

Development and testing of an economic evaluation model by utilising a digital health intervention in Sri Lanka

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Abstract

In this digital age, though digital technology aided remote psychological interventions has shown superior effect over the usual care in preventing suicide, convincing evidence on economic benefits are yet to be established. Although, the monetary value of human life is difficult to measure, suicide prevention is one area which can directly show the value incurred for saving lives. With the objective of developing an economic evaluation model by selecting a Sri Lankan telemedicine trial in suicide prevention, a clinically effective intervention conducted in Sri Lanka, “Brief Mobile Treatment” (BMT), was used to perform a cost-utility analysis (CUA). The analysis was completed in nine steps which includes calculation of the cost of the intervention and UC, analysis of incremental cost and effect, calculation on the incremental cost-effectiveness ratio (ICER) and ICER 95% confidence interval together with a graphical presentation of calculated ICER and 95% confidence interval, calculation of acceptability threshold under different willingness-to-pay thresholds with graphical presentation of acceptability curves and finally a completion of one-way sensitivity analyses. It was found that the total establishment cost for the BMT was Rs.91,918.00 with an average cost of Rs.2,703.00/patient. The variable cost to provide BMT totalled Rs.32,17.00. Total cost of usual care was Rs.774.00. Mean cost per BMT intervention patient was Rs.4,103.00 compared with a mean cost of Rs.23.00 for usual care patients. Probability that the BMT intervention was cost-effective, when compared with usual care, was 90% at a willingness-to-pay thresholds of Rs.5 million/QALY, and 91% at 7 million/QALY. Similar results were obtained using multivariable analyses. Therefore, it is concluded that above model is both practical and useful model to be used in economic evaluations.

Index Terms - *cost-utility analysis, mobile health, RCT, Suicide prevention, Telehealth.*