في جراحة الأطفال	المشرف
السيد	أ. غ. الأديب أستاذ في طب التخدير والإنعاش	الحكام
السيد	ا. أغوتان أستاذ في جراحة الأطفال	