

# Validation of the Inflammatory Bowel Disease Disability Index in an English Speaking Patient Population

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## BACKGROUND

Inflammatory bowel disease (IBD) activity scales are valuable for assessing inflammation and the need for disease modifying medications, but do not assess physical, social, work-related or psychological disability. These patient reported outcome measures are important endpoints for clinicians and researchers, while helping assess patient's disease related concerns.

The IBD disability index was developed in in 2012 and subsequently refined, condensed and validated in 200 French patients in 2017. The index has not been tested in other European populations and our aim was to assess its validity in a European English speaking, hospital-based population.

## METHOD

The study included 330 subjects who completed the IBD disability index (IBD-DI), consisting of 14 questions regarding general health, sleep, fatigue, depression, anxiety, body image, pain, toilet issues, health/diet, personal relationships, community relationships, work/school activities, bowel motions and joint pain.

Data were also collected on demographic, clinical, social and treatment variables, and subjects completed disease activity and quality of life scales along with an array of psychological survey tools.

## RESULTS

IBD-DI scores ranged from 0 to 79 (range 0-100) (**fig. 2**). Internal consistency was demonstrated with a Cronbach's  $\alpha$  of 0.86. Factor analysis resulted in a two-factor solution explaining 59% of the variance.

IBD-DI scores correlated with disease activity ( $r_s$ , 0.59;  $p < .001$ ), quality of life ( $r_s$ , 0.56;  $p < .001$ ), time missed at work ( $r_s$ , 0.46;  $p < .001$ ), depression ( $r_s$ , 0.79;  $p < .001$ ), anxiety ( $r_s$ , 0.66;  $p < .001$ ) and body image dissatisfaction ( $r_s$ , 0.56;  $p < .001$ ) (**fig. 3-4**). Linear regression analysis showed that disability was independently related to disease activity ( $p < .001$ ), quality of life ( $p < .001$ ), depression ( $p < .001$ ), anxiety ( $p < .001$ ) and body image ( $p < .001$ ).

