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FlashReport

The dark side of meaning-making: How social exclusion leads to superstitious thinking

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HIGHLIGHTS

- Social exclusion leads to endorsement of superstitious and conspiratorial beliefs.
- Search for meaning mediates between social exclusion and superstitious thinking.
- Social inclusion could be used as a means of counteracting conspiratorial beliefs.

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ABSTRACT

This paper tests a meaning-making model of conspiratorial thinking by considering how one's search for meaning mediates between social exclusion and the endorsement of conspiratorial (Study 1) and superstitious (Study 2) beliefs. In Study 1, participants first wrote about a self-selected personal event that involved a social interaction, they then indicated how socially excluded they felt after the event, and, finally, they rated their endorsement of three well-known conspiracy theories. In Study 2, participants were randomly assigned to a Social Inclusion, a Social Exclusion, or a Control condition, after which they indicated the association between improbable events in three scenarios. In addition, both studies mechanistically tested the relation between social exclusion and conspiratorial/superstitious thinking by measuring the participants' tendency to search for meaning. Both Study 1 (correlational) and Study 2 (experimental) offer support for the hypothesis that social exclusion is associated with superstitious/conspiratorial beliefs. One's search for meaning, correlational analyses revealed, mediated this relation. We discuss the implication of the findings for community-wide belief dynamics and we propose that social inclusion could be used to diminish the dissemination of superstitious beliefs and conspiracy theories.

Meaning-making is a fundamental characteristic of thinking minds. Expose a person to a set of completely unrelated events and observe the complex ways in which human minds create connections, tell stories, and go beyond what is given to imbue chaos with order. We are concerned here with understanding the conditions under which one's tendency to search for meaning backfires and leads to conspiratorial thinking and superstitious beliefs.

Decades of investigation into the processes involved in meaning-making revealed that it is an automatically triggered (Kahneman, 2013), evolutionary adaptive (Foster & Kokko, 2009; Sherman, 2002), and developmentally dynamical (Tronick & Beeghly, 2011) feature of the cognitive system. It influences information processing from perception (Heider & Simmel, 1944), to more complex mnemonic (Bartlett, 1932; Schacter, 2002) and decisional (Nickerson, 1998) processes. For the most part, this ability to make sense of a complex world has positive consequences. It has been shown to result in mental and physical health benefits (Ownsworth & Nash, 2015), increased well-being (Cacioppo, Hawkley, Rickett, & Masi, 2005; Shek, 1992), emotion regulation (Ochsner, Silvers, & Buhle, 2012) and adjustment to trauma (Park, 2010). But the ability to search for meaning sometimes backfires. In an effort after meaning individuals falsely remember events that they haven't actually experienced (Clancy, 2005; Schacter, 2001), they preferentially process belief consistent information (Snyder & Swann, 1978) and engage in motivated reasoning as a way to maintain internal consistency (Kunda, 1990).

One important way in which meaning search could backfire is when meaning is assigned to meaningless events. Recent research hints at the fact that the tendency to endorse conspiracy theories could be seen as an exaggeration of the processes involved in meaning search. Whitson and Galinsky (2008), for example, find that when people are made to

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feel uncertain or when they lack control over a situation they are more likely to endorse superstitious beliefs and conspiracy theories. Complementarily, affirming control has been found to result in reduced beliefs in conspiracy theories (Prooijen & Acker, 2015). We reasoned that: (1) one particular instance in which people are made to feel uncertain and might be motivated to reestablish control by engaging in search for meaning are situations involving social exclusion, and (2) this search for meaning might, in turn, make people particularly prone to endorse superstitious beliefs and conspiratorial thinking. Both premises are supported by previous research. Stillman et al. (2009), for instance, found that social exclusion is associated with feelings of meaninglessness. Even though loss of meaning does not necessarily trigger meaning search, previous research has found a moderate correlation between meaning presence and meaning search (Grouden & Jose, 2015). As for the relation between meaning search and superstitious beliefs, Routledge, Roylance, and Abeyta (2015) provide experimental evidence that threatening meaning results in increased belief in miraculous stories. This research suggests the possibility that threatening meaning does not necessarily lead to loss of meaning, but rather triggers a search for meaning that increases one's belief in these miraculous stories. In essence, we contend, in order for one's effort after meaning to backfire it is not sufficient for one to experience a loss of meaning, one needs to actively engage in searching for meaning. No research to date has investigated, however, in a mechanistic fashion, the relation between social exclusion, search for meaning, and belief in conspiratorial beliefs. In Study 1, we wanted to first establish whether feeling socially excluded is (corelationally) associated with the endorsement of conspiratorial beliefs, and whether this relation is mediated by one's tendency to search for meaning. In Study 2, we experimentally manipulated social exclusion and we measured the degree to which people endorsed superstitious beliefs. For both studies we reported all measures, manipulations, and exclusions.

