Teaching efficacy of role playing in optometrist education

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Summary. — Simulation of the double role of patient and practitioner is a usual procedure for students in optometry clinical practice, but it is usually limited to the performance of visual assessment procedures and the Lecturer's control is focused on these. In contrast, the way in which the practitioner builds the relationship with the patient, a key step in obtaining their cooperation during the measurement, is not given specific attention. This pilot project aims to test the effectiveness of role playing in creating and developing the interaction between patient and professional. The project in the first phase allows the teacher to verify through video recording the behavior of the pairs of students simulating the two roles and then critically analyze it with the students themselves; there is also an evaluation through questionnaires of self-perception reported by the students involved. In a second phase, the project plans to reevaluate through questionnaires how self-perception has been changed by the critical analysis of the video recordings collected in the first phase, with or without possible rotation of roles.

1. – Introduction

The effectiveness of the education approach for professions that have a social function such as optometry is of utmost importance. Optometry belongs to the field of health sciences as it deals with the identification of the main optical dysfunctions of the visual system without enter, however, in the healthcare field of ocular pathologies. It is therefore essential that the optometrist has a solid and effective training in both technical and scientific skills as a professional who could be the first to intervene on a subject to identify his or her visual problems.

Following the European Qualification Framework, the Italian degree in Optics and Optometry corresponds to the first level of the tertiary education and it is included in the class L-30 that defines the general learning outcomes for a bachelor in Physical Sciences and Technologies. Five Dublin descriptors define and classify the expected learning

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outcomes: knowledge and understanding, applying knowledge and understanding, making judgement, communication and lifelong learning skills. The fourth one, when referred to the graduate communication skills in optometry practice, deserves special attention since the practitioner should interact not only with the team of collaborators, with other professionals or with the public but mainly with the subject that undergoes an optometric examination (the patient). This is a common situation for the health sciences but quite unusual for the physics sciences.

Few scientific papers can be found on the relationship optometrist-patient, for a review see [1]. It follows that a training program aiming to improve the efficacy of the interaction between the optometrist and the patient could also take advantage of the large number of studies on the relationship between healthcare providers and patients. It has been observed that the attitude towards patients is crucial for a valuable communication in the identification of the problems that the patients might have, in the illustration of the prescribed therapy and in the training to the treatment [2]. Empathyc communication is considered an essential component of the relationship between practitioner and patient and it is believed to help in developing a fruitful collaboration, to increase the patient satisfaction and to result in positive therapeutic outcomes for patients. Empathy can be promoted by education and trained through various techniques [3].

Effective communication is acknowledged as a component of the evidence-based practice (EBP) competencies that should be shared by all practicing healthcare professionals to provide evidence-based quality care and improved patient outcomes [4]. Academic programs should follow the EBP approach in every aspect of the curriculum, promoting awareness and conscious use of scientific sources and adopting effective methods for teaching and learning. The teaching approach based on the best scientific evidences is known as evidence-based teaching (EBT). In a recent paper [5] Zeri and co-authors review evidence-based teaching and learning strategies in the contact lenses (CL) education, observing small evidence of EBT already adopted in education of CL practitioners, but concluding that most tools used in EBT for healthcare professionals could be effectively adapted to the CL education [6]. On the basis of the EBT framework, synergies can arise between ophthalmologists and optometrists improving ocular and general wellbeing of patients [7].

In the EBT approach, teaching methods that not only increase the practice experience but also encourage the students to reflect on their performance are used to make students aware of the way they interact with patient [2]. Feedback and reflection are two basic teaching methods used in clinical settings, since they promote the assimilation and reordering of concepts, skills, knowledge and values into pre-existing knowledge structures. Various approaches to the reflective learning have been explored: journal keeping or electronic logs, group reflection, open-ended questions about experience, role-playing and self-assessment. Feedback on communication skills from true patients [8] or standardized patients [9], trained to give consistent verbal and behavioural responses, could integrate the assessment by the clinical tutor observing the visit.

The role playing belongs to the group of active learning approaches. It is based on an interactive simulation where participants act out the role of a character in a particular situation following a set of rules [10]. Role play is a hands-on approach to learning as opposed to more abstract forms of learning such as lectures or essay writing. The students learn through active involvement and personal experience and are encouraged to reflect on their performance. They also have the opportunity to learn how to communicate knowledge in a meaningful and persuasive manner [11].

