

## Association Between Diabetes-Related Distress and Predicted 10-Year Cardiovascular Risk in Type 2 Diabetes Mellitus: A Cross-Sectional Study Using PAID and UKPDS Risk Engine

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### Abstract

Type 2 diabetes mellitus (T2DM) is a rapidly growing global health problem, and cardiovascular disease remains the leading cause of morbidity and mortality in people living with diabetes. Alongside metabolic dysregulation, diabetes-related distress (DRD) is a common psychosocial burden arising from the continuous demands of diabetes self-management and has been associated with adverse clinical behaviors and outcomes. This observational cross-sectional study assessed the association between DRD and predicted 10-year cardiovascular risk among adults with T2DM attending a tertiary care medicine setting in New Delhi, India. DRD was measured using the Problem Areas in Diabetes (PAID) questionnaire, a validated 20-item scale that quantifies diabetes-specific emotional burden. Predicted 10-year risks for coronary heart disease, fatal coronary heart disease, stroke, and fatal stroke were estimated using the United Kingdom Prospective Diabetes Study (UKPDS) Risk Engine 2.0. Statistical analysis evaluated correlations between PAID scores and UKPDS-predicted cardiovascular risk estimates and compared distress levels across cardiovascular risk strata. The findings indicate that higher DRD is strongly associated with higher predicted cardiovascular risk across multiple outcomes, underscoring the importance of integrating psychosocial screening into routine diabetes care. Incorporating DRD assessment may strengthen comprehensive cardiovascular risk stratification and guide targeted interventions in individuals with T2DM.

### Keywords

Cardiovascular risk, diabetes-related distress, PAID, type 2 diabetes mellitus, UKPDS risk engine.