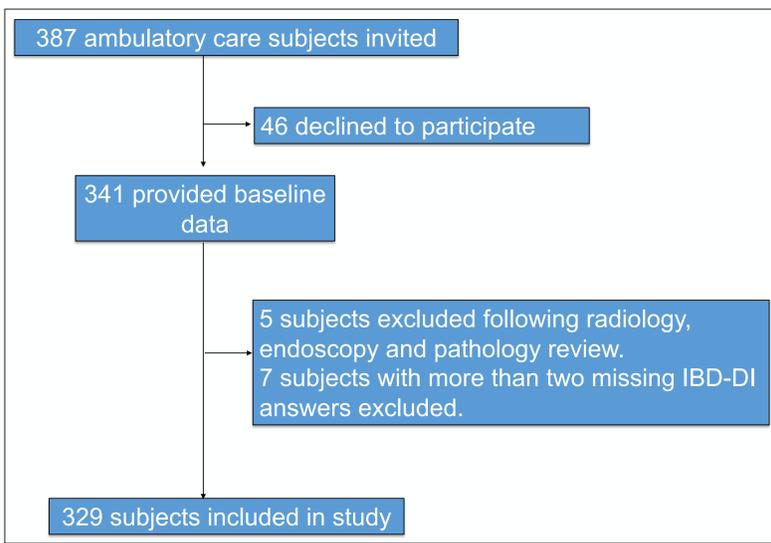


Figure 1. Study flow diagram

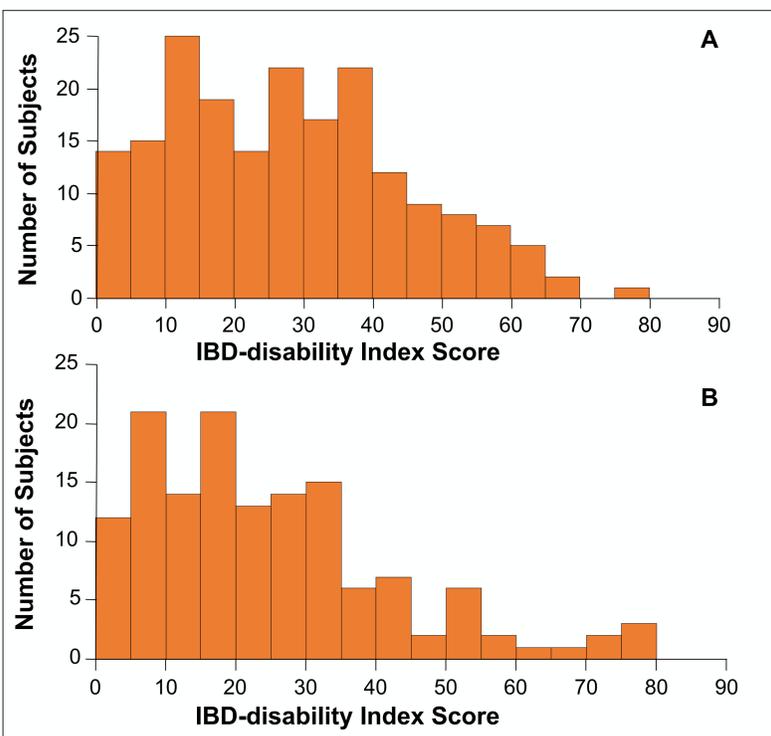


Figure 2. Frequency of IBD-Disability Index scores in A) Crohn's disease and B) ulcerative colitis subjects.

## CONCLUSION

The IBD-DI shows high internal consistency and construct validity and may be suitable for use as a core patient reported outcome measure for clinical and research practice in English speaking IBD patients.

