



HAL
open science

Happy Thoughts: The Role of Communion in Accepting and Sharing (Mis)Beliefs

Sacha Altay, Yoshimasa Majima, Hugo Mercier

► **To cite this version:**

Sacha Altay, Yoshimasa Majima, Hugo Mercier. Happy Thoughts: The Role of Communion in Accepting and Sharing (Mis)Beliefs. *British Journal of Social Psychology*, 2023, 62 (4), pp.1672-1692. 10.1111/bjso.12650 . hal-04282054

HAL Id: hal-04282054

<https://cnrs.hal.science/hal-04282054v1>

Submitted on 13 Nov 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Happy Thoughts: The Role of Communion in Accepting and Sharing (Mis)Beliefs

Sacha Altay, Yoshimasa Majima & Hugo Mercier

In press at The British Journal of Social Psychology

Abstract

The negativity bias favors the cultural diffusion of negative beliefs, yet many common (mis)beliefs—naturopathy works, there’s a heaven—are positive. Why? People might share ‘happy thoughts’—beliefs that might make others happy—to display their kindness. Five experiments conducted among Japanese and English-speaking participants (N = 2412) show that: (i) people higher on communion are more likely to believe and share happier beliefs, by contrast with people higher in competence and dominance; (ii) when they want to appear nice and kind, rather than competent and dominant, people avoid sharing sad beliefs, and instead prefer sharing happy beliefs; (iii) sharing happier beliefs instead of sad beliefs leads to being perceived as nicer and kinder; and (iv) sharing happy beliefs instead of sad beliefs leads to being perceived as less dominant. Happy beliefs could spread, despite a general negativity bias, because they allow their senders to signal kindness.

Keywords: beliefs; misbeliefs; communion; reputation management; cultural evolution; negativity bias; positivity; happy.

1. Introduction

Some culturally successful beliefs—there’s a heaven, positive energy can cure cancer—can be characterized as ‘happy beliefs’—beliefs that should make people happy. The cultural success of such beliefs might appear puzzling, given the prevalence of the negativity bias—a tendency to attend to, share, and even believe more negative information (Baumeister et al., 2001).

The success of these ‘happy beliefs’ is even more puzzling when they are misbeliefs (“a false belief, or at least a belief that is not correct in all particulars,” McKay & Dennett, 2009, p. 493), since when it comes to misbeliefs, it should be easy to make things up that are as negative as desired, to satisfy the negativity bias. In spite of this, many widespread misbeliefs are positive—in 2021, 73% of Americans believed in heaven (more than believed in hell) (Pew Research Center, 2021), and in 2018 40% of Americans thought that some cancers could be cured solely through the use of complementary and alternative medicines (American Society of Clinical Oncology, 2018). Why are some happy beliefs, and even happy misbeliefs, so popular?

Despite the prevalence of the negativity bias people evince, in some contexts, a positivity bias. If, on some level, the positivity bias might help explain the cultural success of happy beliefs, it is obviously unsatisfactory to be in a position to predict that both happy and sad beliefs are going to spread better than each other, due to, respectively, the positivity and the negativity bias. Here, we suggest that whether the negativity or the positivity bias dominates in cultural transmission depends on contextual factors (for a similar view, see, Fay et al., 2021), in particular the impression that people want to convey when they transmit information. Our main thesis is that happy beliefs can compete against negative beliefs and become culturally successful because they allow people to express a high degree of communion—i.e. to be perceived as nicer and kinder. Note that our argument applies to both true beliefs and to misbeliefs, but that we mostly used misbeliefs in the experiments, in part because their cultural success appears more puzzling. We start by briefly reviewing work on the role of the negativity and positivity biases in cultural transmission, before discussing the potential reputational benefits of sharing happy beliefs.

Negativity and positivity biases in cultural transmission

A large literature shows that people exhibit a negativity bias, and that this negativity bias affects cultural transmission: people are more likely to attend to (Baumeister et al., 2001; Robertson et al., 2023), remember (Bebbington et al., 2017; Walker & Blaine, 1991), share (Acerbi, 2021;

Heath, 1996), and believe (Fessler et al., 2014; Hilbig, 2009) more negative information. This negativity bias has been used to explain, for instance, the persistence and prevalence of stories about negative events (e.g. Bebbington et al., 2017; Schöne et al., 2021). Applied to misbeliefs, the negativity bias leads to the prediction that most misbeliefs should be negative, for instance by being about threats (Blaine & Boyer, 2018); indeed, many common misbeliefs are negative: beliefs about agents that can harm us supernaturally (witches, etc.), or about conspiracy theories, for instance, are extremely common worldwide (Hutton, 2017; van Prooijen & Van Vugt, 2018).

The negativity bias, however, doesn't always dominate. There is substantial variability in how much negativity bias people evince, as a function of their personality, and of the context (for review, see, Soroka & Krupnikov, 2021). In some domains, there even is a systematic positivity bias. Natural human languages across the world are characterized by a positivity bias (Dodds et al., 2015). Positive articles in the *New York Times* were more likely to be shared via email (Berger & Milkman, 2012; see also, Bright, 2016). On some popular Facebook sites, positive phatic posts (posts that chiefly have a social function, rather than transmitting a specific meaning, e.g. “Good weekend to y'all” or “Happy Mother's day”) generate more engagement than negative posts (Berriche & Altay, 2020). People share more often and with more fidelity morally good content compared to morally bad content (Stubbersfield et al., 2019).

One potential way to reconcile the roles of the positivity and negativity biases would be to postulate that they mostly act on different stages of cultural transmission. For instance, some data suggest that people are more interested in negative information, but more eager to share positive information (Berger & Milkman, 2012; Bright, 2016). However, other data suggest that the negativity bias sometimes also prevails in information sharing (e.g. Acerbi, 2021; Heath, 1996). There must thus be other factors that explain why a given bias prevails in some circumstances but not others. We suggest that interindividual and contextual differences in personality and in impression management strategy—i.e. whether people want to appear high in communion or in agency—might help explain whether the negativity or the positivity bias dominates (for a related view, see, Fay et al., 2021).

Impression management and happy beliefs

Perceptions of personality (or stereotypes individuals have about themselves, others, and groups) are arranged along two main dimensions: communion and agency (e.g., Abele &

Wojciszke, 2007). Agency refers to perceived abilities, such as intelligence, competence, dominance, and creativity, whereas communion captures perceived intentions, such as morality, sincerity, empathy, friendliness, and helpfulness.

In line with these perceptions, people engage in a variety of strategies to manage their reputation along these two axes, strategies that include communicating beliefs (or misbeliefs). Along the agency axis, people who share information about threats are deemed more competent (Blaine & Boyer, 2018; Boyer & Parren, 2015), and, under some circumstances, people who share offensive rumors are deemed more dominant (de Araujo et al., 2020). Along the communion axis, in some cultures, religious people are perceived as being higher in communion; in these cultures, people display religious badges (which can include religious beliefs, Gebauer et al., 2013), possibly in part to appear higher in communion (McCullough et al., 2016). In this case, the religious beliefs themselves don't have to be happy beliefs, they merely have to signal that one is religious (which is then associated with higher communion). Here, we suggest that happy beliefs can be a more direct way of signaling a high degree of communion.

The main characteristic of communal (people who perceive themselves as high in communion) is that they have positive intentions toward others, they want others to be happy (Fiske et al., 2007). Some beliefs make people happier than others: some stories, facts, hypotheses, etc. are uplifting, others are depressing. There are two reasons why communal should be spontaneously more inclined to assent to and share what they believe to be 'happy thoughts'. First, such beliefs might simply accomplish one of their goals: making other people happy, such as reassuring a terminally ill patient that they will go to heaven. Second, such beliefs can signal communal's willingness to make others happy, and thus their high degree of communion. This leads to the prediction that communal should be more likely to believe and share 'happy thoughts.'

Even people who are not communal often have positive intentions towards others and, in these contexts, might be motivated to share happy beliefs in order to display their intentions. For instance, a police officer otherwise high in agency and low on communion might offer reassuring words to a crime victim (on the flexibility of our reputation management strategies, see, e.g., Goffman, 1959; Leary, 1995). People should be able to make fine-grained inferences about whether the sharing of happy beliefs reflects high communion in general, or a contextual desire to be nice. Such inferences could be grounded for instance in whether the

sharing of happy beliefs is repeated, or whether it goes beyond what seems to be called for in a given context. We do not investigate these finer-grained inferences here.

When sharing happy beliefs, whether in relation to wishing to appear communal, or merely nice in a particular setting, there might be a temptation to cheat: why wouldn't everyone use communication to persuade others that they are high in communion (Ong et al., 2022)? First, being perceived as high in communion is not always positive, as it can run counter to one's goal of being perceived as agentic and, more specifically, dominant (Holoien & Fiske, 2013; Oliveira et al., 2019; Tracy & Beall, 2011). Second, someone who attempts to signal niceness, but then doesn't act accordingly, should see their reputation suffer, being trusted less in the future, which provides an incentive not to send misleading messages (Dezecache & Mercier, 2022; Mercier, 2020).

