

The Zero-Sum Mindset

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Supplemental Materials

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Power Analyses

Table S1

Sensitivity Power Analyses

Sample	<i>N</i>	Studies	Minimum Detectable Effect at 80% Power
A1	821	1, 2, 7	Study 1: Paired samples <i>t</i> -test $dz = .10$; Study 6: $d = .19, f = .10$, in multiple linear regression with one predictor variable and 10 control variables
B1	504	2, 8	Study 8: $d = .24, f = .12$, in multiple linear regression analyses with 1 predictor variable and 10 control variables
B2	352	2, 8	Study 8: $d = .19, OR = .71$ in a logistic regression where 80% report sheltering behavior; Quasi-Poisson regression MDE IRR = 1.24
C1	506	2, 4	Study 4: $d = .25, f = .124$ in a multiple linear regression with one predictor variable and 10 control variables
F	278	1	Study 1: Paired samples <i>t</i> -test: $dz = .17$
G	499	1, 3, 7	Studies 3 and 7: $d = .25, f = .17$ in a multiple linear regression with one predictor variable and 17 control variables
H	305	4	Study 4: $d = .32, f = .16$ in a multiple linear regression with one predictor variable and 10 control variables
I	649	4	Study 4: $d = .22, f = .11$ in a multiple linear regression with one predictor variable and 10 control variables
J	599	9	Study 9: $d = .22, f = .11$ in a multiple linear regression with one predictor and 5 control variables
K	1,523	8	Study 8: $d = .14, f = .07$ in a multiple linear regression with one predictor and 10 control variables. * For 897 participants with complete vaccination data, this sample size is powered to detect an effect as small as $d = .10, OR = .83$, in a sample where 67% are vaccinated
L	1,366	8	Study 8: $d = .15, f = .08$ in a multiple linear regression with one predictor and 10 control variables. For participants with no missing data for all control variables, $N = 1,171$, powered to detect an effect as small as $d = .16, f = .08$, in a multiple linear regression with one predictor and 10 control variables. $N = 1,212$ with complete vaccination data, which is powered to detect an effect as small as $d = .13, OR = .79$ in a logistic regression where 86% of the total sample are vaccinated

M	593	6a	Study 6a: $d = .23$ in an independent samples t-test, and an effect size as small as $d = .33$, and $f = .17$ in an ANOVA with a main effect and interaction effects
N	2,160	4, 5	Studies 4 and 5: $d = .12$, $f = .06$, in a multiple linear regression with one predictor and 14 control variables
O	986	6b	Study 6b: $d = .18$ in an independent samples t-test, and an effect size as small as $d = .18$, and $f = .09$ in an ANOVA with a main effect and interaction effects

Note. All sensitivity power analyses conducted at the $\alpha = .05$ threshold. For CFA analyses, Monte Carlo simulations indicate that samples larger than $N = 200$ may be considered adequate for analyses with two factors and at least three items for each factor (MacCallum et al., 1999).

*The decision to add vaccination status to Sample K was made after data collection began as the vaccines became available resulting in a lower number of total observations for this particular analysis

Table S2

Required Sample Size Analyses for ICC Reliability Estimations (Study 2)

Sample	Observed ICC	Required N	Actual N participants
A1-A2	.77	256	265
B1-B2	.82	166	353
C1-C2	.78	237	337
D1-D2	.82	166	419
E1-E2	.83	150	233

Note. $N = 2$ observations per participant. Required N for estimates at a 95% confidence level and precision tolerance of $\pm .05$. Computed using ICC estimation calculator by Arifin, W. N. (2023). Retrieved from <http://wnarifin.github.io>. This calculator implements the formula described by Bonett, D. G. (2002). Sample size requirements for estimating intraclass correlations with desired precision. *Statistics in medicine*, 21(9), 1331-1335.

Overview of Translation Protocol

For all studies administered in non-English languages (French, Flemish/Dutch, Italian, Urdu) scales were translated by a native-speaker of that language who is also fluent in English and then back-translated by a separate bilingual translator to verify consistency in the interpretations. Italian and Urdu samples were translated by native speakers with advanced degrees in psychometrics and psychology. French, Flemish and Dutch translations were also tested in focus groups where participants described their understanding of the measures to the focus group facilitator to check for ease and accuracy of comprehension.

Supplemental Instruments: Zero-Sum Mindset Measures and Translations

Zero-Sum Mindset (Interpersonal/Intergroup)

1. The success of one [person/group] is usually the failure of another [person/group].
2. Life is such that when one [person/group] gains, [someone else/another group] has to lose.
3. When [someone/one group] does much for others, they lose.
4. In most situations, different [people's/groups'] interests are incompatible.
5. When one [person/group] is winning, it does not mean that [someone else/another group] is losing. [R]
6. Life is like a tennis game--A [person/group] wins only when another [person/group] loses.
7. One [person's/group's] success is not another [person's/group's] failure. [R]

Zero-Sum Mindset Italian

1. Il successo di una persona corrisponde al fallimento di un'altra.
2. La vita è fatta in modo che quando una persona ottiene qualcosa, un'altra persona ci rimette.
3. Nella maggior parte dei casi, gli interessi di persone diverse sono incompatibili.
4. Quando qualcuno fa molto per gli altri, ci rimette.
5. La vita è come una partita a tennis - Una persona vince solo se un'altra perde.

Zero-Sum Mindset Urdu

1. ایک شخص کی کامیابی عام طور پر دوسرے شخص کی ناکامی ہوتی ہے
2. زندگی ایسی ہے کہ کسی ایک کو فائدہ ہو تو کسی دوسرے کا نقصان ہوتا ہے
3. زیادہ تر حالات میں ، مختلف لوگوں کے مفادات ایک دوسرے سے موزوں/ ہم آہنگ نہیں ہوتے ہیں۔
4. جب کوئی شخص دوسروں کے لئے بہت کچھ کرتا ہے تو وہ خود سب کچھ دیتا ہے
5. ایک شخص کی کامیابی دوسرے شخص کی ناکامی نہیں ہوتی ہے
6. زندگی کرکٹ کے کھیل کی طرح ہے۔ ایک ٹیم تب جیتی ہے جب دوسری ہارے
7. جب ایک شخص جیت رہا ہے ، تو اس کا مطلب یہ نہیں ہے کہ کوئی اور ہار رہا ہے

Zero-Sum Mindset French

1. Le succès d'une personne correspond à l'échec d'une autre personne.
2. La vie est conçue de telle sorte que lorsqu'une personne obtient quelque chose, une autre personne est perdante.
3. Quand quelqu'un fait beaucoup pour les autres, il y perd.
4. La réussite d'une personne ne signifie pas l'échec d'une autre.
5. La vie se joue comme un match de football – Une personne gagne seulement si l'autre perd.
6. Dans la plupart des cas, les intérêts de différentes personnes sont incompatibles.
7. Quand une personne gagne, cela ne signifie pas qu'il y a un perdant.

Zero-Sum Mindset Flemish (Dutch)

1. Het succes van één persoon is meestal het falen van een andere persoon.
2. Het leven zit zo in elkaar dat als er iemand iets wint, iemand anders iets moet verliezen.
3. Als mensen veel voor anderen doen, verliezen ze.
4. Het succes van één persoon is niet het falen van een andere persoon.
5. Het leven is zoals een voetbalwedstrijd -- er kan pas iemand winnen als iemand anders verliest.
6. In de meeste gevallen zijn de belangen van verschillende mensen onverenigbaar.
7. Als iemand wint, betekent dat niet dat iemand anders verliest.

Part I: Supplemental Materials

Economic Zero-Sum Beliefs Conflated with “Zero-Sum Mindset”

This research proposes that zero-sum thinking (a construal of a situation as zero-sum) can also be understood and investigated as a mindset— a generalized zero-sum belief not constrained to any particular situation or domain such as politics or economics. While previous research has described a similar phenomenon (using such general terms as a “zero-sum construal of success” or “zero-sum mindset”) it is important to note that the measures used in these studies define zero-sum dynamics in explicitly economic terms. Besides the BZSG, which is discussed more directly in the manuscript (Table 3), all such measures we could find in this respect are captured below.

Sirola, N., & Pitesa, M. (2017). Economic downturns undermine workplace helping by promoting a zero-sum construal of success. *Academy of Management Journal*, 60(4), 1339–1359.
<https://doi.org/10.5465/amj.2015.0804>

1. When some workers make economic gains, others lose out economically,
2. People who want to get ahead economically must do so at the expense of others,
3. The more employees company employs, the harder it is for existing employees to advance,
4. More good jobs for some employees means fewer good jobs for other employees,
5. Not everyone can be wealthy,
6. For every rich person, there is usually a person experiencing financial hardship.

World Values Survey

(Items that have been describing generally as “zero-sum thinking”)

1. People can only get rich at the expense of others
2. Wealth can grow so there’s enough for everyone

Chinoy, S., Nunn, N., Sequeira, S. & Stantcheva, S. Zero-sum thinking and the roots of U.S. political divides. Preprint at https://scholar.harvard.edu/files/stantcheva/files/zero_sum_us_political_divides.pdf (2023).

1. If one ethnic group becomes richer, this comes at the expense of other groups.
2. If non-U.S. citizens do better economically, this comes at the expense of U.S. citizens.
3. In trade, if one country makes more money, then another country makes less money.
4. If one income group becomes wealthier, this comes at the expense of other groups.

Exploratory Pilot: Meaning of Success

Although the zero-sum mindset measure specifically avoids prompting participants to think of a particular domain when considering their general beliefs about the dynamic of success, it is possible that participants are thinking about their success in terms of economics anyway. In other words, we considered the possibility that most people think about their success in primarily economic terms even without being prompted to do so. To examine this, in 2018 we conducted an exploratory pilot survey where we asked people to define how they think about success and then to qualitatively describe their thinking in response to the zero-sum mindset scale.

Method

One hundred and three US residents (demographics) were recruited on MTurk to participate in a preliminary exploratory pilot study to examine how people think about their success, and whether people with stronger zero-sum mindsets might be more or less likely to think about their success in economic terms. Specifically, we asked participants: “Which of the following most honestly describes how you think about ‘success’?” and offered a list of possible themes (presented in randomized order): status, happiness, fame, wealth, health, knowledge, being loved, power, impact, contentment, spiritual transcendence, or “other”. To gain a better qualitative understanding of the zero-sum mindset, we also asked participants, in a free-response format, to describe their thinking when rating items in the zero-sum mindset scale.