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dents in optometry clinical practice, but it is usually limited to the performance of visual assessment procedures and the teacher control is focused on these. In contrast, the way in which the practitioner builds the relationship with the patient, a key step in obtaining their cooperation during the measurement, is not given specific attention. In this paper a pilot project on the use of role play in optometry education at the Torino University is described. The study aims to test the effectiveness of role playing in creating and developing the interaction between the practitioner and the subject undergoing optometric examination.

2. – Method and subjects

This study was approved by the Bioethics Committee of the Torino University in February 2023 (Prot. No. 0183642). Consistent with ethical requirements, written consent to the inclusion was obtained from each participant after providing a clear explanation of objectives of the study. The participants were further assured that data and information collected would be kept confidential. The research was carried out at the Optometry Laboratories located at the Center of Innovation of the Torino University from June to October 2023.

The group under study included students of the second year of the degree in Optics and Optometry at the Torino University, Italy, attending the second course of Optometry in June and the third one in October. The study was conducted within a university course as a separate activity available for volunteers and the students were informed that participation and intermediate or final assessment would not enter in the academic evaluation. The inclusion criterion was the absence of eye pathologies. The study included 18 students randomly arranged in pair as well as the roles of optometrist and patient were randomly assigned within each pair. The students were ranging in age from 20 to 24 years, average 21 years. The student performance was observed by the teacher of the course and by two tutors selected among the students of the Master's Degree in Clinical Psychology and Occupational Psychology, respectively. The two tutors joined the research group thanks to the fellowships granted by the Torino University on the teaching project "Innovation in tutoring". The fellowships have been renewed for a second year.

The study was organized in two phases. The project in the first phase allows the teacher and the tutors to verify through video recording the behavior of the pair of students simulating the two roles and then critically analyze it with the students themselves; there is also an evaluation through questionnaires of the self-perception reported by the students involved in the role play. In a second phase, the project plans to reevaluate through questionnaires how self-perception has been changed by the critical analysis of the video recordings collected in the first phase, with or without possible rotation of roles. The exchange of roles has not been included in the pilot experiment reported here.

At the beginning of each session the technique of the role play was described to the participants and the student playing the role of operator was made aware of the optometric procedures. The two players have been video recorded by the tutors during the whole session of measurement. At the end of the session and before the discussion with the teacher, two questionnaires specific for the two roles were administered to the two players.

The optometric procedure assigned to the clinician was divided into three stages —anamnesis, detection and return. First, the clinician filled out the anamnesis, essential to understand the main problem from the examined subject. Instead, the second is

related to refraction, consisting of the following subcategories of tests: fogging, duo chrome test, Parent test and crossed cylinders. This was performed first for the right eye, then for the left eye and finally binocularly balanced by prismatic method. Then the accommodative and binocular components were tested. Battery of tests chosen is minimal but allows for rapid assessment of both the accommodative and binocular component according to the study by Hussaindeen [12]. This battery of tests was designed for subjects who do not have strabismic vision anomalies to obtain sufficient data collection for comprehensive analysis in time-restricted situations. Finally, each clinician completes the sequence by reporting his or her observation to the patient.

The questionnaires were designed by the two tutors in collaboration with the teacher of the course to investigate the experience of both the operator and the patient during the role playing. Following guidelines for questionnaire design a reduced number of item was considered, 10 questions for the operator and 10 questions for the patient [13]. A 5 point Likert rating scale [14] including neutral response was adopted for the students and by the tutors in the role of external evaluator [15, 16]. The score of each item was ranging from 0 to 4. Low scores correspond to an unsatisfactory performance whereas high scores correspond to a positive evaluation.

The operator was required to reflect on the interaction with the subject under examination and to assess himself in welcoming the new patient, in the care in collecting information, in the skilfulness and competence in the optometric examination, in the quality of the feedback to the patient, in the effectiveness of the communication and in the feeling at ease in the role played.

The performance of the operator has been evaluated also by the student playing the role of patient through a satisfaction questionnaire with the same dimensions of the operator questionnaire. This choice makes the comparison between the operator self-perception and the patient perception easy to do. Also the tutor assessment of the operator performance is retained for further comparison.

The tutors reviewed the videos of the role-playing producing a set of suggestions useful to improve the quality and the speed of the optometric visit. The recommendations refer to the phases of anamnesis, of data collection and feedback. The set of suggestions is shared among all the students participating in the study regardless to the role played.

In the second session of the study the procedure followed was the same of the first session with the same group of students playing the role of operator, whereas the students playing the role of patient were randomly assigned. The questionnaires administrated at the end were the same of the first phase and the assessment of the tutors was retained again. Once the second phase was completed the tutors analyzed the videos producing a final set of observations and recommendations to the operators and reporting the improvements observed in their performance.

