Objective Structured Clinical Examination (OSCE): Perceptions of Nursing Students in Tuberculosis Diagnosis

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Abstract—Objective: Evaluate the perception of nursing students from a public university regarding the Objective Structured Clinical Examination (OSCE) on the topic of tuberculosis diagnosis. Method: Quanti-qualitative research, carried out in the Nursing Undergraduate Course of a public university, in june 2019, with the participation of 30 nursing students, who answered a self-administered questionnaire. It was used percentage and Pearson's Chi-square for statistical analysis. For the analysis of qualitative data, the free word evocation technique was used. Results: The study shows that 73.3% of academics reported that the scenario developed in the OSCE exam contributed to the exercise of nursing in the face of tuberculosis diagnosis, 76.7% considered it necessary that Nursing Courses should modify the preparation of academics in relation to tuberculosis and 76.7% recommend developing greater skill for nursing consultations and home visits to patients. Conclusion: It is concluded that the exam's potentialities were highlighted, discussing its benefits in relation to learning needs.

Keywords—Evaluation. Teaching. Nursing. Tuberculosis. Diagnosis.

I. INTRODUCTION

Tuberculosis (TB) is still a serious and challenging global public health problem. Worldwide, in 2018, about ten million people became ill from tuberculosis and 1.5 million people died from it, with TB being the leading cause of death from a single infectious agent. The disease disproportionately affects males, young adults and low-income countries, pointing to the association between the occurrence of TB and socioeconomic factors (BRASIL, 2020).

The delay in diagnosis is an important factor for the worsening of the clinical picture, hinders proper management and favors a poor prognosis. The disease has been diagnosed late, in an advanced stage and by hospital institutions, which results in high mortality. According to the national health policy, the responsibility for the diagnosis and treatment of the disease lies with the Primary Care teams (SALZANI et al., 2017).

One of the factors regarding the delay in the diagnosis of TB is the difficulty in the academic training of health professionals, since teaching and learning about TB has not been considered an easy task, in which there is a need to incorporate new methodologies to improve skills of undergraduate and graduate students in the health field. Studies found weaknesses in undergraduate nursing education regarding Directly Observed Treatment of TB, as this is one of the priority strategies of the National Tuberculosis Control Program. Among others, the fragility of teaching will have a negative impact on both the management of the program and the assistance to people with the disease (GRECCO et al., 2014).

Investment in education needs to be provided from the academy, through meaningful learning, regarding the teaching-learning of TB, it is emphasized that the use of active methodologies, capable of integrating different teaching strategies, is paramount to develop critical and reflective thinking (BITTENCOURT, 2011).

The nurse needs to master specific skills that comprises four stages: engagement, evaluation, intervention and completion. According to the literature, each stage requires three types of skills called perceptual, conceptual and executive. Perceptual ability is related to the nurse's ability to make observations that are important. Conceptual skill refers to the ability to assign meanings to what has been observed. In turn, executive skill refers to interventions performed by nurses (SANTOS et al., 2017). Thus, the

importance of acquiring clinical competences and skills for nursing practice in the diagnosis of tuberculosis is highlighted.

The National Curriculum Guidelines for health courses encourage the use of different teaching-learning scenarios and integration between content, moreover to the fact that several strategies have been tested and compared as methods for teaching various pathologies, such as traditional classes, based on readings of clinical cases, workshops, among others, but the demands of the world of work require new teaching methods. Therefore, the teaching-learning process is implemented through different tools and new successful methodologies have been described (OLIVEIRA NETO, 2015).

In higher education, assessment assumes a social role, as the goal of teaching is to meet the demands of the labor market. Therefore, as a pedagogical tool, the evaluation process requires constant reflection and revision of its instruments. Once it is a teaching-learning strategy, the evaluation process needs to be understood as an integrating act, with a tendency to rescue the ethical, social and political meanings of the evaluation, seeking the qualification of the educational process (NEVES et al., 2016).

