

**Supplemental Table 1. Multivariable Logistic Regression Analysis of Treatments and Other Factors, Including Geographic Region, Associated With Medication Adherence<sup>a</sup>**

Parameter (Retained Based on Backward Selection)	Component Being Rated	OR (95% CI) <sup>b</sup>		
		RA Population	PsA Population	AS Population
Treatment				
csDMARD-TNFi combination	TNFi	5.43 (3.35–8.78) <sup>c</sup>	1.15 (0.51–2.60)	21.64 (5.96–78.56) <sup>c</sup>
NSAID-TNFi combination	TNFi	NA	NA	6.08 (1.77–20.94) <sup>c</sup>
TNFi monotherapy	TNFi	3.50 (1.66–7.38) <sup>c</sup>	1.08 (0.49–2.43)	12.60 (4.10–38.73) <sup>c</sup>
csDMARD monotherapy	csDMARD	Reference	Reference	1.24 (0.19–7.95)
csDMARD-TNFi combination	csDMARD	2.04 (1.32–3.15) <sup>c</sup>	0.47 (0.21–1.04)	3.08 (0.92–10.27)
NSAID-csDMARD combination	csDMARD	NA	NA	1.20 (0.28–5.12)
csDMARD-TNFi combination	NSAID	NA	NA	1.63 (0.36–7.34)
NSAID-TNFi combination	NSAID	NA	NA	1.13 (0.32–3.94)
NSAID-csDMARD combination	NSAID	NA	NA	0.98 (0.23–4.23)
Sociodemographic factors				
Age, y		1.05 (1.03–1.06) <sup>c</sup>	1.07 (1.04–1.11) <sup>c</sup>	1.03 (1.01–1.06) <sup>c</sup>
Race (white vs other)		—	—	—
Sex (female vs male)		—	—	1.71 (0.94–3.11)
Illness perception				
BIPQ item 1–Consequences		—	—	1.10 (0.99–1.23)
BIPQ item 8–Emotional Representation		—	—	0.87 (0.78–0.97)
Disease-/medication-related factors				
Disease duration, y		0.97 (0.95–0.99) <sup>c</sup>	—	—
Number of pretreatments (>3 vs ≤3)		—	—	0.34 (0.16–0.73) <sup>c</sup>
Duration of current treatment, y		—	0.90 (0.84–0.97) <sup>c</sup>	—
Treatment response (complete vs non-complete) <sup>d</sup>		—	2.03 (1.09–3.79) <sup>c</sup>	—
Beliefs factors				

BMQ-Specific <i>Necessity</i>	1.12 (1.07– 1.18) <sup>c</sup>	1.13 (1.04– 1.23) <sup>c</sup>	1.20 (1.10– 1.30) <sup>c</sup>
BMQ-Specific <i>Concerns</i>	0.92 (0.87– 0.96) <sup>c</sup>	—	0.95 (0.88– 1.02)
BMQ-General <i>Harm</i>	0.88 (0.82– 0.94) <sup>c</sup>	0.85 (0.77– 0.94) <sup>c</sup>	—
Geographic region (vs Western Europe and Canada)			
Eastern Europe and Middle East	0.62 (0.39– 0.98) <sup>c</sup>	0.55 (0.24– 1.25)	0.74 (0.35– 1.56)
Latin America	0.30 (0.18– 0.49) <sup>c</sup>	0.45 (0.16– 1.29)	0.26 (0.08– 0.85) <sup>c</sup>
Asia Pacific	0.19 (0.10– 0.35) <sup>c</sup>	0.38 (0.11– 1.29)	0.34 (0.17– 0.70) <sup>c</sup>

—=eliminated from model; NA=not applicable (NSAIDs were only taken by patients with AS; therefore, there are no data for NSAID-containing regimens for patients with RA and PsA).

<sup>a</sup>Adherence was defined as a binary variable: highly adherent (MMAS-4<sup>®</sup> score = 4) or not highly adherent (MMAS-4<sup>®</sup> score <4).

<sup>b</sup>Except where noted, ORs represent the impact of treatment vs reference (csDMARD in csDMARD monotherapy for RA and PsA; NSAID monotherapy for AS) or the impact of a 1-unit or 1-year increase (other factors); empty cells denote that a variable was not selected in the regression model for the respective indication.

<sup>c</sup> $P < 0.05$  vs OR of 1.

