Analysis of the impact of the role play technique as a tool of active methodology in pharmacology teaching in a medicine undergraduate course

Análise do impacto da técnica do role play como ferramenta de metodologia ativa no ensino da farmacologia em um curso de graduação de medicina

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ABSTRACT: The teaching of pharmacology in medicine is seen as difficult and 'heavy' by most of the students. Thus, new teaching techniques arise with the premise of circumventing this difficulty, one of them is through the role-play technique, teaching technique based on the interpretation of roles. Objective: to evaluate the impact of the use of the role-play technique in the teaching of pharmacology in a curricular unit of the medical undergraduate course. Method: descriptive design study with quantitative approach. The target audience of this research was composed of students of a medical undergraduate course. Data collection was performed by applying a semi-structured questionnaire using Likert scale, and the Microsoft Excel program was used for data analysis. The research was approved by the Research Ethics Committee of the Institution with the CAAE: 24462619.7.0000.5580. Discussion: In the study, it was observed that most respondents agree that the role play activity contributed to learning and that it can contextualize clinical cases that can be found in daily medical life. This demonstrates that the role-play technique is aggregating in future decision-making, since they exercise clinical reasoning based on everyday cases positively impacting on academic education for a significant portion of the interviewees. The results collected in this study confirm that it is possible to innovate the way of addressing pharmacology issues, showing that the role-play technique had a positive impact on teaching, making learning more pleasurable and dynamic, also facilitating the sedimentation of content.

KEYWORDS: Simulation Training. Medical Education. Problem-Based Learning.

RESUMO: O ensino da farmacologia na medicina é visto como difícil e 'pesado' por grande parte dos alunos. Desta forma, novas técnicas de ensino surgem com a premissa de contornar essa dificuldade, e uma delas é através da técnica role-play, técnica de ensino baseada na interpretação de papéis. **Objetivo:** avaliar o impacto da utilização da técnica do *role-play* no ensino da farmacologia em uma unidade curricular do curso de graduação de Medicina. **Método:** estudo de delineamento descritivo com abordagem quantitativa. O público-alvo desta pesquisa foi composto por estudantes de um curso de graduação em Medicina. A coleta dos dados foi realizada por meio da aplicação de um questionário semiestruturado utilizando escala Likert, utilizou-se o programa Microsoft Excel para análise dos dados. A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da Instituição com o CAAE: 24462619.7.0000.5580. **Discussão:** No estudo observou-se que a grande maioria dos entrevistados concordam que a atividade role play contribuiu para o aprendizado e que consegue contextualizar casos clínicos que poderão ser encontrados no cotidiano médico. Isso demonstra que a técnica do *role-play* é agregadora na futura tomada de decisões, visto que eles exercitam o raciocínio clínico a partir de casos do cotidiano impactando de forma positiva na formação acadêmica para uma parcela significativa dos entrevistados. Os resultados coletados neste estudo confirmam que é possível inovar a forma de abordagem de assuntos da farmacologia, mostrando que a técnica do *role-play* teve impacto positivo no ensino, tornando mais prazerosa e dinâmica a aprendizagem facilitando, também, a sedimentação do conteúdo.

PALAVRAS-CHAVE: Treinamento por Simulação. Educação Médica. Aprendizagem baseada em problematização.

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INTRODUCTION

Medicine is an area of knowledge that involves and depends on several other areas of health. One of them is pharmacology, which studies drugs and their effects on the body. Currently, due to the large-scale use of drugs and the development of new drug discovery, it is extremely important that the teaching of pharmacology is carried out in a solid, effective and adequate way[1].

The teaching of pharmacology in medicine is seen as difficult and 'heavy' by most students, due to the large volume of content to be studied. The large amount of information, the emergence of new drugs and the changing evidence on the effectiveness and safety of drugs at all times are seen as the main factors that contribute to the difficulty of understanding pharmacology in the medical course. New teaching techniques emerge with the premise of overcoming these difficulties, with active methodologies being which have stood out the most in recent years. Studies reveal that the PBL (Problem-based Learning) methodology has positive repercussions on medical training and practice, acquisition of skills and attitudes, integration between theory and practice, and participation of professors in student training[2].

