The intent and extent of collective threats: A data-driven conceptualization of
collective threats and their relation to political preferences

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Abstract

The purpose of the present article is to systematically investigate how people perceive collective threat and how such threat perceptions relate to political preferences.

Existing threat taxonomies have been theoretically contrived and no attempt has been made thus far to examine how people spontaneously perceive threats. One area where this is of central importance is the relationship between political preferences and threat. Dominant theories in social psychology have studied security and stability threats and have concluded that conservatives are more sensitive to threats and more motivated to manage threat than liberals. Recent perspectives, however, have criticized this position and maintain that the relationship between threat and political preferences depends on how both constructs are defined. To resolve this issue, we carried out a systematic, data-driven investigation of how collective threats are perceived. In six preregistered, data-driven studies, carried out in large-scale, representative cross-cultural samples (aggregate $N = 24,391$), we show that people tend to categorize collective threats according to two dimensions – their intent (omission/commission) and extent (local/global). We show that whereas liberals are more concerned than conservatives by omission threats, conservatives are more concerned than liberals by commission threats. These results suggest that threat is a multidimensional construct and that political leftists and rightists do not differ in the extent to which they perceive threats, but rather in the way they prioritize different threats facing society.

250 words

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The experience of fear and threat constitute primal and powerful motivators of human attitudes and behavior. When we experience threat, we are driven to avoid, reduce, or neutralize the specific threat in question. Accordingly, the question of how the experience of fear and threat influences human attitudes and behavior constitutes a fundamental question for psychological research. The purpose of the present article is to systematically investigate how people perceive collective threat, and how threat perceptions relate to political preferences. Collective threat is ubiquitous in the social psychological literature and constitutes a central variable in a number of influential theories, including realistic conflict theory (Sherif, Harvey, White, Hood, & Sherif, 1961), social identity theory (Tajfel & Turner, 1979; Tajfel & Turner, 1986), system justification theory (Jost & Banaji, 1994), right-wing authoritarianism (Altemeyer, 1998) and conservatism as motivated social cognition (Jost, Glaser, Kruglanski, & Sulloway, 2003), to mention a few salient examples. In spite of its centrality in social psychological theorizing, the concept of collective threat remains ambiguous and there is a lack of consensus in the field about what constitutes a collective threat. One area in which the collective threat construct has been shown to be of importance is the study of the motivational bases underlying political preferences. The dominant perspectives in the field maintain that conservatives (rightists)¹ are more threat-sensitive than liberals (leftists) and display a greater motivation to reduce threat and uncertainty (Altemeyer, 1998; Duckitt, 2001; Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost, Nosek, & Gosling, 2008; Jost, Stern, Rule, & Sterling, 2017). This position, however, has recently been criticized and a number of researchers have noted that the relationship between political preferences and threat is contingent on

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the way both constructs, threat and political preferences, are defined and conceptualized (e.g., Crawford, 2017; Eadeh & Chang, 2019; Elad-Strenger & Shahar, 2018; Hirschberger, Ein-Dor, Leidner, & Saguy, 2016; Malka, Soto, Inzlicht, & Lelkes, 2014). In order to make progress on this issue, what is needed is an empirical solution to the question of what constitutes a collective threat. We suggest that the best way to approach this issue is to adopt a data-driven, bottom-up approach that allows the "data to speak" and is relatively immune to ideological or theoretical biases. Using such an approach, we can determine whether collective threat is a uni-dimensional or multi-dimensional construct, and if the latter possibility is supported, to better understand the nature of the different dimensions of threat. This would improve our understanding of the collective threat construct and open new possibilities that are currently unavailable to understand the relationship between collective threat and political preferences.

Existing taxonomies of threat

A number of conceptualizations of threat have been proposed, including Integrated Threat Theory (ITT: Stephan & Renfro, 2002; Stephan & Stephan, 2000), the Multidimensional Existential Threat model (MET: Hirschberger et al., 2016) and the Compensatory Political Behavior model (CPB: Crawford, 2017). These taxonomies of threat, however, have been theoretically contrived and no attempt to date has been carried out to examine how people *spontaneously* perceive threats, how many dimensions people use when thinking about threat, how they categorize different threats, and what the nature of these threat dimensions are. In other words, none of the existing perspectives has taken a data-driven approach, free from theoretical preconditions, to examine how laypeople naturally perceive collective threat. Existing perspectives have further focused their attention on certain types of

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collective threat, often guided by the social phenomenon that they are attempting to explain. For example, ITT (Stephan & Renfro, 2002; Stephan & Stephan, 2000) set out to describe the main types of threat that cause prejudice and has therefore limited itself to threats posed by outgroups. The MET model (Hirschberger et al., 2016) focuses on existential threats – i.e., phenomena that threaten the physical or symbolic (e.g., identity) existence of the individual or the group. The MET model (Hirschberger et al., 2016) provides a comprehensive taxonomy for existential threats, but is less suited to describe threatening phenomena that are not necessarily existential in nature, such as crime, poverty or pollution. The present article constitutes the first attempt to create a comprehensive, data-driven model for collective threats.

