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Confirmatory factor analysis of the Patient Health Questionnaire-9: a study among tuberculosis patients in the Free State Province

CITATION

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ABSTRACT

Background: There is growing evidence that depression is frequently comorbid with tuberculosis (TB) and is often associated with a decreased quality of life and poor treatment outcomes. The Patient Health Questionnaire (PHQ-9) is widely used to screen for depression in clinical settings in low- and middle-income countries. This study examined the construct validity and reliability of an interviewer-administered PHQ-9 in a sample of new TB patients in the Free State province of South Africa.

Methods: A pilot study was conducted in 2019 amongst 208 new adult TB patients attending primary healthcare facilities in the Lejweleputswa District in the Free State. Trained fieldworkers administered a structured questionnaire comprising of questions on patient's socio-demographic characteristics and the nine-item PHQ-9 to the patients. Confirmatory factor analysis and Cronbach's alpha were respectively used to investigate the construct validity and internal consistency of the PHQ-9.

Results: The model was a good fit, with a Tucker–Lewis index of 0.976, a comparative fit index of 0.982 and a root mean square error of approximation of 0.062 (90% CI: 0.032–0.089). All indicators showed significant positive factor loadings, with standardised coefficients ranging from 0.467 to 0.799. The PHQ-9 was characterised by a single factor latent structure – depression – underlying all items. The Cronbach's alpha of the scale was 0.84.

Conclusion: The results support a unidimensional structure of the PHQ-9, with satisfactory internal consistency implying that the scale is valid and reliable. The TB programme can confidently consider the PHQ-9 for the routine assessment of depression amongst TB patients in the Free State province and similar settings.

Keywords: Tuberculosis, depression, PHQ-9, construct validity, confirmatory factor analysis