1. Study 1

1.1. Methods

1.1.1. Participants

We sought to recruit 120 participants from Amazon Mechanical Turk, a sample size deemed adequate to conduct regression analyses for the proposed mediation model. Due to Mechanical Turk's recruitment process a total of 123 participants completed the study. Four participants did not describe any event during the Social Event Description phase, which resulted in a final sample of 119 participants (50% female). The participants had an average age of 37.23 years (SD = 13.11).

1.1.2. Materials and procedure

As part of the study, participants went through four phases. (1) In the *Social Event Description phase* participants were asked to write about a recent unpleasant event that involved interacting with one's close friend(s). For guidance, they were asked to briefly describe the event, their reaction to it, their friend(s)' reaction to it, and the aftermath, in no more than 1000 characters. (2) Next, in the *Emotional Evaluation phase*, participants were asked to rate the degree to which they felt 14 emotions (6 positive and 8 negative) taken from PANAS (Crawford & Henry, 2004) on a 1 (Slightly) to 5 (Extremely) point scale. "Exclusion," our emotion of interest, was on the list. (3) Participants were then asked to complete the *Meaning in Life Questionnaire* (Steger, Frazier, Oishi, & Kaler, 2006), which contained 10 statements for which participants indicated their agreement/disagreement on a 1 (Absolutely Untrue) to 7 (Absolutely True) point scale. Five questions were part of the *Meaning Search* sub-scale (e.g., "I am seeking a purpose or mission for my life") and 5 were part of *Meaning Present* sub-scale (e.g., "I have discovered a satisfying life purpose"). (4) Finally, participants indicated the degree to which they endorse three *conspiratorial beliefs*, on a scale from 1 (Not at all) to 7 (Extremely). The beliefs were: (a) Pharmaceutical companies withhold cures for financial reasons, (b) Governments use messages below the level of awareness to influence people's decisions, and (c) events in the Bermuda Triangle constitute evidence of paranormal activity.

1.1.3. Results

1.1.3.1. Manipulation check and reliability analyses. The Social Event Description manipulation was meant to elicit more negative than positive emotions, which was indeed the case (M-Negative = 2.50, SD = 0.90; M-Positive = 1.92, SD = 0.91), $t(118) = 4.39$, Cohen's $d = 0.64$, $p < 0.001$. There was also variation in the degree to which participants felt Excluded ($M = 1.88$, SD = 1.19), with 44% of participants selecting that they felt excluded at least "A little."

We were also concerned about potential floor effects for conspiratorial beliefs, but descriptive analyses show adequate variation in responses, with the average for the three conspiratorial beliefs of 2.98 (SD = 1.56) on a 1–7 scale. All the three scenarios loaded on the same factor, and had a moderate to high reliability (Cronbach's Alpha of 0.77). Similarly, the Meaning in Life subscales had high reliability scores (Meaning Search = 0.94 and Meaning Presence = 0.96).

1.1.3.2. Mediation analysis. The relationship between Exclusion and Conspiratorial beliefs was mediated by Meaning Search, but not by Meaning Presence. As Fig. 1 illustrates, the standardized regression coefficient between Exclusion and Conspiratorial beliefs was statistically significant, as were the standardized regression coefficients between Exclusion and Meaning Search and between Meaning Search and Conspiratorial Beliefs. We tested the significance of the indirect effect using bootstrapping procedures. The unstandardized indirect effect was computed for each of 10,000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was 0.06, and the 95% confidence interval ranged from 0.01 to 0.14. Thus, the indirect effect was statistically significant. A similar bootstrapping procedure with Meaning presence as a mediator revealed a non-significant indirect effect of 0.00, with the 95% confidence intervals ranging from −0.03 to 0.04 (Tables 1 and 2).

