Editorial

Virtual Patients in Ophthalmic Medical Education

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Sir William Osler's said, "Medicine is learned by the bedside and not in the classroom" and that, "He who studies medicine without books, sails an uncharted sea, but he who studies medicine without patients does not go to sea at all."[1] There is no second opinion about that but we see that over the years, especially in Ophthalmology, there has been a shift towards day care procedures. There are few inpatients with shorter duration of hospital stay. We also find that the standard of safe delivery of medical and surgical facilities is also rising and critical patients are not allowed to be handled by the trainee residents. With overwhelming responsibilities, clinical teachers have very little time for the residents and in private training centers, there is scarcity of patient variety even in the outdoor, resulting in lack of exposure to variety of clinical problems. All these developments pose a huge challenge in the training of postgraduate trainees who have to take the charge of future ophthalmologists.

Although problems of current era have been co-shouldered by digital technology, but healthcare is lagging behind in its adoption. With every passing day, it is becoming unavoidable to use digital tools in health care and especially in healthcare education. One of the most important digital tools in health education is virtual patients (VP).

Among the many definitions of Virtual patients in literature, we find that "Virtual patient is an interactive computer simulation of real-life clinical scenarios for the purpose of health professions training, education, or assessment."[2] "In the context of medical education, this term (VP) generally refers to any software that

allows case-based training"[3] VP was accepted as a learning tool by the Liaison Committee on Medical Education (LCME) and it is continuously developing and improving every day.[4] It has been tried in almost all specialties of medicine and surgery to tackle the above-mentioned issues with variable results.[5] However, use of virtual patients in ophthalmology is different from other fields, due to difference in history, clinical examination and ophthalmology specific investigations. Literature shows that in Ophthalmology, VP have been used for treatment of low vision, amblyopia, learning clinical skills like cover un-cover tests, ophthalmoscopy and also in performing surgical procedures.[6] Another use of VP is to learn clinical reasoning skills. Learning clinical reasoning on real patients, especially critical patients or rare diseases is a challenge in medical education.[7] In such situations, VP provide an opportunity to learn these skills in a safe environment before presenting a real patient to the trainees.

There are few online software and programs which provide opportunity to access VP for development of critical thinking in Ophthalmology.[8] By using these programs, there is an opportunity to take history and examination findings from VP, based on which the trainee decides to further investigate, make differential diagnosis, develop a management plan in a non-threatening environment.

It is a fact that with busy schedules of clinical teachers, the time spent with each trainee is not sufficient and timely feedback on every patient is impossible. In such cases, VP provide a great opportunity to learn, re-learn, make decisions and get feedback even in the absence of a trainer.[9] Consistency of results and feedback in formative and summative assessments is another advantage of VP. Additionally, the software used for VP can be modified to include any ocular condition depending upon the frequency of patients seen in a particular locality. A research on the use of VP revealed that although there was no effect on grades of the trainees but VP did help in increasing their motivation.[10] Apart from that, use of VP provides great flexibility to learn at one's own pace and

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independence without any fear of harming a patient. It can include any critical or rare eye pathology to which the trainees might not get a chance to experience during their clinical training.

A more advanced technology is virtual reality (VR), in which the trainee can learn diagnostic and surgical skills in a 3D environment. Eyes Surgical is the most commonly used device but due to its high cost, it is not very commonly adopted in the third world countries.

Apart from advantages, there are few drawbacks, which include; VP cannot replace a real patient as there are many aspects of a real disease, which cannot be simulated. The real patient-doctor interaction complexities cannot be created online and technical issues related with computer-based tool have their own complexities.

In Pakistan, we have a long way to go before actually adopting VP as a part of curriculum in medical education. There are some authoring tools available online which help in creation of VP but the cost of these authoring tools is too high for individuals. However, if universities and higher education commission take the charge and provide opportunity to the medical teachers, VP can be used in training of undergraduate and postgraduate trainees.

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