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Does disseminating (mis)information restore social connection during a global pandemic?

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Abstract

The COVID-19 pandemic impeded social interaction, negatively affecting well-being worldwide. To slow virus spread, practices were enacted to minimize face-to-face contact, leading to increased social disconnection. As people turned increasingly to online environments (e.g., social media) to fulfill needs for inclusion and belonging, misinformation regarding COVID-19 simultaneously ran rampant. The purpose of the current study was to examine whether impeded social inclusion may have contributed to the spread of misinformation. We recruited a sample of adult social media users in the United States (N = 431) and randomly assigned them to be either included, ostracized (i.e., ignored), or rejected (i.e., to receive explicitly negative attention). Participants subsequently rated their willingness to share COVID-19 claims via social media (in fact, all claims were false). Participants learned that sharing some claims would likely lead to high expected engagement from others on social media (e.g., "likes"), whereas some claims would likely lead to little expected engagement. While information sharing was low in our sample, participants were more willing to share claims that they believed would lead to higher levels of engagement—consistent with the idea that sharing information is motivated not only by the desire to educate others but also to elicit social connection. However, this behavioral intention was no more common among participants who had been momentarily ostracized or rejected online than among participants who had been included. Future research should continue to explore the link between social exclusion

and the motivation to disseminate (mis)information beyond a pandemic-related context.

KEYWORDS
COVID-19, exclusion, misinformation, online engagement, online sharing behaviors, ostracism, rejection

1 | INTRODUCTION

COVID-19 severely impacted physical and psychological well-being (Brooks et al., 2020). As face-to-face social contact declined, people turned to online environments to restore connection (Nabity-Grover et al., 2020). The Internet was also a large source of pandemic-related information, with individuals relying on both formal (e.g., the Center for Disease Control) and informal sources (e.g., social media) to understand COVID-19's origins, impact, and treatment options (Cuan-Baltazar et al., 2020). We examine how the quality of individuals' social experiences in this context may have impacted their engagement with COVID-19 information on social media.

Humans are highly social and motivated to feel included (Baumeister & Leary, 1995; Leary & Gabriel, 2022), and the absence of social connection can lead to a wide range of negative outcomes (Baumeister et al., 2007). Involuntary social exclusion can take two primary forms: ostracism (characterized as being ignored; Williams, 2009) and rejection (characterized as receiving negative attention; Wesselmann et al., 2016). Both have been shown to not only lead to negative affect, but to threaten needs for belonging, control, self-esteem, and meaningful existence (e.g, Lutz & Schneider, 2020). According to the need-threat model (Williams, 2009), following ostracism, people may be motivated to act in ways that can restore needs and minimize the risk of future ostracism, particularly by engaging in prosocial behaviors. In comparison, receiving attention (even through explicit rejection) has been shown to lead to relatively quicker recovery, suggesting that rejection may offer some sense of recognition that satisfies (at least to some degree) previously lost needs, relative to being ostracized (Rudert et al., 2017). While ostracism is commonly associated with aims to increase interaction, rejection is more associated with antisocial behaviors whereby people no longer seek social contact (Higgins, 1997; Lutz & Schneider, 2020; Quarmley et al., 2022).

One place in which people seek inclusion is via online social media platforms (Edwards, 2016), and they often expect their social connection needs to be met through virtual engagement with others (Grinberg et al., 2017; Stsiampkouskaya et al., 2021). Engagement is expressed virtually through various digital affordances (Carr et al., 2018). While the specific communication tools differ by platform, *likes* often indicate approval (i.e., inclusion) and *dislikes* often indicate disapproval (i.e., rejection); in turn, receiving few or no affordances at all may indicate ostracism (Hayes et al., 2016, 2018).

Social media platforms also play a large role in information dissemination (Rampersad et al., 2019). In the case of COVID-19, information came not only from primary sources but also peer-to-peer (Ali & Bhatti, 2020). Both accurate *and* inaccurate information (often referred to as misinformation) about the pandemic spread online, exacerbating the dangers of the virus (Apuke & Omar, 2021; Wu et al., 2019), such as increased vaccination hesitancy and refusal (Loomba et al., 2021; Pierri et al., 2022). Unfortunately, as social distancing restrictions persisted, misleading and/or false information about the pandemic rapidly increased (Lampos et al., 2021).

