Supplemental Materials:

Debunking Misinformation about a Causal Link between Vaccines and Autism: Two Preregistered Tests of Dual-Process versus Single-Process Predictions (With Conflicting Results)

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1. Integrative Data Analysis

Expanding on the conflicting outcomes of the two individual experiments, we also conducted an integrative analysis of the data from both studies (see Curran & Hussong, 2009). Toward this end, we combined the data of the debunking-via-negation and neutral-message conditions in the two studies ($N = 965$), standardized indices of responses linking vaccines to autism, and submitted the resulting scores to a 2 (Message: neutral message vs. debunking-via-negation) × 2 (Measurement Order: explicit-implicit vs. implicit-explicit) × 2 (Measurement Type: explicit vs. implicit) mixed ANOVA with the first two factors varying between-subjects and the last varying within-subjects. The analysis revealed a statistically significant main effect of Message, $F(1, 961) = 6.82$, $p = .009$, $\eta_p^2 = .007$, which was qualified by a statistically significant two-way interaction between Message and Measurement Type, $F(1, 961) = 7.06$, $p = .008$, $\eta_p^2 = .007$ (see Figure S1). Further analyses revealed that scores on the explicit measure were significantly lower in the debunking-via-negation condition compared to the neutral-message condition, $t(940.54) = 3.74$, $p < .001$, $d = .240$. Scores on the implicit measure did not significantly differ across the two message conditions, $t(963) = -0.01$, $p = .991$, $d = .001$.

2. Reading Times

To explore whether differences in cognitive elaboration might account for the conflicting results in Experiments 1 and 2, we tested whether the amount of time participants spent reading the debunking-via-negation message differed across the two experiments. Consistent with the post-hoc hypothesis that participants in the two experiments differed in the cognitive effort they invested to process the messages, participants in Experiment 2 tended to spend more time reading the debunking-via-negation message than participants in Experiment 1 (*M*s = 9.99 seconds vs. 11.34 seconds, respectively), $t(463.84) = 1.77$, $p = .077$, $d = 0.162$.

3. Vaccine-Health Link

Following recommendations by the Editor, we also explored effects of the different messages on responses linking vaccines to health on the implicit measure. Toward this end, responses on the implicit measure were aggregated by calculating priming scores for responses to the target word *health* (rather than *autism*). After excluding error trials, trials with response times shorter than 300msec, and trials with response times longer than 1000msec (see Koppehele-Gossel et al., 2020), priming scores were calculated by subtracting the average response latency on trials in which the target word *health* followed the prime word *vaccine* from the average response latency on trials in which the target word *health* followed the prime word *desk*. This facilitation index reflects the extent to which exposure to the prime word *vaccine* facilitates identification of the target word *health* compared to baseline (Wentura & Degner, 2010; Wittenbrink, 2007). Higher scores on this index indicate a stronger tendency to link vaccines to health on the implicit measure. The resulting scores were submitted to a 2 (Message: neutral message vs. debunking-via-negation) × 2 (Measurement Order: explicit-implicit vs. implicit-explicit) ANOVA. For the data of Experiment 1, the ANOVA did not reveal any significant main or interaction effects (all Fs < 1.82, all ps > .16). For the data of Experiment 2, the ANOVA revealed a marginally significant main effect of Message, $F(2, 874) = 2.33$, $p = .098$, $\eta_p^2 = .005$, indicating that responses linking vaccines to health tended to be less pronounced in the debunking-via-alternative condition ($M = -11.24$) compared to the debunking-via-negation condition ($M = -5.02$) and the neutral message condition ($M = -5.50$).

References

Curran, P. J., & Hussong, A. M. (2009). Integrative data analysis: The simultaneous analysis of multiple data sets. *Psychological Methods, 14,* 81-100.

Koppehele-Gossel, J., Hoffmann, L., Banse, R., & Gawronski, B. (2020). Evaluative priming as an implicit measure of evaluation: An examination of outlier-treatments for evaluative priming scores. *Journal of Experimental Social Psychology, 87:103905*.

Wentura, D., & Degner, J. (2010). A practical guide to sequential priming and related tasks. In B. Gawronski, & B. K. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications* (pp. 95-116). New York: Guilford Press.

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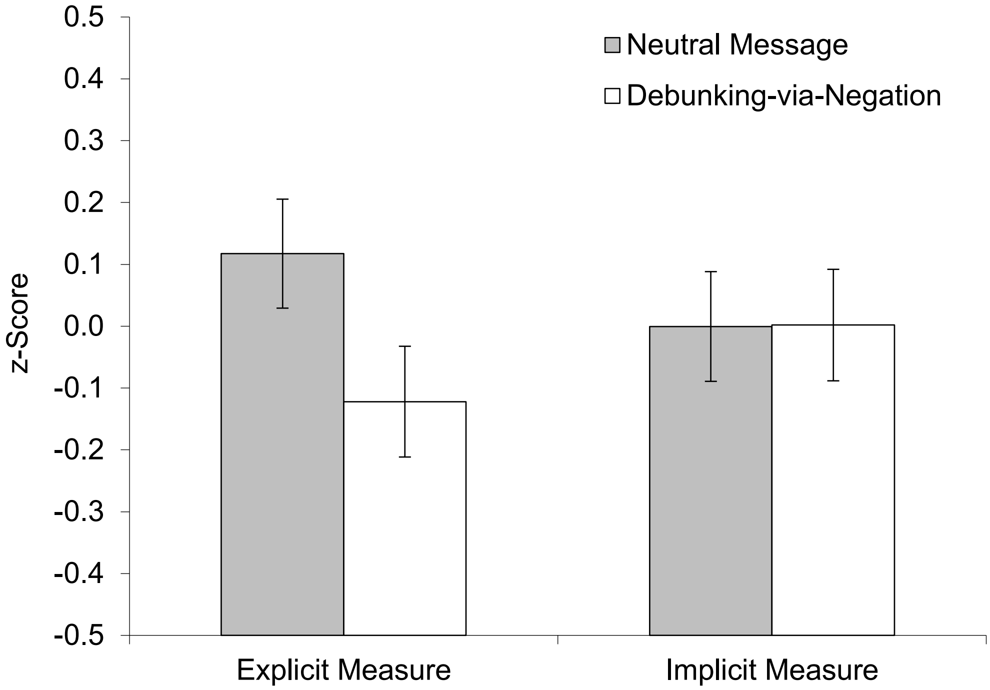
Figure S1. Standardized *z*-scores of responses linking vaccines to autism as a function of measurement type (explicit vs. implicit) and message condition (neutral message vs. debunking-via-negation), combined data from Experiments 1 and 2. Higher scores indicate a stronger tendency to link vaccines to autism. Error bars depict 95% confidence intervals.



Note. The standardization of scores on the explicit and the implicit measure permits a comparison of scores across debunking conditions within a given measure, but it does not permit a comparison of scores across measures within a given message condition. A score of zero reflects the sample mean on a given measure, which does not represent a neutral reference point. The neutral reference point for each measure is the score obtained in the neutral message condition.