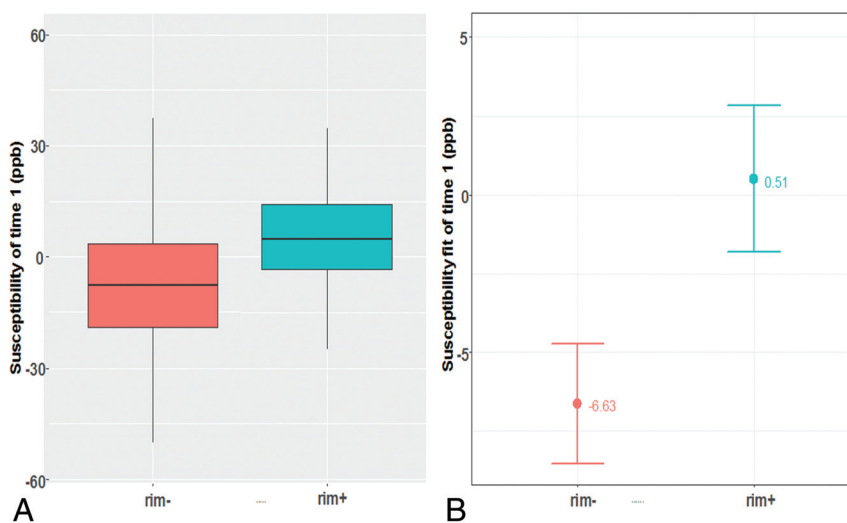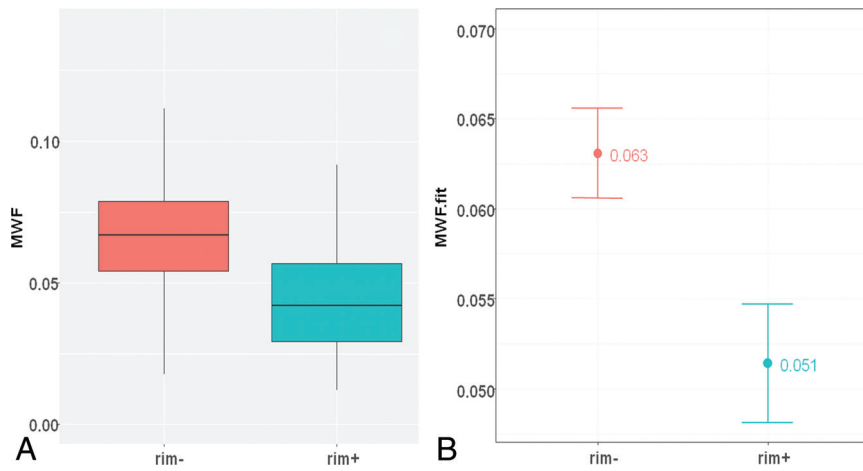**ON-LINE FIG 1.** Examples of rim– lesions (*red arrows*): T2-weighted images (*A1, B1*) and QSM (*A2, B2*) in 2 patients with relapsing-remitting MS. Examples of rim+ lesions (*yellow arrows*): T2-weighted images (*C1, D1*) and QSM (*C2, D2*) in another 2 patients with relapsing-remitting MS.

ON-LINE FIG 2. *A*, Boxplot of rim– (*pink*) and rim+ (*blue*) lesions, which demonstrates higher QSM in rim+ compared with rim– lesions. *B*, Confidence interval plot of rim– (*pink*) and rim+ (*blue*) lesions derived from a mixed-effects model, which demonstrates higher QSM mean effect in rim+ lesions compared with rim– lesions after controlling for multiple lesions per patient ($P < .001$).

ON-LINE FIG 3. *A*, Boxplot of rim− (*pink*) and rim+ (*blue*) lesions, which demonstrates lower MWF in rim+ compared with rim− lesions. *B*, Confidence interval plot of rim− (*pink*) and rim+ (*blue*) lesions derived from a mixed-effects model, which demonstrates a lower MWF mean effect in rim+ lesions compared with rim− lesions after controlling for multiple lesions per patient and T2 lesion size (*P* < .001 [only include patients without enhanced lesions]).