In this study, the Objective Structured Clinical Examination (OSCE) was used as an evaluation tool, which consists of a circuit of stations, which contain standardized patients, one or two evaluators, and specific tasks in each of the situations. The stations can only evaluate procedures, contain questions related to the previous station, or the two models can coexist in a single moment (NEVES et al., 2016).

Pedagogically, the use of OSCE has the benefit of being an objective, standardized and simulated method, minimizing the risks for the patient and the evaluated student (NEVES et al., 2016).

In this evaluation modality, the student applies both the reasoning and decision-making process and makes use of motor skills to perform procedures, furthermore, to exercising their attitudes to serve the simulated patient, configuring a competency assessment. Thus, the exam covers the third level of the Miller pyramid, in which the student demonstrates how to execute a command and / or procedure, which is tested before entering the internship field (NEVES et al., 2016).

As a disadvantage, the OSCE demands large logistics and workforce, requiring ample prior planning, a sufficient number of evaluators and stations per number of students evaluated, moreover to physical space to accommodate university students awaiting the moment of evaluation.

Organization is required to rotate between stations, so that, at the end of the exam, everyone is evaluated with respect to the same items (NEVES et al., 2016).

Thus, this study aimed to evaluate the perception of nursing students from a public university regarding the OSCE on the topic of tuberculosis diagnosis.

II. METHOD

This is an exploratory research with a quanti-qualitative-descriptive approach, developed on the premises of the Undergraduate Nursing Course of a public university, carried out in June 2019, with the participation of 30 students.

The inclusion criteria for the participants were to be enrolled in the 5th year of the Nursing Course and who were attending or have attended the curricular component Supervised Internship in Public Health. Participants with a locked registration or who were away for any reason were excluded.

After academics had traveled through five OSCE stations on the topic of tuberculosis diagnosis, they participated in the feedback moment, in which a joint evaluation was carried out between teachers and students. An instrument for data collection was used, which is a self-administered questionnaire with open and closed questions and then socialized their experiences.

The quantitative analysis was based on the percentage distribution and measures of central tendency. Pearson's Chi-square statistical tests for nominal variables were used for statistical analysis of the data, in order to indicate whether the observed frequencies showed a significant trend. To perform the test, a significance level of p-value <0.05 was adopted, that is, if p-value <0.05 is accepted H1 = The observed frequencies differ significantly for the different groups.

In this way, the collected data were tabulated, interpreted, processed and analyzed using descriptive and inferential statistics. For data analysis, computing resources were used, through processing in Microsoft Excel and Statistic Package for Social Sciences (SPSS) version 24.0, all in Windows 7 environment.

For the analysis of qualitative data, the free word evocation technique was used. Initially, we typed all the words evoked by the participants after the presentation of the stimulus word, in a text editor in "plain text" (txt) format. Then, we processed the text on the website https://www.jasondavies.com/wordcloud/#%2F%2Fwww.jasondavies.com%2Fwordcloud%2Fabout%2F and

obtained a word cloud, which highlights the most evoked words.

The strengths and weaknesses highlighted by academics were organized in tables, and repeated items were excluded.

This study was approved by the Ethics Committee on Research with Human Beings, obeying Resolution No. 466/12 of the National Health Council by the number: CAAE: 12062919.6.0000.5170.

the OSCE exam contributed to the exercise of nursing in the face of TB diagnosis, the majority (23; 76.7%) considered it necessary that Nursing Courses should modify the preparation of academics in relation to TB,

III. RESULTS AND DISCUSSION

After the clinical skills test, students were given feedback using the debriefing technique in which the team of evaluating professors highlighted the most relevant points observed during the test, in order to generate reflections in the students regarding the conduct towards patients.

The results show that in the opinion of the majority of nursing students (22; 73.3%) the scenario developed in

furthermore, the majority (23; 76.7%) of academics recommend developing greater skill for nursing consultations and home visits to patients with TB, as noted in table 1.

Table 1: Distribution of nursing students from a public university according to the evaluation after examining clinical skills. Belém - Pará (2019).

