

Application of Standardized Patients in Clinical Teaching of Optometry Interns: Taking Orthokeratology Lens Fitting as an Example

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Abstract: As optometry develops in China, optometry clinical education is becoming increasingly important, especially in improving students' practical skills and clinical decision-making ability. This article explores the role of standardized patients (SPs) in optometry clinical teaching, taking the fitting of orthokeratology lenses as an example for in-depth discussion. SPs are professionally trained personnel who simulate real patient scenarios and provide students with a safe and controlled environment to practice clinical procedures, including refractive error assessment, corneal topography examination, and orthokeratology lens fitting and fitting assessment. Using SPs allows students to improve basic skills such as technical proficiency, communication, and diagnostic judgment without taking the risks of working with actual patients. Through case-based simulations, SPs provide real-time feedback to help students improve their operational skills and clinical decision-making ability. This approach is different from traditional methods in that it provides practical experience, cultivates independent problem-solving skills, and enhances doctor-patient communication. Ultimately, integrating SPs into optometry education can provide a comprehensive learning experience that prepares students for real-world clinical practice, improves the quality of training, and helps to cultivate highly skilled optometry interns.

1. Introduction

As optometry continues to develop as an emerging discipline in China, it has gained significant recognition within the medical and healthcare systems due to the increasing awareness of eye health. Optometry covers a range of essential techniques such as refractive error correction, prism fitting, and myopia prevention and control. Among these, orthokeratology lenses have become a widely used and effective method for myopia correction [1]. Through the use of these lenses, which temporarily reshape the cornea overnight, individuals can experience clear vision throughout the day without the need for corrective eyewear.

The growing application of orthokeratology lenses, however, presents new challenges for the teaching and clinical practice of optometry [2]. One of the central concerns is how to effectively enhance the practical skills and clinical decision-making capabilities of optometry students. In addressing this challenge, standardized patients (SP) have emerged as an invaluable tool in clinical teaching [3]. Standardized patients are trained individuals who simulate real patient roles in a controlled clinical environment, offering students a safe and risk-free setting to practice their clinical skills.

The primary aim of this article is to explore the application of standardized patients in the clinical teaching of optometry, with a particular focus on the fitting process of orthokeratology lenses. Through examining their role and advantages in teaching, we can better understand the value they bring to optometry education.

2. Overview of the Application of Standardized Patients

2.1 The Concept and Origin of Standardized Patients

The concept of standardized patients (SP) originated from

medical education and has been widely adopted across various healthcare disciplines, including internal medicine, surgery, and emergency medicine [4-6]. Standardized patients are professionally trained individuals who act as patients in simulated clinical environments. They are carefully coached to replicate specific symptoms, medical histories, and physical signs, enabling students to interact with them as if they were real patients. This method provides students with the opportunity to practice and refine their clinical skills—such as diagnosis, physical examinations, and communication—without the risks associated with real-life patient care.

In optometry, the use of standardized patients allows students to simulate a variety of clinical scenarios, including common refractive errors, eye diseases, and other ocular conditions. Given that optometry heavily relies on accurate procedures and professional judgment, SPs provide a safe learning environment for students to refine their clinical and operational skills.

2.2 Training and Evaluation of Standardized Patients

The success of SP-based training hinges on the accuracy and authenticity of the simulated scenarios. Standardized patients must undergo extensive training to ensure they can accurately portray the symptoms, medical histories, and clinical manifestations of various conditions. In the context of optometry, SPs must be able to simulate visual disturbances, eye discomfort, dry eyes, and other common complaints. They should also be familiar with the terminology and medical details necessary to assist students during their learning.

Evaluation of SP performance is twofold: the realism of the patient portrayal and the feedback provided to students. SPs offer constructive criticism on how well students perform clinical tasks, such as evaluating refractive errors or assessing the corneal topography, and provide input on their interpersonal communication and decision-making skills.

2.3 Role of Standardized Patients in Optometry Teaching

In the clinical teaching of optometry, SPs play several critical roles. By simulating realistic patient scenarios, they help students develop core competencies such as:

- **Clinical Operation Skills:** SPs allow students to practice a range of technical tasks, including removing orthokeratology lenses, assessing the fit of lenses, performing corneal topography, and handling adverse reactions. These practical exercises enhance students' competence in executing these procedures efficiently and accurately.
- **Communication Skills:** SPs provide students with the opportunity to simulate doctor-patient interactions, enhancing their ability to explain treatment plans, answer questions, and manage patient concerns. Developing strong communication skills is essential for building patient trust and ensuring successful clinical outcomes.
- **Diagnostic and Decision-Making Skills:** SPs can present a variety of symptoms, allowing students to refine their diagnostic abilities. By simulating patients with different eye conditions, SPs offer students the chance to evaluate treatment options, make decisions about lens fitting, and address any contraindications that may arise.