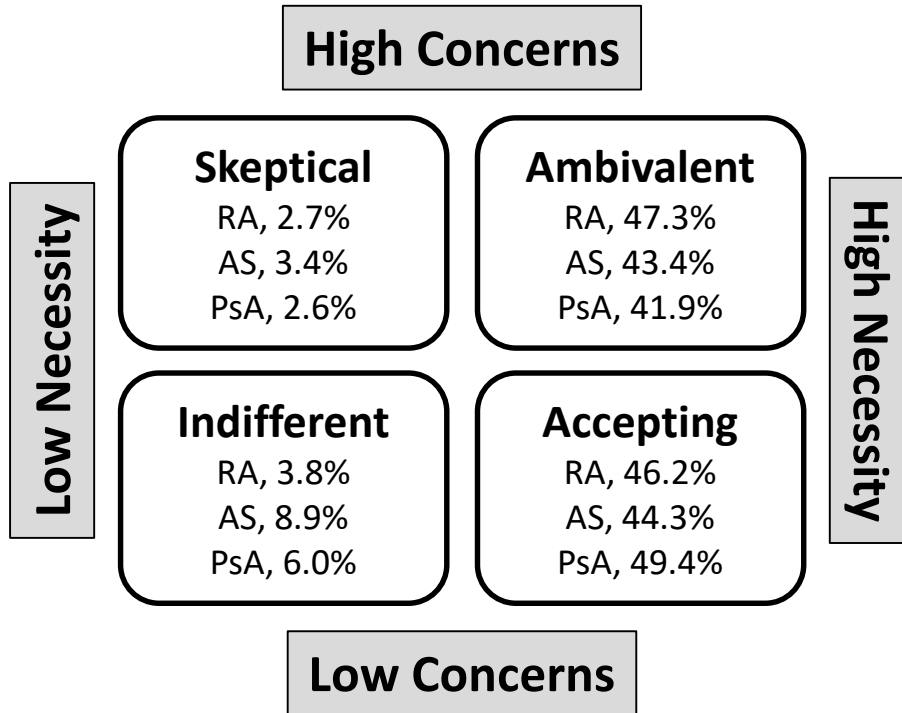
<sup>d</sup>Determined by treating physician; treatment response was categorized as “complete response,” “partial response,” “no response,” or “not evaluable.”

**Supplemental Table 2. Comparison of Predictive Post Hoc Adherence Models**

Parameter	RA Population	PsA Population	AS Population
Full model			
Type of treatment	Categorical	Categorical	Categorical
Age	D (<58 vs ≥58 years)	D (<51 vs ≥51 years)	D (<44 vs ≥44 years)
Race	D (white vs non-white)	—	D (white vs non-white)
BMQ-Specific <i>Necessity</i>	D (<20 vs ≥20)	D (<18 vs ≥18)	D (<19 vs ≥19)
BMQ-Specific <i>Concerns</i>	Continuous	—	—
BMQ-General <i>Harm</i>	Continuous	Continuous	—
BIPQ item 2–Timeline	Continuous	—	—
BIPQ item 7–Coherence	—	—	D (<9 vs ≥9)
Duration of disease	Continuous	—	—
Duration of current treatment	—	D (<3 vs ≥3 years)	—
Response to current treatment	—	D (complete vs non-complete)	—
No. of prior treatments	—	—	D (≤3 vs >3)
AUROC	0.6802	0.6807	0.7406
Simplified model			
Type of treatment	Categorical	Categorical	Categorical
Age	D (<58 vs ≥58 years)	D (<51 vs ≥51 years)	D (<44 vs ≥44 years)
Race	D (white vs non-white)	—	D (white vs non-white)
BMQ-Specific <i>Concerns</i>	—	—	D (<14 vs ≥14)
BMQ-General <i>Harm</i>	D (<11 vs ≥11)	D (<12 vs ≥12)	—
Duration of disease	—	D (<9 vs ≥9 years)	—
AUROC	0.6374	0.6415	0.7241

—=eliminated from model; D=parameter treated as dichotomous variable obtained from receiver operating characteristic curve analysis.

**Supplemental Figure 1.** Classification of patients into attitudinal groups toward systemic medication by BMQ-Specific *Necessity* and *Concerns* results.