This leads us to our first two hypotheses, namely, that happier beliefs are more likely to be believed and shared by people higher in communion:

H₁: Participants higher in communion (but not in agency) are more likely to agree with, and share happier beliefs.

And that people who want to appear nice should also want more to share happy beliefs:

H₂: Participants are more likely to share happy beliefs compared to sad beliefs when wanting to appear nice and kind than when wanting to appear competent and dominant.

If we assume some degree of competence in reputation management (see, e.g., Goffman, 1959; Leary, 1995; Schlenker, 1980), then people who want to signal their high degree of communion, or their positive intentions through sharing happy beliefs should be more likely to be perceived as such. This does not mean that audiences always infer niceness from the sharing of happy beliefs. In some contexts, it might be perceived as manipulative, in which case we do not expect that audiences would infer that the source is nicer—on the contrary. However, in our experiments there are no reasons to suspect such a context, and as a result we hypothesize that someone who shares happy beliefs, compared to someone who shares sad beliefs, or to people in general, should be perceived as more communal.

H₃: People sharing happy beliefs appear higher in communion compared to people sharing sad beliefs, and to people in general.

Finally, if sharing happy beliefs can be used as a signal of high communion, there must be some mechanisms that ensure this signaling isn't abused. As mentioned above, one possibility is that sharing happy beliefs also has consequences that some would see as negative. For instance, it has been suggested that being perceived as more communal is associated with being perceived as less agentic, which might be undesirable (Judd et al., 2005). More specifically, high communion might be difficult to reconcile with one particular sub-scale of agency: dominance (Oliveira et al., 2019; Tracy & Beall, 2011). People who are dominant seek to impose their wishes on others by strength, something that is hard to reconcile with being high in communion, which means being nice and warm. By contrast, it should be possible, in most situations, to be both competent and nice. As a result, we predict that appearing to be high in communion (for instance by sharing happy beliefs) should also make one appear to be low in dominance specifically (rather than agency in general).

H₄: People sharing happy beliefs appear lower in dominance, compared to people sharing sad beliefs, and to people in general.

Overview of the experiments

The first two experiments aimed at establishing the association between communion and agreement with, and sharing of happy beliefs. Experiment 1 tested the hypothesis that people higher in communion are more likely to agree with and share happier beliefs (H₁). Participants were presented with a variety of beliefs—including paranormal beliefs, ontological confusions, and fake news, but also real news—and asked to rate the extent to which they agreed with each belief, how willing they were to share it, and how happy it would make someone who believes in it.

Experiments 2 and 3 investigated the influence of impression management goals on the propensity to share beliefs and, in particular, misbeliefs. We predicted that people would prefer sharing happier misbeliefs when wanting to appear nice and kind, compared to competent and dominant (H₂). In both experiments, participants were told that they had to convey an impression (appearing nice and kind or competent and dominant). In Experiment 2, participants were presented with pairs of misbeliefs (one sad and one happy) and had to choose which one they would rather share to convey the desired impression. In Experiment 3,

participants were presented with each belief individually and had to say how willing they would be to share it to convey the desired impression.

Experiments 4 and 5 tested the hypothesis that people sharing happy misbeliefs are perceived as higher in communion than people sharing sad misbeliefs, and than people in general (H₃). In Experiment 4, participants were asked to evaluate the personality of people in general, or of someone who shared either happy or sad misbeliefs. Experiment 5 replicated the results of Experiment 4 with novel words from the agency-communion scale, and tested the hypothesis that people sharing happy misbeliefs are perceived as lower in dominance than people sharing sad misbeliefs, and than people in general (H₄). We replicated Experiments 1, 3, and 5, among Japanese participants to evaluate the reliability and generalizability of our findings (see Electronic Supplementary Materials (ESM) for more information about the translation and adaptation of the materials).

Preregistration, data, materials, ESM, and the scripts used to analyze the data are available on OSF at https://osf.io/ue76r/?view_only=926382bc987444299edd482c4100c220. In these studies, we report all measures, manipulations, and exclusions. Participants were recruited online using Prolific Academic (English-speaking participants) and Crowdworks (Japanese participants). The sample size was determined before any data analysis. For clarity and length, some studies are reported only in ESM.

2. Experiment 1

The goal of Experiment 1 was to test whether people higher in communion would be more likely to agree with and share happier beliefs, including misbeliefs. Each participant was presented with 14 beliefs (or misbeliefs) varying in anticipated happiness (out of a total of 42). For each belief, participants indicated how likely they would be to share it, the extent to which they agreed with it, and how happy it would make someone who believes in it. In line with H₁, we predicted that participants higher in communion would be more likely to agree with and share happier beliefs, but that we would not observe this pattern for participants higher in agency.

We pre-registered sample size, exclusion criterion, hypotheses, and statistical analyses. Experiment 1 was replicated among Japanese participants.

2.1. Participants

We recruited 401 participants from the U.S., the U.K., and Ireland (referred as English-speaking participants)—paid 63p for completing the 5-minute survey (£7.56/hour). We removed four participants who failed the attention check, leaving 397 participants (282 women, $M_{Age} = 33.13$).

We recruited 402 Japanese participants—paid 90JPY (1080JPY/hour approximately £6.78/hour). We removed 20 participants who failed the attention check, leaving 382 participants (200 women, $M_{Age} = 39.77$). With this sample size we had 95% power to detect a small effect ($f^2 = 0.03$) (with an α -level of 5% and for a two-tailed test).

2.2. Design and procedure

We selected 42 beliefs related to paranormal activity, religiosity, conspiracy theories, complementary and alternative medicines, real news, and fake news. The beliefs were selected so that half of them would be happy, and half sad. Participants were randomly assigned a set of 14 beliefs comprising two happy complementary and alternative medicine beliefs, two sad conspiracy theories beliefs, two happy paranormal beliefs, two sad paranormal beliefs, one happy religious belief, one sad religious belief, one happy true news, one sad true news, one happy fake news, and one sad fake news (see Table 1). The beliefs within each set were presented in a randomized order.

For each belief, participants rated on Likert scales how willing they were to share the belief (1[Very unlikely] to 6 [Very likely]), how much they agreed or disagreed with the belief (1[Strongly disagree] to 7 [Strongly agree]), and how happy it would make someone who holds the belief (1[Feel unhappy] to 5 [Feel happy]). These questions were asked in a randomized order.

Next, participants were asked the extent to which 22 agentic and communal words generally describe them. The words were presented in a randomized order. Participants were asked “How well does each of the following words generally describe you?” on a seven-point Likert scale (1[Not at all] to 7 [Extremely well]). The communal items were “Faithful,” “Honest,” “Kind,” “Patient,” “Sensitive,” “Trusting,” “Understanding,” “Warm,” “Affectionate,” “Caring,” “Compassionate” ($\alpha_{\text{English-speaking}} = 0.84$; $\alpha_{\text{Japanese}} = 0.86$). The agentic items were “Adventuresome,” “Ambitious,” “Bossy,” “Clever,” “Competitive,” “Competent,” “Dominant,” “Leader,” “Outgoing,” “Rational,” “Wise” ($\alpha_{\text{English-speaking}} = 0.80$;

$\alpha_{\text{Japanese}} = 0.88$). We use the eDarling Agency-Communion Scale (Gebauer et al., 2013). This method, and these words, are commonly used in the literature to measure agency and communion (e.g., Fiske et al., 2002; Trapnell & Paulhus, 2012).

At the end of the experiment, participants completed an attention check (see section 1 of ESM) and provided demographic information.

2.3. Materials

We used six conspiracy theories selected from the Generic Conspiracist Beliefs Scale (Brotherton et al., 2013); six Complementary and Alternative Medicines selected from previous studies (e.g. Lindeman, 2011; Pennycook et al., 2015); eleven paranormal beliefs taken from the Paranormal Belief Scale (from the subscales “Psi”, “Witchcraft”, “Superstition”, “Spiritualism”, “Extraordinary Life Forms” and “Precognition”; see, Tobacyk, 2004) (one was adapted to create a happy belief); six religious beliefs taken from previous studies (e.g. Pennycook et al., 2015); six real news stories taken from mainstream media, and six fake news stories found on fact-checking websites such as Snopes. Examples and details about the properties of the materials can be found in Table 1. All materials are available in section 1 of ESM.

We pre-tested the materials in a pilot study to ensure the beliefs had the required properties (see section 2 of ESM and Table 1). In this pilot, we found preliminary support for H_1 , with communals being more likely to agree with and share happier beliefs, as well as a lack of main effect for either happiness or communion (several other hypotheses, distinct from the ones investigated here, were tested in this pilot, see section 2 of ESM for details).

