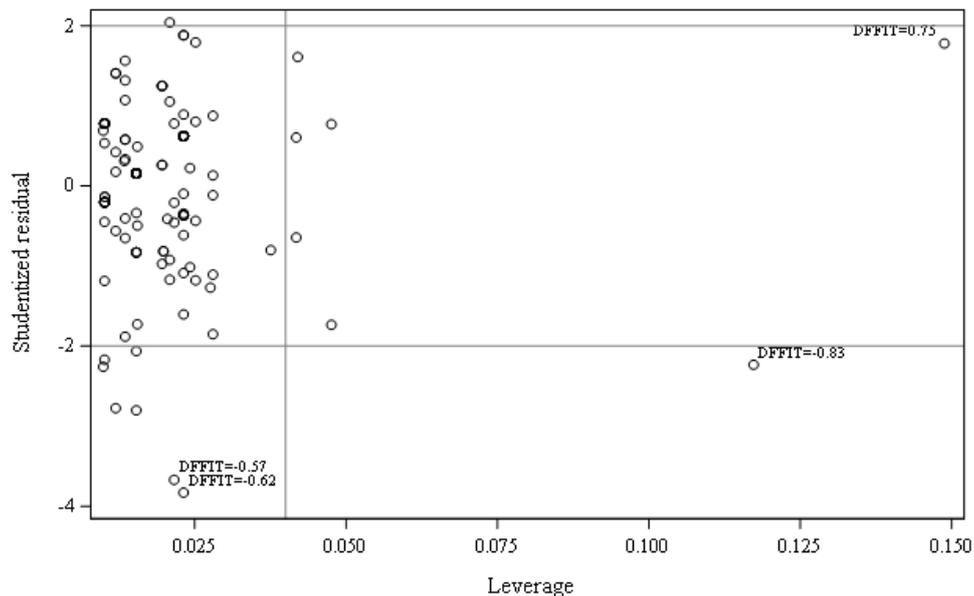


### Supplemental Material 1. Sensitivity analyses for main analysis

During the checks of the main analysis, we found that there two observations that had a high residual value and leverage relative to the rest of the data (patients 48 and 116), and two observations that had a high residual (patients 12 and 148) (Supplemental Figure 1). A research assistant checked the data entry (with a random selection of other observations) and confirmed that there were no errors in data entry.



**Supplemental Figure 1.** Plot of studentized residual and leverage from main analysis of MMAS-8.

We undertook sensitivity analyses to find if excluding these observations could affect our conclusions. We excluded the two high-residual and leverage observations, and then additionally excluded the two high-residual observations. To examine this more systematically, we additionally used a robust regression procedure (MM robust regression in proc “robustreg” in SAS), which is robust to high leverage observations. We then used bootstrap estimation as an additional assessment.

Removing high-residual/high-leverage observations diminished our effect estimate, but there was still evidence that the combined app group had greater change in adherence from baseline than the usual care group (Supplemental Table 1). When we removed the two additional observations with high-residual, the p-value exceeded 0.05 and the effect size shrunk towards zero. Using robust regression, we found an effect estimate similar to the original main analysis. The bootstrapped estimate also confirmed that our original results were robust. All the data were entered accurately and were plausible. Given that our systematic approaches yielded similar results to the original analysis, we are satisfied that our original model is robust.

**Supplemental Table 1.** Effect estimates from different regression models for the main outcome.

Model	Difference between groups in change in MMAS from baseline	P
Main analysis	0.47 (0.12 - 0.82)	0.0083
Main analysis, dropping patients 116, 48	0.41 (0.07 - 0.76)	0.0202
Main analysis, dropping patients 116, 48, 148, 12	0.26 (-0.06 - 0.57)	0.1057
Robust regression	0.41 (0.12 - 0.70)	0.0063
Bootstrapped main analysis (median +bootstrap 95%)	0.47 (0.17 - 0.75)	