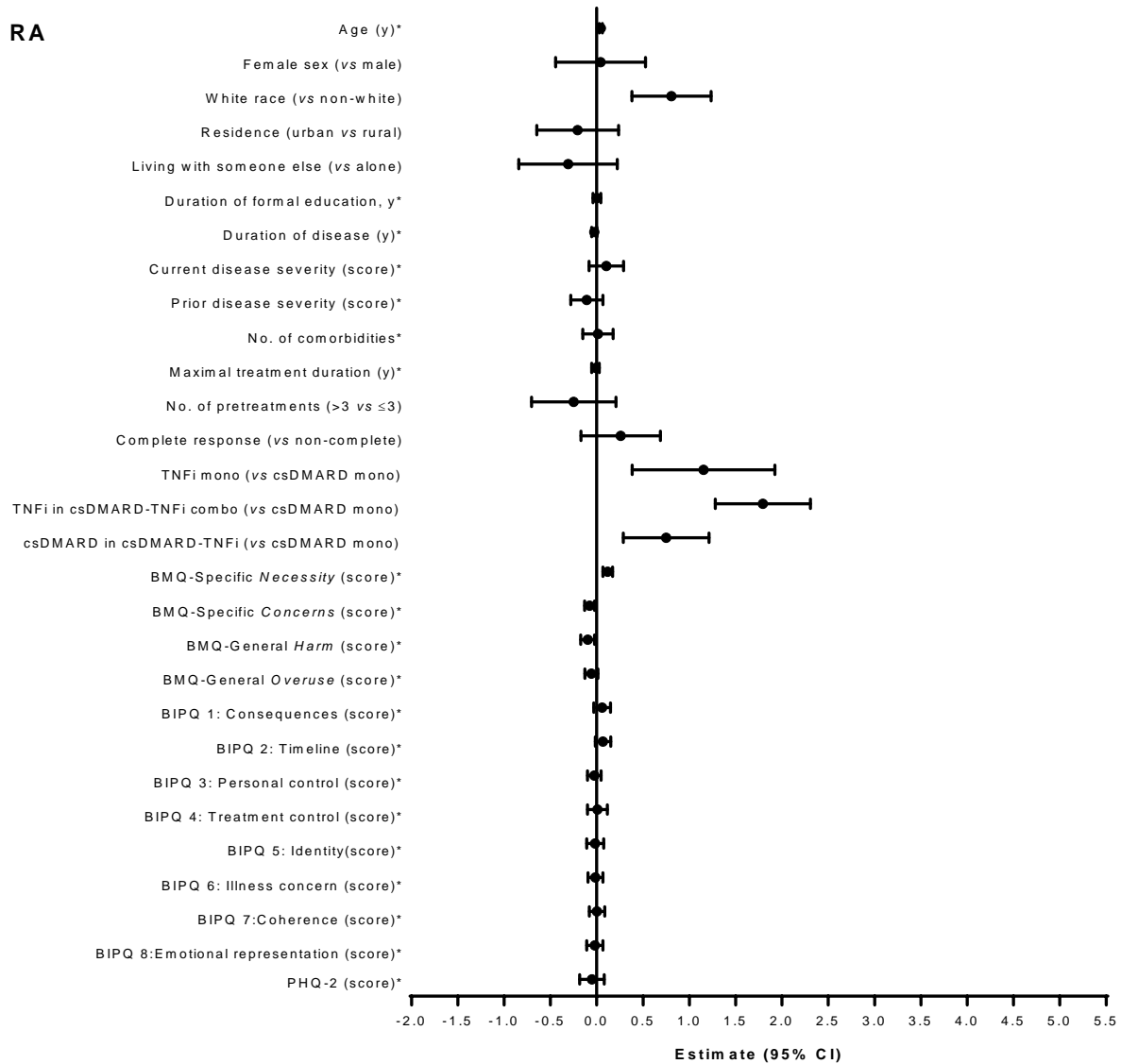
Mean *Necessity* and *Concerns* subscale scores were categorized as low (<15) or high ( $\geq 15$ ); the possible range was 5–25.

**Supplemental Figure 2.** Multivariable regression analyses for adherence as measured by the MMAS-4: full models before variable selection.