Category	Expected Happiness	N	Example	Feeling attributed to the believer (Sad [1] to Happy [5])	
				Pilot	Exp. 1
Complementary & Alternative Medicine	Happy	6	Naturopathy such as herbal therapy or stone therapy can be an effective treatment.	4.10 (0.76)	4.25 (0.77)
Conspiracy Theories	Sad	6	Technology with mind-control capacities is used on people without their knowledge.	1.92 (0.96)	1.72 (0.95)
Paranormal Beliefs	Happy	6	Good things happen to certain people because they attract positive energy.	3.83 (0.94)	4.08 (0.89)
	Sad	6	Bad things happen to certain people because they attract negative energy.	2.57 (1.09)	2.78 (1.19)
Religious Beliefs	Happy	3	There is a heaven.	4.43 (0.93)	4.65 (0.70)
	Sad	3	There is a hell.	1.93 (0.95)	2.03 (1.04)
True News	Happy	3	A new study suggests that women access to education has never been higher in history	4.04 (0.99)	4.18 (1.01)
	Sad	3	Economic data suggests that a global recession is likely to occur in the years to come.	1.69 (0.75)	1.49 (0.74)
Fake News	Happy	3	A cat saved a woman's life by scaring off a bear trying to attack her.	3.80 (0.99)	4.20 (0.89)
	Sad	3	Cellphones are causing horns to grow from young people's skulls.	1.68 (0.89)	1.62 (0.97)

Table 1. The six categories of beliefs used in Experiment 1, with their expected happiness, the number of beliefs in each category, an example, and the observed average happiness score (and *SD*) in the pilot study and Experiment 1.

2.4. Results and discussion

We conducted a linear mixed effect model (*lmer* function from the *lme4* package in R) with participants as random factor. The predicted interactions between the beliefs' happiness

(continuous) and the participants' communion score (continuous) are represented in Table 2. We standardized the variables (mean-centered divided by SD).

Agreement				
<i>Predictors</i>	UK		Japan	
	<i>β</i>	<i>p</i>	<i>β</i>	<i>p</i>
Communion	.13	<.001	.07	<.001
Agency	.02	.39	-.01	.57
Happy	.14	<.001	.19	<.001
Communion * Happy	.05	<.001	.06	<.001
Agency * Happy	-.01	.79	.03	.02

Sharing				
<i>Predictors</i>	UK		Japan	
	<i>β</i>	<i>p</i>	<i>β</i>	<i>p</i>
Communion	.14	<.001	.06	.04
Agency	.05	.08	.03	.31
Happy	.13	<.001	.19	<.001
Communion * Happy	.05	<.001	.04	<.001
Agency * Happy	-.01	.64	.02	.05

Table 2. Predictors of participants' agreement with the beliefs and willingness to share them among English-speaking participants (left) and Japanese participants (right). Bold Betas (β) represent p-values below the 0.05 alpha threshold.

Participants higher in Communion were more likely to believe and share the beliefs (main effect of “Communion”), whereas participants higher in Agency were not significantly more likely to believe or share the beliefs (no main effect of “Agency”). Happier beliefs were more likely to be believed and shared (main effect of “Happy”). Participants higher in Communion were more likely to share happier beliefs (interaction term “Communion * Happy”). English-speaking participants higher in agency were not more likely to believe and share happier beliefs (interaction term “Agency * Happy”), whereas Japanese participants higher in agency were slightly more likely to believe happier beliefs.

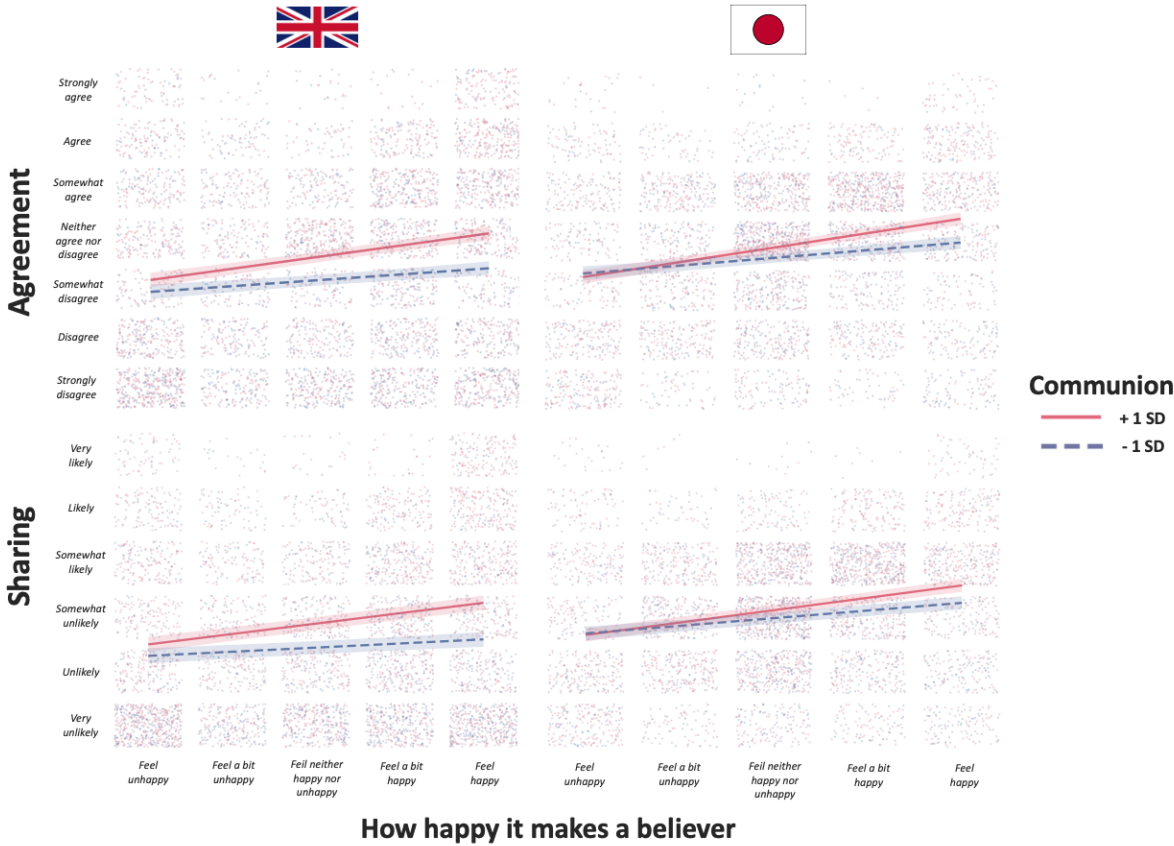


Figure 1. Interaction between beliefs’ happiness and participants’ communion score on agreement with the beliefs and willingness to share them. The pink full line corresponds to participants one standard deviation higher in communion, and the blue dotted line to participants one standard deviation lower in communion. Shaded areas represent the 95% confidence intervals. Results from English-speaking participants (left) were replicated among Japanese-speaking participants (right).

In Figure 1 we can see a visual representation of the interaction term (Communion * Happy) reported in Table 2. The overall low rates of agreement and sharing likely reflect the fact that

most of the beliefs used were misbeliefs. Experiment 1 supports H₁: Japanese and English-speaking participants higher in communion were more likely to share and believe happier beliefs, but not participants higher in agency.

As can be seen in Figure 1, the effects reported here, despite being statistically significant, are small, and explain only 5% of the variance in sharing and believing among Japanese participants and 4% among English speaking participants.

3. Experiment 2

Experiment 1 suggests that communals are more likely to agree with and share happier beliefs. They might do so to make others happier, or to display their high degree of communion. In Experiments 2 and 3 we investigate the use of happy beliefs to display one's niceness in a more contextual manner. We tested whether participants' propensity to share happy or sad misbeliefs is modulated by the type of impression they want to convey. Participants were presented with a pair made of a happy and a sad misbelief, and had to choose which one they would rather share. In one condition participants were told that their goal was to appear nice and kind. In another condition, participants were told that their goal was to appear competent and dominant (i.e. a between-participants design). We hypothesized that participants would be more likely to share happy beliefs compared to sad beliefs when wanting to appear nice and kind than when wanting to appear competent and dominant (H₂).

3.1. Participants

We recruited 197 English-speaking participants—paid 20p for completing the 2-minute survey (£7.56/hour). We removed one participant who failed the attention check, leaving 196 participants (128 women, $M_{Age} = 34.22$). With this sample size, we had 95% power to detect a small effect ($f^2 = 0.07$).

3.2. Design and procedure

At the beginning of the experiment, half of the participants were told “Imagine you're in a situation in which you want to appear nice and kind, which statement would you rather say in each of the pairs below?”, the other half were told “Imagine you're in a situation in which you want to appear dominant and competent, which statement would you rather say in each of the

pairs below?” Participants were presented with seven pairs of beliefs and had to pick one belief per pair. The pairs were composed of a happy and a sad belief of the same category (e.g. they had to choose between one happy religious belief and one sad religious belief). For instance, one pair was: ‘God is always good’ and ‘God can be ruthless’; another pair was ‘I believe there is a heaven’ and ‘I believe there is a hell’.

