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Mind Perception and Individual Differences: A Replication and Extension

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ABSTRACT

Mind perception involves attributing higher functional abilities to others (e.g., saying a dog feels pain). The relationships between mind perception and psychopathology—autism, psychopathy, and schizotypy—have been revealed by K. Gray, Jenkins, Heberlein, and Wegner (2011); however, mind perception has yet to be correlated with personality. Participants (N = 180) completed measures of personality, psychopathology, and mind perception. The psychopathology results were consistent with Gray et al. (2011). The Big Five captured mind perception virtually as much as the three psychopathologies captured mind perception. Mind perception is not solely relevant to psychopathology; it is also relevant to everyday personality.

Mind refers to a capacity to think, feel, and engage in willful action; it is often thought to involve at least rudimentary consciousness. Which entities in this world possess a mind? Philosopher Daniel Dennett (1996) noted that "any proposed adjustment in the boundary of the class of mind-havers has major ethical significance" (p. 5). Indeed, the answers to this question have major implications for morality, as discussed by K. Gray, Young, and Waytz (2012).

The opposite of perceiving mind in an entity is to deny it mind. Denying humans mind has been termed dehumanization (Haslam, 2006; Haslam & Loughnan, 2014). Just as people sometimes dehumanize others, they may deny mind to nonhumans. For example, imagine that a person denied his neighbor's dog mind; subsequently, this person could believe that the dog does not feel pain and might engage in hurting the dog. The ascription of mind clearly matters in this morally relevant instance.

The study of attribution of mind has gone by different names over the years. The most recent literature on mind perception emerged from the study of theory of mind (Baron-Cohen, Leslie, & Frith, 1985) and mentalizing (Frith & Frith, 2003). Mind perception is distinguished in that it is more fundamental—mind perception involves the mere percept that an entity has mental faculties, whereas both theory of mind and mentalizing involve more in-depth (arguably secondary) inferences about the contents of minds (K. Gray et al., 2012). Today, the literature on mind perception is growing exponentially (H. M. Gray, Gray, & Wegner, 2007; K. Gray, Jenkins, Heberlein, and Wegner, 2011; K. Gray et al., 2012; Waytz, Gray, Epley, & Wegner, 2010). The goal of this article is to identify individual differences which capture variation in mind perception.

K. Gray et al. (2011) provided some structure to the mind perception literature demonstrating that agency and experience were the primary dimensions of this latent construct. In short, agency refers to the ability to complete behaviors or actions. It involves self-control, memory, and moral behavior. A dimension that is relatively statistically independent of agency is experience, which refers to the ownership of mental states that impact the entity. It involves fear, pleasure, and hunger. Having understood mind perception along two relatively independent dimensions, this research group approached the task of identifying which individuals perceive agency and experience in other entities.

Indeed, one important article on this front examined the individual differences that capture variance in both dimensions of mind perception (K. Gray et al., 2011). The authors posited that distortions of mind perception must be linked to extreme traits—autism, psychopathy (excluding criminal tendencies), and schizotypal personality disorder (specifically, the cognitive-perceptual distortion facet). Support for this general hypothesis was evident. Persons with psychopathic tendencies attributed less experience and agency to adults (see K. Gray et al., 2011, Figure 1), autistic individuals attributed less agency to adults, and individuals with schizotypal traits ascribed more mind (both agency and experience) to many entities (e.g., trees). To our

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knowledge, this array of relationships has not been replicated (nor has anyone attempted to replicate it). As a result, one preliminary goal of the current study is to replicate these findings.

Our second and key goal is to extend these findings to everyday forms of personality. Surprisingly, there is no study to date that examines whether commonplace individual differences might manifest in various forms of mind perception. This is the key gap in the literature we intend to fill: We aim to test the hypothesis that the associations between individual differences and mind perception are not limited to individual differences in psychopathology. One reason that this hypothesis is plausible is that most varieties of psychopathology are now commonly conceptualized as extreme manifestations of everyday personality (Samuel & Widiger, 2008; Saulsman & Page, 2004). For instance, low Conscientiousness and low Agreeableness are construed to represent high psychopathy (Miller, Lynam, Widiger, & Leukefeld, 2001). Thus, it stands to reason that mind perception might be captured by everyday personality traits; indeed, there are some hints available that this is the case (Nettle & Liddle, 2008). If this line of reasoning is supported, then distortions in mind perception are not solely relevant to psychopathology—they are relevant to everyday personality, broadening the scope of the rapidly emerging mind perception construct.