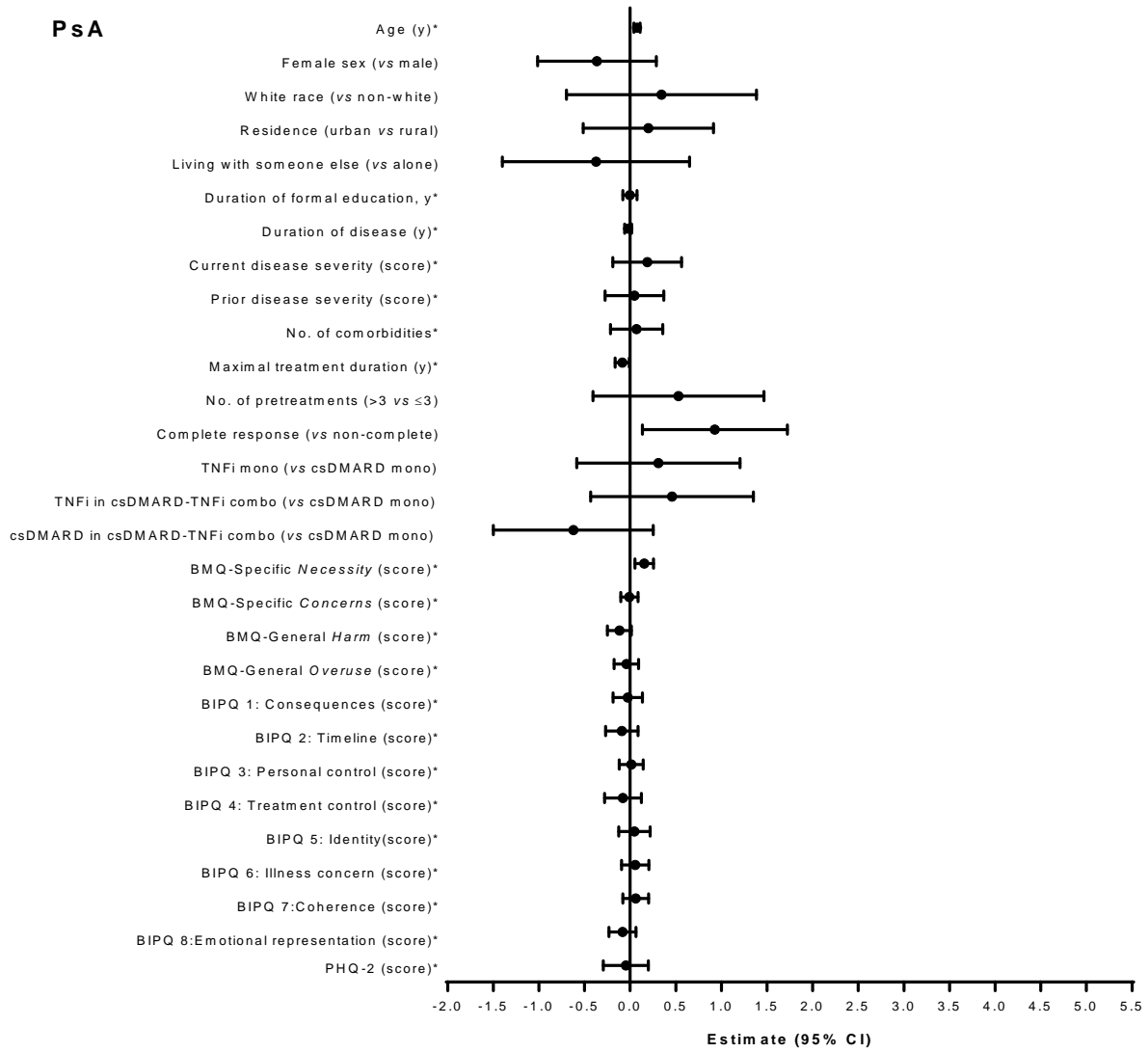
Adherence was defined as a binary variable with levels highly adherent (MMAS-4 score = 4) and not highly adherent (MMAS-4 score <4).

\*Impact of a 1-unit increase.