3.3. Materials

We selected beliefs from those used in Experiment 1. The happiness of the beliefs was determined based on participants’ ratings in the pre-test of Experiment 1. Five pairs of beliefs were matched in terms of plausibility (happy beliefs: $M = 3.98$; sad beliefs: $M = 3.99$), and category (pieces of news, religious beliefs, and ontological confusions). In addition to these five pairs, we added two pairs not matched by category composed of conspiracy theories (found to be sad in the Pilot and Experiment 1) *versus* complementary and alternative medicine (found to be happy in the Pilot and Experiment 1), matched in term of plausibility (Complementary and Alternative Medicine: $M = 3.88$; Conspiracy Theories: $M = 3.71$). These two pairs could not be matched within category because there are no sufficiently widespread happy conspiracy theories or sad complementary and alternative medicine beliefs. The presentation order was randomized. The seven pairs of beliefs used in the experiment can be found in section 7 of ESM.

3.4. Results and discussion

We conducted a mixed effects binomial logistic regression (*glmer* function from the *lme4* package in R) with participants as random factor, together with one-sample goodness-of-fit tests.

Participants selected more often happy beliefs when wanting to appear nice and kind (89.3%, $\chi^2 = 421.54$, $p = .006$) than when wanting to appear dominant and competent (47.6%, $\chi^2 = 1.57$, $p = .21$; interaction term: $\beta = 2.78$ [2.28, 3.29], $p < .001$).

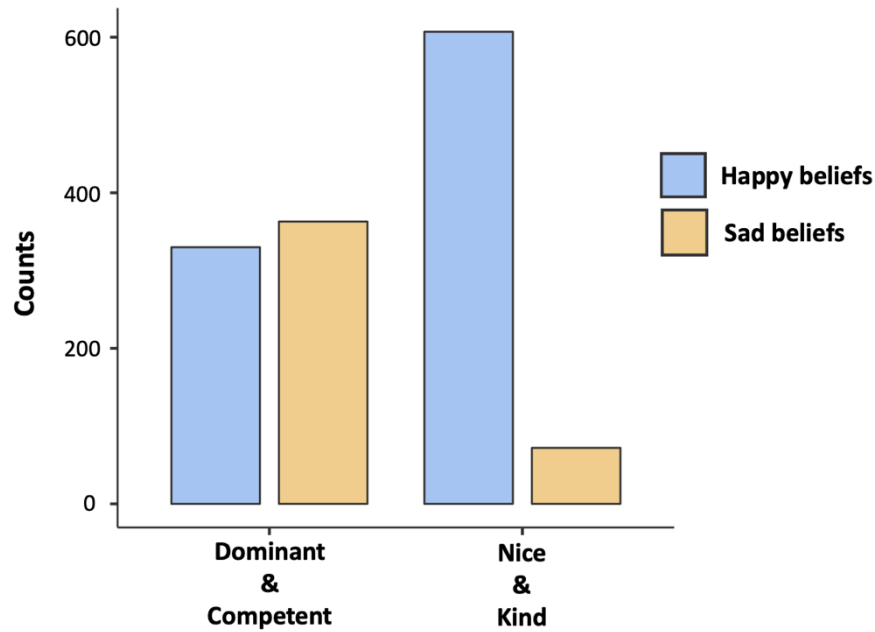


Figure 2. Bar plots representing the number of times participants selected happy *versus* sad beliefs, sorted by the impression they had to convey (appearing dominant and competent or nice and kind).

In line with H₂, participants overwhelmingly selected happy beliefs to appear nice and kind (Figure 2, right), and showed no such preference when wanting to appear dominant and competent (Figure 2, left). The size of the effect is very large, and Condition (appearing dominant & competent *versus* nice & kind) alone explains 30% of the variance in belief selection. However, this experiment does not distinguish between different explanations for this pattern; in particular, whether participants, when motivated to appear nice and kind rather than dominant and competent, were particularly likely to select happy beliefs, or particularly unlikely to select sad beliefs.

4. Experiment 3

Experiment 3 is a conceptual replication of Experiment 2 with a within-participants design and a continuous measure of sharing instead of a forced binary choice between two beliefs: participants had to report how willing they would be to share each statement individually. The goal of this experiment is to shed light on participants' motivation to share happy and sad beliefs when wanting to appear nice and kind, by contrast with competent and dominant. We replicated Experiment 3 among Japanese participants.

4.1. Participants

We recruited 202 English-speaking participants—paid 20p for completing the 2-minute survey (£7.56/hour). We removed one participant who failed the attention check, leaving 201 participants (157 women, $M_{Age} = 35.14$).

We recruited 200 Japanese participants. Participants were paid 30JPY (1080JPY/hour approximately £6.78/hour). We removed three participants who failed the attention check, leaving 197 participants (108 women, $M_{Age} = 40.46$). With this sample size, we had 95% power to detect a small effect ($f^2 = 0.07$).

4.2. Design, procedure, and materials

We used the statements from the five pairs of statements of Experiment 2 which were matched in terms of plausibility and category, and not the two pairs that could not be matched within category (conspiracy theories and alternative medicine). Each participant saw five of these statements, at random. In a within-participants design, for each statement, participants were asked either: “Imagine you’re in a situation in which you want to appear nice and kind, how likely would you be to say the following sentence?” or “Imagine you’re in a situation in which you want to appear dominant and competent, how likely would you be to say the following sentence?” Participants answered on a 6-point Likert scale ([1] Very unlikely, to [6] Very likely).

4.3. Results and discussion

Figure 3 offers a visualization of the results. Our main finding is that participants were less likely to share sad beliefs when wanting to appear nice and kind than when wanting to appear dominant and competent (blue slopes). As a result, participants were much more willing to share happy beliefs than sad beliefs when wanting to appear nice and kind (the distance between the blue and pink slopes is larger for the nice and kind condition than for the competent and dominant condition).

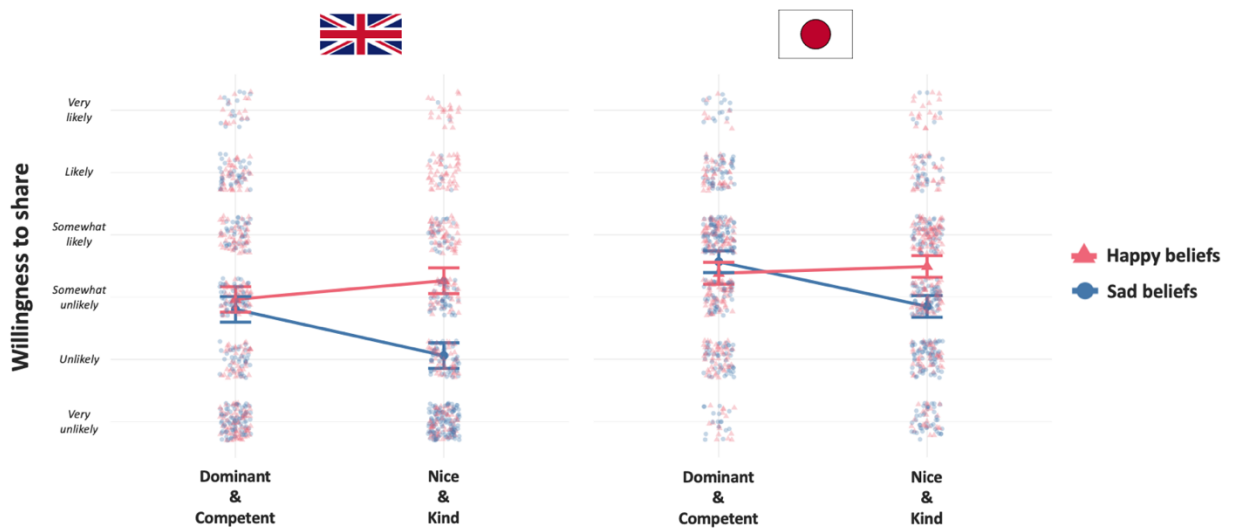


Figure 3. Interaction between the impression participants had to convey (dominant and competent, or nice and kind) and the beliefs' happiness (happy or sad) on participants' willingness to share the beliefs. Results from English-speaking participants (left) were replicated among Japanese-speaking participants (right).

English-speaking sample

Participants were more willing to share happy beliefs compared to sad beliefs when motivated to appear nice and kind than when motivated to appear dominant and competent ($\beta = 0.65$ [0.43, 0.87]). Participants were more likely to share happy beliefs when wanting to appear nice and kind than when wanting to appear competent and dominant ($\beta = 0.18$ [0.02, 0.35]). Participants were also less willing to share sad beliefs when wanting to appear nice and kind than when wanting to appear dominant and competent ($\beta = 0.54$ [0.38, 0.70]).

Japanese sample

Participants were more willing to share happy beliefs compared to sad beliefs when motivated to appear nice and kind than when motivated to appear dominant and competent ($\beta = 0.62$ [0.39, 0.84]). Participants were not significantly more likely to share happy beliefs when wanting to appear nice and kind than when wanting to appear competent and dominant ($\beta = 0.10$ [-.07, .26]). Participants were less willing to share sad beliefs when wanting to appear nice and kind than when wanting to appear dominant and competent ($\beta = -0.52$ [-.36, -.68]).