Results

In line with nationally representative research on this topic conducted by Gallup and Populace (see [Success Index](#), 2019), we found that participants did not primarily think of their success in economic terms, but rather in terms of their own competence, contribution and wellbeing. In this pilot, the largest share of participants prioritized subjective feelings of wellbeing such as happiness (27%) and contentment

(12%), competence goals such as achieving knowledge (11%) and having an impact from one's efforts (15%), meanwhile the notions of success as wealth (4%) and power (1%) were among the least common priorities. Descriptively, this pattern of priorities appeared largely similar across the zero-sum mindset spectrum, with those highest and lowest in zero-sum mindset ($M_{ZSM} \pm 1 SD$) demonstrating similar top notions of success: subjective wellbeing (happiness: High ZSM: 21%; Low ZSM: 33%) and competence (knowledge: High ZSM: 21%, Low ZSM: 44%; impact: 15%, 16%) towards the top, and wealth (High ZSM: 6%; Low ZSM: 8%) and power (High ZSM: 0%; Low ZSM: 0%) towards the bottom.

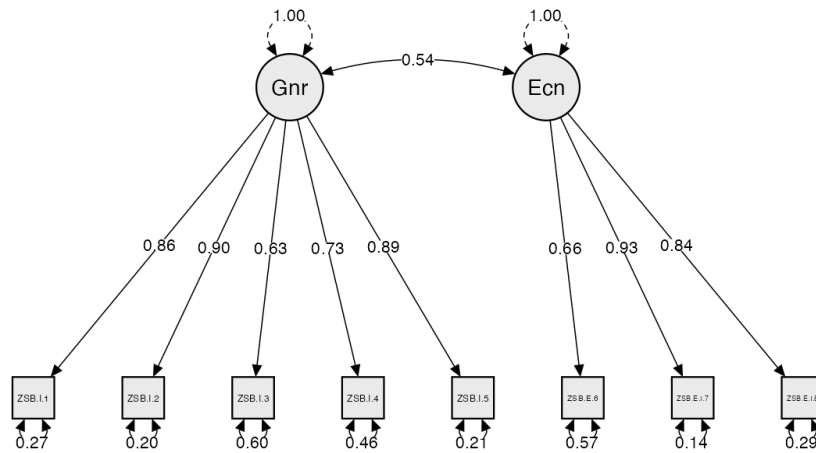
This plurality of people's personal definitions of "success" among those with both high and low in zero-sum mindset suggests that the results we find in this investigation are unlikely to be driven by such different priorities, but rather by people's construals of this success as either zero-sum or non-zero-sum in nature. However this does not rule out the possibility that *some* systematic differences in priorities will exist, such as a higher prevalence of prioritizing "status" among those higher in zero-sum mindset (High ZSM: 9%; Low ZSM: 2%). However, as demonstrated by Andrews Fearon & Davidai (2022), even status can be construed in both zero-sum and non-zero-sum ways, and it is this zero-sum construal, rather than the specific definition or meaning of status, that drives strategic patterns in behavior.

Interestingly, when describing their thinking about the zero-sum mindset scale items in the free text responses, participants across the zero-sum mindset spectrum also cited examples from a plurality of domains: politics, economics, academics, sports, etc. However, while those high in zero-sum mindset called attention to the zero-sum components of those domains, those low in zero-sum mindset called attention to the *non-zero-sum* components of the *same domains*. For example, when offering examples from economics one participant with a *lower* zero-sum mindset participant wrote: "Both people can gain at the same time. That is what economic trade is based upon. Both parties agreeing for the betterment of them both." Meanwhile, a participant with a higher zero-sum mindset wrote: "Capitalism is all about crushing the poor." Both cite the economic domain but differentially attune to either its zero-sum or non-zero-sum manifestations.

Study 1 Supplemental Results

Figure S1

Confirmatory Factor Analysis Separating General and Economic Zero-Sum Beliefs (Sample A1)



Note. “Gnr” = general zero-sum belief factor, “Ecn” = economic zero-sum belief factor.

Confirmatory Factor Analysis Italian Sample

Confirmatory factor analysis replication in a sample of 278 Italian residents demonstrated poor model fit for the unidimensional solution ($\chi^2 = 324.64$, RMSEA = .235, CFI = .641) and a satisfactory fit for a two-factor model separating economic and general zero-sum beliefs ($\chi^2 = 51.92$, RMSEA = .079; CFI = .961), which also corresponded a significant improvement in fit ($\Delta\chi^2 = 272.72$, $p < .001$). Moreover, in a paired samples t -test, the difference in ratings of economic zero-sum beliefs and generalized zero-sum beliefs were even more pronounced in this sample ($t(275) = 20.99$, $p < .001$, $d = 1.26$).

Table S3*Italian Sample Item Factor Loadings (Sample F)*

Item	<i>M</i>	<i>SD</i>	Factor 1	Factor 2
General - 1	1.86	1.42	0.78	-0.06
General - 2	2.12	1.49	0.86	-0.01
General - 3	2.70	1.67	0.52	0.09
General - 4	2.42	1.79	0.53	0.08
General - 5	1.77	1.43	0.74	0.02
Economic - 1	3.77	1.95	0.06	0.84
Economic - 2	5.07	1.75	-0.13	0.72
Economic - 3	4.05	1.82	-0.01	0.81

Note. $N = 278$. Applied rotation method is promax.

Supplemental Analysis 1: Intergroup vs. Inter-individual Zero-Sum Beliefs

Another feature of the BZSG is the variation in whether the items refer to an individual (e.g., “When someone does much for others, he or she loses.”) or to broader groups in society (e.g., “The wealth of a few is acquired at the expense of the many.”). While this variation likely captures a broad sense of one’s view of social relationships, it does not allow us to disentangle generalized zero-sum beliefs about interpersonal relationships and intergroup relationships.

From one perspective, zero-sum beliefs should be stronger at the individual level. In general, zero-sum situations are more likely to be truly zero-sum when more narrowly conceived. For example, when applying for a job, someone might be in real zero-sum competition against another person applying for the same particular job opening. However, it is unlikely to be the case that whole groups (e.g., immigrants and native-born citizens, or young people and older people) are competing in the job market in a truly zero-sum manner whereby any gain by one group corresponds to a direct, proportionate loss to another group. Yet, there might also be reason to expect discontinuity between zero-sum beliefs about individuals and zero-sum beliefs about groups. For example, a large body of research has demonstrated that people tend to view relationships between groups as more competitive than relationships between individuals, a phenomenon described as the “discontinuity effect” (Schoppe & Insko, 1992; Wildschut et al., 2003). Therefore, it may be that people will hold stronger zero-sum beliefs about group relationships than interpersonal ones.

Supplemental Analysis 1: Method

To examine these hypotheses, scale items were modified to distinguish between interpersonal zero-sum beliefs (e.g. “The success of one person is usually the failure of another person”) and intergroup zero-sum beliefs (e.g. “The success of one group is usually the failure of another group”). Items displayed in Table S4.

Table S4

Zero-Sum Mindset (Interpersonal/Intergroup)

-
1. The success of one [person/group] is usually the failure of another [person/group].
 2. Life is such that when one [person/group] gains, another [person/group] has to lose.
 3. In most situations, different [people's/group's] interests are incompatible.
 4. When someone does much for others, they lose.
 5. Life is like a tennis game--A [person/group] wins only when another person loses.
 6. When one [person/group] is winning, it does not mean that [someone else/another group] is losing. (R)
 7. One [person's/group's] success is not another [person's/group's] failure. (R)
-

Supplemental Analysis 1: Results

Confirmatory factor analysis also separates *general* zero-sum beliefs about *group* relationships from *economic* beliefs about *group* relationships (e.g., “When one group gets richer it means another group is becoming poorer”) ($\Delta\chi^2 = 995.783, p < .001$). However, unlike the economic beliefs, which differed strongly from general zero-sum beliefs both in magnitude and in their relationships with other socio-cognitive variables, general zero-sum beliefs about group relationships demonstrated the same patterns of relationships with other variables as zero-sum beliefs about individual relationships. Therefore, in most instances where parsimony is desired throughout this investigation, we use only the interpersonal measure of zero-sum mindset.

Although, it is interesting to note that while demonstrating similar *patterns* as beliefs about interpersonal relationships, we found that in the US people tend to rate group relationships as more zero-sum than interpersonal relationships ($t(820) = 9.89, d = .21, p < .001$, in a paired samples t -test). While this result has replicated in other samples in the US, and the UK, and in one sample in Belgium ($ps < .001$), it did not replicate in a separate Belgian sample (Sample 15; $p = .18$), or in Italy (Sample 5, $p = .65$) or India (Sample F, $p = .19$) even though the direction of the effect was consistent across each sample such that zero-sum beliefs about intergroup relationship were consistently higher. This suggests that there may be cultural differences in the tendency to see group relationships as more zero-sum than interpersonal ones. While the number of countries observed here are too few to draw definitive conclusions about the nature of those cultural differences, we know that the US is an outlier in its degree of strident individualism (Fischer, 2008; Triandis & Gelfand, 1998). Therefore, it may be that such differences between thinking about interpersonal and group relationships as zero-sum emerge in highly individualistic cultures and to a lesser extent in more collectivist cultures. Future research may wish to examine this more directly.

Supplemental Analysis 2: Adding Reverse-Key Items

Following best practice, we also developed “reverse-key” items to help mitigate the effect of response biases such as acquiescence (i.e., yea-saying; Clifton, 2020; Paulhus, 1991; Soto & John, 2017). Despite the natural intuition that the simple opposite of a zero-sum game is a positive-sum game, previous research finds that these beliefs appear to be largely orthogonal (Różycka-Tran et al., 2015; Stefaniak et al., 2020).¹ Indeed, the polar opposite of a zero-sum game can only be described as a *non-zero-sum* game, which entails the entire variety of *variable sum* outcomes (negative-sum, positive-sum, as well as independent outcomes in general). Therefore, two simple negation items (e.g., “One person’s success is

¹ Consistent with this, we have also found that positive-sum items (e.g., “What helps one person usually benefits others as well”) tend to load onto a separate (negatively correlated) factor; whereas, the “simple negation” reverse-key items (e.g., “One person’s success is not another person’s failure”) loaded negatively onto the main factor (loadings $> .6$).

not another person's failure") were added to the original five items adapted from the BZSG for a final scale of seven items (Table 3). Confirmatory factor analysis of this final scale (Sample G: $N = 499$ US residents; Sample J: $N = 599$ UK residents) reveals a good fit (Sample G: $\chi^2 = 31.596$, $p < .001$, RMSEA = .071, CFI = .98; Sample J: $\chi^2 = 64.368$, $p < .001$, RMSEA = .078, CFI = .993), and internal reliability for this final measure is consistently high ($\alpha = .85$, $\omega = .86$). Therefore, all subsequent data collections (after 2019) utilized the full seven-item scale (See Appendix A).