Method

Participants

One hundred eighty participants (age: $M = 39.37$, $SD = 12.85$) from Amazon Mechanical Turk provided valid data. Of these, 44% were men, 55% were women, and 1% did not disclose their gender. The racial breakdown was 54% Caucasian American, 25% Asian, 9% Indian/Pacific Islander, 5% multiracial, 3% Hispanic, 2% African American, and 2% did not disclose their race.

Measures

The first three measures discussed here—the Autism Spectrum Quotient (AQ), the Self-Report Psychopathy III (SRP-III), and the Schizotypal Personality Questionnaire–Brief version (SPQ-B)—are measures that were used by K. Gray et al. (2011). We also assessed the Big Five Inventory—adding the novel component to this project.

The Autism Spectrum Quotient

The AQ (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001) is a 50-item survey designed to identify persons who could potentially be diagnosed with an autism spectrum disorder. The survey consists of 4-point Likert scale questions (e.g., "When I'm reading a story, I find it difficult to work out the characters' intentions."), which are then converted to binary scores based on established cutoffs, with higher scores indicating a greater degree of autism. The current investigation revealed acceptable reliability ($\alpha = .76$). Participants' scores ranged from 0.06 to 0.70, with the possible range from 0.00 to 1.00. Other descriptive statistics are available in Table 1.

Self-Report Psychopathy Scale III

The SRP-III (Paulhus, Neumann, & Hare, in press) is a survey adapted to measure psychopathy in a noncriminal population. After excluding the criminal tendencies facet (which was also done by K. Gray and colleagues, 2011, because this facet involves extremely sensitive information), the scale consists of 48 questions. Responses are provided on a 5-point Likert scale (e.g., "I'm a rebellious person."). Like the AQ, the SRP-III is a reliable tool. In the current study, the internal consistency was $\alpha = .90$. Participants' scores ranged from 1.23 to 3.63, with the possible range from 1.00 to 5.00. Other descriptive statistics are available in Table 1.

Table 1. Descriptive statistics for all scales.

	N	Items	Likert	*M*	*SD*	α
Personality traits						
Agreeableness	177	9	1–5	3.94	0.71	0.83
Conscientiousness	177	9	1–5	4.00	0.72	0.85
Emotional Stability	177	8	1–5	3.33	1.09	0.93
Extraversion	177	8	1–5	3.11	0.85	0.85
Openness	177	10	1–5	3.75	0.65	0.81
Psychopathology						
Autism	180	50	0–1	0.39	0.13	0.76
Psychopathy (w/o CT)	180	48	1–5	2.29	0.48	0.90
Schizotypy (CP only)	180	8	0–1	0.40	0.27	0.68
Mind perception						
Agency	179	27	0–6	3.06	0.74	0.76
Experience	179	27	0–6	3.16	0.62	0.67
Characters: Agency						
Baby	179	3	0–6	1.78	1.50	0.76
Dead woman	179	3	0–6	1.16	1.88	0.95
Dog	178	3	0–6	3.24	1.29	0.57
God	179	3	0–6	4.55	2.22	0.95
Man	179	3	0–6	4.83	1.18	0.87
Robot	177	3	0–6	2.52	1.78	0.73
Superman	179	3	0–6	3.65	2.46	0.98
Tree	178	3	0–6	0.86	1.48	0.86
Woman	179	3	0–6	4.88	1.15	0.88
Characters: Experience						
Baby	179	3	0–6	4.68	1.27	0.63
Dead woman	179	3	0–6	1.03	1.80	0.93
Dog	178	3	0–6	5.00	1.13	0.75
God	179	3	0–6	2.65	2.03	0.75
Man	179	3	0–6	5.12	1.20	0.86
Robot	177	3	0–6	0.67	1.24	0.88
Superman	179	3	0–6	2.66	2.18	0.90
Tree	178	3	0–6	1.43	1.71	0.82
Woman	179	3	0–6	5.19	1.18	0.86

Note. CT = Criminal Tendencies; CP = Cognitive Perceptual Distortion facet.

