Nation-Level Cultural Values Predict Prevalence of Conspiracy Theories about the 9/11 Attacks

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Abstract

Background: Recent social-psychological research suggests that adherence to conspiracy theories (CT) stems from basic psychological mechanisms. Studies conducted so far have mainly focused on individual difference variables. Here, we wanted to test whether nation-level cultural values could predict the prevalence of CT from a situated cultural cognition perspective (Oyserman, 2016). **Methods & Results**: Using Hofstede's (1984) 6-dimensional model of cultural values, we predicted a positive effect of masculinity and uncertainty avoidance on CT prevalence, a positive or negative effect of power distance, and a negative effect of individualism, long-term orientation, and indulgence. Re-analysis of a survey conducted in 19 countries, including a measure of CT about the 9/11 attacks (*N* = 12,255; World Public Opinion, 2008), supported our hypotheses except for power distance. **Implications**: These results suggest that culture might be related to the cognitive processes at work behind CT about the 9/11

Introduction

Conspiracy theories (CT) are beliefs that significant events are the result of malevolent actions from powerful groups that 'pull the strings' behind the scenes (Aaronovitch & Langton, 2010; Brotherton, French, & Pickering, 2013). Psychological science has identified contextual and motivational factors that predict when people believe conspiracy theories.

In sum, adherence to CT is driven by three core classes of motives (see Douglas, Sutton & Cichocka, 2017):

1- *epistemic* (i.e. attributing causality)

2- *existential* (i.e. feeling safe and in control)

3- *social* (i.e. belonging to a group).

We built upon that motivated cognition understanding of CT to examine how culture may facilitate or mitigate CT.

Here, we decided to shift focus from individual motivational mechanisms to the social-ecological factors that could be susceptible to triggering them.

Briefly, Culture-as-situated-cognition theory (CSCT; Oyserman, 2016) posits that cultural values are not 'fixed' internalized essences that rigidly characterize intergroup differences.

Instead, CSCT posits that individuals have access to a common pool of mental representations that are activated depending on the context (e.g. Saluja, Adaval & Wyer, 2016).Within a situated cognition approach to culture, we should expect that salient cultural values pertaining to at least one of the three above mentioned class of motivations (or a blend of them) should accordingly inhibit/facilitate adherence to CT.

To assess this hypothesis, we decided to use Hofstede's model of cultural values (Hofstede, 1984; 2011). This model was chosen for two main reasons:

1- It is more parsimonious than Schwartz's (1990), which comprises an array of 10 values (6 values, less type I errors).

2- Though other models highlight interesting cultural values (e.g. Tightness-Looseness, Gelfand et al., 2011), we could not make straightforward predictions from them with regards to CT. (greater theoretical relevance of Hofstede's model in the specific context of CT with values like Uncertainty Avoidance).

Hofstede's model 6 values are:

1- Power Distance (PD; the extent to which members of a society accept unequal power distributions).

2- Individualism (ID; which reflects a preference for loose social structures in which individuals mostly take care of themselves and their relatives).

3- Masculinity (MS; emphasizing achievement and competitiveness over cooperation, and consensus).

4- Uncertainty Avoidance (UA; directly expresses how much members of a given society are uneased by uncertainty/ambiguity).

5- Long Term Orientation (LTO; low LTO societies prefer to maintain traditions and view societal change with suspicion, whereas high LTO societies are more socially liberal).

6- Indulgence (IN; the degree to which societies allow free gratification of basic human drives linked with hedonism).

Hypotheses

H1: Power distance (PD, social motives). **(a)** People in societies with a high power distance tend to accept hierarchy without further justification (Hofstede, 2011). Since CT are positively linked with system justification (see Jolley & Douglas, 2017), a higher PD may predict lower CT prevalence **(b)** Conspiracy belief is positively correlated with feelings of powerlessness (Wood & Douglas, 2013). While PD refers to acceptance of hierarchy, feelings of powerlessness within that hierarchy may still be associated with conspiracy belief. Given this, a higher PD may predict higher CT prevalence.

H2: *Individualism (ID, social motives).* Individualistic cultures promote more analytic thinking style (see Henrich, Heine, & Norenzayan, 2010). Since CT are negatively linked with analytical thinking (Swami, Voracek, Stieger, Tran, & Furnham, 2014), ID should predict lower levels of CT.

H3: *Masculinity (MS, social motives)*. Because of increased dissension in Masculine societies (therefore increased conflict and uncertainty), and because competition generates anxiety and drives intergroup conflicts (Stephan, Diaz-Loving, & Duran, 2000), higher masculinity should predict higher levels of CT.

H4: *Uncertainty avoidance (UA, epistemic motives)*. Given the positive correlation between CT and uncertainty management (Van Prooijen & Jostman, 2013) higher national Uncertainty Avoidance levels should predict higher CT.

H5: *Long-term orientation* (*LTO, existential motives*). Like in hypothesis 1, higher LTO should predict lower CT, because adherence to CT is positively linked with system justification (see van Prooijen, Krouwel, & Pollet, 2015; Jolley & Douglas, 2017).

