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Short Research Paper

Sharing best practices: Kuwait virtual hospital -Nursing training center

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Virtual reality is modern technology involving the use of computers to mimic a real life experience or situation. It has recently become an important approach in nursing education, due to its potential to show students what it is like to be in real-world clinical settings. The COVID-19 pandemic created more need for virtual instruction, learning and healthcare, and utilisation of virtual reality has since intensified. We present an ongoing project that utilises a virtual reality platform to facilitate practical teaching of Nursing students in Kuwait. The project is established at Kuwait Virtual Hospital which is a private training center for health care professionals. Teaching is conducted through simulation laboratories that have different modules and which contain guidelines to develop good and professional medical practice. This project is anticipated to enhance the learning of undergraduate nursing students, to improve the overall quality, safety, and cost-effectiveness of patient care in Kuwait and other related settings.

Key words: virtual reality, virtual hospital, nursing training, Kuwait

INTRODUCTION

Virtual Reality (VR) is modern technology involving the use of a computer to mimic a real life experience or situation (Bardi, 2020). VR allows users to get immersed inside an experience by stimulating various senses including vision, hearing, touch and interestingly even smell. This makes VR an advanced technology in learning as opposed to learning on screen, as it allows individuals to interact with an artificial world (Villena-Taranilla, Tirado-Olivares et al. 2022). VR can show what problems and risks students may encounter during the clinical area and therefore, helps them to develop skills, build confidence, and prepare them for clinical practice. With its potential to enhance teaching and learning of clinical disciplines, VR is increasingly being embraced in the training of nurses.

Many healthcare organizations across the globe have started embracing VR in their operations and have realized its benefits. In healthcare practice, adoption of VR in service delivery has included advances such as robotic surgery, phobia treatment, surgery simulation, and skills training (Vidal et al. 2013). The rising adoption in clinical trials,

psychological treatment, advanced diagnostics, surgeries, and body mapping is expected to support market growth. Virtual Reality is one of the technologies with the highest projected potential for economic growth. According to the latest forecasts, investment in VR will significantly increase income per capita by 21-fold in the coming few years (Globenewswire 2021). Adoption of VR technologies in medical surgeries to optimize surgical procedures is one of the fundamental factors anticipated to foster the market growth of VR.

Research evidence indicates that the traditional and VR as methods of training may both be effective. A research from Kuwait by William et al. (2016) that assessed traditional instruction versus virtual reality simulation during phlebotomy teaching revealed that there was no significant difference between those trained using the VR and those using the traditional method of simulated laboratories, with both groups demonstrating a high success rate in phlebotomy training. Innovative strategies such as VR, however, have the potential to bridge the gap

between theory and practice for nursing students and transform nursing education by increasing patient safety and by reducing student anxiety (Vidal et al., 2013). Notwithstanding, the lack of competence in the deployment of VR solutions and the lack of expertise among medical practitioners to adopt new technologies are the major restraints for VR adoption in healthcare.

COVID-19 impact on the healthcare system and VR opportunities

Virtual Reality has gained momentum in recent years. The ongoing global health crisis has affected hospitals and has brought unprecedented changes to medical education. The COVID-19 pandemic in particular has challenged healthcare systems worldwide. Most final-year healthcare science field students such as nurses have been affected by the cancellation of their clinical instruction, as countries went in a total lockdown and schooling was temporarily suspended. During the COVID-19 outbreak, the healthcare VR applications gained momentum due to widespread acceptance in medical training and education, telemedicine, and patient care management (Almutairi and Alazemi, 2021). Similarly, VR technologies can be used for improved self-diagnostics especially in remote areas where visiting clinics are challenging and people have to use telehealth services instead. The Covid-19 pandemic has significantly prompted the adoption of VR technologies as businesses have turned to remote work (Singh et al. 2020; Ball et al., 2021).

Nurses play a critical role in the healthcare system and make up a large section of the health profession. Nurses in healthcare across the globe have played a critical role in the fight against COVID-19 as frontline workers and this has resulted in an increasing demand for them, which has remained high and increasing in the past few years. During the pandemic, there was an alarming increase in the demand for nurses and to compensate for the shortage, Kuwait MOH agreed to utilize 500 students from the College of Nursing (CON) in patient care. Therefore, today, more than ever, the need to establish training centers is paramount to maintain and enhance student's skills as a response to changes in technology. This project aims to extend our services to promote clinical teaching during the COVID-19 pandemic and afterwards.