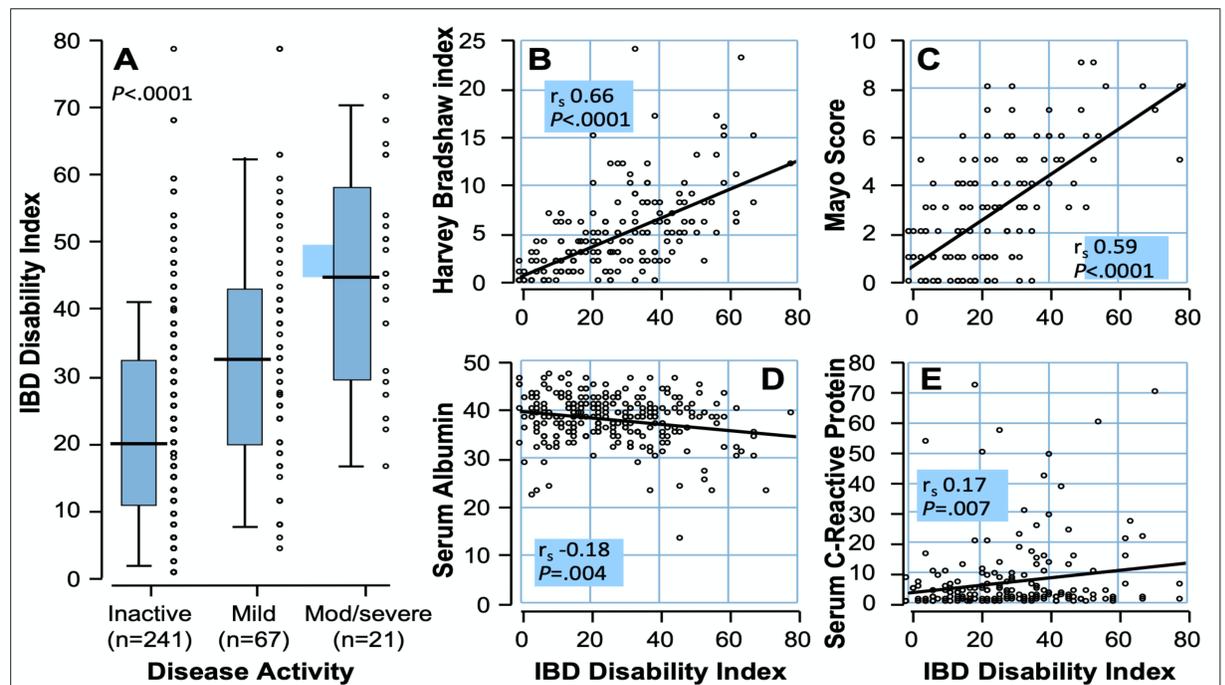


Figure 3. Relationship between disability and clinical disease activity indices in 329 IBD subjects. A) association of disability with physicians' global assessment of disease activity. B-E) Spearman correlations between IBD-disability index and B) Harvey-Bradshaw index in 192 Crohn's disease subjects, C) Mayo score in 137 ulcerative colitis subjects, D) serum albumin and E) serum C-reactive protein.

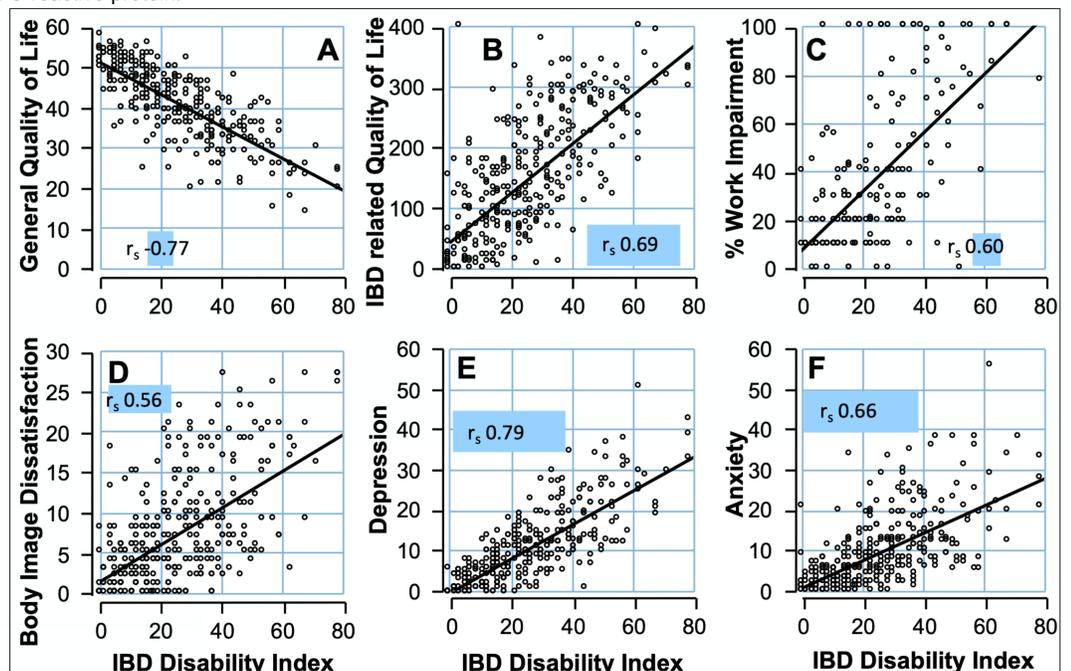


Figure 4. Relationship between disability and psychosocial variables in 329 IBD subjects. Spearman correlations between the IBD-disability index and A) General quality of life (SF-12), B) IBD related quality of life (Short Health Scale), C) percent overall health related work impairment for those currently employed (Work Productivity Index), D) Body image dissatisfaction (Body Image Scale), E) depression (Beck Depression Index), F) anxiety (Beck Anxiety Index).  $P < .0001$  in all analyses.