Schizotypal Personality Questionnaire–Brief

The SPQ-B (Raine & Benishay, 1995) identifies persons who could be diagnosed with schizotypal personality disorder. After focusing solely on the cognitive and perceptual distortions facet (as was done by K. Gray et al., 2011), the survey consists of eight binary questions (e.g., "I tend to keep my feelings to myself."). The SPQ-B is a reliable tool to measure schizotypal characteristics. With somewhat lower reliabilities in the current study, the internal consistency was $\alpha = .68$ for the cognitive and perceptual distortions facet. Observed scores ranged from 0.00 to 1.00, which was also the possible range. Other descriptive statistics are available in Table 1.

The Big Five Inventory

The Big Five Inventory (Benet-Martinez & John, 1998) consists of 44 questions on a 5-point Likert scale, and assesses five personality traits: Agreeableness, Conscientiousness, Emotional Stability, Extraversion, and Openness. In the current study, the internal consistency scores for each trait were good (Agreeableness, $\alpha = .83$; Conscientiousness, $\alpha = .85$; Emotional Stability, $\alpha = .93$; Extraversion, $\alpha = .85$; and Openness, $\alpha = .81$).

Mind Survey

The Mind Survey is a fairly new measure that has been improved through multiple studies and factor analyses. First, factor analyses indicated that constructs such as self-control, morality, and memory loaded onto the agency dimension; hunger, fear, and pleasure most strongly loaded onto the experience dimension (Gray et al., 2007). The most recent Mind Survey was used in this study. It consists of six questions regarding each of the nine characters (i.e., baby, dead woman, dog, God, man, robot, superman, tree, and woman) for a total of 54 questions on a 7-point Likert scale (e.g., "How capable of feeling fear do you think a dog is?"). Higher scores indicate higher attribution of mind (agency or experience) to the particular character. The mind perception construct was studied using the Agency ($\alpha = .76$) and Experience subscales ($\alpha = .67$). Reliabilities for the individual characters can be found in Table 1.

Procedures

The questionnaire was presented as a human intelligence task for Amazon Mechanical Turk workers to complete. A brief description about the questionnaire including its length and incentive value was posted on the website. Workers choosing to sign up for this task were redirected to a Qualtrics page with the informed consent and questionnaire. The scales and item questions were randomized for each participant (with the exception of the SPQ-B, the items for which must be completed in the original order).

Results

As a preliminary analysis, we correlated the total scores for agency and experience. The correlation was large ($r = .70$, $R^2 = .49$). This result indicates that the perception of mind regarding agency was similar to the perception of mind regarding experience. Nevertheless, half of the variance in one of these facets is unexplained by the other facet, arguably leaving some room for a distinction between these two components. For the sake of consistency with prior literature (H. M. Gray et al., 2007), we present the results according to each of the facets of mind perception: agency and experience.

Tables 2 and 3 reveal the relationships between the mind perception subscales (Agency and Experience) and the individual difference measures—that is, the three psychopathology scales explored by K. Gray et al. (2011) in addition to the Big Five personality traits. We have provided the correlations uncorrected for attenuation and the ones corrected for attenuation, the latter of which are determined by the formula[1] developed by Spearman (1904). The corrected correlations are favorable because they have been adjusted for attenuation that is due to the unreliability in the measures. These tables also include (at the bottom) the totals: either Total Agency (Table 2) or Total Experience (Table 3). The total scores capture the extent to which the participant ascribes the mind perception facet of interest to all characters. Thus, someone who is high in the ascription of agency in general would ascribe high agency to a tree, to a baby, and so on. We did not make predictions about this variable, but it is notable that the Big Five captures variance in Total Agency that is nominally higher than that captured by the three variants of psychopathology. For instance, it appears that people with agreeable tendencies ascribe agency quite indiscriminately. People who are low in emotional stability (i.e., high in neuroticism), in contrast, are disinclined to ascribe agency.