Study 3: Supplemental Results

Table S5

Zero-Sum Mindset & Primal World Beliefs - Means, standard deviations, and correlations with confidence intervals

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Zero-Sum Mindset	2.67	1.02								
2. Abundant	3.20	0.89	-.35*** [-.42, -.27]							
3. Hierarchical	2.50	0.96	.26*** [.18, .34]	-.06 [-.15, .03]						
4. Just	2.44	0.95	-.15*** [-.24, -.06]	.53*** [.46, .59]	.15*** [.06, .24]					
5. Changing	3.49	0.81	.01 [-.08, .10]	-.12** [-.21, -.04]	.06 [-.02, .15]	-.11* [-.20, -.03]				
6. Cooperative	2.51	1.05	-.37*** [-.44, -.29]	.49*** [.42, .55]	-.33*** [-.41, -.25]	.41*** [.33, .48]	-.25*** [-.33, -.17]			
7. Harmless	2.13	1.00	-.23*** [-.31, -.14]	.38*** [.30, .45]	-.18*** [-.27, -.10]	.34*** [.26, .41]	-.32*** [-.40, -.24]	.58*** [.52, .63]		
8. Improvable	3.32	0.80	-.30*** [-.38, -.22]	.57*** [.50, .62]	-.03 [-.11, .06]	.47*** [.40, .54]	.03 [-.06, .12]	.39*** [.32, .47]	.32*** [.24, .40]	
9. Interconnected	3.47	0.97	-.11* [-.20, -.02]	.15*** [.06, .23]	-.07 [-.15, .02]	.04 [-.05, .13]	.25*** [.17, .33]	.05 [-.04, .14]	.04 [-.04, .13]	.31*** [.23, .38]

Note. Values in square brackets indicate the 95% confidence interval for each correlation. * = $p < .05$. *** = $p < .01$. **** = $p < .001$

Lasso Results

To test Hypothesis 3b, we also conducted a lasso (least absolute shrinkage and selection operator) regression, which uses cross-validation to reduce overfitting to a particular dataset by randomly selecting a share of the data to train the model (in this case 80%), and then tests predictions against the remaining data (McNeish, 2015; Tibshirani, 2011). Lasso regression informs model selection by shrinking coefficients of relatively unimportant variables to zero. Examining whether the zero-sum mindset might be reducible to any single primal world belief using lasso regression (cross validation withholding 20% of data, $\lambda = .042$), in this analysis, all measured primal world beliefs, all Big Five personality traits were included in the lasso regression predicting zero-sum mindset. These results indicated that the primal beliefs in scarcity, hierarchy, low cooperation, and low improvability, and justice, and unchanging, were selected by the model. Meanwhile, primal beliefs in a world as dangerous and interconnected were reduced to zero. In the full model with variables selected by the lasso only belief in scarcity, hierarchy, low cooperation, and low improvability remain significant predictors ($ps < .02$; See full results in Table S6).

Table S6

Full Model Using Features Selected by Lasso Using Zero-Sum Mindset as Criterion

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>beta</i>	<i>beta</i> 95% CI [LL, UL]	<i>sr</i> ²	<i>sr</i> ² 95% CI [LL, UL]	<i>r</i>	Fit
(Intercept)	5.22**	[4.33, 6.12]						
Agreeableness	-0.31**	[-0.45, -0.18]	-0.19	[-0.28, -0.11]	.03	[.01, .06]	-.32**	
Abundant	-0.25**	[-0.37, -0.13]	-0.22	[-0.33, -0.11]	.03	[.00, .05]	-.35**	
Cooperative	-0.16**	[-0.26, -0.07]	-0.17	[-0.27, -0.07]	.02	[-.00, .04]	-.37**	
Hierarchical	0.16**	[0.07, 0.25]	0.15	[0.06, 0.24]	.02	[-.00, .04]	.26**	
Improvable	-0.15*	[-0.28, -0.03]	-0.12	[-0.22, -0.02]	.01	[-.01, .02]	-.30**	
Just	0.07	[-0.04, 0.17]	0.06	[-0.04, 0.16]	.00	[-.00, .01]	-.15**	
Changing	-0.04	[-0.14, 0.06]	-0.03	[-0.12, 0.05]	.00	[-.00, .01]	.01	
Extraversion	0.06	[-0.04, 0.16]	0.06	[-0.03, 0.15]	.00	[-.00, .01]	-.03	
Neuroticism	-0.07	[-0.17, 0.03]	-0.07	[-0.16, 0.03]	.00	[-.01, .01]	.09	
								$R^2 = .258^{**}$
								95% CI[.18,.31]

Note. A significant *b*-weight indicates the beta-weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights. *beta* indicates the standardized regression weights. *sr*² represents the semi-partial correlation squared. *r* represents the zero-order correlation. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$.

Study 3 Supplemental Analysis: The Nature of Scarcity

One of the most salient features of a zero-sum game is the scarcity of rewards. However, scarcity can be defined in two inter-related, but distinct ways. Firstly, people often use the term scarcity to refer to something that exists in a small or inadequate *quantity*. Secondly, scarcity refers to something that exists in a *finite* amount, independent of its quantity (Merriam-Webster, 2022; Oxford English Dictionary, 2022). While both definitions may lead to the experience of scarcity, these differences bear different strategic implications for how to deal with scarcity. For example, when resources are small, but *not fixed*, one might turn to the cooperative strategies often required to foster growth. Whereas, if resources are small *and fixed*, one might turn to competitive, even hostile, strategies required to obtain a limited good.

Supplemental Analysis 3: Method

Participants

This analysis utilizes Sample G.

Measures

The Meaning of Scarcity

To measure beliefs about the meaning of scarcity, participants rated five Likert-style items ($\omega = .76$) about the extent to which they see resources or value as fixed regardless of their current amount (e.g., “The amount of resources in the world is not fixed. More can be created.” (reverse-scored), “Value cannot be created or destroyed, just gained or lost.”), and four items ($\omega = .91$) about the degree to which they see resources as lacking in supply regardless of whether they are fixed (e.g., “The existing amount of resources in the world is sufficient” (reverse-scored), “In general, there are not enough resources to go around”). Response options ranged from 1 - *Strongly disagree* to 6 - *Strongly agree*.

Supplemental Analysis 3: Results

We also examined beliefs about the nature of scarcity to test whether the notion of scarcity within the zero-sum mindset might be particularly characterized by finitude (existing in a fixed amount) or by relative supply (currently existing in an inadequate amount). While both fixed scarcity and quantity scarcity beliefs were significantly correlated with a zero-sum mindset ($r = .29$ and $.14$ respectively, $ps < .001$), when including both in a linear regression model to account for their shared variance, only the belief in *fixed* scarcity remains little changed ($\beta = .27, p < .001$) while the belief in *quantity* scarcity becomes non-significant ($\beta = .07, p = .12$). Zero-sum mindset also predicts this belief in fixed scarcity when controlling for all Big Five personality variables as well as income, education, sex, and age ($\beta = .24, p < .001$).

Table S7

Full Model Regression Results Predicting Cooperation Under Scarcity

Predictor	<i>b</i>	<i>b</i> 95% CI	<i>sr</i> ²	<i>sr</i> ² 95% CI	Fit
(Intercept)	-0.25	[-0.55, 0.05]			
Zero-Sum Mindset	-0.18***	[-0.27, -0.08]	.02	[-.00, .05]	
Primal: Cooperative	0.18**	[0.06, 0.30]	.01	[-.00, .03]	
Primal: Changing	0.10*	[0.00, 0.19]	.01	[-.01, .02]	
Primal: Hierarchical	-0.15**	[-0.24, -0.06]	.02	[-.00, .04]	
Primal: Just	-0.15**	[-0.26, -0.04]	.01	[-.00, .03]	
Primal: Interconnected	0.05	[-0.04, 0.15]	.00	[-.01, .01]	
Primal: Abundant	-0.02	[-0.14, 0.10]	.00	[-.00, .00]	
Primal: Improvable	-0.00	[-0.11, 0.11]	.00	[-.00, .00]	
Primal: Harmless	-0.03	[-0.14, 0.08]	.00	[-.00, .00]	
BFI: Agreeableness	0.21***	[0.11, 0.30]	.03	[.00, .06]	
BFI: Conscientiousness	-0.02	[-0.12, 0.08]	.00	[-.00, .00]	
BFI: Neuroticism	0.19**	[0.07, 0.31]	.02	[-.00, .04]	
BFI: Extraversion	0.07	[-0.03, 0.17]	.00	[-.01, .01]	
BFI: Openness	0.00	[-0.09, 0.09]	.00	[-.00, .00]	
Black/African American	0.37	[-0.05, 0.79]	.00	[-.01, .02]	
Latino/Hispanic	0.31	[-0.10, 0.73]	.00	[-.01, .01]	
Mixed	0.25	[-0.21, 0.71]	.00	[-.00, .01]	
Other	0.49	[-0.17, 1.15]	.00	[-.01, .01]	
White	0.19	[-0.12, 0.50]	.00	[-.01, .01]	
Education	-0.06	[-0.15, 0.03]	.00	[-.01, .01]	
Age	0.02	[-0.07, 0.12]	.00	[-.00, .00]	
Income	0.03	[-0.06, 0.12]	.00	[-.00, .00]	
Male	0.08	[-0.10, 0.26]	.00	[-.00, .01]	
					$R^2 = .256^{**}$ 95% CI[.15,.28]

Note. A significant *b*-weight indicates the semi-partial correlation is also significant. *b* represents unstandardized regression weights. *sr*² represents the semi-partial correlation squared. * = *p* < .05. ** = *p* < .01. *** = *p* < .001.

[Note that this model does not include political orientation, which is included in the results reported in the main manuscript.]

Study 4: Supplemental Material

Domain-Specific Zero-Sum Beliefs (Sample N)

1. **American society** is like a zero-sum game. Success for one person in America usually means failure for another.
2. **Happiness** is like a zero-sum game. When one person is happy it usually means someone else is unhappy.
3. **Government** is like a zero-sum game. When the government is working better for some people it means that it is working worse for others.

4. **Politics** is like a zero-sum game. Anything that helps members of one party hurts members of another party.
5. **Healthcare** is like a zero-sum game. Better healthcare for some people means worse healthcare for others.
6. **Innovation** is like a zero-sum game. More innovations by one person or company usually means fewer innovations for others.
7. **Natural resources** are like a zero-sum game. More of a natural resource for one person or group means less for others.
8. **Relationships** are like a zero-sum game. When one relationship is getting better it means that another relationship is getting worse.
9. **The job market** is like a zero-sum game. When one person gains a job, someone else loses a job.
10. **Education** is like a zero-sum game. Better education for one person means worse education for someone else.