It has been suggested that COVID-19 prevention measures mirrored the experience of ostracism (Hales et al., 2021). For instance, social distancing has been shown to threaten psychological needs, comparable to being excluded (Graupmann & Pfundmair, 2023). Thus, it is plausible that following disconnection felt during the pandemic, excluded people would aim to minimize further need threat and restore a sense of inclusion. As such, efforts to mitigate the effects of COVID-19 by encouraging social distancing may have had the ironic effect of leading to public health threats via increasing motives to disseminate misinformation online, in order to reestablish a sense of social connection.

In particular, we posit that experiencing a lack of connection (i.e., feeling ostracized) may be especially likely to lead to behavior expected to garner social engagement online, such as by sharing attention-grabbing claims (even if

untrue). In contrast, experiencing negatively-valenced social connection (i.e., feeling rejected) may provide a sense of acknowledgment (Rudert et al., 2017), reducing the drive to elicit attention from others and instead discouraging further social interaction.

Together, then, this preregistered study (https://aspredicted.org/DRD_GFY) examined whether needs for social connection (induced through ostracism) would lead to willingness to disseminate misinformation that was expected to elicit engagement from others. We also examined whether this willingness would be greater even compared to individuals who had experienced a social connection but it was negative (induced through rejection). Materials, data, analysis code, and supplemental materials are available at https://researchbox.org/1156.

2 | METHOD

2.1 | Participants

We aimed to collect 450 valid responses. Using G*Power Version 3.1.9.6 (Faul et al., 2007), sensitivity analyses indicated that this sample size would provide 80% power to detect an interaction of at least $\eta_p^2 = 0.02$. We recruited 539 participants from Prolific in November 2021 who reported via Prolific prescreen that they use Instagram, Twitter, and/or Facebook "on a regular basis (at least once a month)." We excluded participants who did not complete the survey ($n = 87$), experienced technical difficulties ($n = 17$), or did not reconsent ($n = 4$). Our final sample consisted of 431 U.S. adult social media users[1] ($M_{Age} = 32.84$, $SD_{Age} = 12.54$; 50% men, 47% women, 3% non-binary/unknown; 68% White/Caucasian/European, 10% Asian/Asian American, 9% Hispanic/Latino, 6% Black/African American, 6% multi-ethnic/multiracial, 1% unknown/not mentioned).

2.2 | Design and procedure

The experiment used a 3 (inclusion status: included, ostracized, rejected) x 2 (anticipated engagement: high, low) mixed factorial design, with the first factor between-subjects and the second within-subject. Individuals were randomly assigned to be either included, ostracized, or rejected within a mock social media platform. Participants were then asked their willingness to share claims relating to COVID-19 suggested to lead to either high or low engagement. Lastly, participants completed checks, provided demographic information, and were debriefed and asked to re-consent.

2.2.1 | Exclusion manipulation

Participants completed an adaptation of Wolf et al.'s (2015) Ostracism Online paradigm (Lutz & Schneider, 2020). After creating online profiles, participants were led to believe that they were interacting with 11 others over the Internet for three minutes. In reality, the other profiles were not real. Participants were directed to form impressions about the other profiles and, if they desired, "like" or "dislike" each one. Simultaneously, participants received preprogrammed responses from the other profiles: *included* participants received 6 likes and 0 dislikes, *ostracized* participants received 1 like and 1 dislike,[2] and *rejected* participants received 0 likes and 6 dislikes. Other profiles received various preprogrammed combinations of likes and dislikes (e.g., 7 likes and 3 dislikes).[3,4]

2.3 | Measures

2.3.1 | Needs satisfaction and positive affect

Participants self-reported needs satisfaction and positive affect using the Need and Mood Questionnaire (Williams, 2009) on a 5-point scale (1 = *Not at all*, 5 = *Completely*). Needs satisfaction was measured with 12 items evaluating belonging, control, self-esteem, and meaningful existence (e.g., "I felt liked"). Items were averaged, with

TABLE 1 Means, standard deviations, and intercorrelations among all study variables.

