Table 1
Screening properties of the four questionnaires: PASE, PAQ, PEST and PsoQ (IBP/IA) using threshold values of 20, 7, 3 and (4/3) respectively.

	PASE20	PAQ7	PEST3	PsoQ
Sensitivity	70.0 (34.7–93.3)	50.0 (18.7–81.3)	80.0 (44.4–97.5)	100 (69.2–100)
Specificity	86.7 (82.7–90.0)	94.4 (91.5–96.6)	90.9 (87.4–93.6)	83.9 (79.7–87.6)
Positive predictive value	12.7 (5.3–24.5)	20 (6.8–40.7)	19.5 (8.8–34.9)	14.7 (7.3–25.4)
Negative predictive value	99.0 (97.3–99.8)	98.6 (96.6–99.5)	99.4 (97.8–99.9)	100 (98.8–100)
Positive likelihood ratio	5.3 (2.0–9.3)	8.9 (2.2–23.9)	8.8 (3.5–15.2)	6.2 (3.4–8.1)
Negative likelihood ratio	2.9 (1.3–13.4)	1.8 (1.1–5.2)	4.5 (1.6–37.4)	NAs

ratios were low, ranging between 0.2 and 0.5. Agreement between pairs of instruments ranged between 0.34 and 0.58.

These findings suggest that currently available screening tools may not capture the same PsA patients, possibly as a result of the different weighs given to axial and peripheral involvement and targeting both PsA phenotypes may improve screening performance.

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Modified rheumatoid arthritis impact of disease (RAID) score, a potential tool for depression and anxiety screening for rheumatoid arthritis

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Rheumatoid arthritis (RA) is a chronic-inflammatory disease that involved symmetric polyarthritis. Patients with RA possessed higher risk of depression and anxiety [1–4]. When comorbid with psychiatric illness, patients tend to have worse health outcomes [1–3,5–7]. It is important to identify these patients so timely intervention can be provided. A self-reported questionnaire, Rheumatoid Arthritis Impact of Disease (RAID), was developed by the European League Against Rheumatism (EULAR) to reflect the disease activity and the impact of RA from patients' perspective [8–10]. The aims of this study were to evaluate the association of RAID with depression and anxiety, and to develop a modified RAID to identify high risk patients.

We conducted a cross-sectional study from August of 2017 to April of 2018 at the rheumatology department in a regional hospital in Taiwan. Patients, aged ≥ 20 years, with a diagnosis of RA based on the 2010 American College of Rheumatology (ACR)/EULAR criteria were included. RA disease activity was recorded with the Disease Activity Score over 28 joints based on erythrocyte sedimentation rate (DAS28–ESR) and RAID Score. Depressive symptoms were recorded according to Hospital Anxiety and Depression Scale (HADS). Univariate and multiple linear regression analyses were used to determine the associations between RAID and depression or anxiety in patients with RA. New models of RAID for depression (RAID-D) and anxiety (RAID-A) were developed based on the beta coefficients from the multiple logistic regression models, and were validated using bootstrap methods with 1000 replications. Among 625 RA patients, 96 (15.4%) and 65 (10.4%) were classified as having depression and anxiety, respectively. The mean of DAS28-ESR

Table 1
Univariate and multiple linear regression analyses among patients with rheumatoid arthritis according to Rheumatoid Arthritis Impact of Disease (RAID).