Zero-Sum Beliefs About Intergroup Relationships

1. What is good for [selected outgroup] means harm for [selected ingroup].
2. The goals of [selected in-group] and [selected outgroup] are perfectly opposed.
3. Anything that harms [selected in-group] is beneficial for [selected outgroup].
4. If [selected in-group] are losing it means that [selected outgroup] are succeeding.
5. Anything that harms [selected outgroup] is beneficial for [selected in-group].
6. The values and goals of [selected in-group] and [selected outgroup] are incompatible.
7. What is good for [selected in-group] means harm for [selected outgroup].
8. If [selected outgroup] are losing, it means [selected in-group] are succeeding.

Supplemental Analysis 4: Zero-Sum Thinking and Cognitive Style

One of the challenges facing any decision-maker is how much time and effort should be invested in searching and evaluating information before arriving at a conclusion. In general, more time and effort invested lead to greater accuracy, but this comes at the cost of delays in decision-making (Heitz, 2014). Situations in which slower decision-making is more costly can strongly motivate people to seek quick, unambiguous answers. For example, if you are about to be run over by a car, you will be severely

penalized for delays in deciding whether you should jump left or right. Indeed, people who feel threatened tend to demonstrate a stronger need for cognitive closure, an epistemic motivation to reach unambiguous conclusions quickly, and a reluctance to question these conclusions once decided (also known as the drive to “seize and freeze”; Kruglanski & Webster, 2018; Roets & Van Hiel, 2007; Webster & Kruglanski, 1994, 1997). Perceptions of conflict and threat increase the motivation for decisiveness in case there is a need for quick defensive or aggressive action (De Zavala et al., 2010; Kruglanski et al., 2012). Since zero-sum beliefs are characterized by rigid scarcity and conflicts of interests, such a perception of one’s *global* environment (zero-sum mindset) may lead to a chronic need for quick, decisive solutions.

Another component of the need for closure is the resistance to others’ perspectives (the “freeze” dimension). Perspective-taking can be instrumental to finding opportunities for win-win situations in negotiations or in collaborations (Galinsky et al., 2008; Todd & Galinsky, 2016). For example, more information about others’ perspectives can diminish the tendency to perceive market exchanges as zero-sum (Johnson, 2022). However, if one sees a relationship as zero-sum, then there would be no perceived benefit in this coordination function of perspective-taking. Therefore, we also examined whether a zero-sum mindset would predict a stronger generalized motivation for cognitive closure, particularly the need for quick decisions (decisiveness) and avoidance of others’ perspectives (closed-mindedness) in different cultural contexts: the United States, India, and Pakistan.

Supplemental Analysis 4: Results and Discussion

Zero-sum mindset was a strong predictor of need for cognitive closure even when controlling for demographic variables such as education, income, sex, age, and all Big Five personality traits (US: $\beta = .27$, India: $\beta = .43$, Pakistan: $\beta = .36$, all $ps < .001$). Moreover, the relationships between zero-sum mindset and need for cognitive closure also showed a stable pattern of relationships across cultures at the sub-facet level. In each country, the *need for order* dimension had the weakest relationship with zero-sum

mindset, while the *closed-mindedness* and *decisiveness* dimensions consistently had the strongest relationships.

Table S8

Zero-Order Correlations of Zero-Sum Mindset Need for Closure in the US, India, and Pakistan

Variable	USA (N = 506)				India (N = 305)				Pakistan (N = 370)			
	<i>M</i>	<i>SD</i>	<i>r</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	<i>r</i>	95% <i>CI</i>	<i>M</i>	<i>SD</i>	<i>r</i>	95% <i>CI</i>
Zero-Sum Mindset	2.87	1.25			4.29	1.00			4.42	0.95		
Need for Closure	4.60	1.04	.30***	[.22, .38]	4.92	0.91	.48***	[.39, .56]	4.99	0.82	.43***	[.34, .51]
Intolerance for Ambiguity	4.81	1.36	.20***	[.11, .28]	4.98	1.12	.36***	[.26, .46]	5.15	1.13	.30***	[.21, .39]
Need for Order	5.13	1.38	.11**	[.03, .20]	5.20	1.03	.30***	[.19, .40]	5.50	1.03	.26***	[.17, .36]
Need for Predictability	4.83	1.44	.20***	[.12, .28]	4.94	1.14	.35***	[.25, .45]	4.98	1.17	.32***	[.22, .40]
Decisiveness	4.52	1.23	.27***	[.18, .35]	4.99	1.02	.45***	[.35, .53]	5.16	1.06	.37***	[.28, .46]
Closed-mindedness	3.69	1.27	.40***	[.32, .47]	4.48	1.22	.51***	[.42, .58]	4.17	1.21	.32***	[.22, .41]

Note. ** = $p < .01$. *** = $p < .001$.

Zero-Sum Mindset and Personality Across Cultural Contexts

This stability stands in contrast to the variable pattern of relationships observed between need for cognitive closure, demographic variables, and personality traits. The only consistent significant pattern across contexts for these variables was a positive correlation between need for cognitive closure and trait neuroticism (Pakistan: $r = .18$, India $r = .43$, US $r = .28$, all $ps < .001$). Education was negatively related to need for cognitive closure in India, Pakistan, and the US (Pakistan $r = -.14$, $p = .006$, India: $r = -.17$, $p = .005$) but not significantly so in the US ($r = -.06$, $p = .14$). Conscientiousness was negatively related to the need for cognitive closure in the US and India (US $r = -.13$, $p = .005$, India $r = -.19$, $p = .001$) but not in Pakistan ($r = .02$, $p = .679$). Other variables were either significantly related to the need for cognitive closure in only one country or significantly related, but in opposite directions. (See also p. 54-p.55 in this

Supplement for zero-order correlations between zero-sum mindset and the BFI in the US, India and Pakistan).

When examining the relationships between personality variables and specific zero-sum beliefs, we found striking differences between the samples. In the US, agreeableness and openness negatively predicted intergroup zero-sum beliefs, but not in India or Pakistan. Instead, in India, conscientiousness predicted lower zero-sum beliefs, and extraversion higher, and in Pakistan, no personality traits were significant predictors intergroup zero-sum beliefs. Yet, despite the variability in the relationships with personality and demographic variables, across each full model zero-sum mindset predicted specific intergroup zero-sum beliefs with roughly the same strength (US: $\beta = .37$, Pakistan: $\beta = .31$, India: $\beta = .32$, all $ps < .001$).

While we found consistent patterns in the relationship between zero-sum mindset and cognitive style in each country, personality measures demonstrated no such stable cross-cultural predictive ability. Unlike beliefs about the self, a belief in a zero-sum relationship should bear the same strategic implications across cultures. Indeed, some have argued that reframing personality in terms of patterns of strategic responses to challenges in our environment may help integrate broader anthropological and evolutionary perspectives in our understanding of individual differences (Buss, 2009; Heine & Buchtel, 2009). To this end, understanding stable individual differences in perceptions of the structure of incentives in our environments, such as a zero-sum mindset, may be particularly constructive because of its natural connection to strategic responses to one's social environment.

But, of course, social environments do not just shape people, people also shape their social environments. Therefore, a belief that fosters a habitual style of thinking and behaving across situations will also help *create* countless situations that may re-affirm their way of thinking and behaving. For those with a zero-sum mindset, the generalized belief that different people's interests are diametrically opposed

may also shape basic perceptions of social interactions in a way that reinforces a zero-sum view of the world.

Study 4: Supplemental Results

In Pakistan, we also examined the full model when restricting the sample to participants with no missing data ($N = 365$). A survey error led a proportion of participants to skip one of the items used to measure zero-sum beliefs about the relationship between Pakistanis and Indians. As displayed in Table S9, the results are similar, if not stronger in this analysis. However, for more conservative estimation, we report the results from the complete sample using the 6-items measuring intergroup zero-sum beliefs in the main manuscript.

Table S9*Zero-Sum Mindset Predicts Zero-Sum Beliefs about Pakistani-Indian Relationship (Pakistan)*

Predictor	β	β 95% CI	sr^2	sr^2 95% CI	Fit	Difference
Model 1						
Zero-Sum Mindset	0.40***	[0.31, 0.50]	.16	[.10, .23]		
					$R^2 = .159$ ***	
					95% CI[.10,.23]	
					Adj. $R^2 = .157$	
Model 2						
Zero-Sum Mindset	0.37***	[0.26, 0.48]	.10	[.05, .16]		
BFI: Agreeableness	0.03	[-0.08, 0.15]	.00	[-.00, .01]		
BFI: Openness	-0.05	[-0.16, 0.05]	.00	[-.01, .01]		
BFI: Conscientiousness	-0.01	[-0.13, 0.11]	.00	[-.00, .00]		
BFI: Extraversion	0.06	[-0.05, 0.16]	.00	[-.01, .01]		
BFI: Neuroticism	0.00	[-0.12, 0.12]	.00	[-.00, .00]		
Need for Cognitive Closure	0.13*	[0.01, 0.24]	.01	[-.01, .03]		
Sex: Male	0.14	[-0.08, 0.36]	.00	[-.01, .01]		
Age	0.02	[-0.08, 0.12]	.00	[-.00, .00]		
Income	-0.02	[-0.12, 0.07]	.00	[-.00, .00]		
Education	0.03	[-0.07, 0.13]	.00	[-.00, .01]		
					$R^2 = .185$ ***	$\Delta R^2 = .026$
					95% CI[.10,.23]	95% CI[-.00, .06]
					Adj. $R^2 = .497$	Δ Adj. $R^2 = -.01$

Note. $N = 365$ with no missing data. β = standardized regression coefficient. CI = Confidence Interval; [Lower limit, Upper limit]. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

Part I Supplemental Discussion

In this preliminary study, we reviewed the steps taken to build upon the economic-focused BZSG scale in order to develop a measure of generalized zero-sum mindset. In three samples, including a large 43-nation archival dataset, a pre-registered study in the US, and a replication in Italy, we found strong evidence that the belief that success, in general, is zero-sum is psychologically distinct from the belief that economic success is zero-sum. In modifying the scale to distinguish between zero-sum beliefs about relationships between groups and individuals, we found evidence suggesting that some people may see group relationships as more zero-sum than interindividual relationships, but also that this effect may only occur in highly individualistic cultures like the United States. Reverse-key items were added to the scale to help balance for acquiescence, and the unidimensional factor structure of the final 7-item scale was also confirmed.² Finally, in six samples comprising 1,898 unique participants with repeated measures ($n = 4,275$ total observations), and time between measurements ranging from five days to nine months, we found robust evidence that zero-sum mindset is relatively stable over time (ICCs between .77 and .83).