	Conditions	Dominant & Competent		Nice & Kind	
Sample		English	Japanese	English	Japanese
Descriptive statistics M (SD)	Happy belief	2.97 (1.65)	3.40 (1.24)	3.22 (1.64)	3.46 (1.34)
	Sad belief	2.87 (1.62)	3.55 (0.99)	2.03 (1.23)	2.87 (1.32)
Statistical comparison	Happy <i>versus</i> Sad	$\beta = .07$ [-.10, .24]	$\beta = .13$ [-.03, .30]	$\beta = .80$ [.64, .95]	$\beta = .45$ [.29, .62]

Table 3. Descriptive statistics of Experiment 3. The statistical comparisons are linear mixed effects models (*lmer*) with participants as random factor.

First, we replicate the findings of Experiment 2, further strengthening H₂, with Japanese and English-speaking participants showing a preference for sharing happy beliefs compared to sad beliefs when wanting to appear nice and kind, a difference not observed when wanting to appear dominant and competent.

Second, the preference for happy beliefs observed in Experiments 2 and 3 appears primarily attributable to participants avoiding sharing sad beliefs when wanting to appear nice and kind. Such avoidance of sharing sad beliefs might thus counteract the negativity bias under some conditions (i.e. when people want to appear nice and kind, which is a recurrent goal).

The size of the effects reported here are much smaller than in Experiment 2, notably because of differences in design—forced choice between two beliefs in Experiment 2 *versus* individual Likert-scales in Experiment 3. Moreover, we observed stronger effects among English-speaking participants than among Japanese participants. These differences are apparent visually in Figure 3, the size of the β in the results above, and in the amount of variance in willingness to share the beliefs explained by the conditions among English-speaking participants (8%) and Japanese participants (4%).

5. Experiment 4

Experiment 1 showed that communals were more likely to endorse and share happy beliefs;

Experiments 2 and 3 showed that participants who want to appear nice and kind would rather share happy than sad beliefs, something they did not do when wishing to appear dominant and competent. In Experiments 4 and 5, we test whether this strategy is effective: do people draw the desired inferences about a speaker's personality from the happiness of the beliefs shared? We hypothesized that people sharing happy beliefs would appear higher in communion than people sharing sad beliefs, and than people in general (H₃). Conversely, people sharing sad beliefs should appear less communal than people in general.

5.1. Participants

We recruited 297 English-speaking participants—paid 20p for completing the 2-minute survey (£7.56/hour). We removed three participants who failed the attention check, leaving 294 participants (196 women, $M_{Age} = 35.48$). With this sample size, we had 95% power to detect a medium effect ($d = 0.51$).

5.2. Design and procedure

In a between-participants design, participants were presented either with three happy beliefs or with three sad beliefs, and told that the beliefs had been “randomly selected from what someone has said in the past few months.” Then, participants were asked “In your opinion, how well does each of the following words describe the individual who shared these statements? There is no right or wrong answer, follow your intuitions.” We selected four words from the communion-agency scale used in Experiment 1 “ambitious” and “leader” for agency, and “nice” and “kind” for communion. We compared these two conditions (happy and sad beliefs) to the communion-agency score of people in general, obtained by asking another set of participants the following question: “In your opinion, how well does each of the following words describe people in general?” with the same communion-agency scale.

5.3. Materials

The happy and sad beliefs were selected from Experiment 1. Beliefs were matched in terms of plausibility (happy beliefs: $M = 3.74$; sad beliefs: $M = 3.74$), distance from the neutral value “Feel neither happy nor unhappy” (happy beliefs: $M = 1.29$; sad beliefs: $M = -1.02$), and category (two pieces of news, two religious beliefs, and two ontological confusions). The pieces of news were added so that the individuals did not only share misbeliefs (see Table 4).

Happy	Sad
I've read that a positive outlook is good for your heart. People who are optimists tend to have better heart health and live longer.	I've read that the number of pedestrians killed in traffic in the United States is approaching a three-decade high.
I believe there is a heaven.	I believe there is a hell
I think that positive thoughts can cleanse the body of toxins.	I think that bad things happen to certain people because they attract negative energy.

Table 4. Happy and sad beliefs used in Experiment 4.

5.4. Results and discussion

Figure 4 offers a summary of the results. Participants rated individuals sharing happy beliefs as higher in communion than individuals sharing sad beliefs, and than people in general. This was not the case for agency.

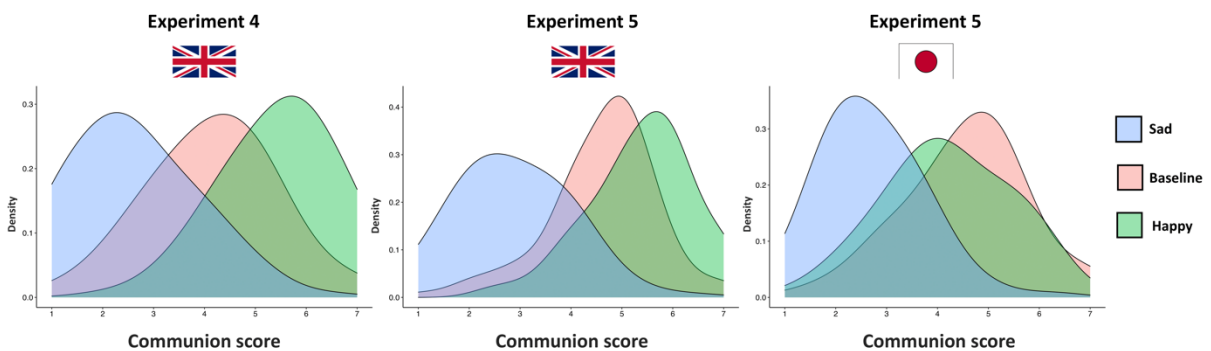


Figure 4. Density plots representing the communion scores attributed to a speaker sharing sad beliefs (blue distribution), happy beliefs (green distribution), or a baseline (i.e. people in general; pink distribution) in Experiments 4 and 5.

Compared to people in general's communion score, sharing happy beliefs increased perceived communion ($d = 1.08$), while sharing sad beliefs decreased perceived communion ($d = 1.26$).

Compared to people in general's agency score, sharing happy beliefs did not significantly increase perceived agency ($d = 0.03$), while sharing sad beliefs decreased perceived agency ($d = 0.68$).

	Conditions	Communion	Agency
Descriptive statistics M (SD)	Happy belief	5.42 (1.09)	3.96 (1.33)
	Baseline	4.16 (1.23)	4.00 (1.19)
	Sad belief	2.62 (1.21)	3.23 (1.51)
Statistical comparisons	Happy <i>versus</i> Sad	$t(190.59) = 16.99, p < .001$	$t(189.46) = 3.60, p < .001$
	Happy <i>versus</i> Baseline	$t(192.57) = 7.60, p < .001$	$t(192.32) = 0.23, p = .82$
	Sad <i>versus</i> Baseline	$t(194) = 8.84, p < .001$	$t(182.5) = 3.98, p < .001$

Table 5. Descriptive statistics of Experiment 4. Rows two to four display the mean score of perceived communion, agency, of the individual sharing either a happy belief, a sad belief, or nothing (baseline). Rows five to seven display the statistical comparisons of these averages (Welch’s t-tests).

The results regarding communion strongly support H₃: sharing happy beliefs is an effective strategy to appear nice compared to sharing sad beliefs or not sharing anything. One can thus benefit from sharing happy beliefs—by being perceived as higher in communion—but suffer from sharing sad beliefs—by being perceived as lower in communion. The effect sizes of the difference in sharing happy *versus* sad beliefs on communion are very large, for instance, 86% of the communion ratings of individuals sharing happy beliefs are higher than the mean communion ratings of people in general.

In the introduction we hypothesized that there should be a trade-off between appearing nice and well-intentioned (warmth) *versus* seeking to impose one’s will on others via strength, threat, or intimidation (dominance). Yet, in isolation, the findings of Experiment 4 suggest that there are no benefits in sharing sad beliefs and no costs in sharing happy beliefs. This is

because the words used to measure Agency in Experiment 4 do not tap (or not exclusively) in the dominance facet and are ill-suited to test H₄. A Principal Component Analysis (PCA) of the agency scale used in Experiment 1 shows that ‘Ambitious’ and ‘Leader’ do not load in the dominance facet of Agency—but load with other words related to status.

5. Experiment 5

Experiment 5 serves two goals: replicating the findings related to communion observed in Experiment 4, and test whether there are potential costs of sharing happy beliefs, as well as the benefits of sharing sad beliefs. We suggested in the introduction that being thought of as high in communion would be compatible with being thought of as competent, but not as dominant (two subscales of agency), since being dominant implies imposing one’s wishes on others by strength. As a result, in Experiment 5, we selected new words to measure specific dimensions of agency based on a PCA conducted in Experiment 1. We added two words related to competence (“Clever,” “Rational”) and two words related to dominance (“Bossy,” “Dominant”). We hypothesized that people sharing happy beliefs would appear lower in dominance compared to people sharing sad beliefs, and to people in general (H₄). Experiment 5 was replicated among Japanese participants.

