

## Modified Fuzzy Delphi Method to Incorporate Healthcare Stakeholders' Perspectives in Selecting Quality Improvement Projects' Criteria

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**Abstract :** There is a global shift in healthcare systems' emphasizing engaging different stakeholders in selecting quality improvement initiatives and incorporating their preferences to improve the healthcare efficiency and outcomes. Although experts bring scientific knowledge based on the scientific model and their personal experience, other stakeholders can bring new insights and information into the decision-making process. This study attempts to explore the impact of incorporating different stakeholders' preference in identifying the most significant criteria that should be considered in healthcare for electing the improvement projects. A Framework based on a modified Fuzzy Delphi Method (FDM) was built. In addition to, the subject matter experts, doctors/physicians, nurses, administrators, and managers groups contribute to the selection process. The research identifies potential criteria for evaluating projects in healthcare, then utilizes FDM to capture expertise knowledge. The first round in FDM is intended to validate the identified list of criteria from experts; which includes collecting additional criteria from experts that the literature might have overlooked. When an acceptable level of consensus has been reached, a second round is conducted to obtain experts' and other related stakeholders' opinions on the appropriate weight of each criterion's importance using linguistic variables. FDM analyses eliminate or retain the criteria to produce a final list of the critical criteria to select improvement projects in healthcare. Finally, reliability and validity were investigated using Cronbach's alpha and factor analysis, respectively. Two case studies were carried out in a public hospital in the United Arab Emirates to test the framework. Both cases demonstrate that even though there were common criteria between the experts and the stakeholders, still stakeholders' perceptions bring additional critical criteria into the evaluation process, which can impact the outcomes. Experts selected criteria related to strategical and managerial aspects, while the other participants preferred criteria related to social aspects such as health and safety and patients' satisfaction. The health and safety criterion had the highest important weight in both cases. The analysis showed that Cronbach's alpha value is 0.977 and all criteria have factor loading greater than 0.3. In conclusion, the inclusion of stakeholders' perspectives is intended to enhance stakeholders' engagement, improve transparency throughout the decision process, and take robust decisions.

**Keywords :** Fuzzy Delphi Method, fuzzy number, healthcare, stakeholders

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