Appendix C: Predicting misinformed vaccination beliefs

This analysis also uses the PROCESS Macro for R. The outcome variable for this analysis was misinformed vaccination beliefs (i.e., vmisinfo), the antecedent is participants' ideology on a liberal to conservative Likert-type scale (i.e., ideo), the mediator is the average left-to-right leaning media bias for participants' media selections (i.e., bias), and the moderator is the average reliability of those selections (i.e., reliable). We included several demographic variables as covariates, including age, education, male (as opposed to female or other), Black (i.e., participants who identify as Black regardless of whether they have other identifications), Hispanic (i.e., participants who identify as Hispanic or Latino/a/x, regardless of whether they have other identifications) and income. See Figure 1. As with the analysis shown in Appendix B, participants with missing data (e.g., who failed to select any media sources, failed to provide answers to any one of the demographic questions, like age or gender) were deleted from the analysis automatically by the PROCESS macro (i.e., listwise deletion), thus leaving a sample size of 2,630. To ensure reproducibility of findings, we set a custom seed for the bootstrapping analysis of 31,216.
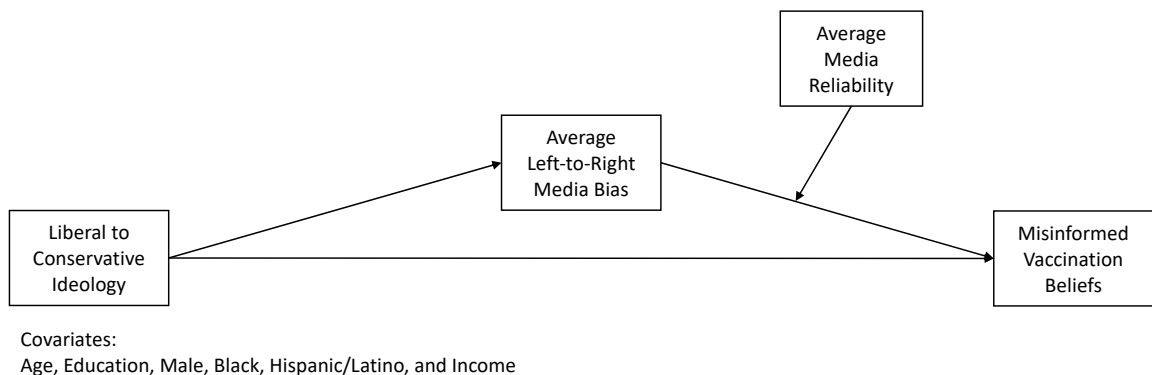

Figure C1. Model examined using PROCESS.

The first step of the PROCESS analysis predicts the mediator: the average left-to-right media bias (i.e., bias). This model is significant, $F(7, 2622) = 87.68$, $p < .001$, $R = 0.44$, $R^2 = 0.20$, $MSE = 58.11$. The analysis and results are identical to the model predicting misinformed COVID-19 beliefs in Appendix B: the average bias of participants' media selections is significantly predicted by political ideology (ideo), even when controlling for the potential effects of demographic variables. Table 1 summarizes the individual effects.

Table C1. Results for predicting the mediator (average left-to-right media bias).

	b	se	t	p	95% CI	
constant	-7.8186	0.7304	-10.7050	< .001	-9.2508	-6.3864
Ideology	2.8770	0.1237	23.2522	< .001	2.6344	3.1196
Age	-0.0052	0.0091	-0.5680	.570	-0.0230	0.0127
Education	-0.3726	0.1137	-3.2774	.001	-0.5955	-0.1497
Male	0.5606	0.3084	1.8175	.069	-0.0442	1.1653
Black	-1.5504	0.4865	-3.1869	.002	-2.5043	-0.5965
Hispanic	-0.7093	0.6053	-1.1717	.241	-1.8962	0.4777
Income	0.1394	0.0763	1.8269	.068	-0.0102	0.2890

The second step of the PROCESS analysis predicts the outcome, misinformed vaccination beliefs (i.e., vmisinfo). This model is significant, $F_{(10, 2619)} = 21.26$, $p < .001$, R = 0.27, R^2 = 0.08, MSE = 0.72. We find that the left-to-right bias and reliability of participants' selected news sources (and the interaction of the latter two variables) predicts misinformed vaccination beliefs, even when controlling for potential effects of demographic variables. Left-to-right political ideology, however, does not significantly predict the outcome variable. Table 2 summarizes the individual effects.