	M (*SD*)	1	2	3	4	5	6	7	8
1. "I was excluded."	2.28 (1.48)	--	0.79*	0.78*	−0.50*	0.50*	−0.67*	−0.63*	0.08
2. "I was ignored."	2.06 (1.29)		--	0.64*	−0.44*	0.30*	−0.61*	−0.56*	0.06
3. "I was rejected/disliked."	2.55 (1.60)			--	−0.64*	0.69*	−0.68*	−0.68*	0.05
4. # of likes reported	2.18 (2.47)				--	−0.63*	0.54*	0.51*	0.05
5. # of dislikes reported	2.18 (2.45)					--	−0.49*	−0.53*	0.02
6. Needs satisfaction	3.11 (0.88)						--	0.81*	0.06
7. Positive affect	3.63 (1.00)							--	−0.01
8. Willingness to share claims	14.15 (16.80)								--

Note: $N = 431$.

*$p < 0.001$.

higher scores indicating greater needs satisfaction ($\alpha = 0.90$). Affect was measured with eight items assessing positive and negative affect (e.g., "I felt happy"). Items were averaged, with higher scores indicating greater positive affect ($\alpha = 0.92$). Table 1 presents means, standard deviations, and intercorrelations among all variables.

2.3.2 | Reported likelihood of sharing claims about COVID-19

Participants were presented with 18 claims relating to COVID-19 (Lobato et al., 2020) and asked to report the hypothetical likelihood that they would share each claim on their personal social media accounts using a 0–100 slider scale with anchors at the 0, 33, 66, and 100 marks. Example items include, "Taking a few sips of water every 15 min will prevent the new coronavirus from entering your windpipe and lungs," and "5G cellular service technology is linked to the cause of the coronavirus." In reality, no claims were true.

An additional statement was attached to each claim that indicated whether sharing that claim would (high) or would not (low) lead to many online interactions with participants' profiles. Both the order of presentation of the claims, and whether a given claim was labeled with predicted high versus low engagement was randomized. Each participant was presented with all 18 claims: nine claims having *high* expectations ($\alpha = 0.94$) and nine having *low* ($\alpha = 0.93$).

2.3.3 | Manipulation checks

Participants rated the extent to which they were (a) excluded, (b) ignored, and (c) disliked/rejected during the interaction (1 = *Not at all*, 5 = *Extremely*). Participants also reported the number of likes and dislikes that they received.

3 | RESULTS

3.1 | Manipulation checks, positive affect, and needs satisfaction

As expected, participants differed by condition in reporting the number of likes and dislikes that they received: likes, $F(2,426) = 749.81$, $p < 0.001$, $\eta_p^2 = 0.78$; dislikes, $F(2,426) = 954.29$, $p < 0.001$, $\eta_p^2 = 0.82$.[5] Participants also differed in how excluded, $F(2,428) = 88.25$, $p < 0.001$, $\eta_p^2 = 0.29$, ignored, $F(2,427) = 56.00$, $p < 0.001$, $\eta_p^2 = 0.21$, and rejected/disliked, $F(2,428) = 284.05$, $p < 0.001$, $\eta_p^2 = 0.57$, they felt. Importantly, participants differed on their reported

positive affect, F (2,428) = 104.24, $p < 0.001$, $\eta_p^2 = 0.33$, and levels of needs satisfaction, F (2,426) = 88.24, $p < 0.001$, $\eta_p^2 = 0.29$.[6] Pairwise comparisons were significant, (except between excluded groups on the item "I was ignored"), such that participants responded more negatively to being rejected than to being ostracized. Unexpectedly, participants felt more excluded after being rejected than after being ostracized (Table 2).[7]