The PBL method was created at the McMaster University School of Medicine in the city of Hamilton, Canada, during the 60's. Its main objective was to supply the lack of integration between the initial and more theoretical years of the course with the most final and practical ones. Its basis is the problem-situation, from which the process of learning, which is divided into the following phases: formulating and analyzing the problem (problem creation, identify facts and generate hypotheses), self-directed study (identification of deficiencies and application of new knowledge for collective solution of the problem) and evaluation of the identification of facts and generation of hypotheses initials. Countries such as the United States, Canada, the United Kingdom, the Netherlands and Australia are some of those that adopt PBL more and more as the main teaching method, in addition to several Brazilian medical schools, whether in full or in part[3,4].

There are several ways to apply the PBL method, one of them is through the role play technique, in which the student is invited to experience a simulation, with the expectation that he acts in a specific way, similar to a real situation. This technique can be used in the formation of health professionals, enabling them to simulate scenarios possibly found in the daily. In addition, the technique allows teaching to be done in a more dynamic and playful way, making it more pleasurable for the students involved in the process[5-7].

The role play technique, applied within the PBL teaching method, is effective for several reasons. It stimulates reflection on the part of the student, who begins to build his knowledge based on his own experiences and on its colleagues, whether taking the perspective of a patient, physician or observer. There are reports of appreciation of affective aspects at the same level as the theoretical aspects and better teacher-student relationship, since teacher's intervention in the teaching-learning process is gradually less necessary[8].

The role play technique has shown positive results in the teaching-learning process. In that context, this research aims to evaluate the impact of using the role play technique in the teaching of pharmacology in a curricular unit of the graduation course of Medicine.

METHODOLOGY

A descriptive study with a quantitative approach was realized. For the theoretical basis of this work, articles, dissertations, books, editorials and publications in congresses or journals were used through searches in the PubMed, LILACS and SciELO databases, using the descriptors: (teaching) AND (pharmacology) AND (medicine) AND (role-play) OR (role-play) OR (role-play).

The target audience for this research consisted of regular students of the undergraduate course in medicine at a Faculty in Curitiba. During the pharmacology activities, these students had access to the content of the classes at least one week in advance. At the end of Curricular Unit 9 – Biomechanics, after solving the Curricular Unit review questionnaire, students participated in the resolution of 4 clinical cases through the role play technique, in which different learning objectives were addressed during classes. The patients were represented by the monitors, and the students assumed the role of 'doctors' in the cases presented. The simulated monitors/patients asked routine questions that a real patient would ask their doctor, such as: what are the most common adverse reactions, what is the dosage of the medication and how to use the medication, but also asked more specific questions about drug interactions and the mechanism of action of the drugs.

Data collection was carried out between August 4 and September 9, 2020, through the application of a semi-structured questionnaire, consisting of 8 statements. In view of the context of strict isolation that we are experiencing due to the COVID-19 pandemic, it was necessary to use questionnaires via Google Forms, sent to students, instead of collecting data in person. This platform has easy access, without the need for previous registration. The application time of the methodology was approximately five minutes.

The questionnaire was developed using the Likert scale, which measured in five levels the level of agreement in relation to the statements presented. The 8 statements used to assess agreement are shown in Table 1 below. Possibility of responses to the statements: Strongly Agree; Partially Agree; Neither Agree nor Disagree; Partially Disagree and Completely Disagree.

Table 1 - Statements used in the structured questionnaire to assess the impact of the role play technique as an active methodology tool in pharmacology teaching.

1. I consider that the role play activity contributed to my learning of the theoretical content taught;
2. I consider the use of role play in the discipline of pharmacology to be valid;
3. I think that the application of the role play teaching tool helps to establish the theoretical content taught in Curricular Unit 9 – Biomechanics;
4. I consider the cases presented within the role play activity to be relevant;
5. I consider that if the content taught were presented as a previous study and case discussion, it would be more relevant;
6. I consider that the role play activity had a positive impact on my training and on the future clinical conduct that I will take as a general practitioner;
7. I consider that role play manages to contextualize clinical cases that may be found in the daily life of general practitioners;
8. The use of the role play technique made learning more enjoyable and dynamic.

