

Abstract

Introduction and Objectives: The prevalence of obesity in children is increasing worldwide. The increase in the effects of obesity in the form of chronic diseases has imposed a great economic and social burden on human societies and has emerged as an epidemic of the present century and one of the most important problems of health systems. This global epidemic is more severe and rapid in children, especially in developing countries. The World Health Organization's program to end childhood obesity has developed a comprehensive and integrated set of recommendations for eliminating childhood obesity. Program to end childhood obesity in Iran in the framework of the World Health Organization's program to end childhood obesity; Is a comprehensive program for the prevention and control of overweight and obesity in Iranian children and adolescents. The aim of this study was to evaluate the economic impact of promoting physical activity in connection with the study of the effect of physical activity on reducing the prevalence of type 2 diabetes due to obesity and reducing mortality and morbidity from the disease in the framework of Iran Echo program in Iran.

methods: This study is a quantitative applied study by economic evaluation method in 2018. The study used secondary data from the study "The effect of educational intervention on healthy lifestyle in Iranian children and adolescents: childhood obesity program in Iran (IRAN-ECHO)". In the first stage, the costs of Iran Echo program under the branch of increasing physical activity Estimated. In the second stage, using the height and weight data of the study, BMI was estimated before and after the intervention and thus the prevalence of obesity in the age group before and after the intervention was calculated to determine the changes in the prevalence of obesity in the age group. Step 3 The effect of the change in the prevalence of

obesity on the prevalence of type 2 diabetes was calculated using a fraction attributed to the population. The fourth stage of prevented DALY was estimated as an increase in physical activity in the age group of 7 to 18 years. The fifth stage of determining the cost-effectiveness of the intervention of Iran Echo program under the branch of increasing physical activity and the sixth stage of sensitivity analysis of uncertain parameters.

Results: The cost of educational intervention in the sub-category of increasing physical activity was equivalent to 250 million Rials for the project in 4 areas. After the intervention and with a 1.7% decrease in the prevalence of obesity among students (reduction of the prevalence of obesity from 7.6% to 5.9%), 4% of cases of diabetes associated with obesity decreased. This means that by implementing this intervention, 25 people were prevented from developing diabetes. According to calculations made at 283.5 DALY, the years of prevention of life adjusted with disability (DALY averted) resulting from the IRAN ECHO intervention program under the branch of increasing physical activity among people with type 2 diabetes. The cost of incremental effectiveness was equal to 881834 Rials per DALY averted. The threshold limit according to the GDP per capita for Iran in 2018 was equal to 453408480 rials. The difference between the cost per prevented DALY and the threshold introduced by the World Health Organization indicates the high cost-effectiveness of preventive intervention.

Conclusion: Preventive interventions are highly effective. Doing preventive interventions in the field of health and focusing on health instead of economic treatment is beneficial for our health system.

Keywords: Economic evaluation, Physical activity, Obesity, Type 2 diabetes



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Title

**Economic evaluation of physical activity increasing intervention as a branch of
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