3.2 | Primary analysis

We conducted a 3 (inclusion status: included, ostracized, rejected) × 2 (anticipated engagement: high, low) mixed factorial ANOVA on willingness to share claims. Inclusion status had no effect on willingness to share, F (2,428) = 0.06, $p = 0.943$, $\eta_p^2 < 0.001$. There was a significant effect of anticipated engagement, F (1,428) = 8.18, $p = 0.004$, $\eta_p^2 = 0.02$; participants were more willing to share COVID-19 claims that they believed would result in high (M = 14.85, SD = 18.07) versus low online engagement (M = 13.45, SD = 17.00).[8] Contrary to our hypothesis, the interaction was not significant, F (2,428) = 0.34, $p = 0.715$, $\eta_p^2 = 0.002$ (see Figure 1).[9] Of note, however, we observed an overall floor effect on willingness to share claims.[10]

4 | DISCUSSION

COVID-19 misinformation grew at an alarming rate in what was described by the World Health Organization's director-general as an "infodemic" (Adhanom Ghebreyesus, 2020). Our findings suggest that individuals are more willing to share claims—even if unverified—that they expect will garner greater social engagement. However, this behavior did not vary by inclusion status.

Research suggests that sharing claims that attract attention may be habitual due to reward-based learning systems (Ceylan et al., 2023). In line with sociometer theory (Leary, 2012), participants may also have been continuously motivated to increase relational value. This may explain why even those who were included (and thus should have the greatest need satisfaction) had a greater willingness to share claims expected to bring high engagement. Just as news outlets adjust their content based on social media metrics—prioritizing content that fuels engagement (Mukerjee et al., 2023)—so too may be the appeal of engagement on what individuals share on their social media accounts.

The null inclusion status effect may also be a consequence of the specific claims used. By November 2021, many safety mandates had been lifted, and vaccines were readily accessible. The average willingness of our sample to share claims was considerably lower (14%) than that of Lobato et al. (42%, Lobato et al., 2020). The lower willingness may also be reflective of some claims having been debunked and widely known to be false by 2021. Further, participants were informed that "sometimes people share information because they think it is true…sometimes people share information that they are not sure about as a way to see what their friends and family think." In line with research suggesting that drawing focus to the potential inaccuracy of presented (mis)information may be an effective strategy for decreasing its spread (Celadin et al., 2023; Pennycook et al., 2021), even the suggestion that claims *may* be inaccurate may have been enough to decrease willingness.

Finally, individuals who were rejected tended to show the *most* negative outcomes, replicating previous studies that have used Ostracism Online (Lutz & Schneider, 2020) but inconsistent with our hypothesis that ostracized individuals would be most likely to disseminate misinformation. We operationalized ostracism as receiving very low amounts of online attention (both positive and negative), while those rejected received large amounts of *only* negative attention. It is possible that the small amount of *positive* attention in the ostracism condition was more valuable than the greater amount of attention overall experienced in the rejection condition. Future research should address this potential confound.

Together, more work is needed to examine the role of social exclusion on misinformation dissemination and to shed further light on the dynamics that lead to the spread of and engagement with misinformation in online

TABLE 2 Means and standard deviations (in parentheses) of outcome variables by condition.

	Included (*n* = 138)	Ostracized (*n* = 147)	Rejected (*n* = 146)	Low anticipated engagement (*N* = 431)	High anticipated engagement (*N* = 431)
I was excluded	1.28 (0.74)[a]	2.24 (1.29)[b]	3.25 (1.56)[c]		
I was ignored	1.21 (0.52)[a]	2.39 (1.36)[b]	2.53 (1.34)[b]		
I was rejected/disliked	1.17 (0.45)[a]	2.29 (1.18)[b]	4.11 (1.29)[c]		
# of likes reported	5.26 (1.16)[a]	1.37 (1.36)[b]	0.10 (0.93)[c]		
# of dislikes reported	0.17 (0.69)[a]	1.05 (0.65)[b]	5.24 (1.54)[c]		
Needs satisfaction	3.71 (0.57)[a]	3.11 (0.82)[b]	2.54 (0.81)[c]		
Positive affect	4.29 (0.61)[a]	3.74 (0.78)[b]	2.90 (1.01)[c]		
Willingness to share claims	13.80 (16.70)[a]	14.10 (18.20)[a]	14.50 (17.70)[a]	13.45 (17.00)[a]	14.85 (18.07)[b]

Note: *N* = 431.