Part II: Supplemental Materials

Study 6: Supplemental Instruments: Zero-Sum And Non-Zero-Sum Situation Vignettes

Athletic Competition

Zero-Sum. You are a competitive marathon runner hoping to qualify for a prestigious marathon race. In order to qualify you have to place among the top 3 in the “pre-race.” After a long, hard run you are nearing the finish line. Looking ahead you can see that you are currently in fourth place with another runner just ahead of you. To qualify you just need to pass them. On the final stretch, a table full of water

² Some of this development took place in parallel with early studies. Therefore, studies conducted prior to 2020 do not include the reverse-key items.

cups is set up for runners to hydrate. The runner just ahead of you splashes the water on their face and tosses the paper cup behind them where it lands right in front of you. Slipping on the cup you almost fall down and have to take a moment to regain your stride and continue running.

Non-Zero-Sum. You are a competitive marathon runner hoping to qualify for a prestigious marathon race. In order to qualify you have to run the “pre-race” in under a certain amount of time. All runners who can finish under this time will qualify. After a long, hard run you are nearing the finish line. Looking at your watch you can see that you are almost on pace to make it under the qualifying time. You just need to pick up your pace a little bit to qualify. Another runner is just ahead of you. On the final stretch a table full of paper cups of water is set up for runners to hydrate. The runner just ahead of you splashes the water on their face and tosses the paper cup behind them where it lands right in front of you. Slipping on the cup you almost fall down and have to take a moment to regain your stride and continue running.

Attributions. When you think about this situation, what do you think explains the other runner’s behavior?

1. I think they threw that cup toward me on purpose to try to slow me down. (Hostile)
(1 - *Strongly disagree* to 7 - *Strongly agree*)
2. I think it was unlucky timing. I don’t think they meant for the cup to trip me. (Benign)
(1 - *Strongly disagree* to 7 - *Strongly agree*)

Job Competition

Zero-sum. You are at a job interview at a top-tier company. In the job description, the company says they are looking for extremely qualified candidates, and they are only hiring one person for the job. Speaking to the room of applicants the hiring manager says “Listen, I can’t hire everyone. I can only select one person who I think has what it takes to be successful here.” As you are about to enter the room for your interview, another potential candidate is walking out. Bumping into you, some coffee spills onto your shirt just before you walk in.

Non-zero-sum. You are at a job interview at a top-tier company. In the job description, the company says they are looking for extremely qualified candidates, but that there is not a limit to the number of qualified candidates that they will hire. Speaking to the room of applicants the hiring manager says “Listen, I want to hire everyone who I think has what it takes to be successful here.” As you are about to enter the room for your interview, another potential candidate is walking out. Bumping into you, some coffee spills onto your shirt just before you walk in.

Attributions. When you think about this situation, what do you think explains the other candidate’s behavior?

1. I think they spilled coffee on me on purpose to hurt my chances for the job. (Hostile)

(1 - *Strongly disagree* to 7 - *Strongly agree*)

2. I think it was an accident. They probably didn’t mean to spill coffee on me. (Benign)

(1 - *Strongly disagree* to 7 - *Strongly agree*)

Politics

Zero-Sum. You are a policymaker on a committee that is making budgeting decisions about local infrastructure, including how to prioritize which roads to restore. The annual budget is large enough for fixing the roads in only one of the neighborhoods, and representatives from different neighborhoods are making their case for why theirs should be prioritized. Explaining this, the chairperson reminds the committee that there just isn’t enough money in the budget to fix all the roads, so only one area will get attended to. “Remember, only one neighborhood gets the money, so the others won’t get any money this year.” After every representative has made their case for their own neighborhood, it’s time for you to make the case for yours. You raise your hand to speak and right as you are about to start making your case, a representative from a different neighborhood says that everyone has spoken and that it’s time to make a vote. Someone else in the committee agrees, and the budget goes for a vote.

Non-zero-sum. You are a policymaker on a committee that is making budgeting decisions about local infrastructure, including how to prioritize which roads to restore. The annual budget is large enough for fixing the roads in all of the neighborhoods in the area, and representatives from different

neighborhoods are making their case for roads that need fixing their area. Explaining this, the chairperson reminds the committee that since there's enough money in the budget, every area will get attended to as needed. "Remember, every neighborhood will get the money it needs this year." After every representative has made their case for their own neighborhood, it's time for you to make the case for yours. You raise your hand to speak and right as you're about to start making your case, a representative from a different neighborhood says that everyone has spoken and that it's time to make a vote. Someone else in the committee agrees, and the budget goes for a vote.

Attributions. When you think about this situation, what do you think explains the other representative's behavior?

1. I think they cut me off because they didn't want to let me make my case. (Hostile)
(1 - *Strongly disagree* to 7 - *Strongly agree*)
2. I think they cut me off by accident. They must not have heard me. (Benign)
(1 - *Strongly disagree* to 7 - *Strongly agree*)

Academics

Zero-sum. You are a student in a class that is famous for being really difficult. The final exam is approaching and most of the students in the class have been struggling with the material. Most people's exam scores are pretty lousy and the final exam will be really important for any student hoping to end up with a good grade. The course instructor made it clear that she grades on a curve. That means that your performance on the final, and in the course, will depend on how all the other students perform. "Let me be clear," the instructor explained, "Your exam scores will be ranked from highest to lowest. Only the very top scores on the exam will get an A, the next rank will get a B, and so on and so on until the bottom scores, which will get an F." You have a friend in the class who you know did well on the last exam. You approach them after class to see if they might be interested in studying together for the final. But before you can ask, they disappear. You try calling them but they don't pick up.

Non-zero-sum. You are a student in a class that is famous for being really difficult. The final exam is approaching and most of the students in the class have been struggling with the material. Most people's exam scores are pretty lousy and the final exam will be really important for any student hoping to end up with a good grade. The course instructor made it clear that she does NOT grade on a curve. That means that your performance on the final, and in the course, will be completely independent of how other students perform. "Let me be clear" the instructor explained "You could ALL get an A or you could ALL get an F. You won't be graded relative to each other." You have a friend in the class who you know did well on the last exam. You approach them after class to see if they might be interested in studying together for the final. But before you can ask, they disappear. You try calling them but they don't pick up.

Attributions. When you think about this situation, what do you think explains the other student's behavior?

1. I think they were avoiding me intentionally because they did not want to help me prepare for the exam. (Hostile)
(1 - *Strongly disagree* to 7 - *Strongly agree*)
2. I don't think they were avoiding me intentionally. They probably had other reasons they didn't answer the phone. (Benign)
(1 - *Strongly disagree* to 7 - *Strongly agree*)

Study 7: Supplemental Methods and Results

Word-Sentence Association Paradigm Sentences

Each brief situation below was presented twice in random order, once with a benign attribution word and once with a hostile attribution word.

1. A shopping cart bumps into you. [*Accidental/Aggressive*]
2. Someone grabs your arm. [*Alerting/Abusive*]
3. A friend does not say hello. [*Unaware/Ignoring*]
4. Someone interrupts you while you are talking. [*Obnoxious/Eager*]

5. Someone frowns at you. [*Hostile/Unhappy*]
6. A friend laughs at you. [*Amused/Disrespectful*]
7. Someone is talking while you are reading. [*Unaware/Rude*]
8. A friend tells you that you are wrong. [*Condescending/Helpful*]
9. A friend disagrees with your point of view. [*Interested/Argumentative*]
10. A friend declines your invitation to dinner. [*Rude/Busy*]
11. Someone bumps into you. [*Aggressive/Accidental*]
12. Someone shouts at you. [*Excited/Offensive*]
13. Someone blocks your way. [*Inconsiderate/Unaware*]
14. Someone beeps their horn at you while driving. [*Alerting/Confrontational*]
15. A friend does not respond to what you say. [*Distracted/ Thoughtless*]

Implicit Hostile Attribution Bias

Following established practice, particularly long response latencies (one standard deviation longer than average response times) – which suggest an interruption to the task rather than a meaningful response delay – were not included in response latency averages (Nosek et. al, 2014). Shorter latencies correspond to stronger associations while longer latencies correspond to weaker associations (Nosek et. al, 2014). So more automatic hostile attribution bias should manifest as relatively *quicker* hostile affirmations and benign rejections, and relatively *slower* hostile rejections and benign affirmations.

To examine this effect more closely, we conducted a repeated measures ANOVA comparing *hostile affirmation* latencies to *benign affirmation* latencies, and *hostile rejection* latencies to *benign rejection* latencies and their interactions with zero-sum mindset. These models reveal that while people generally affirmed benign attributions more quickly than hostile attributions (main effect; $F(1,810) = 11.76, p < .001, \eta_p^2 = .01$), this automatic preference for benign attributions differed for those with strong

zero-sum mindsets as indicated by a significant interaction effect between zero-sum mindset and type of affirmations (hostile vs. benign) ($F(1,810) = 8.46, p = .004, \eta_p^2 = .01$). Figures S1 and S2 present differences in mean latencies for hostile and benign attributions for those with high and low zero-sum mindset (dichotomized $\pm 1 SD$ for data visualization purposes only).

