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Systematic review of the measurement properties of the Depression Anxiety Stress Scales-21 by applying updated COSMIN methodology

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Abstract

Purpose: The Depression Anxiety Stress Scales (DASS)-21 measures emotional symptoms of depression, anxiety, and stress, is relatively short, and is freely available in the public domain, which has resulted in it being applied to various clinical and non-clinical populations in many countries. The aim of this study was to systematically review the measurement properties of the DASS-21.

Methods: The MEDLINE, Embase, and CINAHL databases were searched. The methodological quality of each identified study was assessed using the updated COSMIN Risk of Bias checklist. The quality of the measurement properties of the studies was rated using the updated criteria for good measurement properties. The quality of evidence was rated using a modified version of the GRADE approach.

Results: This study included 48 studies in its review. The content validity of the DASS-21 demonstrated sufficient moderate-quality evidence. The instrument exhibited sufficient high-quality evidence for bifactor structural validity and internal consistency. The instrument also showed sufficient high-quality evidence for hypothesis testing of construct validity. Regarding criterion validity, only the DASS-21 Depression subscale demonstrated sufficient high-quality evidence. The measurement invariance across gender demonstrated inconsistent moderate-quality evidence. There was insufficient low-quality evidence for the reliability of each subscale. For responsiveness there was sufficient low-quality evidence for depression and stress subscales, and insufficient very-low-quality evidence for anxiety subscale.

Conclusions: The DASS-21 demonstrated sufficient high-quality evidence for bifactor structural validity, internal consistency (bifactor), criterion validity (Depression subscale), and hypothesis testing for construct validity. Further studies are required to assess the other measurement properties of the DASS-21.

Keywords: Anxiety; Depression; Measurement properties; Outcome measurement instrument; Stress; Systematic review.

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