H6: *Indulgence (IN, existential motives).* Finally, IN should also be linked with existential motives. Since CT is theoretically expected to have an anxiety regulation role, indulgent societies that are more hedonistic should have lower CT prevalence, though there is no firm theoretical rationale for this hypothesis.

Methods

Table 1
Country characteristics at the national and sample levels (N = 12,255).

Country	National characteristics								Sample characteristics			
	% Muslims	*HDI*	*PD*	*ID*	*MS*	*UA*	*LT*	*IN*	*% male*	*M_{age} (SD)*	*% CT*	*N*
China	1.6	0.772	80	20	66	30	87	24	60.1	31.93 (14.73)	28.2	451
Egypt	94.6	0.703	70	25	45	80	7	4	47.6	37.13 (13.20)	80.8	490
France	6	0.961	68	71	43	86	63	48	51.2	46.56 (17.43)	18.8	463
Germany	5	0.947	35	67	66	65	83	40	47.6	44.3 (17.31)	30.3	921
Great Britain	2.7	0.947	35	89	66	35	51	69	50.6	48.26 (17.68)	22.2	591
Hong Kong	1	0.944	68	25	57	29	61	17	50.8	41.74 (16.44)	17.7	657
India	13.4	0.731	77	48	56	40	51	26	56.3	37.31 (13.30)	28.8	980
Indonesia	88.2	0.734	78	14	46	48	62	38	52.9	37.34 (12.67)	44.4	365
Italy	1	0.951	50	76	70	75	61	30	44.9	45.72 (15.27)	30.2	470
Jordan	98.2	0.77	70	30	45	65	16	43	57.6	37.83 (13.49)	81.7	361
Kenya	7	0.541	70	25	60	50	N/A	N/A	55.9	32.76 (11.28)	11.6	876
Mexico	0.2	0.854	81	30	69	82	24	97	52.9	38.05 (14.67)	60	692
Nigeria	50.4	0.5	80	30	60	55	13	84	49.6	35.34 (11.71)	16.6	856
Russia	11.7	0.817	93	39	36	95	81	20	47.9	43.96 (16.81)	29.5	647
S Korea	0.1	0.937	60	18	39	85	100	29	50.6	42.02 (14.01)	35.8	472
Taiwan	1	0.943	58	17	45	69	93	49	52.2	N/A	17.6	563
Thailand	5.8	0.783	64	20	34	64	32	45	51	N/A	21.1	963
Turkey	98	0.806	66	37	45	85	46	49	53.7	35.43 (13.01)	51.6	804
Ukraine	1	0.751	92	25	27	95	55	18	40.6	46.12 (16.71)	31.8	633

Note. HDI = Human Development Index; PD = Power Distance, ID = Individualism, MS = Masculinity; UA = Uncertainty Avoidance; LT = Long-Term Orientation; IN = Indulgence; % CT = rate of answers classified as Conspiracy Theory about the 9/11.

Participants. To test our hypotheses, we analyzed the 2008 World Public Opinion poll (nationally representative samples) about who perpetrated the 9/11 attacks ("International poll: No consensus on who was behind 9/11", 2008). We merged these data with Hofstede's international country indices of the 6-dimensional model of cultural values (based on data collected between 1967 and 2002; see Hofstede, 2010). Hofstede's indices range from 0 to 100. The final dataset includes only participants a) who answered the question asking who they thought perpetrated the 9/11 attacks, and b) who were from countries that had cultural value scores. This left us with a total sample size of 12,255 (51.2% male, M_{age} = 39.82, *SD* = 15.52) from 19 countries. Detailed descriptive statistics by country are in Table 1.

Materials. Our measure of CT was a single open-ended question. Interviewees indicated who they believed was behind the 9/11 attacks ('*As you know, on September 11, 2001 the United States was attacked. Who do you think was behind the 9/11 attacks?*'). Answers involving Al-Qaeda were coded as 0 (no conspiracy belief regarding the true identity of the 9/11 attacks' perpetrators), and answers involving other groups that were not officially involved (the U.S. Government, Israel…) were coded as 1 (belief in a conspiracy theory regarding true identity of the 9/11 attacks' perpetrators). We also included national Human Development Index scores from 2007 (HDI; see UN, 2009) as a control for country's wealth, health and education levels. We also controlled for the percentage of Muslims per country (Miller, 2009) because this group is more likely to deny that Arab people were behind the September 11th attacks, and may be more likely to seek out alternative explanations to the attacks (Gentzkow & Shapiro, 2004).

Results

Table 2
Model of 9/11 CT rates according to Hofstede's 6 cultural values adjusted for HDI, Age and Gender (N = 12,255).

