



COST-EFFECTIVENESS OF DIFFERENTIAL EXERCISE INTERVENTIONS IN IMPROVING PERCEIVED HEALTH STATUS OF BANGLADESHI DIABETIC INDIVIDUALS

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ABSTRACT

Background: Type 2 diabetes mellitus (T2DM) poses huge health burden for individuals and societies. Currently, the brunt of high prevalence of T2DM in low- and middle-income countries (LMICs) are creating economic burden for the economies.

Aim: This study aims to assess the cost-effectiveness of differential exercise interventions directed to improve the perceived health status of T2DM individuals of Bangladesh.

Method: 66 middle-aged T2DM individuals residing in Dhaka, Bangladesh from middle-income strata of the society were included. EuroQol 5D-5L questionnaire was used for the evaluation of perceived health-status. There was 14 weeks of intervention sessions carried out to assess the cost-effectiveness of the differential exercise programs. In this study, the provider's perspective was taken for cost-effectiveness analysis. Incremental cost effectiveness ratio (ICER) was designed and calculated to assess the cost - effective exercise program for the T2DM population.

Results: In terms of total costs from provider's perspective, combined exercise intervention program had the lowest ICER value with highest improvement in health status and highest cost. Besides, EQ-VAS score measuring improvement in health status of middle-aged T2DM individuals was highest in the combined exercise program (EQ-VAS score = 91.60) compared with aerobic training (EQ-VAS score = 86.05) and no exercise program (EQ-VAS score = 81.00) after the intervention sessions.

Conclusions: Combined exercise program was evident as the most cost-effective programme among aerobic and no exercise programme for T2DM participants residing in Dhaka, Bangladesh.

1. INTRODUCTION

Type 2 diabetes mellitus (T2DM) considerably adds to the prevailing crises associated with preventable diseases and leads to economic losses that arise from high health-care cost and loss of productivity¹. Generally, there would be two types of costs to be considered while measuring the costs of a disease like T2DM². First, there exists a direct cost which refers to the immediate costs a person has to bear in terms of the money needed to buy medical services, drugs, and other supplies to get better or keep the condition under control. It can also be considered the financial costs borne by national healthcare systems. On the other side, the second type of cost is indirect cost which refers to the costs of productivity losses due to taking time off from work for sickness or attendance for health care; inability to work because of disability (for example - impairment of vision); premature retirement because of disability; premature mortality because of the acute or chronic complications and others³.

In the United States alone, the direct medical cost of diabetes amounts to US\$92 billion annually, with indirect costs adding another US\$40 billion⁴. In Italy, the cost of T2DM was estimated at US\$58 billion, amounting to more than 6% of total private and public healthcare expenditure⁵. T2DM also causes a substantial economic burden in lower-income economies. For example, in the Caribbean and Latin America, the total annual cost associated with diabetes may be around US\$65 billion⁶. In developing countries, a large number of people are living on or beneath the poverty line and face problems in accessing health care services. Along with that, these countries also face lack of national welfare schemes and provision of health insurance for the poor population. The underprivileged people cannot afford to pay for healthcare services. Hence, they are diagnosed late with diabetes, resulting in acute and chronic complications⁷. Once considered to be a disease of wealthy nations, T2DM now constitutes a truly global affliction. International Diabetes Federation (IDF) anticipates that the worldwide incidence of diabetes among those aged 20 to 79 years