Font: the authors (2021).

For data analysis, the answers obtained in the questionnaire were exported to the Microsoft Excel program and, subsequently, descriptive analysis was performed. Together, sociodemographic information of the participants, such as gender and age, were considered. The research was anonymous. All participants signed the Free and Informed Consent Form. The research was approved by the Research Ethics Committee of the Institution with the CAAE: 24462619.7.0000.5580.

RESULTS

Between August 4th and September 9th, 2020, a total of 75 people answered the questionnaire. The results obtained with the answers to statements 1 to 8 are shown in Table 2. Of the 75 people (100% of the total), 29% identified themselves as male and 71% as female.

Table 2 - Results found in the questionnaire for statements 1 to 8.

| Strongly Agree	Partially Agree	Neither Agree nor Disagree	Partially Disagree	Completely Disagree
% (n)	%(n)	% (n)	% (n)	% (0n)
1. I consider that the role play activity contributed to my learning of the theoretical content taught;				
60% (45)	33,33% (25)	6,67% (5)	0% (0)	0% (0)
2. I consider the use of role play in the discipline of pharmacology to be valid;				
68% (51)	28% (21)	2,67% (2)	1,33% (1)	0% (0)
3. I think that the application of the role play teaching tool helps to establish the theoretical content taught in Curricular Unit 9 – Biomechanics;				
68% (51)	24% (18)	5,33% (4)	2,67% (2)	0% (0)
4. I consider the cases presented within the role play activity to be relevant;				
85,33% (64)	14,67% (11)	0% (0)	0% (0)	0% (0)
5. I consider that if the content taught were presented as a previous study and case discussion, it would be more relevant;				
36% (27)	18,67% (14)	29,33% (22)	14,67% (11)	1,33% (1)
6. I consider that the role play activity had a positive impact on my training and on the future clinical conduct that I will take as a general practitioner;				
50,67% (38)	33,33% (25)	12% (9)	4% (3)	0% (0)
7. I consider that role play manages to contextualize clinical cases that may be found in the daily life of general practitioners;				
74,67% (56)	22,67% (17)	2,67% (2)	0% (0)	0% (0)
8. The use of the role play technique made learning more enjoyable and dynamic.				
49,33% (37)	26,67% (20)	12% (9)	6,67% (5)	5,33% (4)

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When analyzing the results found for the statements in the questionnaire, it is noteworthy that for questions 1, 2, 3, 4, and 7, more than 60% of the candidates fully agreed with the statements.

In statement 6 and 8, the percentage of students who fully agreed with the statements is approximately 50%. However, when adding the percentage of students who fully agree and partially agree with this statement, a percentage greater than 75% is obtained, which denotes that the role play technique has a positive impact on training and future clinical decisions, in addition to making learning more enjoyable and dynamic.

Regarding statement 5, 55% of respondents considered that teaching without using the role play technique, through previous studies and case discussions, would be more relevant.