6.1. Participants

We recruited 300 English-speaking participants—paid 20p for completing the 2-minute survey (£7.56/hour). We removed one participant who failed the attention check, leaving 299 participants (195 women, $M_{Age} = 34.38$). With this sample size, we had 95% power to detect a medium effect ($d = 0.51$) (with an α -level of 5% and for a two-tailed test).

We recruited 450 Japanese participants—paid 30JPY (1080JPY/hour approximately £6.78/hour). We removed four participants who failed the attention check, leaving 446 participants (258 women, $M_{Age} = 39.61$). With this sample size, we had 95% power to detect a small effect ($d = 0.42$).

6.2. Design, procedure, and materials

The design, procedure, and materials are similar to Experiment 5 with the exception that we did not use the same words to measure communion and agency. Communion was measured with “Caring” and “Kind.” Agency was divided into competence, measured with “Clever”

and “Rational,” and dominance, measured with “Bossy” and “Dominant.” These words had the highest loadings in each axis when conducting a PCA on the agency-communion scale used in Experiment 1 (for more details on the PCA see section 3 of the ESM).

6.3. Results and discussion

Among English-speaking participants, we find that sharing happy beliefs is an effective strategy to appear nice (further supporting H₃). We see in Figure 4 that all the green distributions (individuals sharing happy beliefs) are on the right of the blue distributions (individuals sharing sad beliefs), indicating that they are perceived as higher in communion. These effect sizes are very large. For instance, in the middle panel (Experiment 5, English-speaking panel), the difference between the two distributions is over two standard deviations. In other words, less than one-third of responses overlap between these two distributions.

Country	Conditions	Communion		Competence		Dominance	
		English	Japanese	English	Japanese	English	Japanese
Descriptive statistics M (SD)	Happy belief	5.38 (1.02)	4.19 (1.23)	4.13 (1.13)	3.77 (1.13)	2.82 (1.15)	3.41 (1.15)
	Baseline	4.62 (1.06)	4.55 (1.20)	4.07 (1.16)	3.97 (1.05)	4.09 (1.05)	3.28 (1.14)
	Sad belief	2.89 (1.08)	2.72 (0.99)	3.10 (1.21)	3.37 (1.21)	4.30 (1.16)	4.34 (1.16)
Statistical comparisons	Happy versus Sad	$t(195.21) = 16.69, p < .001$	$t(285.13) = 11.41, p < .001$	$t(195.15) = 6.21, p < .001$	$t(294.93) = 3.17, p = .002$	$t(195.99) = 9.03, p < .001$	$t(288.72) = 5.88, p = .002$
	Happy versus Baseline	$t(197.88) = 5.14, p < .001$	$t(294) = 2.53, p = .012$	$t(198) = 0.32, p = .75$	$t(293.27) = 1.62, p = .107$	$t(195.49) = 8.15, p < .001$	$t(278.63) = 0.84, p = .40$
	Sad versus Baseline	$t(197.69) = 11.44, p < .001$	$t(280.94) = 14.28, p < .001$	$t(197.25) = 5.86, p < .001$	$t(293.20) = 4.99, p < .001$	$t(197.25) = 1.37, p = .17$	$t(292.99) = 7.65, p < .001$

Table 6. Descriptive statistics of Experiment 5. Rows three to five display the mean score of perceived communion, competence, and dominance, of the individual sharing either a happy belief, a sad belief, or nothing (baseline), for the English-speaking and Japanese samples. Rows six to eight display the statistical comparisons of these averages (Welch’s t-tests).

We found large effects when comparing the evaluations of individuals sharing happy beliefs and of individuals sharing sad beliefs (Table 6, “Happy versus Sad”). Individuals sharing happy beliefs, compared to individuals sharing sad beliefs, were perceived as significantly higher in communion (English-speaking: $d = 2.37$; Japanese: $d = 1.32$), and in competence (English-speaking: $d = .88$; Japanese: $d = .37$), while they were perceived as significantly

lower in dominance (English-speaking: $d = 1.28$; Japanese: $d = 0.68$). These comparisons between individuals sharing happy beliefs and individuals sharing sad beliefs show that there is a potential downside to sharing happy beliefs (appearing less dominant), while there are potential benefits to sharing sad beliefs (appearing more dominant). The effects on perceived communion are large—much larger than the effects on competence or dominance. For instance, among English-speaking participants, there is less than 25% overlap in the score of communion of individuals sharing happy beliefs *versus* sad beliefs.

We found much smaller effect sizes when comparing the evaluations of individuals sharing happy or sad beliefs to a baseline score for ‘people in general’ (in Table 6 see “Happy *versus* Baseline” and “Sad *versus* Baseline”). Regarding scores of communion, sharing happy beliefs increased perceived communion for English-speaking participants ($d = .73$), while it slightly decreased perceived communion for Japanese participants ($d = .29$). Sharing sad beliefs strongly decreased perceived communion (English-speaking: $d = 1.62$; Japanese: $d = 1.66$). Regarding score of competence, sharing happy beliefs had no statistically significant effects ($d = .05$), while sharing sad beliefs decreased perceived competence (English-speaking: $d = .83$; Japanese: $d = .58$). Regarding scores of dominance, sharing happy beliefs decreased perceived dominance for English-speaking participants ($d = 1.15$) but not Japanese participants ($d = .10$), while sharing sad beliefs increased perceived dominance among Japanese participants ($d = .89$), but not English-speaking participants ($d = .19$).

Overall, when comparing individuals sharing happy beliefs to sad beliefs, our results strongly support the hypothesis that sharing happy beliefs is an effective strategy to appear nice, that there are potential downsides in sharing happy beliefs (appearing less dominant), and that there are potential benefits in sharing sad beliefs (appearing more dominant). However, when comparing individuals sharing happy and sad beliefs to ‘people in general’, our results weakly support the hypothesis that sharing happy beliefs allow one to appear nice (mostly, sharing sad beliefs makes appear not nice), weakly support the hypothesis that there are costs in sharing happy beliefs (since we only observed this cost among English-speaking participants but not Japanese participants), and weakly support the hypothesis that there are benefits in sharing sad beliefs (since we only observed this benefit among Japanese participants but not English-speaking participants).

How can we make sense of these cross-cultural differences? While the differences in perceptions of dominance are mainly due to differences in perceptions of ‘people in general’,

differences in communion cannot be explained by differences in baseline score. Instead, in Japan, people may be more expected to share happy beliefs by default. Alternatively, some of the happy misbeliefs we used in Experiment 5 (“there’s a heaven,” “I think that positive thoughts can cleanse the body of toxins”) might have been more contentious in Japan than for the English-speaking participants, which might have led Japanese participants to lower the communion score of the individual sharing them, compared to people in general.

7. General discussion

We formulated four main hypotheses: people high in communion (communals) should be more likely to believe and share happy beliefs (H₁); when wanting to appear nice, people should favor happy beliefs to sad beliefs (H₂); sharing happy beliefs might be an effective way to appear nice (H₃); and sharing happy beliefs instead of sad beliefs leads to lower perceived dominance (H₄). Five experiments offered support for these hypotheses. Across five experiments conducted among 2412 English-speaking and Japanese participants, we found that people higher in communion (communals) are more likely to believe and share happy beliefs (H₁, Experiment 1); that when wanting to appear nice and kind (but not competent and dominant), people avoid sharing sad beliefs, and instead prefer sharing happy beliefs (H₂, Experiments 2 and 3); that sharing happy beliefs instead of sad beliefs leads to being perceived as nicer and kinder (H₃, Experiments 4 and 5); and that sharing happy beliefs instead of sad beliefs leads to being perceived as less dominant (H₄, Experiment 5).

In Experiment 1, participants were more likely to believe and to share happier beliefs. By contrast, in past experiments, negative statements had been judged as more plausible than positive statements (Fessler et al., 2014; Hilbig, 2009). These past studies used practically relevant and plausible beliefs (e.g. about which breeds of dogs are dangerous), while ours relied mostly on misbeliefs with few practical consequences. As a result, reputation management concerns might have weighted more heavily in participants’ choices in the present experiment.

On the production side, in Experiments 2 and 3, participants who wanted to appear nice and kind were particularly unlikely to share sad beliefs, but not much more likely to share happy beliefs than participants who wanted to appear dominant and competent. Similarly, on the evaluation side, in Experiments 4 and 5, the decrease in communion that individuals sharing sad beliefs suffered from was overall stronger than the increase in communion that individuals sharing happy beliefs benefited from. We did not predict this asymmetry and our

theory does not account for it. However, these results still help explain why, in some circumstances, happy beliefs can be more popular than sad beliefs, in spite of the prevalent negativity bias. When it comes to comparisons with ‘people in general’ (instead of people who share happy *versus* sad beliefs), the results are less conclusive. Future experiments could ask participants to evaluate people who utter neutral statements instead of the possibly artificial ‘people in general’.