Variable	Univariate linear regression			Multiple stepwise linear regression		
	B	95% CI	*P*-value	B	95% CI	*P*-value
Depression	**2.23**	**(1.84 – 2.63)**	**<0.001**	**1.22**	**(0.88 – 1.56)**	**<0.001**
Anxiety	**2.16**	**(1.67 – 2.64)**	**<0.001**	**0.98**	**(0.58 – 1.38)**	**<0.001**
DAS28-ESR	**0.95**	**(0.86 – 1.04)**	**<0.001**	**0.82**	**(0.74 – 0.91)**	**<0.001**
C-reactive protein	**0.15**	**(0.03 – 0.28)**	**0.016**			
Biologics	0.04	(−0.30 – 0.37)	0.819			
csDMARD	−0.03	(−0.65 – 0.60)	0.927			
Sex, female	**0.60**	**(0.23 – 0.98)**	**0.002**			
Age	0.01	(−0.002 – 0.02)	0.114			
Educational level						
Below high school	1					
High school or above	−0.23	(−0.55 – 0.10)	0.169			
Marital status						
Single	1					
Married	0.24	(−0.30 – 0.78)	0.384			
Widowed, divorced or separated	0.51	(−0.11 – 1.12)	0.105			
Employment status						
Employed	1					
Unemployed	0.34	(−0.10 – 0.78)	0.124			
Retired	**0.45**	**(0.09 – 0.81)**	**0.015**			
Income level						
High	1					
Median	−0.004	(−0.34 – 0.33)	0.979			
Low	**0.96**	**(0.48 – 1.44)**	**<0.001**			
Religious belief	**0.85**	**(0.15 – 1.56)**	**0.018**			
Disease duration ≥ 5 years	0.34	(−0.05 – 0.74)	0.087			
Comorbidities	**0.73**	**(0.40 – 1.06)**	**<0.001**	**0.28**	**(0.05 – 0.52)**	**0.020**

Bold numbers indicate significance.
B: unstandardized regression coefficient; csDMARD: conventional synthetic disease-modifying anti-rheumatic drug; DAS28-ESR: Disease Activity Score over 28 joints based on erythrocyte sedimentation rate.