Predictors	*a(SE)*	*Z-value*	*O.R.[95%CI]*	*d[95%CI]*	*P*
Hofstede Values					
PD (*H1a & b*)	.09(.16)	.55	1.09[.78, 1.53]	.05[-.14, .23]	.58
ID (*H2*)	-.27(.14)	-1.97	.76*[.57, 1.00]	.15[.00, .31]	.049
MS (*H3*)	.45(.16)	2.74	1.57**[1.11, 2.20]	.25[.06, .44]	.006
UA (*H4*)	.37(.14)	2.69	1.45**[1.09, 1.93]	.21[.05, .36]	.007
LT (*H5*)	-.39(.14)	2.64	.67**[.50, .92]	.22[.05, .39]	.008
IN (*H6*)	-.26(.12)	-2.10	.77*[.60, 1.00]	.14[.01, .29]	.036
Covariates					
HDI	.45(.20)	2.19	1.56*[1.02, 2.39]	.25[.01, .48]	.029
MP	.52(.13)	3.94	1.68***[1.28, 2.20]	.29[.14, .44]	< .001

Note. O.R. = odds ratio, SE = standard error, *CI* = confidence interval. HDI = Human Development Index; MP = Muslim Population; PD = Power Distance; ID = Individualism; MS = Masculinity; UA = Uncertainty Avoidance; LT = Long-Term Orientation; IN = Indulgence; % CT = rate of answers classified as Conspiracist Beliefs. ***p < .001, **p < .01, *p < .05.

78% of predictors in the model should be significant at the p < .001 due to ambient correlation noise (Meehl, 1990). Thus, effect sizes of interest should be at least d = .2 (a small effect size according to Cohen's 1988 classification). All tests were two-tailed. Moran's I tests revealed that all cultural values could be predicted to some extent from the distance index (non-random distribution) thus violated independence assumption for logistic regression models: UA, r = .57 , p < .001; PD, r = .27 , p < .001; MS, r = -.67 , p < .001; LTO, r = -.02, p < .001; IN, r = .13, p < .001; ID, r = -.43 , p < .001. To counter the increased risk of type I errors, we decided to use logit mixed models including countries as a random factor (Borcard, Gillet, & Legendre, 2011).

Model of 9/11 CT rates according to Hofstede's 6 cultural values (N = 12,255).

Predictors	*a(SE)*	*Z-value*	*O.R.[95%CI]*	*d[95%CI]*	*P*
Hofstede Values					
PD (*H1*)	-.20(.18)	-1.10	.82[.56, 1.20]	.11[-.10, .32]	.27
ID (*H2*)	-.37(.18)	-2.02	.69*[.47, 1.00]	.21[.00, .42]	.043
MS (*H3*)	.43(.23)	1.88	1.53[.95, 2.45]	.24[-.03, .49]	.06
UA (*H4*)	.49(.18)	2.70	1.63**[1.12, 2.37]	.27[.06, .48]	.007
LT (*H5*)	-.55(.15)	-3.67	.58***[.42, .79]	.30[.13, .47]	<.001
IN (*H6*)	-.39(.17)	-2.30	.68*[.48, .96]	.21[.02, .41]	.021

Note. O.R. = odds ratio, SE = standard error, *CI* = confidence interval. PD = Power Distance; ID = Individualism; MS = Masculinity; UA = Uncertainty Avoidance; LT = Long-Term Orientation; IN = Indulgence; % CT = rate of answers classified as Conspiracist Beliefs. ***p < .001, **p < .01, *p < .05.

Average CT rate in our 19 countries sample was 32.3%. All continuous measures and indices were standardized (Z-scores). Then a logit mixed model was computed as such: *CT ~ Zmuspop + Zhdi + Zpowe_dist + Zuncertainty_avoidance + Zmasculinity + Zlong_term_orientation + Zindulgence + Zindiv + (1 | country)*. Log-Likelihood = 6511.6.

H1a and *H1b* were rejected. As predicted, we observed negative relationships between indulgence, individualism and long-term orientation with CT about the 9/11, which is consistent with *H2*, *H5 and H6* respectively. Similarly, we observed a positive relationship of masculinity on CT about the 9/11, which was consistent with *H3,* and a positive relationship between uncertainty avoidance and that specific CT, providing support for *H4.*

Discussion

Cultural factors at the national level seem to predict individual level CT regarding the 9/11 attacks.

Our findings might suggest that societies with lower levels of individualism, long-term orientation, indulgence and higher levels of masculinity, uncertainty avoidance should have a higher prevalence of CT.

The positive link between HDI and CT might look surprising at first glance, because higher HDI countries tend to be more socially liberal, individualistic, and feminine. This discrepancy might be explained by specific combinations of cultural values among countries with higher HDI among our sample (e.g. France has a unique combination of high ID and high UA).

The key finding here is that Hofstede's values seemingly predict CT levels independently of 'heavy' economic-demographic variables measured by the HDI index, though the correlational nature of the data does not allow for causal inference.

In sum, this is preliminary evidence that cultural context is associated with variation in CT, at least about the 9/11 attacks. It lends credence to prior theories that country-level factors, like the presence of elite polarization, and extremist groups, may predict some CT above and beyond individual difference factors (Grzesiak-Feldman, 2008; Lee, 2017; Nyhan, 2010).

Understanding CT's historical salience requires not only a psychological level explanation, but the use of mixed level indicators that help us highlight the social normative and structural dynamics able to catalyse, inhibit, or maintain psychological states favouring adherence to CT across societies (as for many important social psychological phenomena; Kruglanski & Fishman, 2009).

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