Finally, across the three replicated experiments (1, 3, and 5), the same broad results were obtained within an English-speaking (UK, Ireland, US) and a Japanese sample, suggesting a degree of cross-cultural robustness in our findings, given the otherwise well-documented differences between these cultures (Muthukrishna et al., 2020).

8. Conclusion

Many popular misbeliefs—that there is a heaven, that crystals can cure diseases—have a positive valence. The popular success of such beliefs seems to fly in the face of the pervasive negativity bias, which affects what information people pay attention to, believe, and (in some cases at least), share. We suggested that people might share happy beliefs (or misbeliefs) either because they are high in communion, or because they want to appear high in communion. Five experiments lent support to this prediction, showing that people who are high in communion, or who want to appear high in communion, are more likely to share happy beliefs than sad beliefs, and that people who share happy, rather than sad beliefs tend to be perceived as being higher in communion. We believe these findings could have broader consequences for the study of popular beliefs, and of cultural transmission.

The logic used here could help explain other findings from the literature. For instance, endorsing and sharing widely held beliefs might also be used to signal one’s high communion (e.g. that one doesn’t like to antagonize others). In our pilot, we found that communals, but not agentics, were more likely to share beliefs that were thought to be more widely believed in the population ($\beta = 0.05$ [0.03, 0.06], $p < .001$). This observation fits well with the finding that communals are more likely to be religious in religious countries (potentially to facilitate assimilation), whereas agentics tend to be more religious in non-religious countries (potentially to differentiate themselves), and vice-versa (Gebauer et al. 2013).

More generally, the present hypothesis could help explain the existence of a positivity bias in communication. Although, in some contexts, people are more likely to share negative information (Acerbi, 2021; Heath, 1996), on the whole there appears to be a positivity bias in human communication (Dodds et al., 2015; for specific examples, see Berger & Milkman, 2012; Bright, 2016). The existence of this positivity bias should be really puzzling: as a rule, people find negative information more relevant (Robertson et al., 2023; Hilbig, 2009), and people tend to communicate information that is as relevant as possible (Sperber & Wilson, 1995). However, it is also well established that communion tends to prime over agency when it comes to impression formation and reputation management (Abele & Bruckmüller, 2011; Abele & Wojciszke, 2007, 2014). The importance of displaying one's communion could thus help explain why positive information tends to dominate in communication, in spite of the negativity bias. Previous research has shown that women and people higher in agreeableness show a stronger positivity bias in naturalistic speech (Augustine et al., 2011). Given that agreeableness is strongly correlated with communion (Bai et al., 2020; DeYoung, 2006), and that women score higher in communion than men (Costa Jr et al., 2001), these findings offer some support to the current hypothesis.

In the introduction, we noted that the well-attested existence of both a negativity and a positivity bias made it difficult to predict the popular success of some information on the basis of these biases alone. This is a general problem when it comes to predicting cultural phenomena on the basis of psychological traits. For instance, fear is a negative emotion—which would lead us to expect that frightful stimuli will not be culturally successful—yet our attention is attracted to fear-eliciting stimuli (Penkunas & Coss, 2013)—which might lead us to predict that frightful stimuli will be culturally successful. Similarly, we try to avoid disgusting stimuli, and yet our attention is also drawn towards them (Van Hooff et al., 2014). In some conditions, we are attracted to novel stimuli, in other conditions, to more familiar stimuli (e.g. Dubey & Griffiths, 2020). This doesn't mean that psychological explanations are always vacuous, but that they require more than a broad fit between a cultural product and a psychological mechanism. Researchers also need to explain why a given psychological mechanism came to play a preponderant role in driving the cultural success of a given content. For instance, researchers can rely on individual differences in a given psychological trait to explain why some cultural content is more successful in some populations than in others (e.g. Dahlke & Hancock, 2022; Dubourg & Baumard, 2022). Researchers can also look at how different contexts will trigger different cognitive mechanisms, and in turn lead to the

spread of different cultural elements (e.g. Bright, 2016; Tran, 2022). Similarly, the present framework predicts a relative advantage for positive over negative content in populations higher in communion, or when context-driven motivations to signal communion prevail.

In more practical terms, the current findings also help put in perspective the relative dangers of misbeliefs. The current scare surrounding misinformation shows that people take the prevalence of (some) misbeliefs very seriously (Altay & Acerbi, 2023). In particular, misbeliefs are sometimes portrayed as causing behaviors that are costly to those who hold the beliefs or to society at large. The current article suggests that many misbeliefs might be much more innocuous than is typically thought. For instance, people might share beliefs about quack medicine not so much as a way of providing practical guidance, but as a way of displaying their communion. The importance of sharing happy beliefs under difficult circumstances might even explain why there are many happy *misbeliefs*: if someone suffers from a potentially lethal disease, whose only cures are invasive and debilitating, happy misbeliefs are easier to come by than happy and accurate beliefs. This might help explain the informal impression that many happy misbeliefs are associated with misfortunes, from illness (positive energy can ward it off, magic stones can cure it) to death (there's a heaven). Overall, these considerations are in line with a growing body of research suggesting that holding beliefs can serve social functions, that misbeliefs might play a particularly useful role in this respect (e.g. Mercier, 2020; Williams, 2020), and that misbeliefs only rarely cause costly behaviors (Altay et al., 2023; Mercier & Altay, 2022; Uscinski et al., 2022).

Future studies could offer further tests of our hypotheses, by using a broader range of beliefs, and more diverse population samples. Of particular interest might be observational studies that would test the hypothesis mentioned above, that positive beliefs should have a relative advantage over negative beliefs in communities whose members score higher in communion, or in contexts in which displaying one's communion is paramount. For instance, it might be possible to observe what kinds of beliefs the same individual shares on Facebook, a social network largely dedicated to maintaining relationships with friends and family, and on LinkedIn, a social network dedicated to developing professional relationships. As the former might incentive people to appear more communal, and the latter more agentic, people might share, in proportion, more happy thoughts on the former (see, e.g., Berriche & Altay, 2020; Bright, 2016).

References

- Abele, A. E., & Bruckmüller, S. (2011). The bigger one of the “Big Two” ? Preferential processing of communal information. *Journal of Experimental Social Psychology*, 47(5), 935-948.
- Abele, A. E., & Wojciszke, B. (2007). Agency and communion from the perspective of self versus others. *Journal of Personality and Social Psychology*, 93(5), 751-763.
- Abele, A. E., & Wojciszke, B. (2014). Communal and agentic content in social cognition : A dual perspective model. In *Advances in experimental social psychology* (Vol. 50, p. 195-255). Elsevier.
- Acerbi, A. (2021). From storytelling to Facebook. Content biases when retelling or sharing a story. *Psyarxiv*. <https://doi.org/10.31219/osf.io/br56y>
- Altay, S., & Acerbi, A. (2023). People believe misinformation is a threat because they assume others are gullible. *new media & society*, 14614448231153380.
- Altay, S., Berriche, M., & Acerbi, A. (2023). Misinformation on misinformation : Conceptual and methodological challenges. *Social Media+ Society*, 9(1), 20563051221150412.
- American Society of Clinical Oncology. (2018). *ASCO 2018 Cancer Opinions Survey*. <https://www.asco.org/sites/new-www.asco.org/files/content-files/research-and-progress/documents/2018-NCOS-Results.pdf>
- Augustine, A. A., Mehl, M. R., & Larsen, R. J. (2011). A positivity bias in written and spoken English and its moderation by personality and gender. *Social Psychological and Personality Science*, 2(5), 508-515.
- Bai, F., Ho, G. C. C., & Yan, J. (2020). Does virtue lead to status ? Testing the moral virtue theory of status attainment. *Journal of Personality and Social Psychology*, 118(3), 501.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323-370. <https://doi.org/10.1037//1089-2680.5.4.323>
- Bebbington, K., MacLeod, C., Ellison, T. M., & Fay, N. (2017). The sky is falling : Evidence of a negativity bias in the social transmission of information. *Evolution and Human Behavior*, 38(1), 92-101.
- Berger, J., & Milkman, K. L. (2012). What makes online content viral? *Journal of Marketing Research*, 49(2), 192-205.
- Berriche, M., & Altay, S. (2020). Internet Users Engage More With Phatic Posts Than With Health Misinformation On Facebook. *Palgrave Communications*, 6(71). <https://doi.org/10.1057/s41599-020-0452-1>
- Blaine, T., & Boyer, P. (2018). Origins of sinister rumors : A preference for threat-related material in the supply and demand of information. *Evolution and Human Behavior*, 39(1), 67-75.
- Boyer, P., & Parren, N. (2015). Threat-related information suggests competence : A possible factor in the spread of rumors. *PloS one*, 10(6), e0128421. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0128421>
- Bright, J. (2016). The social news gap : How news reading and news sharing diverge. *Journal of communication*, 66(3), 343-365.
- Brotherton, R., French, C. C., & Pickering, A. D. (2013). Measuring belief in conspiracy theories : The generic conspiracist beliefs scale. *Frontiers in psychology*, 4, 279. <https://doi.org/10.3389/fpsyg.2013.00279>
- Costa Jr, P. T., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures : Robust and surprising findings. *Journal of personality and social psychology*, 81(2), 322-331.
- Dahlke, R., & Hancock, J. (2022). *The Effect of Online Misinformation Exposure on False Election Beliefs*.