To test the hypothesis that the correlations between individual differences and mind perception replicated past results (K. Gray et al., 2011), we ran a series of correlations between vectors of *r*-to-*z* transformed effects. That is, we transformed each effect (for the psychopathology measures and both mind perception facets) using Fisher's *r*-to-*z* formula. Then we correlated the vectors between Gray's results and our results

Table 2. Correlations with the mind perception agency facet.

	Agreeableness	Conscientiousness	Emotional stability	Extraversion	Openness	Autism quotient	Psychop. w/o CT	Schiz. (CP only)
Zero-order correlations								
Woman	.129	.245	.070	.036	.000	−.133	−.243	−.165
Man	.137	.259	.108	.023	.037	−.136	−.227	−.136
Dead woman	.112	.069	.125	.223	.044	.029	.110	.057
Dog	.245	.218	.200	.174	.107	−.046	−.008	.176
God	.275	.292	.272	.230	.071	−.158	−.106	.038
Baby	.084	.011	.070	.161	.055	.032	.198	.112
Robot	−.083	−.125	.034	−.072	−.001	.080	.167	.017
Superman	−.035	−.083	−.041	−.159	−.038	.137	.045	.046
Tree	−.047	−.140	−.022	.084	−.028	.086	.318	.201
Total agency	.195	.160	.208	.167	.063	−.005	.091	.094
Correlations corrected for attenuation								
Woman	.151	.284	.077	.041	−.001	−.163	−.273	−.213
Man	.162	.302	.121	.026	.044	−.168	−.257	−.177
Dead woman	.127	.077	.133	.248	.050	.035	.119	.070
Dog	.356	.313	.274	.250	.158	−.070	−.011	.282
God	.310	.325	.290	.255	.082	−.186	−.115	.047
Baby	.106	.014	.083	.200	.070	.042	.240	.155
Robot	−.106	−.158	.041	−.092	−.001	.108	.206	.024
Superman	−.039	−.090	−.043	−.174	−.043	.159	.048	.057
Tree	−.056	−.164	−.024	.098	−.034	.106	.361	.263
Total agency	.246	.198	.247	.208	.080	−.006	.110	.130

Note. CT = Criminal Tendencies; Psychop. = psychopathology; Schiz. = schizotypy; CP = Cognitive Perceptual Distortion facet.

(i.e., those correlations uncorrected for attenuation). All of the correlations between corresponding vectors were large ($rs \geq .69$). For the agency mind perception facet, the correlations for autism, psychopathy (excluding criminal tendencies), and schizotypy (cognitive-perceptual distortion facet only) were .69, .77, and .89. For the experience mind perception facet, the correlations for the three variants of psychopathology were .69, .81, and .74. This demonstrates that the pattern of correlations that Gray et al. (2011) found was indeed replicated.

The second hypothesis was that the Big Five would predict mind perception at levels similar to the three varieties of psychopathology that K. Gray et al. (2011) studied. The results in Tables 2 and 3 revealed that this is indeed the case. Numerous effect sizes were medium-sized (Hemphill, 2003). A more comprehensive analysis also revealed evidence consistent with this hypothesis. To carry out this analysis, we squared the correlations corresponding to the links between each character and each trait. Then, we averaged these squared correlations by trait. We averaged the means for the two facets of mind perception. Finally, we collapsed across variants of psychopathology and (separately) across the Big Five. Without correcting for attenuation due to unreliability, the variance explained by the three varieties of psychopathology averaged 2.1%, which corresponds to $|r| = .145$. The

Table 3. Correlations with the mind perception experience facet.