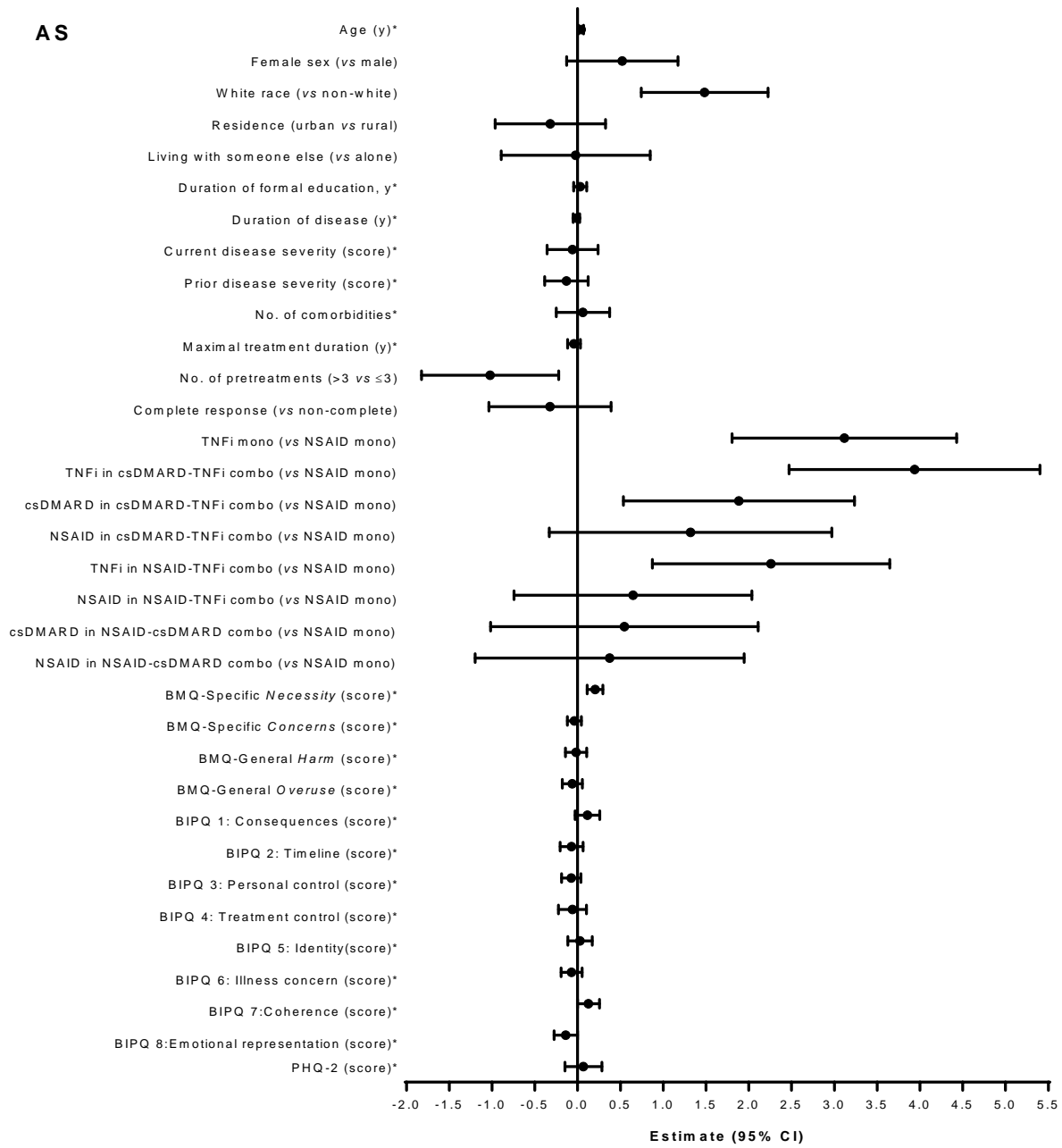
AS=ankylosing spondyloarthritis; BIPQ=Brief Illness Perception Questionnaire; BMQ=Beliefs about Medicines Questionnaire; Combo=combination; CI=confidence interval; combo=combination; csDMARD=conventional synthetic disease-modifying antirheumatic drug; mono=monotherapy; MMAS-4=4-item Morisky Medication Adherence Scale; No=number; NSAID=non-steroidal anti-inflammatory drug; PHQ-2=Patient Health Questionnaire-2; RA=rheumatoid arthritis; PsA=psoriatic arthritis; TNFi=tumor necrosis factor inhibitor.