Assessment after examination of clinical skills	N	%	P-Value[1]
The developed scenario contributed to the practice of nursing in the face of TB diagnosis			
Yes	22	91,6%	0.000*
No	0	0,0%	
Partly	2	8,3%	
Believes it necessary that Nursing Courses should modify the preparation of academics in relation to TB	**N**	**%**	
Yes	23	95,8%	0.000*
No	1	4,1%	
What recommendations do you suggest	**N**	**%**	
Emphasize teaching about tuberculosis in the basic disciplines (bacteriology, immunology, epidemiology, etc.)	20	83,3%	0.000*
Strengthen teaching on tuberculosis diagnosis and treatment	18	87,5%	
Develop greater technical skill (tuberculin skin test, BCG vaccine, etc.)	21	70,0%	
Develop greater skill for nursing consultations and home visits to patients with TB.	23	95,8%	
Develop greater administrative skills.	13	54,1%	
Encourage enthusiasm for the TB program	15	62,5%	
Others	10	41,6%	

Note: Results are basedon non-emptyrowsandcolumns in eachinnermostsubtable.

N-Numberofacademics.

(1) Pearson's chi-squaretest (Wilks' G²) for independence (p-value<0.05).

*SignificantValues; **NS** - Non-SignificantValues.

Interpretationofthetest:

H0: The frequenciesobservedoccur in thesameproportion for thedifferentgroups.

H1: The observedfrequenciesdiffersignificantly for thedifferentgroups.

Decision: Sincethecomputed p-valueislessthanthesignificancelevelof alpha = 0.05, thenullhypothesis H0

shouldberejectedandthealternativehypothesis H1 accepted.

Source: Research protocol, 2019.

The academics listed the Potentialities and Fragilities regarding the application of the OSCE skills test, as can be seen in Tables 2 and 3.

Table 2: OSCE potential in academics' opinion.

Potentialities
1. Perceptionofstrengthsandweaknessesduring a consultation
2. Improve anamnesisandphysicalexamination
3. Needtotrain more throughsimulationmethods
4. Self-perceptionofbehaviorstowardsthepatient
5. Goodevaluationmethodology
6. Improve knowledge
7. Betteracademicpreparation for professional life
8. Returnofexperienceslivedduringgraduation
9. Improve theperceptionofbehaviors as future professionals
10. Examwellpreparedandorganized
11. Importanceofactivemethodology for studentstoexercisetheoreticalknowledge
12. Rememberthetheoreticalcontent
13. Reflectonthenurse'sbehaviortowardsthepatient
14. Enrichingandproductiveexperience
15. EncouragementtofurtherstudytheNationalTuberculosisControlProgramandprotocols
16. Reinforcetechnicalandscientificknowledgeonthetopic
17. Simulationmethodisextremelyvaluable
18. Stimulatesclinicalreasoning
19. Perceptionofweaknesses in care
20. The methodcan make up for thelackofdemands in thefieldsofpractice
21. Improve the approach tothepatient
22. Exerciseknowledgebeforegoingtopractice in theinternshipfield
23. Momentofreflectionabouttheknowledgeandbehavior in the face of TB
24. Self assessment andimprovingstudent performance
25. Rethinktheconceptsandtechniques for nursingconsultations
26. Observationofthefaultscommitted
27. Perceptionoftheimportanceofnursing in TB control
28. The weaknessof TB teachingwasobserved
29. Needtotrain more throughsimulationmethods
30. Individualswellpreparedtosimulate reality

Source: Research protocol, 2019.

Table 3: OSCE fragilities in academics' opinion.

Fragilities
1. Short time toperformtasks
2. Questionsduringtheexam
3. Nervousnessduringexamination
4. Better OSCE consultationorganization
5. Fragmentationofthestagesofthenursingconsultation
6. Lackofpreviousexperiencewiththe OSCE method

7. Difficulties in running thesimulation
8. The waythepatientisapproached
9. The divisionintostationsconfusedthenursingconsultationprocess

Source: Research protocol, 2019.

