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Evaluation of eHealth assistance in-hospital care for improved quality of life in patients

Background: An estimated share of 8% of the world's population was 65 years old or older in 2010, while in 2050, it is expected to be 16% (WHO, 2011, p. 4). It raises the emerging importance of healthcare response to chronic and degenerative diseases prevalent in older people. It will also increase demand for adequate healthcare infrastructure and skilled staff. Health conditions contribute significantly to patients' quality of life. Healthcare infrastructure and healthcare services, including their accessibility, belong to objective factors influencing their perception of their health. The growing disparity between supply and demand for specialized inpatient facilities due to the aging population calls for new solutions, including eHealth technologies. Automatized activities could be taken over by eHealth technologies that do not require a constant presence of staff.

Methods: We tested whether eHealth technical solutions reduce patients' health risks on a sample of 61 patients on the covid-19 unit in Tomas Bata hospital in Zlin. We have applied the randomized control trial to select patients for the treatment and the control groups. Moreover, we tested eHealth technologies and their help to staff in the hospital. There are many eHealth technologies available on the market. Not all of them are suitable for use in hospitals. Thus, first, we had to apply exclusion evaluation criteria to shortlist potential candidate technologies for use. After this step, the shortlisted technologies were tested in the hospital by the healthcare staff. At the end of the selection process, we have selected thermometers and oximeters for use in the hospital.

Results: Due to the severity of the covid-19 disease and its rapid course and the size of the sample in our research, we did not demonstrate a statistically significant impact of eHealth technologies on patient health. The evaluation results confirm that even the limited number of technologies deployed proves to be an effective help for staff in critical situations like the pandemic. The main issue is psychological support to staff in hospitals and relieving stressful work.

Conclusions: Our evaluation provides two lessons helpful for other evaluators. The first one relates implementation of RCT. Our concerns about violations of participant selection rules through RCTs were addressed by collecting data before including participants in the treatment or control group. The randomization decision was included as the last reference in the questionnaire. Therefore, interviewers and interviewees were no longer inclined to complete the questionnaire again to try to change the randomization outcome. The second lesson we learned concerns the indirect collection of data. The outbreak of the covid-19 pandemic at the time of the evaluation also meant that we were unable to visit the hospital as evaluators. For this reason, we found a solution where medical staff helped with the data collection. On the other hand, it causes that the evaluators do not have a direct relationship to the interviewees and thus the amount of data collected is lower than in a classical data collection processes.