Table C2. Results for predicting the outcome variable (misinformed vaccination beliefs).

	b	se	t	p	95% CI	
constant	0.9678	0.1594	6.0710	< .001	0.6552	1.2804
Ideology	0.0194	0.0153	1.2727	.203	-0.0105	0.0493
Bias	-0.0436	0.0100	-4.3762	< .001	-0.0632	-0.0241
Reliable	-0.0087	0.0031	-2.7634	.006	-0.0149	-0.0025
BiasXReliab	0.0014	0.0003	4.5540	< .001	0.0008	0.0020
Age	-0.0059	0.0010	-5.7557	< .001	-0.0079	-0.0039
Education	-0.0818	0.0127	-6.4354	.001	-0.1068	-0.0569
Male	0.0575	0.0345	1.6679	.095	-0.0101	0.1251
Black	0.2398	0.0544	4.4051	< .001	0.1330	0.3465
Hispanic	0.1791	0.0676	2.6515	.008	0.0467	0.3116
Income	-0.0151	0.0085	-1.7725	.076	-0.0318	0.0016

Furthermore, the test of the higher order unconditional interaction between left-to-right bias and reliability on misinformed COVID-19 beliefs found that it was significant, $F_{(1, 2619)} = 20.74$, $p < .001$, R-change = 0.007. To probe this interaction, PROCESS provides the effects of left-to-right bias on misinformed vaccination beliefs at multiple levels of outlet reliability (the moderator). It is notable that the effects are only significant at higher and lower values of average reliability (and not at the middle values). These results are shown in Table 3.

Table C3. *Conditional effects of average left-to-right media bias (i.e., bias) at different values of the moderator, average source reliability (i.e., reliable).*

Reliable	effect	se	t	p	95% CI	
12.9700	-0.0252	0.0062	-4.0775	< .001	-0.0374	-0.0131
15.0232	-0.0223	0.0056	-3.9697	< .001	-0.0334	-0.0113
17.0763	-0.0194	0.0051	-3.8246	< .001	-0.0294	-0.0095
19.1295	-0.0165	0.0046	-3.6251	< .001	-0.0254	-0.0076
21.1826	-0.0136	0.0041	-3.3462	.001	-0.0216	-0.0056
23.2358	-0.0107	0.0036	-2.9521	.003	-0.0178	-0.0036
25.2889	-0.0078	0.0032	-2.3977	.017	-0.0141	-0.0014
26.5472	-0.0060	0.0031	-1.9609	.050	-0.0120	< 0.0001
27.3421	-0.0049	0.0030	-1.6444	.100	-0.0106	0.0009
29.3953	-0.0019	0.0028	-0.6978	.485	-0.0074	0.0035
31.4484	0.0010	0.0028	0.3503	.726	-0.0044	0.0064
33.5016	0.0039	0.0029	1.3461	.178	-0.0018	0.0095
34.9832	0.0060	0.0030	1.9609	.050	< 0.0001	0.0120
35.5547	0.0068	0.0031	2.1693	.030	0.0007	0.0129
37.6079	0.0097	0.0035	2.7877	.005	0.0029	0.0165
39.6611	0.0126	0.0039	3.2307	.001	0.0050	0.0203
41.7142	0.0155	0.0044	3.5439	< .001	0.0069	0.0241
43.7674	0.0184	0.0049	3.7667	< .001	0.0088	0.0280
45.8205	0.0213	0.0054	3.9278	< .001	0.0107	0.0320
47.8737	0.0243	0.0060	4.0466	< .001	0.0125	0.0360
49.9268	0.0272	0.0066	4.1359	< .001	0.0143	0.0401
51.9800	0.0301	0.0072	4.2044	< .001	0.0161	0.0441

Lastly, PROCESS provides the direct and indirect effects of the antecedent, liberal-to-conservative ideology (i.e., ideo) on the outcome variable, misinformed vaccination beliefs (i.e., vmisinfo). As stated above, unlike for predicting misinformed beliefs about COVID-19, left-to-right political ideology does not significantly predict the outcome variable here (misinformed vaccination beliefs; effect = 0.02, 95% CI [-0.01, 0.05], se = 0.02, t = 1.27, p = .203). However, there are significant indirect effects though which left-to-right political ideology may influence misinformed vaccination beliefs, particularly at the higher levels of reliability. Bootstrapped confidence intervals for the conditional indirect effects of ideology on vaccine misinformation belief are summarized in Table 4. The index of moderated mediation is 0.004 (bootstrapped 95% CI [0.003, 0.006], bootstrapped SE = 0.001).

Table C4. *Bootstrapped conditional indirect effects of liberal to conservative ideology (through left-to-right media bias) on vaccine misinformation belief.*

reliable	effect	Boot SE	Boot 95% CI	
34.4850	0.0152	0.0083	-0.0009	0.0319
42.6012	0.0483	0.0128	0.0236	0.0738
47.6400	0.0688	0.0164	0.0375	0.1016