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خلاصه مقاله:

Today, planning and scheduling problems are the most significant issues in the world and make a great impact on improving organizational productivity and serving systems such as medical and healthcare providers. Since operating room planning is a major problem in healthcare organizations, the optimization of medical staff and equipment plays an essential role. Thus, this study presents a multi-objective mathematical model with a new categorization (preoperative, intraoperative, and postoperative) to minimize operating room scheduling and the risk of using equipment. Time constraints in healthcare systems and medical equipment limited capacity are the most significant considered limitation in the present study. In this regard, since the duration of patient preparation and implementation of treatment processes occur in three states of optimistic, pessimistic, and normal, the introduced parameters are examined relying on a fuzzy uncertainty analysis of the problem. Hence, the model is measured in a real numerical solution sample in a medical center to evaluate and confirm the proposed mathematical model. Then, two meta-heuristic algorithms (NRGA and NSGAII) are implemented on the mathematical model to analyze the proposed model. Finally, the research results indicate that the NSGA-II is more efficient in the operating room scheduling problem.

کلمات کلیدی:
Medical center planning and scheduling, Operating room planning and scheduling, Medical staff and equipment optimization, Fuzzy Uncertainty Approach, Metaheuristic Algorithm

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