

## Effects Of Chinese Metabolic Management Center on Biomedical Outcomes, Lifestyle Modifications, and Cardiovascular Risks Among Patients with Diabetes: A Quasi-Experimental Study

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### ABSTRACT

This study assessed the effectiveness of the Chinese metabolic management center (MMC), which offers comprehensive one-stop care through a multidisciplinary team, in improving biomedical outcomes, lifestyle habits, and predicted cardiovascular risks among patients with diabetes after a 12-month intervention. Based on a quasi-experimental design, 557 patients who participated in the MMC were matched one-to-one with individuals receiving usual community healthcare using propensity score matching based on age, sex, fasting plasma glucose (FPG) levels, and diabetes duration. We used the difference-in-differences approach to assess the difference of MMC versus usual healthcare on changes in biomedical metrics, treatment target achievement, lifestyle improvements, and predicted cardiovascular risks over 12-month followup. The MMC group demonstrated greater improvements compared to the control group, including reductions in FPG (-0.84 mmol/L), diastolic blood pressure (-2.08 mmHg), and body mass index (BMI, -0.29 kg/m<sup>2</sup>), as well as increased high-density lipoprotein cholesterol (0.05 mmol/L) and decreased 10-year cardiovascular risks (total cardiovascular risk, -0.94%; atherosclerotic cardiovascular disease, -0.76%). However, there was a net increase in low-density lipoprotein cholesterol (LDL-C, 0.13 mmol/L). The MMC group also showed a significant increase in reaching treatment targets for FPG and blood pressure, but a decrease in LDL-C targets. Additionally, reductions in smoking and alcohol consumption were more pronounced in the MMC group. Overall, the MMC effectively improves diabetes management by lowering FPG, blood pressure and BMI levels, and enhancing lifestyle changes, thereby controlling cardiovascular risks. Nevertheless, its impact on blood lipids remains limited, indicating a need for further operational enhancements.

**Keywords:** MMC, effectiveness, patient management, glycaemic control, multidisciplinary intervention