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Treatment Burden Preceding Self-care and Clinical Parameters: a Longitudinal Cross-lagged Study with Mediation Analyses

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Abstract

Sustained control of key clinical parameters (SBP, DBP, FPG, BMI) requires consistent self-care adherence, though excessive treatment burden may compromise this. The longitudinal dynamics linking treatment burden, self-care, and clinical outcomes—specifically self-care's mediating role—remain underexplored. We examined temporal relationships between these factors and mediation effects in a community-based longitudinal cohort of 3,841 patients with chronic conditions (mean age 54.16 ± 12.10 years; 59.6% multimorbid). Treatment burden (T1) was assessed via Treatment Burden Questionnaire. Self-care (T2) was evaluated across five domains (smoking, alcohol, activity, diet, medication adherence; composite score derived). Clinical parameters (SBP, DBP, FPG, BMI) were measured at T2. Cross-lagged panel models and mediation analyses tested temporal paths and mediation. After covariate adjustment, baseline treatment burden negatively predicted follow-up self-care (? = -0.058, P = 0.001) and positively predicted adverse changes in SBP (? = 0.117), DBP (? = 0.082), FPG (? = 0.099), and BMI (? = 0.134) (all P < 0.001). T2 self-care mediated T1 burden's effect on T2 outcomes, accounting for 9.4% (SBP), 10.0% (DBP), and 13.7% (FPG) of total effects (all P < 0.001). Elevated treatment burden precedes diminished self-care and clinical deterioration. Self-care quantifiably mediates burden's adverse effects on clinical parameters, establishing burden as a modifiable barrier to chronic disease control and informing sustainable primary care interventions.

Keywords: Treatment Burden, Self-Care, Clinical Outcomes, Cross-Lagged Panel Model, Mediation Analysis