Virtual Skills Teaching of Nursing Students during COVID-19: A Problem-Solving Approach

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ABSTRACT
The COVID-19 pandemic radically affected the whole education system including nursing education. Nursing is a practice-based profession; therefore, it is necessary to transform acquired knowledge into practice. However, in the current situation of the pandemic, the nursing students were unable to learn and practise nursing skills in the skills lab on manikins or simulation. This paper aims to give an overview and practical application of alternative solutions to overcome this situation. Alternatives like virtual skills teaching along with sign-off were sought by using problem-solving approaches to facilitate students’ learning and help them to acquire necessary skills timely.

Key Words: Virtual skills teaching, Nursing students, Problem-solving approach, COVID-19.


Clinical skills play a vibrant role in the undergraduate nursing curriculum. These are defined as the capability to accomplish tasks with the utilisation of proper knowledge and experience. Students learn the theory in the class and practise skills in the skills lab with all the resources, manikins or simulation, required for practice, and feel satisfied and confident. For students, the skills lab is an ideal environment where they can get adequate supervision and are not afraid of making mistakes. Furthermore, the key purpose of teaching clinical skills in skills lab is to prepare them for a specified level of proficiency and to provide a platform where they can practise skills before direct implementation on the patient. However, in the current situation of the COVID-19 pandemic, the faculty is unable to teach skills in the skills lab. But, it is important to train students for clinical skills as nursing education cannot be completed without practical application of learned knowledge.

COVID-19 has an impact on almost every sphere of life and has changed the dynamics of life, globally. Similarly, the whole education system, including nursing education, is also catastrophically affected by the pandemic; and that was a difficult time for the nursing institutions to deal with the situation.

The pandemic rendered several colleges to remain temporarily closed and face-to-face education was restricted. This situation has an undesirable and negative impact on educational activities, as social distance is crucial at this stage. Thus, nursing institutions were trying to find alternative ways to manage this difficult circumstance and to accomplish the clinical learning objectives of the students, timely.

Virtual learning is described as learning experiences using various electronic devices with internet availability in synchronous or asynchronous environments. Nursing colleges have implemented numerous creative strategies to combat the crisis, using various software/apps such as Google Classroom, Google Meet, Zoom, and Microsoft Teams to take online courses.

The reasons for offering virtual modalities include easy and convenient access for students, ensuring the physical distance by staying at home, and timely completion of the course. Although virtual learning is a need of the time and has many useful benefits, it also poses some challenges for the students and faculty that include command on online teaching and learning, use of technology, availability of uninterrupted internet connection, availability of required equipment to learn and practise skills at home, and students’ readiness, and acceptance of virtual learning.

To overcome these challenges, a session was arranged for the students and concerned faculty to discuss the importance of the skills; and how to proceed with virtual skills learning including faculty training by taking three days’ virtual workshop arranged by the institution for blended learning and to tackle the virtual skills teaching. The plan for implementation including preparation, scheduling, anticipated challenges, and available resources for virtual teaching and assessment of skills were also
discussed. The faculty was guided to ensure the participation of the students in virtual classes, student cooperation, active learning, giving prompt feedback, and respect diverse talents and ways of student learning.

Teaching nursing skills during the pandemic of COVID-19 was a big challenge for teachers. Thus, taking this situation as a challenge and solving it through a three-step approach was undertaken. First, a problem was identified or understood; secondly, it was strategised by planning and prioritisation; and finally, it was implemented. Furthermore, feedback was taken from the students to check the effectiveness of the adopted method and process.

The key to a successful implementation of any project or process is strong and appropriate planning. Moreover, strong planning should be specific, measurable, achievable, realistic, and time-bound (SMART), enough to facilitate the process and its smooth implementation. Hence, we reviewed the lists of skills of bachelor of science in nursing (BSN) year-I semester I and II and identified what we can cover online. Keeping in mind the student’s level, faculty limitations, equipment availability at home, and current situation of the mid-semester, we grouped the fundamentals of nursing (FON) skills of the semester-I and semester-II that can be done virtually. In addition, skills shuffling was done, based on prioritisation and SMART criteria of planning. Skills, such as hand-washing, vital signs (pulse, respiration, and temperature), hot and cold therapy, sitz bath, and deep breathing exercise were planned to be performed by students virtually. Moreover, for the simulator selection, students had the freedom to choose from family members or friends; and they should select those who can cooperate with them and not leave until the process is completed, and also necessary to take their verbal prior consent and in front of the faculty during signoff. Furthermore, the skills of identifying the pulse rate and its location was demonstrated virtually; and students were expected to palpate the pulse rate with appropriate location and share the findings with the faculty. For a sitz bath, the faculty demonstrated the skill via live video; and the students used their home utensils and re-demonstrated on the simulator in front of the faculty.

Students were divided into four groups as per face-to-face routine strategy, each comprising 12 students to learn the clinical skills under the supervision of the faculty members. Initially, the faculty demonstrated the skill for all the students and later they were separated along with their assigned faculty group for practice and individual signoff. For the skills demonstration, George and Doto’s five-step approach to skills development was used for skills demonstration, as: i) necessity and how the skills used in nursing was discussed, ii) skills were silently performed while the students were observing, iii) the skills were performed once again with an explanation of each step, iv) the students verbally described the steps of the skills, and v) the students performed the skills and also received the feedback.

After practising the demonstrated skills under the faculty supervision, students were re-demonstrated the skills for signoff. To maintain student confidentiality, every student was allocated a specific time for signoff. For this purpose, another link on Google Meet was generated and shared with the students. The faculty had the right to remove the students and add the students in the meeting to maintain the students’ confidentiality and ensure every student got the same time. Moreover, the faculty recorded the meeting and kept a record of the signoff of every student as evidence; and to ensure fair evaluation.

This strategy leads the students to self-directed learning, motivates students for self-monitoring, and helps them to adopt strategies to overcome their problems. The whole process leads to very meaningful learning where the faculty and students both participated with the same motive of effective skills completion.

In conclusion, problem-solving is one of the important skills that every faculty must possess. In this paper, the authors sought alternative nursing skills teaching strategies in the form of virtual teaching by following George and Doto’s five-step approach and successfully implementing them in their teaching practices. This initiative enhanced students’ learning, confidence to perform the above skills efficiently, and satisfaction while performing skills on their family members.

**CONFLICT OF INTEREST:**
The authors declared no conflict of interest.

**AUTHORS’ CONTRIBUTION:**
BH: Conception or design, acquisition, analysis, or interpretation of data, drafting, or revising it critically for important intellectual content.
AR, FN, YQ: Drafting or revising it critically for important intellectual content.

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