The academics described in 3 words their perception of the OSCE method and of the debriefing moment, in which the most evident words were: knowledge (6); learning (5); reflection (3); trust (3); empowerment (3); necessary (3). From these terms, the word cloud was built, in which the most written words are in evidence, as can be seen in Figure 1.
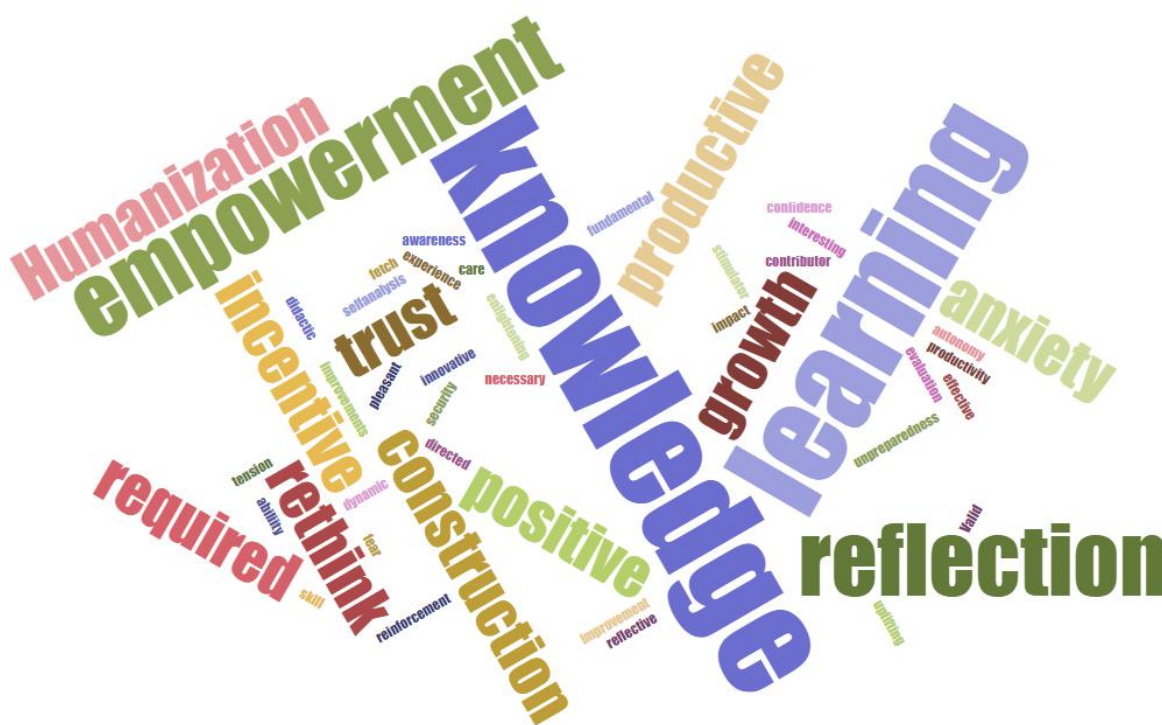

Fig.1: Word cloud that represents the students' perception of the OSCE method.

Source: Research protocol, 2019.

During the performance of the OSCE exam, the evaluating professors made important notes to be observed during the debriefing moment, such as the need to further investigate the symptoms of TB; difficulties in performing the physical examination; nervousness during the test, evidenced by the student's attempt to interact with the examiner, which is not allowed during the test; some academics did not read the exam results that were on the table; at Station 5 there was little emphasis on the importance of not abandoning treatment; doubts as to where the patient should be referred; some academics identified TB, but did not identify it in the exam, which was multidrug-resistant; some academics wrongly cited treatment time.

This study shows that it is necessary to reflect on the structuring of the current nursing curriculum, especially regarding practical training and the acquisition of all necessary skills throughout the course. Academics must effectively and intensively train these skills (manuals, clinical reasoning and conduct) in real patients, real situations and real scenarios, and which also include hospitals, urgency and emergency units and ambulatories.