The time duration of the optometric visit was registered as a parameter of interest since it could be affected by the procedure learning and by the approach of the operator to the relationship with the patient.

3. – Results and conclusions

For the preliminary analysis the average scores of the questionnaires were considered for the comparison between the two sessions of measurement and to compare the assessment of the patient and the tutors with the self-perception of the operator within the session. The score averaged over the questionnaire ranges between 0 and 4. A SD of the order of 0.5 is typically obtained for the distribution of the score of the different items
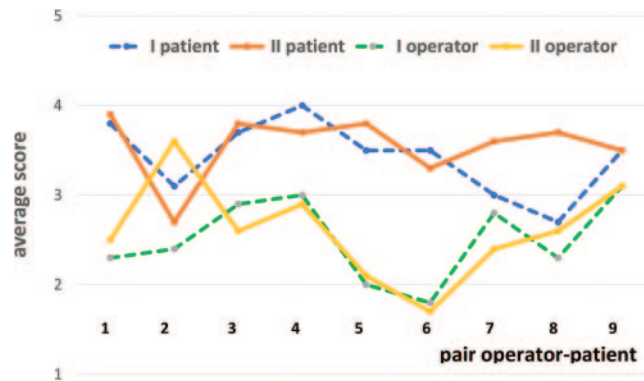
Fig. 1. – Questionnaire average score for patient and operator: comparison between session I (dashed line) and session II (full line).

within a questionnaire. An overall improvement of the 7% has been observed in the operator performance by the tutors qualitatively confirmed by the students participating to the study. As a general feature, 80% of items in the patient questionnaire scored higher in the second phase.

The average time elapsed during the visit was 24 minutes and did not change in the second session ($p = 0, 78$), probably reflecting the care of the operator in following the suggestion to put the patient at ease introducing himself, describing the tests step after step and giving a complete and detailed feedback of the examination.

The performance of the operators obtains a better evaluation by the patient with respect to the self assessment of the operators. This evidence can be due to the choice of having a companion of the operator in the role of patient. In addition, for the operator, the suggestions on how to improve himself received after the first session, could have made him more aware and therefore more self-critical in the second session. In fig. 1 an overall comparison between patients and operators at the end of the first and second session, respectively, is reported. In the figure the number identifying the pair identifies also the operator, since the patient in the pair is assigned randomly avoiding repeating the pairing
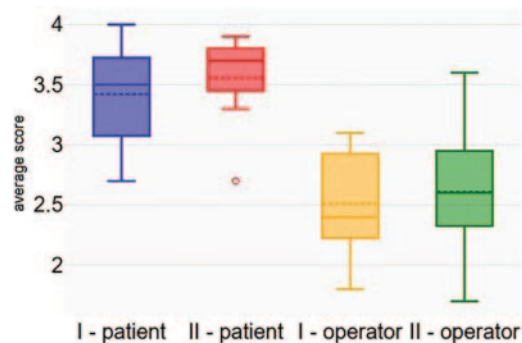

Fig. 2. – Questionnaire average score distribution for patient and operator, I and II session. Average/median value: dashed/full line.

in the second session. The reduced size of the sample prevents a detailed statistical analysis and only gross features of the data can be inferred. Most self-evaluations of the operator seem to not differ between the first and the second session, and the same could be observed for the patient evaluations. Within the same session for most pairs the average score of the patient evaluation is higher than the one of the operator. These evidences are statistically confirmed by the T-test on the whole sample of pairs reported in fig. 2 (comparison patient/operator p-value $< 10^{-3}$ for both sessions; comparison first/second session for the operator p-value $= 0,27$, for the patient $0,20$).

The videos registered in the second session show that students have improved the communication skills following the tutor recommendation, taking into account the psychic and emotional state of the patient. A specific attention was dedicated to explain step by step the procedure followed and giving feedback along the whole visit . It has also been observed an improvement in the restitution phase of the final visual analysis, which was provided in most cases exhaustively. This point is very delicate and important, since it is the basis of the whole consultation, that often generates an element of anxiety in a person's life. In fact, many ametrops fear a worsening that is perceived as a sense of uncertainty and fallibility of one's own body.

The role playing technique is an active teaching method that leads to educational improvements, stimulating the student to a critical re-elaboration of the information. This method can facilitate acquisition and development of techniques used during the visual assessment. The recommendations provided by the psychologists participating in the study in the role of tutors have proven to be a valuable tool for create good practice procedures in the management of the subject examined, in particular to better empathize with the patient and create a relationship of trust and cooperation.

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