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ECONOMIC EVALUATION AND CLINICAL IMPACT OF HOME MEDICATION REVIEW (HMR) BY COMMUNITY PHARMACISTS AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM)

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ABSTRACT

Objective: Successful diabetes treatment requires commitment and understanding of disease management by the patients. This trial aimed to evaluate the clinical and economic impacts of home medication review by community pharmacists (HMR-CP) in optimising diabetes care and as a cost-effective intervention from the Malaysian healthcare provider perspective. **Methodology:** A randomised controlled trial (RCT) was conducted on 166 patients with Type 2 Diabetes Mellitus (T2DM) who were randomly assigned to the intervention or control groups. The economic evaluation was conducted alongside the RCT to estimate the intermediate cost-effectiveness of HMR-CP for patients with T2DM. The intervention group received HMR-CP at 0-month, 3-month, and 6-month. The primary outcome was haemoglobin A_{1c} (HbA_{1c}) and quality-adjusted life-years (QALYs), while clinical outcomes, anthropometric data, and humanistic outcomes were the secondary outcomes. The utility value measured using five-level EuroQoL five-dimensional questionnaire (EQ-5D-5L). For the intervention group, drug-related problems (DRP) were classified according to the Pharmaceutical Care Network Europe Foundation (PCNE). Medication adherence was determined based on the Pill Counting Adherence Ratio (PCAR). The costs included in the studies was cost of implementing the intervention and the cost associated with the use of healthcare services. General linear model and generalised estimating equations were used to compare data across the different time-points within and between the groups, respectively. A Markov model was then constructed to project the lifetime cost-effectiveness data beyond the RCT. The primary outcomes for the economic evaluation were cost per HbA_{1c} reduction and cost per quality-adjusted life-years (QALYs). **Result:** No significant difference was observed in the demographic and anthropometric data at baseline between the two groups except for fasting blood glucose (FBG). There was a significant reduction in the HbA_{1c} (-0.91%) and FBG (-1.62mmol/L) over the study period ($p<0.05$). A similar observation was noted in diastolic blood pressure (DBP) and total cholesterol (TC) but not in high-density lipoprotein (HDL) and anthropometric parameters. Both utility value and Michigan Diabetes Knowledge Test (MDKT) scores increased significantly over time. As for the intervention group, significant changes in PCAR ($p<0.001$) and the number of DRP ($p<0.001$) were noted. The intervention and health services costs throughout the 6-month HMR-CP trial was RM121.45 [95%CI: RM115.89 to 127.08] per participant. The ICER of HMR-CP intervention versus standard care was RM178.82 [95%CI: RM86.77-364.03] per reduction of HbA_{1c}. HMR-CP intervention [RM12,764.82] was associated with an incremental cost of RM83.34 over control group [RM12,682.95] with an additional of 0.07 QALY gained. The ICER associated with HMR-CP intervention was RM1,190.57 per QALY gained, which was below the ICER threshold in Malaysia, indicating that HMR-CP was a cost-effective option. **Conclusion:** HMR-CP was found to be a cost-effective intervention that had significantly reduced the HbA_{1c} and significantly improved the glycaemic control, QoL, medication adherence, and knowledge of T2DM patients and reduced the number of DRP and cost of medication wastage. However, the impact of HMR-CP on certain clinical and anthropometric parameters remains inconclusive, and further investigation is warranted.

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