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With the COVID-19 pandemic hitting the global community, routine activities of universities, offices, and industries have been hindered. People are being forced to rethink the ways of working virtually from home for providing education, business, and health services in this social distancing during the COVID era. This sudden shift also posed challenges of online teaching in a private university, in urban Karachi, Pakistan. The Aga Khan University, School of Nursing and Midwifery recently conducted an online palliative care module using a virtual learning environment and Microsoft Teams for Trainee Nurse Interns. Although the first experience of online teaching and learning was a successful venture for faculty and students, in a lockdown situation, numerous challenges were also encountered being a lower middle-income country. The issues of electricity shutdown, Internet connectivity, and quality assurance were anticipated on transition to online pedagogy, but backup plans were formed to make execution promising.

**Key words:** COVID-19, palliative care module, virtual teaching

For online teaching to be successful and meaningful, the educational resources must be well structured, and the learning experiences must be intended to promote engaging interaction for learners.[1] Online learning or distance education was introduced in developed countries early, however lower middle-income countries have migrated to e-learning technology during COVID-19 breakdown, when many universities were shut down, and online education through digital technology was initiated. The World Economic Forum has reported that many universities in developed countries have adopted the transition to online teaching, smoothly and successfully offering more than 5000 online courses.[2] Online education uses a variety of synchronous (real time) and asynchronous (not real time, independent study articles, video- or audio-recorded PowerPoint sessions) strategies to connect with the participants.[3] Schools of nursing over the world have also incorporated the online education courses in their basic degree and advanced degree program to increase the opportunities for nursing students to continue their education.

Aga Khan University (AKU)[4] offers quality teaching in nursing, medicine, and education. During the past 30 years, the School of Nursing and Midwifery (SONAM) has moved from traditional, lecture-based, teacher-centered classrooms to blended and virtual platforms with the use of a high-fidelity simulation center to complement the skill-based teaching. Every year, Trainee Nurse Interns (TNIs) are offered the palliative and end-of-life care module, in a face-to-face format with a simulation-based activity in the Centre in Medical Innovation. TNIs are recent graduates of...
of a 4-year baccalaureate nursing program who work as interns in the university-affiliated hospitals, as required by the Pakistan Nursing Council before appearing for the licensure examination. TNIs are expected to complete a specific number of continuous nursing education hours offered by the nursing education services in the hospital and TNI modular curriculum by the School of Nursing faculty. This year, with the pandemic, faculty had to alter the modality and offer online teaching for TNIs, as it was deemed necessary for TNIs to complete the curriculum theoretical hours of the internship. AKU-SONAM is based in a low-middle-income country with most of its students coming from resource-constrained families. Therefore, the team came across a set of information technology and resource problems attributing to the low-income nature of the country and other challenges that arise while living in a developing nation. However, it is important to note that these challenges arose in terms of online teaching because students were off campus and could not avail the university learning resource center, computer laboratories, Internet resources, and hostel facilities, where Internet access and connectivity issues are minimized.

Guiding Framework

The faculty’s guiding framework was Biggs 3P Model, which they used for creatively contextualizing this online endeavor.[8] Teachers had expertise of offering blended modules and the TNIs also had exposure to a virtual learning environment (VLE) (MOODLE) during their 4-year degree program. This perspective of the teachers’ competence and the participants’ characteristics acted as a strong indicator for the “presage” phase to initiate this endeavor. Next, the faculty started to “prepare” the learning outcomes, online assessment methods, and virtual teaching pedagogies for the palliative and end-of-life care module, and paired up with e-learning experts, and planned a quick training for all faculties in using MS-Teams. Finally, the “product,” i.e., module was digitally packaged in a HTML5 interactive software and shared with participants through the MOODLE platform, the existing VLE available at AKU.

Successful Endeavor

The successful achievement of the module learning outcomes through online pedagogy reflected that the online module was prepared and executed with quality, promoted evidence-based learning, and created learner’s engagement with peers, content, and facilitator. A total of 141 TNIs successfully connected from home, and accessed the module through university VLE, and used Microsoft Teams application for online synchronous classes. TNI accessed the palliative care module resources asynchronously and did self-study (MOODLE and H5P), whereas online lectures, student-led seminar, and virtual simulation were conducted through Microsoft Teams, followed by synchronous and timed online assessment from VLE. Numerous active learning pedagogies including reflective writing, self-assessment quizzes, online seminar, live lectures, voice-over PowerPoint, and virtual simulation were used to promote deeper learning.[6] The success of the online project was evaluated in a dual manner; assessment of learners’ performance in online test and their feedback about the module. Of the 141 TNIs enrolled in the course, 130 of them successfully achieved 70% in the online test in the first attempt. Remaining TNIs took the retake examination after additional study days and gained the credit.