- de Araujo, E., Altay, S., Bor, A., & Mercier, H. (2020). *Dominant Jerks : People infer dominance from the utterance of challenging and offensive statements*.
<https://doi.org/10.31234/osf.io/egw3v>
- DeYoung, C. G. (2006). Higher-order factors of the Big Five in a multi-informant sample. *Journal of Personality and Social Psychology, 91*(6), 1138-1151.
- Dezecache, G., & Mercier, H. (2022). *Emotional Vigilance* (Oxford University Press).
- Dodds, P. S., Clark, E. M., Desu, S., Frank, M. R., Reagan, A. J., Williams, J. R., Mitchell, L., Harris, K. D., Kloumann, I. M., & Bagrow, J. P. (2015). Human language reveals a universal positivity bias. *Proceedings of the National Academy of Sciences, 112*(8), 2389-2394.
- Dubey, R., & Griffiths, T. L. (2020). Reconciling novelty and complexity through a rational analysis of curiosity. *Psychological Review, 127*(3), 455.
- Dubourg, E., & Baumard, N. (2022). Why imaginary worlds ? The psychological foundations and cultural evolution of fictions with imaginary worlds. *Behavioral and Brain Sciences, 45*, e276.
- Fay, N., Walker, B., Kashima, Y., & Perfors, A. (2021). Socially Situated Transmission : The Bias to Transmit Negative Information is Moderated by the Social Context. *Cognitive Science, 45*(9), e13033. <https://doi.org/10.1111/cogs.13033>
- Fessler, D. M., Pisor, A. C., & Navarrete, C. D. (2014). Negatively-biased credulity and the cultural evolution of beliefs. *PloS one, 9*(4), e95167.
<https://doi.org/10.1371/journal.pone.0095167>
- Fiske, S., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition : Warmth and competence. *Trends in Cognitive Sciences, 11*(2), 77-83.
- Fiske, S., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content : Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*(6), 878-902.
- Gebauer, J. E., Paulhus, D. L., & Neberich, W. (2013). Big Two personality and religiosity across cultures : Communals as religious conformists and agentic as religious contrarians. *Social Psychological and Personality Science, 4*(1), 21-30.
- Goffman, E. (1959). *The Presentation of the Self in Everyday Life*. Doubleday Anchor.
- Heath, C. (1996). Do people prefer to pass along good or bad news? Valence and relevance of news as predictors of transmission propensity. *Organizational Behavior and Human Decision Processes, 68*(2), 79-94.
- Hilbig, B. E. (2009). Sad, thus true : Negativity bias in judgments of truth. *Journal of Experimental Social Psychology, 45*(4), 983-986.
- Holoien, D. S., & Fiske, S. T. (2013). Downplaying positive impressions : Compensation between warmth and competence in impression management. *Journal of Experimental Social Psychology, 49*(1), 33-41.
- Hutton, R. (2017). *The witch : A history of fear, from ancient times to the present*. Yale University Press.
- Judd, C. M., James-Hawkins, L., Yzerbyt, V., & Kashima, Y. (2005). Fundamental dimensions of social judgment : Understanding the relations between judgments of competence and warmth. *Journal of personality and social psychology, 89*(6), 899-913.
- Leary, M. R. (1995). *Self-Presentation : Impression Management and Interpersonal Behavior*. Westview Press.
- Lindeman, M. (2011). Biases in intuitive reasoning and belief in complementary and alternative medicine. *Psychology and Health, 26*(3), 371-382.
<http://www.tandfonline.com/doi/abs/10.1080/08870440903440707>
- McCullough, M. E., Swartwout, P., Shaver, J. H., Carter, E. C., & Sosis, R. (2016). Christian religious badges instill trust in Christian and non-Christian perceivers. *Psychology of Religion*

and Spirituality, 8(2), 149-163.

McKay, R. T., & Dennett, D. C. (2009). The evolution of misbelief. *Behavioral and Brain Sciences*, 32(06), 493-510. http://journals.cambridge.org/abstract_S0140525X09990975

Mercier, H. (2020). *Not Born Yesterday : The Science of Who We Trust and What We Believe*. Princeton University Press.

Mercier, H., & Altay, S. (2022). Do cultural misbeliefs cause costly behavior ? In Musolino, J., Hemmer, P. & Sommer, J. (Eds.). *The Science of Beliefs*.

Muthukrishna, M., Bell, A. V., Henrich, J., Curtin, C. M., Gedranovich, A., McInerney, J., & Thue, B. (2020). Beyond Western, Educated, Industrial, Rich, and Democratic (WEIRD) psychology : Measuring and mapping scales of cultural and psychological distance. *Psychological science*, 31(6), 678-701.

Oliveira, M., Garcia-Marques, T., Dotsch, R., & Garcia-Marques, L. (2019). Dominance and competence face to face : Dissociations obtained with a reverse correlation approach. *European Journal of Social Psychology*, 49(5), 888-902.

Ong, H. H., Evans, A. M., Nelissen, R. M., & van Beest, I. (2022). Belief in karma is associated with perceived (but not actual) trustworthiness. *Judgment and Decision Making*, 17(2), 362-377.

Penkunas, M. J., & Coss, R. G. (2013). Rapid detection of visually provocative animals by preschool children and adults. *Journal of experimental child psychology*, 114(4), 522-536.

Pennycook, G., Cheyne, J. A., Barr, N., Koehler, D. J., & Fugelsang, J. A. (2015). On the reception and detection of pseudo-profound bullshit. *Judgment and Decision making*, 10(6), 549-563.

Pew Research Center. (2021). *Majorities of U.S. adults say they believe in heaven, hell*. <https://www.pewresearch.org/religion/2021/11/23/views-on-the-afterlife/>

Robertson, C. E., Pröllochs, N., Schwarzenegger, K., Pärnamets, P., Van Bavel, J. J., & Feuerriegel, S. (2023). Negativity drives online news consumption. *Nature Human Behaviour*, 1-11.

Schlenker, B. R. (1980). *Impression management : The self-concept, social identity, and interpersonal relations*. Brooks/Cole Monterey, CA.

Schöne, J., Parkinson, B., & Goldenberg, A. (2021). *Negativity Spreads More than Positivity on Twitter after both Positive and Negative Political Situations*.

<https://doi.org/10.31234/osf.io/x9e7u>

Soroka, S., & Krupnikov, Y. (2021). *The Increasing Viability of Good News*. Cambridge University Press.

Sperber, D., & Wilson, D. (1995). *Relevance : Communication and cognition*. Wiley-Blackwell.

Stubbersfield, J. M., Dean, L. G., Sheikh, S., Laland, K. N., & Cross, C. P. (2019). Social transmission favours the 'morally good' over the 'merely arousing'. *Palgrave Communications*, 5(70). <https://doi.org/10.1057/s41599-019-0269-y>

Tobacyk, J. J. (2004). A revised paranormal belief scale. *The International Journal of Transpersonal Studies*, 23(23), 94-98.

Tracy, J. L., & Beall, A. T. (2011). Happy guys finish last : The impact of emotion expressions on sexual attraction. *Emotion*, 11(6), 1379-1387.

<https://doi.org/10.1037/a0022902>

Tran, J. D. (2022). Sharing Truths About the Self : Theorizing News Reposting on Social Media. *International Journal of Communication*, 16, 20.

Trapnell, P. D., & Paulhus, D. L. (2012). Agentic and communal values : Their scope and measurement. *Journal of Personality Assessment*, 94(1), 39-52.

Uscinski, J., Enders, A. M., Klofstad, C., & Stoler, J. (2022). Cause and Effect : On the Antecedents and Consequences of Conspiracy Theory Beliefs. *Current Opinion in*

Psychology, 101364.

Van Hooff, J. C., van Buuringen, M., El M'rabet, I., de Gier, M., & van Zalingen, L. (2014). Disgust-specific modulation of early attention processes. *Acta psychologica*, 152, 149-157.

van Prooijen, J.-W., & Van Vugt, M. (2018). Conspiracy theories : Evolved functions and psychological mechanisms. *Perspectives on psychological science*, 13(6), 770-788.

Walker, C. J., & Blaine, B. (1991). The virulence of dread rumors : A field experiment.

Language & Communication, 11(4), 291-297. [https://doi.org/10.1016/0271-5309\(91\)90033-R](https://doi.org/10.1016/0271-5309(91)90033-R)

Williams, D. (2020). Socially adaptive belief. *Mind & Language*, 36(3), 333-354.

<https://doi.org/10.1111/mila.12294>