MATERIALS AND METHODS

Setting

The proposed project is being implemented at Kuwait Virtual Hospital (KVH), a private training center based in Kuwait. The center was developed in January 2022 with the aim of producing well qualified healthcare personnel including nurses. The center is aimed at providing nurses with training and nursing interventions in an elaborate and smooth manner using the most recent technology. It uses the virtual reality platform and simulation laboratories that

have different modules and which contain guidelines to develop good and professional medical practices. We provide an advanced and interactive learning environment that is safe, comfortable and follows evidenced-based practice, and aspire to be the leading clinical practice institute, using virtual technology in the MENA region and for international recognition. The center is the first in the Gulf area devoted to providing comprehensive and qualified medical training services within an appropriate cost for all nursing students, by utilizing advanced technologies such as VR, to produce an interactive learning experience. The primary responsibility of the center is to prepare nurses for the career of tomorrow. The center's eco-friendly sustainable building is in harmony with the natural feature and resources. It has four floors that are designed to provide a wide range of professional simulations that support students at each learning level.

Aims

The center goals are an essential part of establishing priorities and setting our center up for success over a period of time. We are accomplishing this through a number of specific objectives that will contribute to the achievement of the broad goal. These objectives include to;

1.   Provide training opportunities that enhance the knowledge, skills, and clinical experience of students under professional supervision.
2.   Improve the quality of healthcare practices that impact patients' safety.
3.   Provide individual and/or organizational memberships for medical and non-medical institutions.
4.   Invest in employees' continuous education, training and development.
5.   Establish a small exploratory center suitable for all ages to learn more about human health.
6.   Expand in the region and provide activities and courses that are in the interest of the community.

Regulation of the center

We believe in the importance of standardized practices across multiple entities within an organization, hence our center is regulated by standard principles and guidelines. In general, smoking is prohibited in all facilities of the center and its surroundings. The center operates from Sunday to Thursday, 7AM – 8PM, with two shifts, i.e. the morning shift, which is from 7:00 AM to 1:30 PM and the evening shift which runs from 1:30PM to 8:00PM. The dressing code for both the instructors and the students follows the dress code policy of KVH. Instructors and trainers should wear KVH uniform vests while students should wear a clean and proper uniform with appropriate footwear, which follows the dress code provided prior to commencing their training. Students should also wear their IDs all the time.

Anticipated outcomes

Kuwait Virtual Hospital will enable nursing students to

standardize practice and manage learning within their course of study. It will ensure that knowledge and skills gained are current and follow latest nursing clinical practice guidelines. Students will receive various skills during their practice in a range of specialties through; practicing clinical skills in an easy-to-follow method at the point of care, being assigned to skills, performing assessments, and completing the clinical performance (CPA) checklists. In addition, students will undertake online examinations and discussions that can be assigned and graded to assure students readiness to safely practice. Skills will be achieved in a number of specialized areas which include; fundamentals of nursing, adult nursing, advanced nursing practice, acute and critical care, cardiac care unit (CCU), maternity and new-born, neonatal intensive care unit (NICU), and emergency. Upon course completion, students will be provided with Pass Passport (PP) which indicates their readiness to practice in real hospital settings.

Program delivery

The course will be delivered following various levels, with increasing complexity, from the first level to the fourth as explained below;

Level (1): foundations in nursing courses: Students will be taken through the introduction to nursing by covering all the basics skills, theories, and knowledge that students will need to be prepared for their clinical practice.

Level (2): introductory to medical – surgical nursing skills: After learning and practicing foundation courses, this level focuses on more advanced nursing skills such as; critical thinking and the application of knowledge and demonstrate the ability to practice adult nursing care among individuals and families.

Level (3): family care "maternity and pediatrics": Students apply gained knowledge in maternity and pediatrics into practice independently and collaboratively with other health professions.

Level (4): community, primary healthcare and intensive and critical care: Learners integrate professional caring into practice to become nursing students that encompass values, ethical, moral and legal aspects of nursing.

Conclusions

In today's over-changing field of clinical practice, trusted resources that can impact patient outcomes is something healthcare institutions highly value in patient care. Healthcare sectors and health educational institutions in Kuwait understand the importance of clinical solutions and the need to apply and maintain the quality of healthcare. This project focuses at enhancing the learning of undergraduate nursing students through a virtual reality approach to clinical training, and aims to improve the overall quality, safety, and cost-effectiveness of patient care in different healthcare settings. KVH estimates significant benefits educationally and economically from this project

and prides in the importance of implementing the center, to ensure patient safety outcomes and guarantee patients' quality of care.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this manuscript.

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