Figure S1

Average Response Latencies by Zero-Sum Mindset for Hostile vs. Benign Affirmations

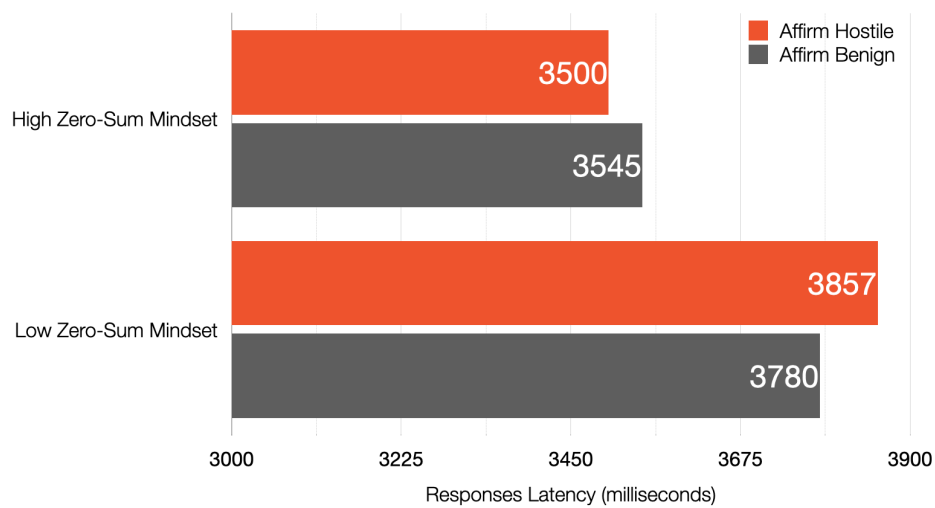
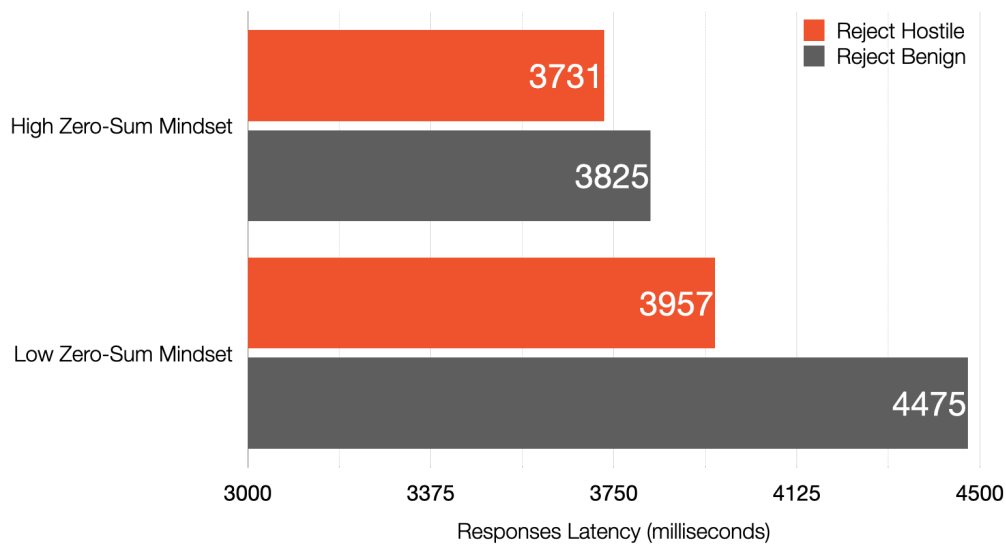


Figure S2

Average Response Latencies by Zero-Sum Mindset for Hostile vs. Benign Rejections



Note. Zero-Sum Mindset dichotomized by ± 1 *SD* for data visualization purposes only.

A similar pattern was found for response latencies for hostile and benign attribution rejections. In general, participants were much *slower* to reject benign attributions compared to hostile attributions ($F(1,588) = 33.23, p < .001, \eta_p^2 = .05$), and once again, this hesitation to reject benign attribution was diminished for those with strong zero-sum mindsets as indicated by the significant interaction between type of rejection and zero-sum mindset ($F(1,588) = 17.41, p < .001, \eta_p^2 = .03$).

There was also a significant between-participant effect of zero-sum mindset on latencies in general such that those with stronger zero-sum mindset both affirmed ($F(1,810) = 26.61, p < .001$) and rejected ($F(1,810) = 43.55, p < .001$) both kinds of attributions more quickly than those with lower zero-sum mindset. However, even given this general tendency towards shorter response times, those with stronger zero-sum mindsets demonstrate a pattern of relative response rates consistent with more automatic hostile attributions than benign attributions. Moreover, when we include the need for cognitive

closure in this model, the effect of zero-sum mindset on implicit hostile bias remains significant ($p < .001$).

Part II: Supplemental Discussion

Even when perceiving hostility in others, those *low* in zero-sum mindset preferred *not* to seek retaliation. This may be because those low in the zero-sum mindset recognize when a zero-sum situation is embedded in a wider, *non-zero-sum* context in which retaliation might bear other costs. Taking the athletic competition vignette as an example, attempts to retaliate against the perceived hostile action of another runner in a race, say by trying to trip them, might help one win the zero-sum competition itself. However, recognizing that this particular zero-sum competition is situated within a wider context of what it means to be successful may alter one's strategic calculus. Whether it is the risk of being disqualified from future races if caught, or perhaps more generally, a personal desire to be someone who behaves ethically, those with a low zero-sum mindset may be more adept at integrating a more holistic view of their interests (and others' interests) into their situational strategic responses. In contrast, if one's *broadest* conception of success is like a zero-sum game (zero-sum mindset), then others' success always poses a threat, potentially making aggression more appealing.

Part III: Supplemental Materials

Study 8: Supplemental Results

Cross-sectional Analysis

Given that the principal hypothesis of this study is that zero-sum mindset will predict lower cooperation even in situations where cooperation is clearly in one's own interest, these results use zero-sum mindset measured before the pandemic at Timepoint 1 (T1) to predict how someone will respond to the public crisis nearly a year later at Timepoint 2 (T2). But as zero-sum mindset was also measured at T2, we can also examine the cross-sectional relationship between one's contemporaneous

zero-sum mindset and cooperation during the pandemic. As a relatively stable belief, zero-sum mindset at Timepoint 1 was highly correlated with zero-sum mindset at Timepoint 2 ($r = .65$, $ICC = .78$) and they were not significantly different in a paired samples t-test ($t(336) = .01$, $p = .989$). Therefore, all cross-sectional results demonstrate the same patterns as the longitudinal results, and with extremely similar coefficients. In most cases the Timepoint 2 measure was a slightly stronger predictor of Timepoint 2 outcomes – as would be expected given the generally stronger relationship between measures collected contemporaneously. However, zero-sum mindset measured at Timepoint 1 the year before was a slightly stronger predictor of self-quarantining behavior at Timepoint 2 ($\Delta OR = .04$).

Social/Physical Distancing Behavior

Beyond the binary distinction of self-quarantining or not, compliance could also vary in terms of the diligence applied to “social distancing,” defined as maintaining at least a six feet (i.e., 1.8m) of distance between oneself and other non-household members. Therefore, we also examined whether zero-sum mindset would predict less social distancing behavior operationalised as the specific number of times within the past 48 hours that participants came within six feet (i.e., 1.8m) of someone from outside their household (not counting instances required by essential jobs or activities). Social distancing behavior varied widely among participants, with the median participant reporting zero instances of failure to keep space from others within this timeframe, while others reported up to 100 such instances—likely indicating attendance of a large social gathering. The average number of such reported failures to maintain distance was 3.74 ($SD = 11.58$). Examining the effect of zero-sum mindset measured on social distancing behavior, we found that every unit increase on the zero-sum mindset scale (1-7) measured in 2019 predicted approximately 1.6 additional instances of failure to social distance within a 48-hour period during March of 2020 ($b = 1.6$, $\beta = .13$, $p = .027$) in the linear regression. In the Quasi-Poisson regression (which helps account for overdispersion), each unit increase in zero-sum mindset predicted an increase of approximately 50% in failure to social distance within the past 48 hours. In theory, each such instance represented a potential spread of the virus. As with self-quarantine behavior, this effect was slightly

weaker *without* accounting for demographic variables ($b = 1.3, \beta = .11, p = .059$) and slightly stronger when predicting behavior from the contemporaneous measure of zero-sum mindset ($b = 1.84, \beta = .16, p = .006$).

All of these results remained significant – or even became more pronounced – when controlling for other variables known to be powerful predictors of public health compliance behaviors: sex, education, income, and political orientation.

Study 9: Supplemental Methods

Trust Game – Example

So, for example, if the participant chooses to send 20 tickets in Round 1, then those tickets are tripled so that Player 2 receives 60 tickets. Player 2 splits these tickets evenly, sending back 30 tickets to Player 1. Then in Round 2, Player 2 mirrors Player 1's initial behavior, sending 20 tickets to Player 1. In the final part of the game, the participant (as Player 1) then gets to make the final decision about how many tickets to send back to Player 2. They can send any amount of their tickets, including zero tickets, back to Player 2.

Figure S3

Screenshot: Game Introduction

The next part of this study is a game.

It's completely optional, but if you decide to play, you will be entered into a small lottery for a \$100 bonus prize that will be paid through Prolific. If you decide to play, your name will be entered at least once in the raffle, but you can increase your chances to win by winning more tickets in the game. Tickets will represent your actual raffle tickets in the drawing for the bonus prize (the number of times your participant ID will be entered into the "pot" from which we will randomly select the winner).

So the more tickets you win, the better your chances of winning the \$100 cash bonus.
The drawing will take place today and the lucky participant will be notified via Prolific.

The game should last about 5 minutes.

Would you like to play?

Yes, let's do it!

No, thanks.

Figure S4

Game Instructions Screenshot

Here's how it works:

First, you will be matched with another player and assigned to either the role of Player 1 or Player 2.

In round 1, Player 1 receives 100 raffle tickets. Player 1 can then choose to transfer as many tickets to the other player as they would like -- from 0 (transferring none of their tickets) to 100 (transferring all of their tickets).

Whatever number of tickets Player 1 decides to transfer to Player 2 will be tripled. So for example, if Player 1 decides to transfer 0 tickets, Player 2 will receive 0 tickets, if Player 1 decides to transfer 50 tickets, Player 2 will receive 150 tickets, and if Player 1 transfers all 100 tickets, Player 2 will receive 300 tickets.

Next, Player 2 decides how many tickets to transfer back to Player 1. They can transfer as many tickets back to Player 1 as they would like (from 0 to 300 depending on how much was transferred initially).

Round 2 carries forward earnings from Round 1, but reverses the roles.

In Round 2, Player 2 receives 100 tickets, and must decide how many tickets to transfer to Player 1. Like in Round 1, whatever number of tickets Player 2 decides to transfer will be tripled. And also like in Round 1, Player 1 then decides how many tickets to send back to Player 2.

Your total score at the end of the game represents how many tickets, or times your ID will be entered to win the \$100 bonus. **Yes, this is a real drawing,** and it will take place today and the winner will be notified immediately and sent \$100 through Prolific.

Think you've got it? Ready to Play?

When you're ready you can proceed to the next page to begin.



Figure S5
Game Round 1 Screenshot

Round 1

You have received **100 tickets**.
How many raffle tickets would you like to transfer to Player 2?
You can send any amount from **0 to 100**.

Enter the number of tickets to send in the space below:

Remind Me How the Game Works

→

Figure S6
Game Round 1 Screenshot 2

You transferred **50 tickets**.
So you now have **50 tickets** remaining.
This amount has been tripled so that Player 2 receives **150 tickets**.

→

Figure S6

Game Round 2 Screenshot

Player 2 has transferred **50** tickets to you.

This amount is tripled so that you receive **150** tickets.

In addition to your tickets from Round 1, you now have **275** tickets total.

Player 2 now has **125** tickets total.

It is now your turn to decide how many tickets you will send back to Player 2.

This is the final round. So this will be the last transfer of tickets and ticket totals will be final.

