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Letter

Is the widely-used score in axial spondyloarthritis, Bath Ankylosing Spondylitis Diseases Activity Index, influenced by patients' optimism? A cross-sectional study of 206 patients

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The Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) (1) is widely used to assess disease activity in axial spondyloarthritis (axSpA) and initiate Tumor Necrosis Factor α -inhibitor therapy (2). However, it is purely patient-reported and may be related to psychological distress (i.e., anxiety/depression) (3), which is an issue when using it to decide on treatment strategies. Dispositional optimism is a stable, trait-like personality characteristic consisting of a general positive mood or attitude about the future (4). Research has linked optimism to lower pain sensitivity and better adjustment to chronic pain (5). It could therefore have an influence on patient-reported outcomes like BASDAI. A cross-sectional study was performed in two hospitals, and one office-based practice in France between September 2013 and February 2014 (6). All patients with definite axSpA according to the Assessment of SpondyloArthritis international Society (ASAS) criteria (7) received a self-report questionnaire including the BASDAI, the French version of the Life Orientation Test-Revised (LOT-R) (8) and the Hospital Anxiety and Depression scale (HADS) used to evaluate respectively optimism and psychological status. Other demographic and medical variables were retrieved from the medical files. In all, 206 patients were included (table 1), 44% of patients were in the 'low', 44% in the 'moderate' and 12% in the 'high level of optimism' category. Optimism was significantly though slightly correlated to BASDAI scores: $R=-0.15$, $p=0.04$. However, in the multivariate analysis adjusted on demographic variables and anxiety/depression levels, there was no significant relationship between BASDAI and optimism. A higher BASDAI score was mainly related to male gender ($\beta=1.41\pm 0.26$, $p>0.0001$), depression ($\beta=0.88\pm 0.43$, $p=0.04$) and higher age ($\beta=0.03\pm 0.01$, $p=0.02$). The level of optimism was low to moderate in this axSpA population, similarly to the levels observed in France in low back pain and mixed chronic disease populations (6,9). Although it was significantly though slightly correlated to BASDAI score in univariate analysis, it was not in multivariate analysis. This is consistent with the literature: the disease activity score

(DAS) was not correlated with the level of optimism in a population of recent onset rheumatoid arthritis patients (10) and optimism was reported to be positively correlated to mental Health Related Quality of Life (HRQoL) in axSpA but not to physical HRQoL (6), suggesting it would not influence the interpretation of physical scores like BASDAI. A higher BASDAI score was correlated to depression, as reported previously (3). Unlike optimism, depression is a variable psychological state and might therefore be more impacted by the course of the disease. It is also possible that this association reflects a common underlying biological process. The association of a higher BASDAI score with male gender and age was not found consistently in previous studies (3,11). In conclusion, optimism was not associated to BASDAI scores, confirming the validity of BASDAI. However, the influence of other psychological elements like depression should be taken into account. Measurement of disease activity in SpA is complex and more work is needed on the best ways to analyse it, including more objective parameters, like the recently-developed ASDAS (12).

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Table1. Characteristics of 206 axSpA patients

	All patients, N= 206
Age, mean (SD)	46.3 (11.7)
Gender, males, N (%)	101 (49.0)
Disease duration in yrs, mean (SD)	15.5 (10.8)
BASDAI (0-10), mean (SD)	3.8 (2.0)
TNF α inhibitor, N (%)	138 (68.3)
Definite anxiety, N (%) ¹	54 (26.2)
Definite depression, N (%) ²	25 (12.1)
Optimism level, mean (SD) ³	13.7 (4.3)

SD : standard deviation

¹ Definite anxiety: HADS anxiety score \geq 11

² Definite depression: HADS depression score \geq 11

³ Evaluated through the LOT-R score