There must be a balance in the distribution of workload and in the focus of practical learning among all sectors of

nursing. It is through mandatory internships in all practice sectors that students will have the opportunity to apply their acquired knowledge and develop the necessary skills and competence for the exercise of the profession (PEREIRA, 2017).

However, possibly, these academics are not fully and adequately inserted into their practice scenarios throughout their undergraduate studies, or else they are not the main "actors" in these scenarios. Thus, they do not gain autonomy, they do not acquire security for decision making and, above all, they do not develop the capacity for clinical reasoning, since they are unable to apply the knowledge they have learned (PEREIRA, 2017).

As for teaching TB, it highlighted the need to incorporate new teaching methods, new forms of assessment, as well as new practice scenarios, in order to diversify the students' experiences and contemplate their expectations regarding the nursing course and in accordance with the competencies and skills required for the professional nurse in the management of care for TB patients.

Added to this is the fact that the OSCE does not evaluate the student in real conditions, especially checking "show how you do it" and not "do it" itself. Arguably, direct and practical observation in real patients provides a more realistic and integrated view of clinical skills, but the lack of standardization in this form of assessment gives it low reproducibility and reliability to be used in scientific research (ZIMMERMANN, 2019).

Another limitation of the OSCE is the restricted time at each station. The fact that there is a fixed time for the completion of tasks creates anxiety and impairment in the execution of tasks. On the other hand, the conduct of conduct in real care often requires speed and agility, and therefore the student must also be evaluated under pressure and demand for speed in his actions (ZIMMERMANN, 2019).

Despite these limitations, the OSCE is a validated tool and has been used in much of the current research that aims to assess health skills and competencies. The limitation of this study lies in the small number of subjects in the sample (ZIMMERMANN, 2019). However, the results were relevant, and the data suggest further studies on a larger scale, to better assess and certify the results.

After being submitted to the skills test, the students had the opportunity to express their opinions and feelings, since it was the first time that they were experiencing the OSCE method. The evaluation by the academics was positive in the sense that a realistic simulation method was used that seeks to portray reality as much as possible, and in case of errors it does not cause harm to the patient. This type of method allows the student to train and acquire greater ability to act with greater confidence towards patients in the real scenario.

IV. CONCLUSION

Much more than looking for explanations of the facts, during the moment of feedback, ideas were shared, which throughout the research made it possible to think about the teaching-learning process and the strengthening of the processes that permeate the training of nurses.

The objectives proposed for this study were achieved and reinforced the thesis that adequate knowledge, attitudes and practices are fundamental elements in qualitative health education.

From this study, it was possible to verify the expectations of nursing students regarding the teaching of TB diagnosis, as well as to know the strengths and weaknesses regarding the OSCE exam, bringing to light its benefits regarding learning needs and expectations for being a method still widespread in nursing courses. The results enabled a joint reflection between teachers and students about teaching-learning practices, as well as the need to innovate the form of assessment.

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ATTACHMENT

INSTRUMENT FOR DATA COLLECTION

EVALUATION INSTRUMENT AFTER EXAMINATION OF CLINICAL SKILLS

Identificationcode: D_____

1- Considering the simulations cenariore produced during the research, discuss the strengths and weaknesses, which, in your opinion, can be high lighted from the experiences in the simulation.

2- Describe in 3 word syour perception of the moment of feedback (debriefing)?

3- Do you think that the developed scenario contributed to the practice of nursing in the face of TB diagnosis?

( ) YES   ( ) NO   ( ) IN PART

4- Do you think it is necessary that Nursing Courses should modify the preparation of academics in relation to tuberculosis?

YES ( )   NO ( )

5- If you answered YES, check the recommended changes:

( ) emphasize teaching about tuberculosis in thebasic disciplines (bacteriology, immunology, epidemiology, etc.).

( ) strengthen teaching on tuberculos is diagnosis and treatment.

( ) develop greater technical skill (tuberculinsk in test, BCG vaccine, etc.).

( ) develop greater skill for nursing consultations and home visits to patientswith TB.

( ) develop greater administrative skills.

( ) encourage enthusiasm for the tuberculos is program.

() other – whichone?