As shown in Graph 1 below, it was observed that 60% of respondents fully agreed that the role play activity contributed to learning the taught content and 51% stated that it had a positive impact on the training and future conduct of the participant as a general practitioner.
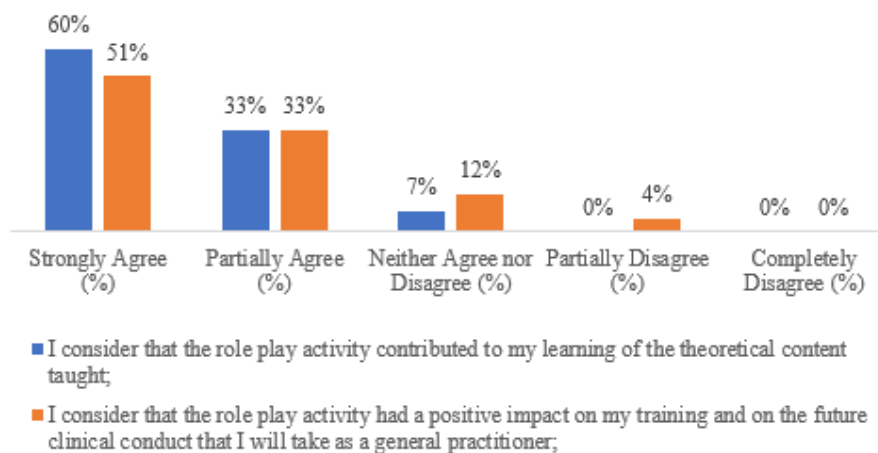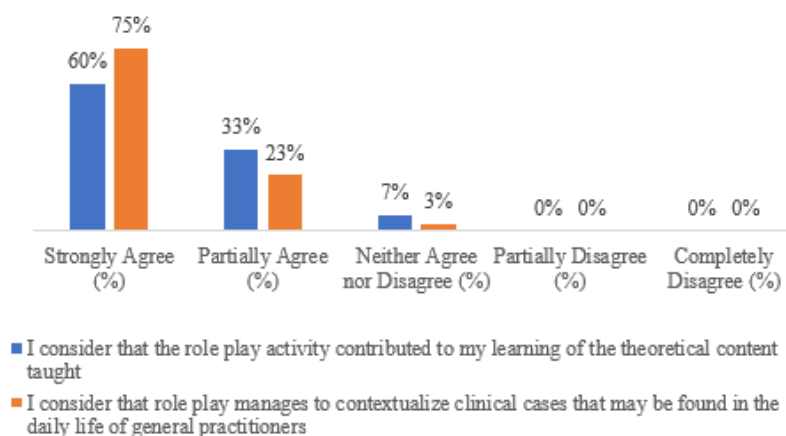

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Graph 1 – Percentage of students who consider that the role play activity contributes to learning and percentage of students who consider that this type of simulation will positively impact future clinical conduct.

When analyzing Graph 2, it is observed that 60% completely agree that the role play technique contributed to learning the content taught, while 75% of respondents stated that the method was able to contextualize clinical cases found in the daily life of general practitioners.
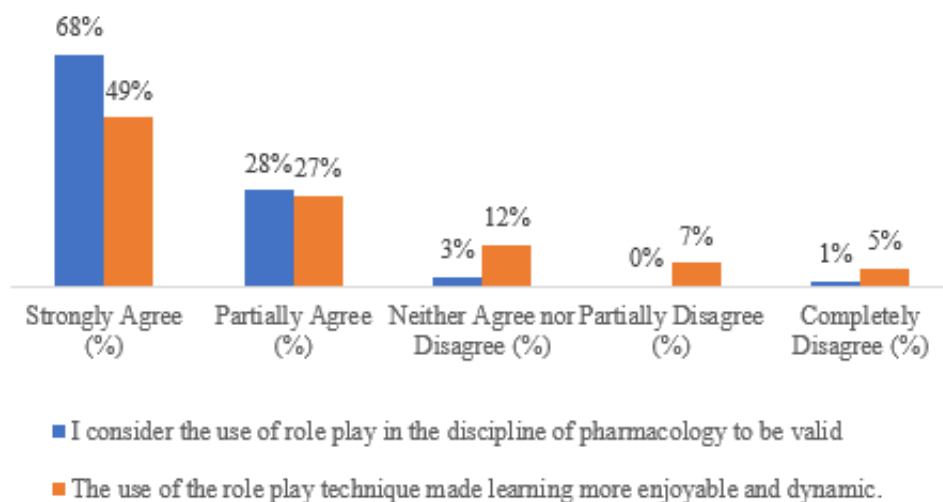

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Graph 2 – List of students who think that the role play activity contributed to learning because the contextualization can be found in the daily life of general practitioners.

In Graph 3, it is possible to observe that 68% of the interviewees considered the use of the role play technique valid and 76% totally or partially agreed that the role play technique made learning the discipline of pharmacology more pleasant and dynamic.

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Graph 3 – Association of students who consider that the role play technique is valid in the discipline of pharmacology and that it makes learning more enjoyable and dynamic.

