and 23 genes had a higher expression level in responders. Figure 1 showed the top 20 DEG Heatmap between the non-responder and responders. Using these two sets of genes for GO analysis, we found that most of the pathways in the non-responder are related to immune response and cytokine production, and most of the pathways in the responders are related to antigen processing and MHC class II.

Figure 1. Top 20 DEG Heatmap between non-responder and responders

Conclusion: The study showed that most of the pathways in RA patients with no EULAR response to abatacept are related to immune response and cytokine production; while most of the pathways in RA patients with moderate/good response to abatacept are related to antigen processing and MHC class II.

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AB0109

VALIDATION OF SEPARATE PATIENT-REPORTED, CLINICAL AND LABORATORY FACTOR SCORES AS REPRESENTATION OF DISEASE BURDEN IN A POPULATION WITH ESTABLISHED RHEUMATOID ARTHRITIS

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Background: Rheumatoid arthritis (RA) can cause important bio-psychosocial burden. When exploring disease burden evolution in the 2-year Care in early RA (CareRA) trial, 3 factor scores were extracted via exploratory factor analysis (EFA).¹ EFA uncovers the fact that multiple observed variables have similar patterns of responses because they are all associated with a latent, not directly observable, variable.

Objectives: To validate in a population with established RA, the 3 factors scores and their individual components originally extracted in CareRA.

Methods: Patients with established RA in sustained remission under treatment with etanercept (≥ 1 year) were enrolled in the TapERA (Tapering Etanercept in RA) trial between 2012 and 2014. Patients completed the Flare Assessment in RA (FLARE-RA) questionnaire.²

Components of disease activity scores (swollen/tender joint count, physician and patient global health assessment, CRP and ESR), as well as pain (question 2) and fatigue evaluation (question 8), from the FLARE-RA questionnaire, and HAQ were recorded at every visit (v=5).

Missingness on previously mentioned variables was handled with multiple imputation (100 imputations). Pain and fatigue were re-scaled from their original Likert scale of 1-6 to 0-100 to match CareRA data. Next, timepoint clustering was

removed with multiple outputation (1000x) and each of the 100 000 datasets was analyzed by EFA with principal component extraction and oblimin rotation. The analyses were combined after re-ordering the factors by maximizing factor congruence.

Results: Sixty-six patients with a mean disease duration of 14.8 years (SD 9.03), mean age of 55.21 years (SD 12.87), 96% (63/66) positive to RF or ACPA, 77% (51/66) with erosions and 68% (45/66) female were included in this analysis.

Table 1 provides the results of the EFAs from CareRA and TapERA. The factor structure and factor components remained the same in both datasets. The factor loadings, indicating how strongly a variable relates to its factor (correlation between observed and latent score), were also comparable. The HAQ, however, did have a stronger factor loading in TapERA (0.57 vs 0.92).

Table 1. Results from the exploratory factor analyses in CareRA and TapERA

Variable	CareRA			TapERA		
	PRF	CF	LF	PRF	CF	LF
Fatigue	0.90			0.80		
PaGH	0.87			0.81		
Pain	0.86			0.75		
HAQ	0.57			0.92		
SJC28		0.92			0.82	
TJC28		0.89			0.84	
PhGH		0.76			0.60	
CRP			0.87			0.85
ESR			0.78			0.82

Factor loadings presented (correlation between the observed score and the latent factor). Cross-loadings were negligible (<0.3) -not presented. The factor order is by % of variance explained. PRF: patient-reported factor, CF: clinical factor, LF: laboratory factor, PaGH: patient's global health assessment, HAQ: health assessment questionnaire, SJC28: 28 swollen joint count, TJC28: 28 tender joint count, PhGH: physician's global health assessment, CRP: C-reactive protein, ESR: erythrocyte sedimentation rate

Conclusion: The latent factor structure for disease burden originally found in CareRA was successfully validated in the TapERA dataset, underlining the robustness of the PRF, CF and LF scores. HAQ seems to take "greater importance" on established RA. However, deviations in factor loadings (e.g., HAQ) could be attributed to differences between study populations (e.g., early vs. established RA, sample size). Apart from traditional clinical and laboratory factors, patient-reported pain, fatigue, functionality and overall well-being determine disease burden, both in early and established RA. Using these factor scores could facilitate detection and management of patient's unmet needs.

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AB0110

DETERMINING THE AMOUNT OF COPPER-CONTAINING PROTEIN, ITS BIOCHEMICAL AND IMMUNOLOGIC ACTIVITY IN RHEUMATOID ARTHRITIS PATIENTS

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Background: Production of antibodies to ceruloplasmin (CP) in rheumatoid arthritis is an issue that has not been studied well enough. It was not by chance that this copper-containing alpha 2-glycoprotein of blood plasma showing multienzymatic properties was chosen as an object of investigation. Data on the content and activity of CP in the blood of rheumatoid arthritis patients are contradictory, which has to do with different approaches to selection of patients and different measuring methods.

Objectives: Improving diagnosis of rheumatoid arthritis by determination of antibodies to CP as well as its amount and enzymatic activity.