**Supplemental Figure 2 continued.**



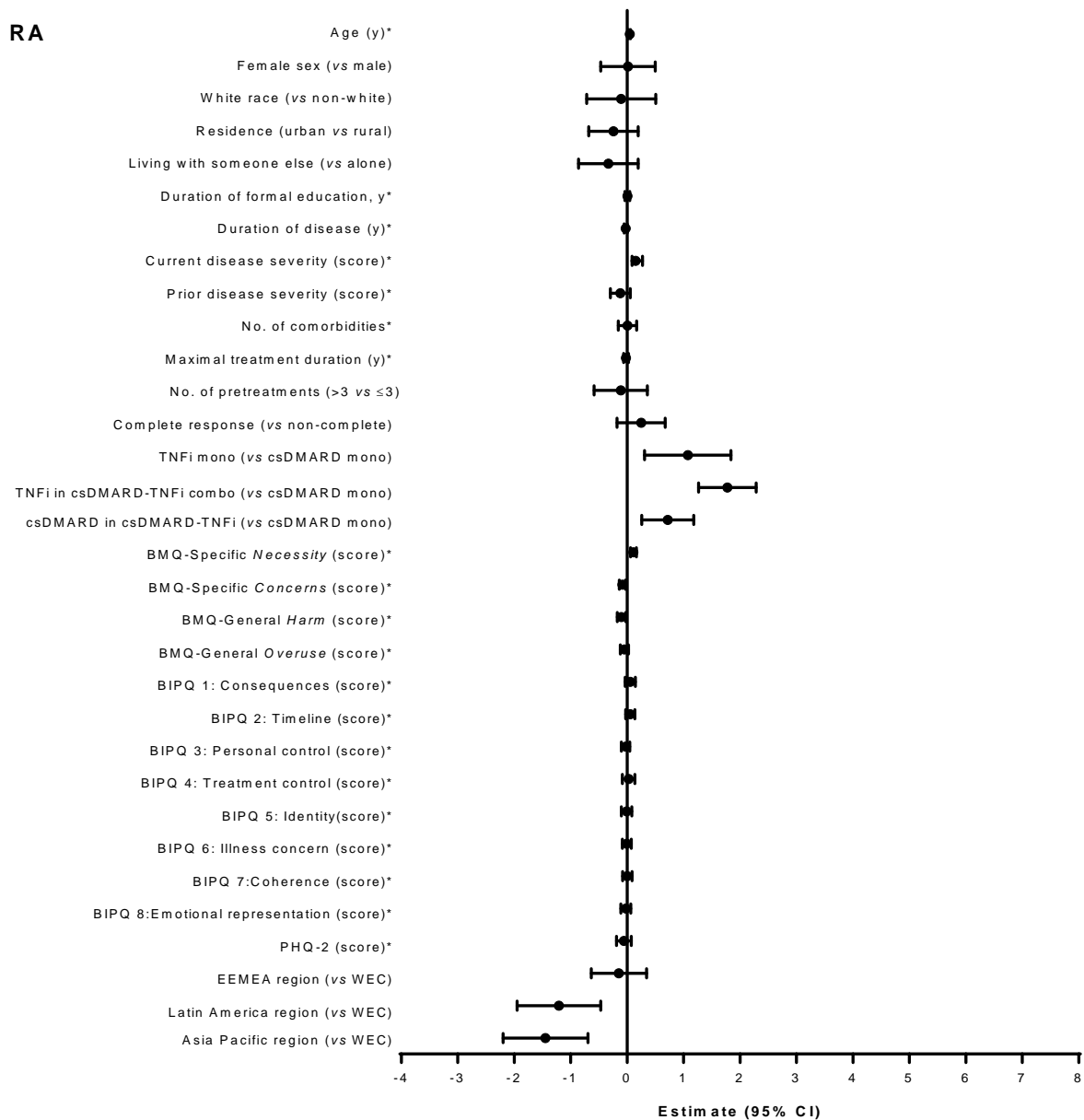
**Supplemental Figure 2 continued.**



**Supplemental Figure 3.** Multivariable regression analyses for adherence as measured by the MMAS-4, including variables for geographic region: full models before variable selection. Adherence was defined as a binary variable with levels highly adherent (MMAS-4 score = 4) and not highly adherent (MMAS-4 score <4).

\*Impact of a 1-unit increase.