3. Challenges in Orthokeratology Teaching

3.1 Introduction to Orthokeratology and Clinical Application

Orthokeratology (OK), also known as corneal refractive therapy, is a non-surgical method for myopia correction. It involves the use of rigid contact lenses that reshape the cornea overnight, temporarily correcting refractive errors and providing clear vision during the day without glasses or contact lenses. OK lenses are particularly effective in controlling myopia progression, especially in adolescents, and can help slow the elongation of the eye that leads to increasing myopia.

Despite its benefits, the process of fitting orthokeratology lenses is complex and requires precise measurements, careful lens design, and ongoing adjustments. The fitting process includes steps such as corneal curvature measurement, corneal topography analysis, eye health assessments, and post-fitting evaluations. As a result, training in orthokeratology lens fitting is challenging, particularly for students with limited clinical experience.

3.2 Challenges in Orthokeratology Training

The fitting of orthokeratology lenses presents several unique challenges in optometry education. One of the primary obstacles is the lack of clinical experience among many optometry students, particularly those still in their undergraduate or early postgraduate training. The fitting process requires precise measurements of corneal curvature and refractive errors, followed by the selection of lenses

tailored to the patient's eye characteristics. For many students, performing these tasks with accuracy and confidence is difficult, especially when they are first learning these techniques.

Additionally, the diverse range of corneal shapes and refractive errors among patients adds complexity to the fitting process. Students must quickly evaluate each patient's corneal morphology and make decisions about the best lens design. This skill requires practice and experience, which may take time to develop.

3.3 Overcoming Challenges Through Standardized Patients

Standardized patients offer a solution to the challenges faced in orthokeratology training. By simulating various eye conditions and refractive errors, SPs provide students with an opportunity to practice fitting orthokeratology lenses in a safe, controlled environment. These simulations allow students to practice important skills such as measuring corneal curvature, performing eye health assessments, and adjusting lenses without the risk of harming actual patients.

Furthermore, standardized patients help students practice clinical decision-making and communication. SPs simulate patient responses, enabling students to assess the effectiveness of their lens designs and adjust them as needed. This iterative process builds students' confidence and skills, preparing them for real-world clinical practice.

4. Specific Applications of Standardized Patients in Orthokeratology Teaching

4.1 Case Analysis: SPs in Orthokeratology Fitting Teaching

The integration of standardized patients into orthokeratology training offers students a highly effective learning experience. For instance, in a simulated orthokeratology fitting case, students conduct comprehensive eye examinations on SPs, including refractive error measurements, corneal curvature assessments, and corneal topography evaluations. Based on these assessments, students design orthokeratology lenses and evaluate their fit on the SP.

Throughout the process, standardized patients provide feedback on their experiences, such as the presence of discomfort or blurred vision after lens insertion. This feedback allows students to make adjustments to their lens designs or operational techniques in real-time, minimizing the risk of errors in actual clinical settings.

By repeating these simulations, students gain hands-on experience in fitting orthokeratology lenses and managing potential complications. The inclusion of standardized patients in this teaching model ensures that students are well-prepared to handle real-world clinical challenges.

4.2 Feedback and Evaluation from Students

Student feedback on training with standardized patients highlights the significant benefits of this teaching method.

Many students report that the opportunity to receive real-time feedback from SPs is invaluable in improving their operational skills. By interacting with standardized patients, students can identify and correct mistakes early in the learning process, which ultimately enhances their ability to perform complex procedures.

The use of SPs also strengthens students' interpersonal communication and doctor-patient relationship skills. Students gain insight into the emotional and psychological concerns patients may have regarding their eye health and treatment plans. This awareness helps students become more empathetic and effective communicators, which is essential in building trust with real patients.

4.3 Comparison with Traditional Teaching Methods

When compared with traditional optometry teaching methods, the use of standardized patients offers several distinct advantages. Traditional teaching typically involves theoretical learning and limited clinical practice, with few opportunities for students to interact directly with patients. By contrast, standardized patient simulations offer high-frequency, low-risk practice that allows students to refine their clinical skills through repetition [7].

Standardized patients also foster critical thinking and independent decision-making. While traditional teaching often relies on teacher demonstrations and guided practice, SPs encourage students to think critically and make decisions based on the simulated patient's needs. This independent problem-solving approach enhances students' clinical judgment and prepares them for the challenges of real-world optometry practice.

Additionally, standardized patients provide valuable training in doctor-patient communication. In optometry, effective communication is just as important as technical skills, and SPs allow students to practice explaining complex treatment options and addressing patient concerns in a supportive, controlled environment.

5. Conclusion

The integration of standardized patients into the teaching of orthokeratology lens fitting offers significant advantages in optometry education. By providing students with a risk-free environment to practice and refine their clinical skills, standardized patients help improve students' operational abilities, diagnostic judgment, and communication techniques. Through repeated exposure to diverse patient scenarios, students can develop greater confidence and competence in fitting orthokeratology lenses.

Compared to traditional teaching methods, standardized patient simulations offer a more comprehensive and hands-on learning experience that better prepares students for real-world clinical challenges. As the use of standardized patients continues to expand in optometry education, this innovative teaching method promises to enhance the overall quality of training and contribute to the development of highly skilled optometry professionals.

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