You can send any amount from **0 to 275** tickets.

Enter the number of tickets to send
back to Player 2 in the space below:



Study 9: Supplemental Results

Table S10

Trustworthiness

Zero-Sum Mindset Zero-Order Correlations with Trust and Demographic Variables

Variable	1	2	3	4	5
1. Zero-Sum Mindset					
2. Trust	-.09*				
3. Income	.07	-.04			
4. Education	-.01	.00	-.10		
5. Sex	.15***	.17***	-.10*	-.09	
6. Age	-.07	-.06	.01	-.03	-.06

Note. (0 = Female, 1 = Male); * = $p < .05$. *** = $p < .001$.

In this game design, participants are given the final opportunity to send back tickets, which means they have the chance to exploit the other player's trust by keeping an unfair number of tickets. Given that Player 2 splits tickets evenly in Round 1, the "trustworthy" response would be for the participant to also send back an even distribution of tickets. Since the absolute number of tickets available at this point in the game is a function of their original trust, we measured trustworthiness as the final ratio of Player 1's

tickets (participant) to Player 2's tickets, with more equitable ratios (closer to 1 or less than 1) as more trustworthy and more self-serving ratios (more than 1 and higher) as less trustworthy.

Trustworthiness Results

In this game design, participants are given the final opportunity to send back tickets, which means they have the chance to exploit the other player's trust by keeping an unfair number of tickets. Given that Player 2 splits tickets evenly in Round 1, the "trustworthy" response would be for the participant to also send back an even distribution of tickets. Since the absolute number of tickets available at this point in the game is a function of their original trust, we measured trustworthiness as the final ratio of Player 1's tickets (participant) to Player 2's tickets, with more equitable ratios (closer to 1 or less than 1) as more trustworthy and more self-serving ratios (more than 1 and higher) as less trustworthy.

Contrary to expectation, we did not find a significant relationship between zero-sum mindset and the final proportion of tickets sent back to the other player in the final round ($b = -.02, p = .45$). However, many participants mentioned experiencing difficulty calculating the right number of tickets to send back to Player 2 in order to achieve their desired final ratio. Future studies could mitigate this by providing participants clearer information about possible outcomes depending on how many tickets they choose to send back.

Fairness

By using an automated player, the game was designed to be objectively fair by always sharing tickets evenly and always reciprocating in Round 2 the same level of trust extended by the participant themselves in Round 1. However, those with a zero-sum mindset were more likely to see the game itself,

and the other player's behavior as unfair towards them, while making no such judgment of their own behavior (Table S11). We also find that those who demonstrated more trust at the beginning of the game were also more likely to see the game and the other player's behavior, and their own behavior as fair. This illustrates the potentially recursive nature of beliefs in fairness and trust. When one believes others to be generally fair, they may be more likely to extend trust. Both trust and distrust are more likely to be reciprocated (REF), reinforcing one's beliefs about the fairness or unfairness of others.

Table S11

Zero-Sum Mindset, Trust, and Perceived Fairness Correlations

Variable	1	2	3	4
1. Zero-Sum Mindset	—			
2. Trust	-0.12**	—		
3. Fairness: Game	-0.11**	0.13**	—	
4. Fairness: Other Player	-0.15***	0.12**	0.43***	—
5. Fairness: Self	0.02	0.10*	0.20***	0.34***

Note. Conditioned on sex. * = $p < .05$. ** = $p < .01$. *** = $p < .001$.

General Discussion Supplemental Material

Supplemental Discussion On Causality and Malleability

When I set out to investigate the implicit belief that success is zero-sum, I was greatly motivated by potential for growth and increased solidarity that I believe follows from a *non-zero-sum* view of our relations to one another. However, I must admit I failed to anticipate that which in hindsight feels fairly obvious: one's core assumptions about the nature of success and relationships may not be readily altered. Indeed, to change such a basic belief about how the world works too frequently could feel disorienting and incoherent. Therefore, *meaningful* changes in the zero-sum mindset may not come easily.³ While preliminary pilots of online interventions aimed to decrease zero-sum mindset have demonstrated only modest and largely non-significant results, such interventions have been relatively “light touch.”⁴ It remains to be seen whether more concerted efforts with different approaches or deeper engagement might be more fruitful. Just as what is observed does not determine what is possible, the observed stability of a zero-sum mindset does not imply its immutability.

Supplemental Methods - Sample Descriptions

Longitudinal Sample Recruitment Methods, Participant Demographics

Sample A1

Eight hundred and twenty-one U.S. residents recruited via Amazon Mechanical Turk (MTurk) provided informed consent, passed attention checks, and completed the study. Seventy percent identified as White, 13% as Black, 5% Asian/South Asian, 6% Latin, and 6% other. Fifty-two percent identified as female, 48% as male; Ages ranged from 18 to 72, $M_{\text{age}} = 34.54$, $SD = 10.66$.

³ I emphasize *meaningful change* since directly telling people that life is not zero-sum could readily result in changes in the zero-sum mindset measure that reflect experimenter demand effects rather than a deep change in mindset.

⁴ Plans to conduct more in-depth field interventions in 2020 were interrupted by the COVID-19 pandemic.

Sample A2

Sample A1 participants were invited to for a follow-up data collection ten months later. From the original 821 participants who completed the earlier study, 353 participants returned, provided informed consent, and all passed attention checks. Among this sample, 72% identified as White, 10% as Black, 6% as Latinx, 6% as Asian, 6% as other. Fifty-four percent identified as female, 46% male, and < 1% as other. Ages ranged from 18 to 72, $M_{\text{age}} = 36.96$, $SD = 12.12$.

Sample B1

Five hundred and four US residents recruited on Prolific who gave informed consent and passed attention checks completed zero-sum mindset measures at Timepoint 1 in July of 2019. In this sample, 67% identified as White, 8% as Latinx, 7% as Black, 7% as Asian, 1% as Native American, 9% as other or preferred not to respond. Fifty-six percent of participants identified as female and 44% as male. Participant ages ranged 18-70, $M_{\text{age}} = 33.39$, $SD = 11.07$.

Sample B2

All participants from Sample B1 (Timepoint 1) were invited to take part in another survey in March of 2020 (Timepoint 2). From the original sample, 337 participants (approximately 67% of the original sample) also participated in the survey at Timepoint 2. Among this sample, 69% identified as White, 7% as Latinx, 7% as Black, 6% as Asian, 1% as Native American, 6% as mixed race or other. Fifty-six percent identified as female, 42% male, and 2% as other/non-binary or chose not to respond. Ages ranged from 18 to 69, $M_{\text{age}} = 34.88$, $SD = 11.66$.

Sample C1

Five-hundred and six US residents recruited on Amazon's Mechanical Turk provided informed consent, passed attention checks, and completed the survey. Fifty-five percent identified as male, 45% as female.

Sixty-nine percent identified as White, 13% as Black, 6% as Asian, 5% as Latinx, 5% as mixed ethnicity, and 2% as other. Ages ranged from 20 to 76. $M_{age} = 40.05$, $SD = 11.68$.

Sample C2

Participants who completed measures and passed attention checks in January, 2020 (Sample C1) were invited to participate in this study via CloudResearch in late October, early November 2020. From this sample, 265 completed the Timepoint 2 study. Among this sample 77% identified as White, 9% as Asian, 7% as Black, 5% as Latinx, and 2% as other. Ages ranged 21-77, $M_{age} = 41.05$, $SD = 11.68$. Forty-five percent identified as female, 54% as male, and 1% as other or non-binary.

Sample D1

A nationally representative sample of US residents ($N = 2,952$) were recruited on Prolific. Sixty-eight percent of participants identified as White, 10% as Black, 10% as Latinx, 9% as Asian, 1% as Indigenous/Native American, and 2% other; 45% identified as female, 54% as male and 1% as non-binary/other. Ages ranged 18-84, $M_{age} = 32.88$, $SD = 11.21$.

Sample D2

Five days later participants from Sample D1 were invited to participate. Four hundred and nineteen U.S. residents completed the study, of which 323 (77%) identified as White, 37 (9%) as Asian/South Asian, 25 (6%) as Latinx, 21 (5%) as Black, 4 (1%) as Native American, and 9 (2%) as other or preferred not to respond; 58% female; Ages ranged 18-77, $M_{age} = 36.67$, $SD = 12.75$.

Sample E1

One thousand and twenty-one US residents were recruited on Prolific using prescreens to recruit participants who did ($n = 578$) and did not vote ($n = 443$) in the 2020 Election, and among voters, an approximately even number of left-leaning and right-leaning voters (n for Biden = 297; n for Trump =

264, n for other = 17). Seventy percent of participants identified as White, 10% as Black, 8% Latinx, 5% as East Asian, 2% as South Asian, 1% as Indigenous/Native American, 1% as Middle Eastern, and 3% as other; 66% identified as female, 31% as male and 3% as non-binary/other. Ages ranged 18-80, $M_{age} = 32.83$, $SD = 13.15$.

Sample E2

All participants from Sample E1 who passed attention checks were invited to participate in this study two weeks later. Seventy-two percent of participants identified as White, 10% as Black, 7% Latinx, 5% as East Asian, 3% as South Asian, and 3% as other. Twenty-nine percent of participants identified as male, 69% as female, and 3% as non-binary/other. Ages ranged from 18 to 75, $M_{age} = 35.16$, $SD = 14.34$.

Cross-sectional Sample Recruitment Methods, Participant Demographics

Sample G

Four hundred and ninety-nine US residents recruited on Prolific provided informed consent, passed all attention checks, and completed the survey. Sixty-six percent of participants identified as White, 7% as Latinx, 7% as East Asian, 7% as Black, 2% as South Asian, 1% as Middle Eastern, and 5% as mixed race, and 5% as other. Fifty-four percent of participants identified as female, 42% as male, and 4% as other/non-binary or chose not to respond. Participant ages ranged from 18 to 77, $M_{\text{age}} = 33.67$, $SD = 12.33$.

Sample F

Two-hundred and seventy-eight Italian residents were recruited to participate in an online survey. Recruitment efforts were conducted by local collaborators in the Reggio Emilia and Umbria regions as part of a project sponsored by the European Forum for Urban Security. Using a combination of paper and pencil and online survey methods, this sample was largely composed of municipality employees in law enforcement and immigration services. Ninety-seven percent identified as Italian, and 3% as other or preferred not to respond. Forty-two percent identified as male, 57% as female, and <1% as other. Ages ranged from 18 to 88, $M_{\text{age}} = 42.01$, $SD = 13.25$.