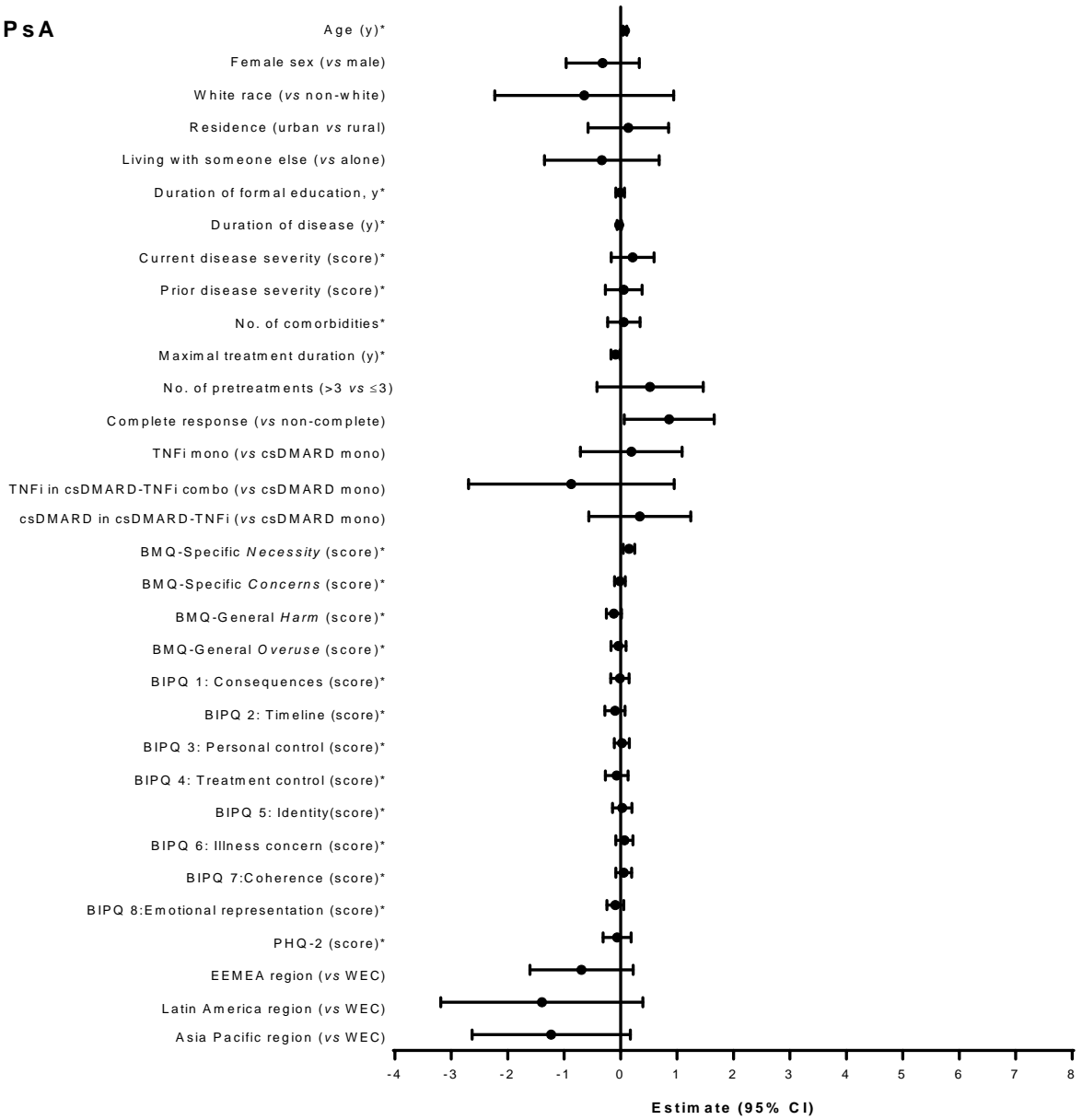
AS=ankylosing spondyloarthritis; BIPQ=Brief Illness Perception Questionnaire; BMQ=Beliefs about Medicines Questionnaire; Combo=combination; CI=confidence interval; combo=combination; csDMARD=conventional synthetic disease-modifying antirheumatic drug; mono=monotherapy; EEMEA=Eastern Europe and Middle East; MMAS-4=4-item Morisky Medication Adherence Scale; No=number; NSAID=non-steroidal anti-inflammatory drug; PHQ-2=Patient Health Questionnaire-2; RA=rheumatoid arthritis; PsA=psoriatic arthritis; TNFi=tumor necrosis factor inhibitor; WEC=Western Europe and Canada.





**Supplemental Figure 3 continued.**

**PsA**



Supplemental Figure 3 continued.