Different superscripts (a, b, c) indicate significant differences between conditions ($p < 0.05$).

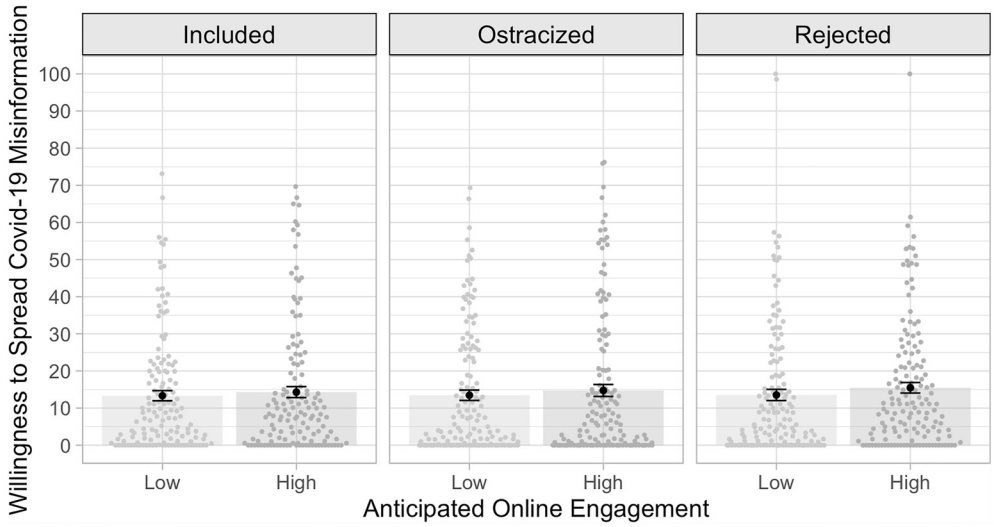

FIGURE 1 Willingness to spread COVID-19 claims. *N* = 431. Dots reflect individual participants. Error bars represent ±1 standard error of the mean.

environments. While the current exclusion manipulation yielded no differences, the role of social disconnection on misinformation dissemination warrants further exploration.

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CONFLICT OF INTEREST STATEMENT

There are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

Materials, data, analysis codes, and supplemental materials are available at https://researchbox.org/1156.

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ENDNOTES

[1] 8% indicated that they never post on social media; 39% indicated "rarely"; 28% indicated "sometimes", 21% indicated "often", and 4% indicated "always" posting online.

[2] Consistent with other commonly-used exclusion manipulations (e.g., Cyberball), ostracized participants received a small amount of initial responses so that the lack of subsequent responses would not be misattributed as a computer glitch (Williams et al., 2000).

[3] Not counting the participant's reaction, all preprogrammed profiles always received a greater number of likes than dislikes.

[4] Research suggests that virtual interactions can be perceived to be as meaningful as face-to-face interactions (Filipkowski & Smyth, 2012). Similarly, the forms of online exclusion produced through Ostracism Online have been found to be ecologically valid forms of exclusion relative to everyday life (Wesselmann et al., 2016).

[5] Analyses comparing the number of likes and dislikes participants reported receiving to the number of likes and dislikes that they actually received are reported in the supplemental materials.

[6] Analyses of each individual psychological need are reported in the supplemental materials (see Table S1).

[7] Cohen's *d* effect sizes for simple effect estimates for all manipulation check and primary analyses are reported in the supplemental materials (see Table S2).

[8] Lobato et al. categorized the 18 COVID-19 claims into four types (Lobato et al., 2020). Analyses conducted separately by type of claim are reported in the supplemental materials (see Table S3).

[9] Results were consistent when controlling for political conservatism and degree of concern about COVID-19 (see supplemental materials S1).

[10] Due to the floor effect, we also conducted non-parametric tests. Results were consistent with the primary analyses (see supplemental materials S1).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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