Sample H

Three-hundred and five Indian residents recruited on Amazon's Mechanical Turk gave informed consent, passed attention checks and two English language comprehension checks, and completed all measures. Ninety-nine percent identified as either "Indian" or "Hindu" and less than 1% identified as either "Pakistani" or "Muslim." Seventy-seven percent of participants identified as male and 23% as female. Participant ages ranged from 20 to 68, $M_{\text{age}} = 31.58$, $SD = 7.69$.

Sample I

Six hundred and forty-nine Pakistani residents recruited using Pollfish completed the survey, passing two attention checks. Survey instruments were translated into Urdu by a team of Pakistani psychologists fluent in English and Urdu, and back-translated by another bilingual Pakistani academic to check for consistency with original scale item meaning. Ninety-nine percent of participants identified as Pakistani and less than 1% identified as Indian. Sixty-five percent of participants identified as male and 34% as female, and less than 1% as other. Participant ages ranged from 18 to 83, $M_{age} = 29.45$ ($SD = 9.45$).

Sample J

Five hundred and ninety-nine UK residents recruited on Prolific gave informed consent, passed an attention check, and completed the study. Pre-screen criteria were used to balance the sample for liberal and conservative-leaning participants. Fifty-six percent of participants identified as female, and 44% as male; Eighty-nine percent identified as White, 5% as Asian/South Asian, 2% as Black, and 4% as mixed race or other. Ages ranged from 18-80 years old, $M_{age} = 37.89$ ($SD = 13.58$).

Sample K

One thousand five hundred and twenty-three Belgian residents recruited using Pollfish completed the survey. Among this sample, 73% were Belgian with Belgian heritage, 6% were Belgian with other European heritage, 4% Belgian with North African heritage, 1% Belgian with Sub-Saharan African heritage, 7% Belgian with other heritage, for those who identified as non-Belgians, 5% were European heritage, < 1% African heritage, and 3% other heritage; 40% identified as female, 59% male, and < 1% as non-binary/other. Participants could take the survey in either French, Flemish or English. Ages ranged 18-74, $M_{age} = 38.52$ ($SD = 14.76$).

Sample L

One thousand seven hundred and sixty-six residents of a Belgian city⁵ were recruited to the survey. Participants were recruited using a variety of methods to maximize survey uptake across the city, including mailing an invitation to participate to each physical address in the city, online advertising, flyers, social media promotions and cinema vouchers to incentivize participation. The survey default language was French, but participants could also take the survey in Flemish or English. Sixty-eight percent of participants completed the survey in French, 18% in Flemish, and 14% in English. Among this sample, 400 participants who began the survey were not included in the analysis because they either did not reach the attention check or failed to pass it, reported having already taken the survey, or were underage, leaving a final sample of 1366 participants. Fifty-one percent of participants identified as Belgian with Belgian heritage, 5% as Belgian of other European heritage, 5% as Belgian with North African heritage, 1% as Belgian with Sub-Saharan African heritage, 2% as Belgian with other heritage, for those who identified as non-Belgian, 24% were European, 2% Latin American, 2% Asian, 1% Middle Eastern, 1% Sub-Saharan African, and 5% other. Approximately 54% identified as female, 45% as male and less than 1% as “other” or chose not to respond. Participants’ ages ranged from 18 to 96, $M_{age} = 44.1$ years old ($SD = 14.2$).

Sample M

Five-hundred and ninety-three US residents recruited on Prolific gave informed consent, passed an attention check, and completed the study. Seventy-four percent of participants identified as White, 9% as Latinx, 8 % as East Asian, 8% as Black, 6 % as South Asian, 1% as Middle Eastern, and 1% as other. Fifty percent of participants identified as female, 49% as male, and 1% as other/non-binary or chose not to respond. Participant ages ranged from 18 to 77, $M_{age} = 37.93$ ($SD = 14.28$).

Sample N

⁵ City unnamed in keeping with partnership agreement.

Two thousand one hundred and sixty US residents were recruited by i360 (a data-collection agency) as part of a collaboration with Populace, a non-partisan organization. Survey weights are estimated on the following demographic variables to be representative of nationwide adults in terms of age, race, income, education, sex and urban density. Participants with inattentive response patterns were removed from the data by the data collection agency. Fifty-six percent of participants identified as female, and 44% as male; 80% identified as White, 9% as Black, 5% as Latinx, 3% as Asian, 2% as Indigenous, <1% as Middle Eastern, and 1% as other. Ages ranged from 18 to over 65 with the median age range between 45 and 64.

Sample O

Nine hundred and eighty-six US residents recruited on Prolific completed the study. In keeping with pre-registered recruitment plan, half of participants were prescreened by sex and political orientation to ensure sufficient representation in this experiment (the other half of the sample was screened only for US residency and English proficiency). Seventy-eight percent identified as White, 8% as Black, 6% as Latinx, 5% as East Asian, 2% as South Asian, 1% as Indigenous, and <1% as Other. Seventy-one percent identified as male, 28% as female, and 1% as other or non-binary. Ages ranged from 18 - 84, $M_{\text{age}} = 41.91$ ($SD = 14.16$).

Table S12*Summary of Pre-Registered and Replicated Hypotheses*

Study	Label	Hypothesis	Pre-Registered	Replicated
Study 1	H1	A zero-sum mindset (generalized zero-sum belief) is psychologically distinct from economic-domain zero-sum beliefs.	x	x
Study 2	H2	A zero-sum mindset is relatively stable over time.		x
Study 3	H3a	Zero-sum mindset predicts general beliefs that the world is scarce, competitive, unimprovable, interconnected, hierarchical, dangerous, and unfair.	x	
Study 3	H3b	The zero-sum mindset is not reducible to any single primal world belief or personality trait.		
Study 4a	H4a	A zero-sum mindset will predict specific zero-sum beliefs across a broad variety of domains.	x	x
Study 4b	H4b	A zero-sum mindset will predict specific zero-sum beliefs about different kinds of intergroup relationships in the US, India, and Pakistan.		x
Study 5a	H5a	People with stronger zero-sum mindsets will be less likely to embrace cooperation as a strategic response to scarcity.	x	x
Study 5b	H5b	People with a stronger zero-sum mindset will be more willing to embrace “win at all costs” attitude towards competition.		*x
Study 6	H6a	Zero-sum configurations of success increase hostile attributions.	x	x
Study 6	H6b	Zero-sum mindset predicts hostile attributions across situations, including in objectively non-zero-sum situations.	x	x
Study 6	H6c	Zero-sum mindset predicts greater intention to retaliate against the perceived aggressor	x	x

		across situations, including in objectively non-zero-sum situations.	
Study 7	H7	Zero-sum mindset predicts implicit hostile attribution bias.	x
Study 8	H8a	Those with stronger zero-sum mindsets will be less likely to adopt cooperative attitudes towards dealing with the pandemic.	x
Study 8	H8b	Those with stronger zero-sum mindsets will be less likely to behaviorally comply with public health recommendations	x
Study 9	H9a	Zero-Sum Mindset will predict lower trust behavior even when objectively incentivized by potential economic growth.	*x
Study 9	H9b	Zero-Sum Mindset will be associated with stronger motivation to “beat” the other player rather than to cooperate with them to make gains.	*x

* *Since replicated (though not included in this manuscript)*

Zero-Sum Mindset and Big Five Personality Correlations in Different Cultural Contexts

Table S13

Pearson's Correlations - US (Sample N)

Variable	Zero-Sum Mindset	O	C	E	A
1. Zero-Sum Mindset	—				
2. Openness	-0.15***	—			
3. Conscientiousness	-0.29***	0.21***	—		
4. Extraversion	0.10***	0.25***	0.20 ***	—	
5. Agreeableness	-0.25***	0.27***	0.34 ***	0.07 **	—
6. Neuroticism	0.19***	-0.12***	-0.50 ***	-0.26 ***	-0.25 ***

* $p < .05$, ** $p < .01$, *** $p < .001$. $N = 2,160$.

Table S14*India (Sample H) - BFI Correlations with Zero-Sum Mindset (zsm_mean)**Partiallying out Acquiescence (acq_index)*

Pearson's Partial Correlations ▼

Variable		zsm_mean	O_mean	C_mean	E_mean	A_mean	N_mean
1. zsm_mean	Pearson's r	—					
2. O_mean	Pearson's r	0.082	—				
3. C_mean	Pearson's r	0.363***	-0.020	—			
4. E_mean	Pearson's r	0.043	0.354***	-0.209***	—		
5. A_mean	Pearson's r	0.012	0.348***	-0.017	0.229***	—	
6. N_mean	Pearson's r	0.268***	0.191**	0.492***	-0.007	0.262***	—

* p < .05, ** p < .01, *** p < .001

Note. Conditioned on variables: acq_index.

Without Partialling out Acquiescence Index

Pearson's Correlations

Variable		zsm_mean	O_mean	C_mean	E_mean	A_mean	N_mean
1. zsm_mean	Pearson's r	—					
2. O_mean	Pearson's r	0.284***	—				
3. C_mean	Pearson's r	0.451***	0.138*	—			
4. E_mean	Pearson's r	0.230***	0.489***	-0.041	—		
5. A_mean	Pearson's r	0.182**	0.466***	0.106	0.355***	—	
6. N_mean	Pearson's r	0.421***	0.374***	0.560***	0.195**	0.391***	—

* p < .05, ** p < .01, *** p < .001

Table S15

Pakistan (Sample I) - BFI Correlations with Zero-Sum Mindset (zsm_mean)
Partialling out Acquiescence (acq_index)

Pearson's Partial Correlations

Variable		zsm_mean	O_mean	C_mean	E_mean	A_mean	N_mean
1. zsm_mean	Pearson's r	—					
2. O_mean	Pearson's r	-0.071	—				
3. C_mean	Pearson's r	0.087*	7.811×10^{-4}	—			
4. E_mean	Pearson's r	0.016	0.318***	0.042	—		
5. A_mean	Pearson's r	0.012	0.159***	-0.025	0.277***	—	
6. N_mean	Pearson's r	0.084*	-0.222***	0.185***	-0.425***	-0.365***	—

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. Conditioned on variables: acq_index.

Without Partialling out Acquiescence

Pearson's Correlations

Variable		zsm_mean	O_mean	C_mean	E_mean	A_mean	N_mean
1. zsm_mean	Pearson's r	—					
2. O_mean	Pearson's r	-0.049	—				
3. C_mean	Pearson's r	0.144***	0.050	—			
4. E_mean	Pearson's r	0.052	0.335***	0.126**	—		
5. A_mean	Pearson's r	0.002	0.150***	-0.048	0.255***	—	
6. N_mean	Pearson's r	0.123**	-0.180***	0.270***	-0.340***	-0.368***	—

* $p < .05$, ** $p < .01$, *** $p < .001$