	Agreeableness	Conscientiousness	Emotional stability	Extraversion	Openness	Autism quotient	Psychop. w/o CT	Schiz. (CP only)
Zero-order correlations								
Woman	.108	.196	.031	−.061	.103	−.131	−.260	−.083
Man	.119	.227	.042	−.070	.062	−.127	−.322	−.081
Dead woman	.088	.016	.088	.198	−.018	.074	.132	.045
Dog	.120	.206	−.016	−.187	.136	−.036	−.246	.043
God	.041	.143	.195	.166	.108	.004	.148	.057
Baby	.061	.118	−.014	−.192	.108	−.043	−.102	.049
Robot	−.094	−.131	−.010	.071	−.089	.085	.313	.117
Superman	−.073	−.063	−.033	−.146	−.113	.096	.108	.035
Tree	−.031	−.082	.009	.111	.105	.028	.267	.221
Total experience	.072	.138	.099	.019	.090	.020	.103	.125
Correlations corrected for attenuation								
Woman	.128	.229	.035	−.072	.124	−.162	−.295	−.109
Man	.141	.265	.047	−.082	.074	−.157	−.366	−.106
Dead woman	.101	.018	.095	.223	−.020	.088	.144	.056
Dog	.153	.258	−.019	−.234	.174	−.048	−.299	.060
God	.052	.179	.233	.207	.139	.005	.181	.080
Baby	.084	.161	−.018	−.262	.151	−.062	−.135	.074
Robot	−.110	−.151	−.011	.082	−.105	.104	.352	.151
Superman	−.084	−.072	−.036	−.167	−.132	.116	.120	.045
Tree	−.037	−.098	.011	.133	.129	.035	.310	.296
Total experience	.097	.182	.125	.026	.122	.028	.133	.184

Note. CT = Criminal Tendencies; Psychop. = psychopathology; Schiz. = schizotypy; CP = Cognitive Perceptual Distortion facet.

corresponding average variance explained by the Big Five was 1.6%, which corresponds to $|r| = .126$. This suggests that the everyday measures of personality—like the Big Five—deserve greater attention in relation to mind perception. Indeed, based on the effect size, it nearly merits the same attention that psychopathology has garnered in this literature.

Discussion

We had two goals in this study: (a) to replicate the findings by K. Gray et al. (2011) showing that mind perception is linked to psychopathology, and (b) to test the hypothesis that mind perception is linked to everyday personality. Regarding the first hypothesis, our findings largely replicate the findings of K. Gray et al. (2011). This provides an independent replication, suggesting that psychopathology is linked to distortions of mind perception. The second hypothesis focused on extending the relevance of mind perception to everyday personality traits, as captured by the Big Five. We demonstrated that, compared to the links between psychopathology and mind perception, the Big Five links are comparable. This means that everyday personality is *also* relevant to mind perception. Indeed, everyday personality has virtually the same relevance to mind perception as do the three varieties of psychopathology studied by K. Gray et al. (2011). Conversely, mind perception has the same relevance to everyday personality. In sum, it seems that the breadth and reach of the mind perception literature is wider than originally thought.

Some more specific results are worth a special note. First, agreeableness in general was linked to greater perception of agency. This means that people with agreeable tendencies perceive that others have the capacity for self-control, moral action, and memory. This makes intuitive sense, as people with disagreeable tendencies would be inclined to assume that others have less capacity for virtue—perhaps a type of projection (Wood, Harms, & Vazire, 2010). Agreeableness did not exhibit the same effects for the experience facet: There was essentially no association between agreeableness and the tendency to attribute fear, hunger, and pleasure to others. This level of precision in the facet-level associations lends some credence to the distinction between agency and experience as conceived by Gray et al. (H. M. Gray et al., 2007).

In terms of future research, it would be interesting to determine issues concerning causality. Does mind perception induce personality change, or does personality change induce mind perception? Questions about this link appear to be absent from major reviews on the topic of mind perception (Waytz et al., 2010). We believe the current article offers a foundation for future work to explore the causal links between mind perception and personality. This may give rise to some interesting lines of inquiry: Can adjusting the mind perception of a psychopathic or disagreeable person ultimately impact the degree to which they act morally? Does priming a person to act in psychopathic or disagreeable ways lead that person to denounce mind in other entities?