1.1.4. Discussion

This pattern of results is supportive of our hypothesis. When people feel socially excluded they are more likely to endorse superstitious beliefs. The mechanism, as supported by the mediation analysis, involves one's tendency to search for meaning. This suggests that the meaning-making propensities of the cognitive system may backfire and lead to erroneous judgments. These conclusions are, however, limited by the correlational approach we undertook in Study 1. For Study 2, we will test the same hypothesis by using an experimental approach. We will manipulate the degree of social exclusion and we will measure the endorsement of superstitious beliefs. We hypothesize that participants in the exclusion condition will endorse superstitious beliefs to a larger extent than those in the inclusion or the control conditions. In addition, we

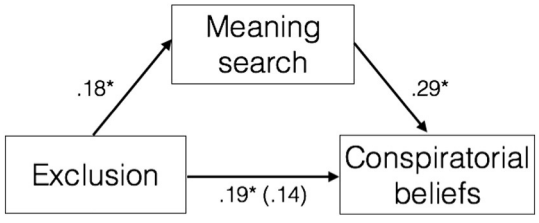

Fig. 1. Standardized regression coefficients for the relationship between Exclusion and Conspiratorial beliefs as mediated by Meaning search. The standardized regression coefficient between Exclusion and Conspiratorial beliefs, controlling for Meaning search, is in parentheses.

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Table 1
Regression analyses associated with the mediation model.

Predictors	*b* (s.e.)	*t*	*F*	*df*	R^2	*p*
Model 1						
Exclusion	0.25 (0.12)	2.10*	4.41	(1, 117)	0.036	0.038
Model 2						
Exclusion	0.19 (0.12)	1.61	6.76	(2, 116)	0.062	0.11
Meaning search	0.26 (0.09)	2.97**			0.104	0.004

b = unstandardized regression coefficients; s.e. = standard error.
* $p < 0.05$.
** $p < 0.01$.

will also measure Meaning Search and Meaning Presence to test the mediational model presented in Study 1.

2. Study 2

2.1. Methods

2.1.1. Participants

We aimed for a sample size of 35 participants per condition to detect a medium effect size of 0.40 with a 0.80 level of power. We decided, thus, to run 40 groups of three participants each for a total of 120 participants, which constituted our stopping rule. Eighteen participants were excluded from analyses following a thorough debriefing interview: four participants expressed suspicion about the social inclusion/exclusion manipulation and 14 participants correctly identified the hypothesis of the study. We, thus, performed analyses on the remaining 102 participants (65% female), distributed as follows: 33 participants in the Inclusion condition, 39 in the Control condition, and 30 in the Exclusion condition. The participants were Princeton students who were either compensated or received research credits for participation. The average age was 19.83 years (SD = 1.85).

2.1.2. Materials and procedure

Participants were scheduled to arrive in the lab so that sessions could be conducted in groups of three. After signing the Informed Consent form approved by Princeton University's IRB board, they were told that they might have to engage in a collaborative task before the completion of the study. This instruction had the role of offering a plausible expectation that would allow us to implement our social exclusion/inclusion manipulation (see Leary, Tambor, Terdal, & Downs, 1995, for the manipulation). Participants then went through 6 phases. (1) In the *Self-Description phase*, all participants were first asked to write two paragraphs describing themselves, one about "What it means to be me" and another about "The kind of person I would most like to be." These paragraphs, they were told, would be given to the other two participants that were physically present in the room who would rank who they would like to work with in a subsequent collaborative task. (2) For the *Social Evaluation phase* that followed each of the three participants in one session was randomly selected to be in either the *Inclusion* (selected for future collaborative task by one of the other participants), the *Exclusion* (not selected for future collaborative task by either of the other participants), or the *Control* (no instructions about potential selection) *conditions*. This feedback was in fact deceitful, as the participants did not in fact evaluate the other participants' self-descriptions, but the same two descriptions created by the experimenters. Next, Study 2 proceeded like Study 1, with (3) the *Emotional Evaluation phase* and (4) the *Meaning in Life Questionnaire*. (5) Finally, to ensure generalizability of the findings, we replaced Study 1's Conspiratorial beliefs phase with a *Superstitious beliefs phase*. These involved three scenarios used by Whitson and Galinsky (2008) that described ambiguous situations as to whether there was a coordinated effort among a set of individuals to produce an outcome. Participants were asked how connected they thought the individuals' behavior was to the outcome. (6) Finally, participants were thoroughly interviewed about the study's hypotheses and went through the *Debriefing phase*.

Table 2
Zero-order correlations between Exclusion, Meaning search, Meaning presence, and Conspiratorial beliefs.

Variable	1	2	3	4
1. *Exclusion*	–	0.18*	0.00	0.19*
2. *Meaning search*		–	−0.32**	0.29**
3. *Meaning presence*			–	−0.09
4. *Conspiratorial beliefs*				–

* $p < 0.05$.
** $p < 0.01$.