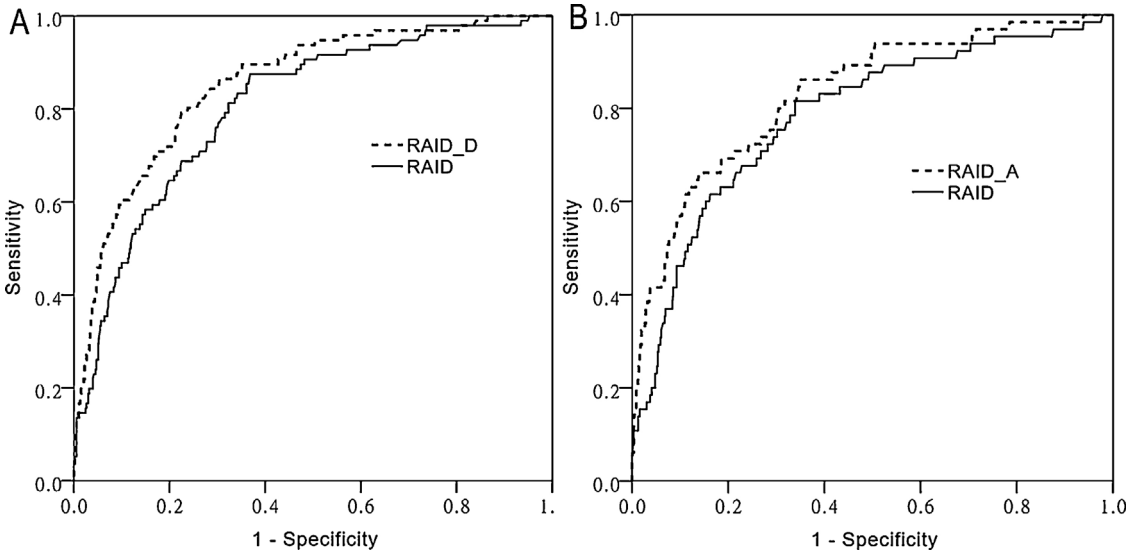

Fig. 1. The receiver operating characteristic curve performace for Rheumatoid Arthritis Impact of Disease (RAID), and new models of RAID for depression (RAID-D) and anxiety (RAID-A). (A) Receiver operating characteristic curve for the performance of RAID and RAID-D in discriminating between patients with depression and without depression is 0.80 (95% confidence interval (CI) 0.76–0.85) and 0.85 (95% CI 0.81–0.89), respectively. The optimal cut-off point for predicting depression for RAID and RAID-D was 3.5 (sensitivity 87.5%; specificity 61.2%), and 4.5 (sensitivity 80.2%; specificity 75.0%) respectively. RAID-D = 0.06 * Pain + 0.10 * Functional Disability Assessment + 0.12 * Fatigue + 0.07 * Sleep −0.03 * Physical well-being + 0.72 * Emotional well-being −0.04 * Coping. (B) Receiver operating characteristic curve for the performance of RAID and RAID-A in discriminating between patients with anxiety and without anxiety is 0.78 (95% confidence interval (CI) 0.72–0.84 and 0.83 (95% CI 0.78–0.88), respectively. The optimal cut-off point for predicting anxiety for RAID and RAID-A is 3.8 (sensitivity 81.5%; specificity 63.8%) and 5.4 (sensitivity 66.2%; specificity 85.2%), respectively. RAID-A = −0.02 * Pain + 0.10 * Functional Disability Assessment + 0.20 * fatigue + 0.22 * Sleep – 0.32 * Physical well-being + 0.75 * Emotional well-being + 0.07 * Coping.

was 3.92 ± 1.34 and the median of RAID was 3.25. In univariate analysis, RAID was significantly associated with depression, anxiety, DAS28–ESR, female, low income, and comorbidities. In multiple regression analysis, only depression, anxiety, DAS28–ESR, and comorbidities remained significant (Table 1). All domains of RAID were significantly associated with depression and anxiety [Appendix A, Table S1; See the supplementary material associated with this article online]. The emotional well-being domain showed the strongest association with depression and anxiety.

New models of RAID for depression (RAID-D) and anxiety (RAID-A) were developed by adjusting the weight of each domain from the original RAID (Appendix A, Table S2). A higher score

indicates a higher risk of depression or anxiety. The receiver operating characteristic (ROC) curve of both RAID-D (Fig. 1A) and RAID-A (Fig. 1B) performed better than the original RAID in discriminating between patients with or without depression and anxiety.

Our study revealed that RAID was strongly associated with HADS. The new RAID-D and RAID-A further increased the accuracy in detecting patients with depression and anxiety. The same RAID questionnaire can be used to identify patients with a high risk of depression and anxiety with adjustment of the weight of each domain, which can readily be computerized and obtained easily in clinical practice. This can maximize the utilization of RAID questionnaire, while reducing the time burden of clinicians and patients. We suggested using RAID-D and RAID-A as a screening tool for depression and anxiety among RA patients.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at https://doi.org/10.1016/j.jbspin.2019.04.007.

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HLA-B*51 subtypes molecular analysis in a series of Italian patients with Behçet's syndrome

We analysed the subtypes of the Human Leukocyte Antigen (HLA)-B*51 in a large series of patients with Behçet's syndrome (BS) and healthy controls (HC) living in Southern Italy. HLA-B*51 is the predominant BS susceptibility locus in several populations [1–5].

HLA-B*51 subtypes genotyping was performed enrolling 152 consecutive BS patients seen at the outpatient clinic of Rheumatology Department of Lucania diagnosed according to ISG criteria [6], and 320 ethnically-matched bone marrow donors unrelated to each other or to BS patients. All subjects gave their informed consent. DNA was prepared from blood leukocytes by standard methods. Genotyping for 63 alleles (B*51:01-B*5163) was performed by the PCR-SSP method. PCR was carried out with a GeneAmp PCR System 9700 (Applied Biosystems, Foster City, CA) using the primer mixes included in the Kit for SSP-subtyping.

The frequency of HLA-B*51 subtypes in BS patients compared with control group was reported in Table 1. HLA-B*51 frequency