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Application of meta-analysis technique to assess effectiveness of HACCP-based FSM systems in Chinese SLDBs

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Abstract:

Despite effectiveness of HACCP-based FSM systems in food safety management (FSM) and their common adoption in industrialized food businesses, doubts have been raised on their feasibility in small and/or less developed food businesses (SLDBs) because of barriers such as financial constraints, lack of technical expertise, and insufficient personnel training faced by SLDBs. Uncertainty about their effectiveness, as well as feasibility for SLDBs (including numerous Chinese SLDBs) made them reluctant to adopt these FSM systems. In order to have clear understanding on the effectiveness of HACCP-based FSM systems for SLDBs, this study presented meta-analyses on associations between implementing HACCP-based FSM systems in Chinese SLDBs and levels of their food safety status. Having HACCP-based FSM systems implemented led to significantly higher odds of qualified numbers, with pooled ORs (95% CI) being 10.58 (6.06, 18.49), 8.66 (4.88, 15.35), 6.39 (3.36, 12.18), and 6.65 (4.29, 10.30), respectively, with regard to food products, food handlers' hygiene, employees' knowledge about food safety and hygiene, and food contacting surfaces & operating environments. Solid evidence on effectiveness of HACCP-based FSM systems in SLDBs should encourage food businesses to adopt these systems for ensuring food safety.

Keywords: Food safety; HACCP; Effectiveness

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