2.1.3. Results

2.1.3.1. Manipulation check and reliability analyses. We wanted to first ensure that the manipulation produced the expected outcome, with participants in the Exclusion condition feeling more excluded than participants in either the Inclusion or the Control conditions. And indeed, a Univariate ANOVA with Condition as a between-subjects independent variable and the exclusion rating as a dependent variable revealed a main effect for Condition, $F(2, 99) = 3.69$, $p < 0.028$, $\eta_p^2 = 0.069$. Participants in the Exclusion condition felt more excluded ($M = 2.43$, SD = 1.22) than participants in the Inclusion condition ($M = 1.72$, SD = 0.84), $t(61) = 2.69$, $d = 0.70$, $p < 0.009$. The Control condition ($M = 2.10$, SD = 1.02) was not significantly different from the Inclusion ($p = 0.10$) or from the Exclusion ($p = 0.23$) conditions, even though the differences were in the expected direction.

After ensuring that the manipulation produced the expected exclusion/inclusion outcome, we investigated the effect of our manipulation on the endorsement of superstitious beliefs. A Univariate ANOVA with Condition as a between-subjects independent variable and the average score for the superstitious beliefs as a dependent variable revealed a main effect for Condition, $F(2, 99) = 4.56$, $p < 0.013$, $\eta_p^2 = 0.084$. Posthoc analyses revealed that participants in the Exclusion condition endorsed superstitious beliefs to a larger extent ($M = 6.14$, SD = 1.59) than participants in either the Inclusion ($M = 5.09$, SD = 1.64), $t(61) = 2.59$, $d = 0.65$, $p < 0.012$, or the Control ($M = 5.16$, SD = 1.44), $t(67) = 2.69$, $d = 0.65$, $p < 0.009$, conditions. The Control condition did not differ significantly from the Inclusion condition ($p = 0.84$), thus mirroring the lack of difference on the manipulation check.

2.1.3.2. Mediation analysis. As in Study 1, we conducted a mediation analysis to explore whether the relationship between social exclusion and superstitious beliefs was mediated by meaning search. In a bootstrap analysis, we used a dummy coded condition variable as a multicategorical independent variable and the average score of the three superstitious scenarios as a dependent variable; the average score for the Meaning Search subscale was introduced into the model as a mediator. Relative to the Control condition, neither the Inclusion, nor the Exclusion condition showed a significant effect on meaning search, with confidence intervals crossing 0, CI [−0.48; 0.78] and CI [−0.78; 0.54], respectively. The Exclusion condition significantly impacted superstitious beliefs, $t(96) = 2.96$, $p < 0.004$, CI [0.36; 1.84], as did Meaning search, $t(96) = 3.54$, $p < 0.001$, CI [0.18; 0.63]. We failed, however, to find an indirect effect of condition on superstitious beliefs through meaning search, with the confidence intervals crossing 0 for both the Exclusion, CI [−0.32; 0.25], and Inclusion, CI [−0.17; 0.36], conditions, relative to the Control condition.

Even though the manipulation produced the hypothesized differences among the three conditions on the manipulation check, these differences did not reach statistical significance when comparing the control condition with the two experimental conditions. This raises the possibility that the manipulation may not have been strong enough to detect an indirect effect of the exclusion condition on superstitious

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beliefs through meaning search. We reasoned that the manipulation check would be a more sensitive measure of feelings of exclusion than the categorical condition variable. We therefore used participants' answer to the PANAS exclusion item as a predictor, as in Study 1. The standardized regression coefficient between Social exclusion and Superstitious beliefs was statistically significant, as were the standardized regression coefficients between Exclusion and Meaning Search and between Meaning Search and Superstitious Beliefs (see Fig. 2). We also tested the significance of the indirect effect using bootstrapping procedures. The unstandardized indirect effect was computed for each of 10,000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was 0.09, and the 95% confidence interval ranged from 0.01 to 0.21, which indicates that the indirect effect was statistically significant. A similar bootstrapping procedure with Meaning presence as a mediator revealed a non-significant indirect effect of 0.00, with the 95% confidence intervals ranging from −0.05 to 0.04, as hypothesized (Tables 3 and 4).

2.1.4. Discussion

Study 2 replicated the findings of Study 1 and provided experimental evidence that feeling socially excluded leads to increased endorsement of superstitious beliefs. Meaning search was found to be a mediator between social exclusion and the endorsement of superstitious beliefs, but only when using the manipulation check as a predictor.

