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Title: Beck depression inventory-II: Determination and comparison of its diagnostic accuracy in asthmatic outpatients

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Body: Objectives: The Beck Depression Inventory-II (BDI-II) is widely used to assess severity of depressive symptoms and screen for major depressive disorder (MDD) in asthmatic patients. No studies have yet determined its performance accuracy while adjusting for potential confounders. This study aimed to evaluate the impact of covariates on performance accuracy of the BDI-II, and determine the optimal cut-off score for the BDI-II in asthmatic patients. Differences of optimal cut-off scores were also verified across covariate subgroups. Methods: A sample of 668 adult asthmatic outpatients completed the BDI-II and the PRIME-MD – a psychiatric interview used as the reference standard for determining diagnosis of MDD. A method by Janes and Pepe was used to adjust the receiver operating characteristics (ROC) curve of the BDI-II for sex, level of education, smoking status, obesity, age, anxiety disorder, and psychotropic medication. The ROC analyses were conducted to determine optimal cut-off scores. Results: From the total sample, 84(13%) patients met criteria for MDD according to the PRIME-MD. After adjusted for covariates, the area under the ROC curve was significantly smaller than the unadjusted curve [0.88(95%CI, 0.83 to 0.93) vs 0.92(0.89 to 0.95); ΔAUC = −.04(−.06 to −.01)]. While the optimal cut-off score was 13 for the total sample (sens=86%, specif=84%), the analyses indicated different cut-off scores across covariate subgroups, e.g., sex (women,14; men,13), smoking status (current,16; never/ever,13) and obesity (yes,14; no,12). Conclusion: The present study suggests that covariates can affect the classification accuracy of the BDI-II's original recommended cut-off score.