To gather learner’s opinion about the quality of the palliative care module, TNIs were provided a link on VLE, whereby they wrote feedback about different learning activities in the module and rated each day’s learning on a scale of “excellent” to “needs improvement.” Most TNIs rated the online module activities as good and felt that they can study at their own time, from home, and feel independent. As one TNI mentioned, “I like the electronic nature of the course because I can study them whenever I wish to.” Another TNI shared about the voice-over PowerPoint video, “The home health service slides were very interesting and it had information that we did not know about the service our hospital provides.” Overall, most TNIs shared that the palliative module helped them learn about palliative care concepts, whereas some felt that discussing the end-of-life care concepts triggered past experiences and melancholy, reviewing their attitudes toward palliative and end-of-life care concepts. One participant stated that “the virtual seminar on different assessment scales used in palliative care to measure pain, nausea, vomiting and other psychosocial domains was very informative and interactive, as every student in the small group participated and shared their perspective.” Another participant reported that “cultural consideration at the end of life care videos and online discussion forum was engaging.” Thirty percent of TNIs rated the module as excellent and felt engaged and accountable for their learning. One participant stated “virtual simulation on breaking bad news was new and engaging activity, as it gave a sense of realism in challenging our communication skills.” Majority (70%) of the participants felt that the course was delivered in a structured and organized manner and that they were able to complete the learning task efficiently. One TNI specified: “I learnt that in palliative care we should not only focus on physical issues but also spiritual and socio cultural to become holistic.” Another participant specified, “the communication challenge activity was most interesting
activity, as it was conceptual and clinical based and the
to respond, but I learnt a lot.” Another
TNI added, “I felt triggered by the self-awareness reflection
activity as I never really thought about death and dying for
myself before.” Thus, the success of the online module
served as an example and became a boost for faculty to keep
on working for online modality with blended pedagogy.

**Challenges and Backup Plans**

Institutions registered with the Higher Education
Commission mostly offer face-to-face conventional teaching,
and the transition to digital teaching would not be without
challenges, due to lack of online infrastructure access, limited
access to devices, poor bandwidth, power failure, limited
teacher and student technological readiness, as well as online
course designing experiences. Since this e-learning module
was offered to TNIs while they were at their own home
settings, technological and Internet issues were anticipated
and encountered. Perhaps, if the university campus facilities
were available (students’ hostel, learning resource center, and
computer laboratory), these issues would have been minimal:

1. The most challenging problem faced by the participants
and facilitators both was low Internet connectivity and
bandwidth issues that became the source of immense
interruption during the online classes. The online
feedback from TNIs reported that approximately 43%
of the participants experienced Internet and connectivity
challenges at some point. The bandwidth issues and
technological challenges are reported as one of the major
challenges influencing faculty and student readiness
to adopt online learning in lower middle-income
countries. The faculty had already shared the backup
plan with the participants. TNIs were suggested to keep
their mobile data packages handy and to inform the
facilitator through sending a short message system from
their cell phones, when their Internet becomes poor or
unstable. However, there was a limitation that some
participants were not able to get mobile data packages
due to lockdown and closure of shops. Moreover, those
participants who were able to upgrade their data package
found the modality expensive.

2. Another issue experienced was the frequent electricity
fluctuation and shutdown in some parts of the city.
Almost 10% of students missed online live classes
due to power failure in their respective areas. To tackle this
issue, a blend of asynchronous activities was included
in the module such as faculty digital videos, online
discussion forums, and article reviews. Those students
who missed the live classes or virtual seminar were
shared the recorded version from the MS-Teams to
ensure completion of learning objectives.

3. The last and the most crucial issue was conducting
online tests with academic integrity while participants
were in their own settings. Study findings suggested that
chances of student cheating are significantly high on
web-based assessment. To ensure legitimate online
assessment, some measures were taken by faculty.
The online test paper uploaded on VLE was password
protected and time-bound. The online test was opened
at a fixed time and 100% of the participants attempted
the online test, with the results ranging between 61%
and 95%. Each of them received shuffled questions and
responses to negate their chances of discussions through
phone calls. A mix of multiple-choice and short essay
questions were included in the test, so only those familiar
with the content could respond to questions in the time
allocated. Furthermore, each question was based on a
ratio of 1:1 (multiple-choice question:minute) which
restricted participants to indulge in other resources for
any assistance. All these measures were taken to ensure
participants would take the test individually in an ethical
manner.

**Conclusion**

Despite the challenges, the participants and the
facilitators both felt that offering the online module was an
excellent intervention, in times of COVID-19 pandemic.
Most nursing schools are looking forward to experiment
online courses post lockdown and pandemic period to stay
in business. Pakistani university administration needs to
invest in enhancing the capacity building of their faculty and
students to learn virtual tools and software available in their
contextual locations. More action research on successful
models of e-learning is needed to foster virtual programs
in the low middle-income countries.

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**Conflicts of interest**

There are no conflicts of interest.

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