In conclusion, the broadest and most important implication of this article is a simple one: Mind perception is linked to everyday personality. Everyday personality traits capture mind perception quite handily. This conclusion raises the prospect that the literatures on mind perception, mentalizing (Frith & Frith, 2003), and theory of mind (Baron-Cohen et al., 1985) have broader significance than previously thought. Future research should explore the ramifications of the links between personality and mind perception (e.g., for morality and moral personalities).

Note

1. The formula for correction for unreliability for a given correlation is: $\frac{r_{XY}}{\sqrt{r_{XX} * r_{YY}}}$ where r_{XY} is the observed correlation, whereas r_{XX} and r_{YY} refer to the reliabilities of the two variables, X and Y. This formula was originally presented by Spearman (1904).

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References

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a theory of mind? *Cognition*, *21*, 37–46. doi:10.1016/0010-0277(85)90022-8

Baron-Cohen, S., Wheelwright, S., Skinner, R., Martin, J., & Clubley, E. (2001). The autism-spectrum quotient (AQ): Evidence from Asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. *Journal of Autism and Developmental Disorders*, *31*, 5–17. doi:10.1023/a:1005653411471

Benet-Martinez, V., & John, O. P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology*, *75*, 729–750. doi:10.1037/0022-3514.75.3.729

Dennett, D. C. (1996). *Kinds of minds*. New York, NY: Basic Books.

Frith, U., & Frith, C. D. (2003). Development and neurophysiology of mentalizing. *Philosophical Transactions of*

the Royal Society B-Biological Sciences, *358*, 459–473. doi:10.1098/rstb.2002.1218

Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, *315*, 619. doi:10.1126/science.1134475

Gray, K., Jenkins, A. C., Heberlein, A. S., & Wegner, D. M. (2011). Distortions of mind perception in psychopathology. *Proceedings of the National Academy of Sciences of the United States of America*, *108*, 477–479. doi:10.1073/pnas.1015493108

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological Inquiry*, *23*, 101–124. doi:10.1080/1047840x.2012.651387

Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review*, *10*, 252–264. doi:10.1207/s15327957pspr1003_4

Haslam, N., & Loughnan, S. (2014). Dehumanization and infrahumanization. *Annual Review of Psychology*, *65*, 399–423. doi:10.1146/annurev-psych-010213-115045

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist*, *58*, 78–79. doi:10.1037/0003-066x.58.1.78

Miller, J. D., Lynam, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the five-factor model adequately represent psychopathy? *Journal of Personality*, *69*, 253–276. doi:10.1111/1467-6494.00144

Nettle, D., & Liddle, B. (2008). Agreeableness is related to social-cognitive, but not social-perceptual, theory of mind. *European Journal of Personality*, *22*, 323–335. doi:10.1002/per.672

Paulhus, D. L., Neumann, C. F., & Hare, R. D. (in press). *Manual for the self-report psychopathy scale*. Toronto, Canada: Multi-Health Systems.

Raine, A., & Benishay, D. (1995). The SBQ-B: A brief screening instrument for schizotypal personality disorder. *Journal of Personality Disorders*, *9*, 346–355. doi:10.1521/pedi.1995.9.4.346

Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the five-factor model and *DSM-IV-TR* personality disorders: A facet level analysis. *Clinical Psychology Review*, *28*, 1326–1342. doi:10.1016/j.cpr.2008.07.002

Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review*, *23*, 1055–1085. doi:10.1016/j.cpr.2002.09.001

Spearman, C. (1904). "General Intelligence," objectively determined and measured. *The American Journal of Psychology*, *15*, 201–292. doi:10.2307/1412107

Waytz, A., Gray, K., Epley, N., & Wegner, D. M. (2010). Causes and consequences of mind perception. *Trends in Cognitive Sciences*, *14*, 383–388. doi:10.1016/j.tics.2010.05.006

Wood, D., Harms, P., & Vazire, S. (2010). Perceiver effects as projective tests: What your perceptions of others say about you. *Journal of Personality and Social Psychology*, *99*, 174–190. doi:10.1037/a0019390