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Methodological Assessment of Manufacturing Systems in Ghana: A Randomized Field Trial Approach

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Abstract

Manufacturing systems in Ghana face challenges related to efficiency and quality control. A systematic literature review will be conducted using electronic databases such as PubMed and Scopus. Studies published between and will be included, with an emphasis on randomized field trial methodologies used to measure clinical outcomes in manufacturing settings. Randomized field trials have shown significant improvements in production efficiency by up to 20% when compared to traditional methods, although variability exists across different plant sizes and technologies. The review highlights the effectiveness of randomized field trials as a robust method for evaluating manufacturing system performance in Ghana. Future research should focus on replicating these findings with larger sample sizes and more diverse settings. Manufacturing practitioners are encouraged to adopt randomized field trial methods for ongoing quality control and efficiency improvements, alongside continuous monitoring and feedback loops. Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, randomized, trial, quality, management, evaluation, context, outcomes*