DISCUSSION

The national curricular guidelines of the undergraduate medical course (DCNCGM), in its third article, provide for a general, humanistic, reflective and ethical medical education with social responsibility that defends human dignity and the integral health of the human being. Also, in the DCNCGM, in article 32, it is defined that the medical graduation course must use active methodologies, in this context PBL method and role play are interrelated for the formation of a professional who values universal access to health, equity, integrality, humanization of care, promotion and quality in health care, professional ethics, person-centered care, decision-making and learning[9].

Role play, with free translation of staging, is quite widespread in teaching in the health area. It is used for training teachers and students within simulations. The Faculty of Medicine of Marília, a pioneer in the application of PBL in the country, uses this technique in its Teacher Development Program and found that role play was a mobilizing tool, which triggered several reflexive movements, being effective in its proposal[8]. The Faculty of Medicine of the Federal University of Bahia used the methodology in teaching communication and relational skills in its semiology course, being very useful in the process of humanization of students[7]. In another study, which evaluated the perception of students who used this teaching tool in gynecological physical examination simulations, the possibility of improving communication skills and reflections about the simulated procedure was observed[10]. The best medical conduct depends on professional skill of making a correct diagnosis, to then propose an adequate conduct, forming a set called clinical practice[11]. Medical schools and their professors have the role of facilitating the acquisition of this competence for future professional practice. In the present study, 93% of the participants totally or partially agree that the role play technique contributed to the learning of the theoretical content taught, demonstrating that this type of simulation contributes to the learning of skills that will be used in future professional practice, such as in clinical reasoning for a correct diagnosis.

In an observational study in which the objective was to describe and analyze role play as a pedagogical strategy for teaching Clinical Pharmacology in medicine, it was shown that role play has as its main potential, being an efficient, dynamic, fun and pleasant methodology that allows greater ease in learning the contents, encourages teamwork and the active participation of the student[6]. The findings in literature are in line with what was observed in the applied questionnaire, in which 96% of the students considered the use of the role play technique to teach the discipline of pharmacology valid, that is, they totally or partially agree with the statement "I consider it valid the use of role play in the discipline of pharmacology". The literature also brings context to the clinical cases of the medical routine and adds to the learning and fixation of the technical content taught.

In this study, more than 50% of the students prefer

that the contents taught are offered without using the role play technique, through previous studies and case discussions, as the pharmacology classes of the institution studied were usually done, a finding that agrees with with Gotardelo et al al.[6] who listed as negative points of this technique: overload of academic activities, uneven engagement of students in some groups and the large number of presentations being tiring. Despite this finding, 16% of the students prefer the role play technique to be used and 29.33% of them do not have a formed opinion regarding the use of the technique. This, combined with the fact that 60% of students consider that role play contributed to learning the theoretical content taught, demonstrates that despite the negative points listed by Gotardelo et al.[6] the technique does not harm teaching and contributes to a better academic performance of students.

Although the students in the study still consider the use of more conservative methodologies for teaching pharmacology, there are studies that demonstrate a considerable benefit of using role play compared to more conservative methods. An example of this is the case-control study of a University in Chile that analyzed the performance of students who used the role play methodology and compared it with students who did not. The experimental group obtained higher averages compared to the control groups. The study also shows that despite the higher averages of the students who used role play, the positive results cannot be attributed only to the methodology[12].

Valladares et al.[12] highlight the commitment and responsibility of students towards the cases addressed. According to the authors, the technique promoted students' critical thinking and allowed reflection on the whole, thus, students were able to identify the needs and feelings of the patients approached through interaction with group members with an active participant. Bringing this reflection to the methodology studied in this study, the combination of a directed study with the clinical cases addressed in the role play technique adds to the future decision-making of these future doctors, since they exercise critical thinking based on everyday cases of a generalist and thus positively impacting academic training for a significant portion of respondents.

CONCLUSION

It is concluded that the relevance of this study is related to the use of role play as a teaching alternative. The results collected in this study confirm that it is possible to innovate in the way of approaching subjects in the discipline of pharmacology in the medical course, as the role play technique had a positive impact on teaching, making learning more pleasurable and dynamic.

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