3. General discussion

In two studies, we showed that feeling socially excluded is associated – corelationally in Study 1 and causally in Study 2 – with the endorsement of conspiratorial and superstitious beliefs, respectively. In both studies, mediation analyses offered support for a mechanism that involves the cognitive system's meaning-making abilities. By focusing on search for meaning as a mediator, these studies add to at least two bodies of work. On the one hand, they contribute to the burgeoning literature investigating the cognitive ingredients of conspiratorial thinking (Douglas, Sutton, Callan, Dawtry, & Harvey, 2016; Prooijen & Acker, 2015; Sunstein & Vermeule, 2009; Whitson & Galinsky, 2008). On the other hand, the studies supplement the well-established ostracism research by investigating one of its important and surprising consequences: conspiratorial thinking (Blackhart, Knowles, Nelson, & Baumeister, 2009; Williams, 2007).

One caveat is that the mediation models in both studies involve self-report measures. Even though this undermines the causal claims involving meaning search, we are confident that the mediation model explored in the two studies reported in the paper captures a significant part of the mechanism by which social exclusion leads to superstitious thinking. Support of this mediation model is twofold. First, it was only Meaning search that was found to mediate the relation between exclusion and superstitious thinking, and not Meaning presence, indicating that the endorsement of superstitious thinking requires an active meaning search process. Second, the mediation model that involves Meaning search as a possible mechanism was replicated in two studies that induced social exclusion with two different tasks and measured conspiratorial thinking in two different ways (conspiracy beliefs and superstitious beliefs). Meaning search was found to mediate between social exclusion and superstitious thinking regardless of the exclusion induction and the type of measurement for superstitious thinking.

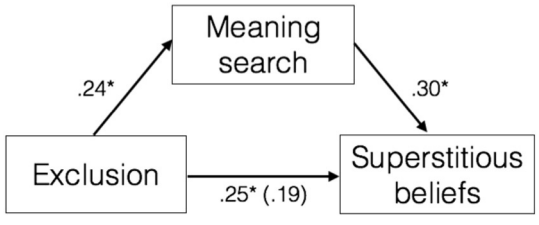

Fig. 2. Standardized regression coefficients for the relationship between Exclusion and Superstitious beliefs as mediated by Meaning search. The standardized regression coefficient between Exclusion and Superstitious beliefs, controlling for Meaning search, is in parentheses.

Table 3
Regression analyses associated with the mediation model.

Predictors	*b* (s.e.)	*t*	*F*	*df*	R^2	*p*
Model 1						
Exclusion	0.38 (0.15)	2.60*	6.78	(1, 100)	0.064	0.01
Model 2						
Exclusion	0.29 (0.15)	1.97	7.05	(2, 97)	0.092	0.052
Meaning search	0.32 (0.12)	2.64**			0.127	0.01

b = unstandardized regression coefficients; s.e. = standard error.
* $p < 0.05$.
** $p < 0.01$.

Of note, the finding that social exclusion triggers conspiratorial thinking complicates efforts to dispel conspiracy theories in the general population. More specifically, we claim that social exclusion triggers an exclusion-belief cycle that could make conspiracy theories impervious to change. That is, feeling socially excluded might lead one to endorse superstitious beliefs and conspiratorial ideas. This endorsement, in turn, might lead to further exclusion from one's social circle, and the cycle continues. Very often, the individual who experiences social exclusion then searches for like-minded individuals who further reinforce these beliefs, until they become entrenched (Sunstein & Vermeule, 2009; but see Swami, Voracek, Stieger, Tran, & Furnham, 2014). As shown here, one strategy that might prove promising in limiting the spread and impact of conspiracy theories in the general population could involve social inclusion. These results warrant further investigation into the consequences of social inclusion on belief endorsement.

In the current studies we investigated social exclusion of an interpersonal nature. Social exclusion could, however, have a multitude of forms (Levitas, 2006). Interracial tensions (Edu, 2014), social and economic inequality (Swencionis & Fiske, 2016), and poverty (Mullainathan & Shafir, 2013) create the type of exclusionary environments in which conspiracy theories and superstitious beliefs are likely to flourish. These environments might facilitate the propagation of conspiratorial information, which could result in community-wide convergence processes that would further alienate vulnerable populations. It becomes critical, then, to better understand the collective-level processes that are responsible for the emergence and maintenance of conspiracy theories in larger communities (Coman, Momennejad, Drach, & Geana, 2016).

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Table 4
Zero-order correlations between Exclusion, Meaning search, Meaning presence, and Superstitious beliefs.

Variable	1	2	3	4
1. *Exclusion*	–	0.24*	−0.06	0.25*
2. *Meaning search*		–	−0.36**	0.30**
3. *Meaning presence*			–	0.04
4. *Superstitious beliefs*				–

* $p < 0.05$.
** $p < 0.01$.

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