Qualitative and Quantitative Analysis of DASH Diet for Hypertension Patients

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Abstract:

Numerous studies have confirmed that the adopting the DASH diet and adjusting healthy lifestyle can effectively control blood pressure (BP). However, maintaining and implementing healthy dietary and lifestyle practices over the long term poses challenges. Therefore, this study integrates analytic hierarchy process (AHP), fuzzy multi-choice goal programming (FMCGP) and non-linear multi-segment goal programming (NLMSGP) to be a novel personal healthy support model (PHSM) aimed at addressing the personalized issues related to dietary plans, exercise plans, and healthy lifestyle recommendations. Based on this model, a comprehensive recommendation for dietary planning and healthy lifestyles is provided to address hypertension. The model will be based on the thesis of DASH diet to establish an effective diet plan and healthy living habits program. The purpose of the study is to assist hypertension patients in designing daily personal dietary menus and healthy lifestyle recommendations to achieve their BP control goals. The model will have the following contributions: Based on the individual's gender, age, and activity level, the proposed model can be used to (1) calculate the daily calorie, nutrients recommendations and six food groups' needs; (2) provide an effective exercise plan; (3) FMCGP technology is used to provide individuals with dietary and healthy lifestyle advice solutions to achieve the goal of BP control. These advantages are of great benefit to both hypertensive and healthy individuals. The PHSM not only takes into account multiple qualitative and quantitative criteria for the diet and healthy living habits of hypertension patients, but also improves the country's health care services and health care expenditures. In addition, a novel NLMSGP method will be investigated.

Keywords:

DASH (dietary approaches to stop hypertension), fuzzy multi-choice goal programming, non-linear multi-segment goal programming, personal healthcare.