

Title: Chronic Kidney Disease among Diabetes Patients in Ethiopia: A Systematic Review and Meta-Analysis

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Abstract

Background. Though different primary studies have reported the burden of chronic kidney disease among diabetes patients, their results have demonstrated substantial variation regarding its prevalence in Ethiopia. Therefore, this study aimed to estimate the pooled prevalence of chronic kidney disease and its associated factors among diabetes patients in Ethiopia.

Method. PubMed, African Journals Online, Google Scholar, Scopus, and Wiley Online Library were searched to identify relevant studies. The I^2 statistic was used to check heterogeneity across the included studies. A random-effects model was applied to estimate the pooled effect size across studies. A funnel plot and Egger's regression test were used to determine the presence of publication bias. All statistical analyses were performed using STATA™ version 14 software.

Result. In this meta-analysis, a total of 12 studies with 4,075 study participants were included. The estimated prevalence of CKD among diabetes patients was found to be 35.52% (95% CI: 25.9–45.45, $I^2 = 96.3\%$) for CKD stages 1 to 5 and 14.5% (95% CI: 10.5–18.49, $I^2 = 91.1\%$) for CKD stages 3 to 5. Age greater than 60 years (OR = 2.99; 95% CI: 1.56–5.73), female sex (OR = 1.68; 95% CI: 1.04–2.69), duration of diabetes >10 years (OR = 2.76; 95% CI: 1.38–5.51), body mass index >30 kg/m² (OR = 2.06; 95% CI: 1.41–3.00), type 2 diabetes (OR = 2.54; 95% CI: 1.73–3.73), poor glycemic control (OR = 2.01; 95% CI: 1.34–3.02), fasting blood glucose >150 mg/dl (OR = 2.58; 95% CI: 1.79–3.72), high density lipoprotein >40 mg/dl (OR = 0.48; 95% CI: 0.30–0.85–25), systolic blood pressure >140 mmHg (OR = 3.26; 95% CI: 2.24–4.74), and diabetic retinopathy (OR = 4.54; CI: 1.08–25) were significantly associated with CKD.

Conclusion. This study revealed that the prevalence of chronic kidney disease remains high among diabetes patients in Ethiopia. This study found that a long duration of diabetes, age >60 years, diabetic retinopathy, female sex, family history of kidney disease, poor glycemic control, systolic blood pressure, overweight, and high level of high-density lipoprotein were associated with chronic kidney disease among diabetic patients. Therefore, situation-based interventions and context-specific preventive strategies should be developed to reduce the prevalence and risk factors of chronic kidney disease among diabetes patients.

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