Collective threat and political preferences

One of the areas in which threat perception has proved to be important is the study of the motivational bases of political preferences. A long tradition in social psychology, from Adorno (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), through Altemeyer (1998), Duckitt (2001) to Jost (Jost et al., 2003), has studied threats emanating from hostile intergroup relations and have come to the conclusion that conservatives are more concerned by threats and are more motivated to manage threats than liberals. Adorno and his colleagues, in their seminal work *The Authoritarian Personality* (1950), were among the first to describe political ideology as an expression of basic needs reflected in personality. In their effort to explain antisemitism and ethnocentrism, they described how harsh and punitive parental strategies, through the mechanisms of repression and projection, translate into idealized submission to authorities, coupled with a punitive attitude towards deviants and minorities. This theory posits that punitive attitudes towards deviants and minorities are manifested in perceptions of these groups as hostile and threatening

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(Adorno et al., 1950). Altemeyer (1998) developed this notion in his description of right-wing authoritarianism, where he emphasizes fear and the experience of threat as a key motivator in the development of a right-wing worldview. He describes how right-wing authoritarians "...see the world as a dangerous place, as society teeters on the brink of self-destruction from evil and violence" (Altemeyer, 1998, p. 87). Along the same lines, Duckitt (2001) argues that a perception of the world as dangerous and threatening should activate the motivational goal of social control and security, which would be expressed in authoritarian and conservative social attitudes and values (Duckitt, 2001). In an effort to integrate previous theories on the motivational bases for conservative ideology, Jost et al. (2003) claim that the ideology of conservatism is motivated by needs to manage uncertainty and threat, due to the promise of such ideologies to provide stability and security (Jost et al., 2003; 2017).

Criticism of the conservative x threat relationship

The conclusion that the need to manage uncertainty and threat is associated with conservative ideology has been criticized in recent years, with several scholars pointing out that the relationship between political preferences and perception of threat depends on how threat and political preferences are defined and operationalized (e.g., Crawford, 2017; Eadeh & Chang, 2019; Elad-Strenger & Shahar, 2018; Hirschberger et al., 2016; Malka, Soto, Inzlicht, & Lelkes, 2014;). For example, Malka and his colleagues (2014, Federico & Malka, 2018) have shown that the relationship between the need for security/certainty and conservatism depends on whether political ideology is measured along a social or economic dimension (Malka et al., 2014; Federico & Malka, 2018). They further show that the different dimensions of political ideology are weakly, and sometimes even negatively related (Malka, Lelkes, & Soto, 2017). In addition to pointing out the need for a more fine-

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tuned definition of political ideology, several perspectives call for a more nuanced and multidimensional conceptualization of threat. Hirschberger and colleagues (2016) differentiate between physical and symbolic existential threats and contend that conservatives place greater emphasis on physical existential threats, whereas liberals place greater emphasis on symbolic existential threats (Hirschberger et al., 2016). Along similar lines, Crawford (2017) argues that whereas social conservatives are more influenced by physical threats, liberals and conservatives are similarly influenced by meaning threats. Indeed, the effect of threat on political preferences appears to be contingent on the type of threatening issue that is under study. Threats to health care and the environment for instance (issues that liberals care about), produce increased support for components of liberalism (Eadeh & Chang, 2019).

A data-driven conceptualization of collective threat

Most, if not all, would agree that political leftists and rightists alike are concerned by societal phenomena that they consider important (e.g., Jost et al., 2017). Further, all political groups are strongly motivated to reduce threats to issues that they care about. The current zeitgeist in threat research, however, considers only certain phenomena as threat, and define other concerns as merely reflecting values and morals, believed to be beyond the realm of threat research. The question of whether these other phenomena should be part of the collective threat construct, or which of these societal phenomena constitute a veritable threat that merits inclusion into the threat construct, remains an unresolved question that is currently argued at the theoretical level. What is needed, therefore, to move forward in the discussion on threat and resolve this important issue is a rigorous, systematic and data-driven investigation of the collective threat construct to determine which phenomena are perceived as collective threats, how these threats are organized and categorized, and

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whether the threat construct has a unidimensional structure, as it is often operationalized in current research, or constitutes a multidimensional phenomenon comprising qualitatively different threats.

Collective threat is typically operationalized in current research as threat against security and social stability. Indeed, a considerable part of the literature has focused their main attention on a single threat – terrorism (Eade & Chang, 2019; Jost et al., 2017). In a recent meta-analysis on threat and political preferences, 45 out of 55 samples (82%) focused on terrorism, while the remaining studies focused mainly on xenophobia and violent crime (Eade & Chang, 2019; Jost et al., 2017). Whereas terrorism and other threats against security and stability are unquestionably important and pose a serious threat to society, the absence of threats against other societal phenomena (e.g., threats against social justice, threats against the environment, widespread viral contamination) precludes the possibility to take into account a wider variety of phenomena in the description of collective threat. The decision to include only specific threats in a study is likely to greatly affect the results, and such decisions may be subject to theoretical or ideological biases. To reduce such risks and sampling biases (Fiedler, 2011), we propose that the best way to approach this issue is to adopt an a-theoretical data-driven bottom-up approach that allows the "data to speak". This enables the research to approach representative design (Brunswik, 1955; 1956), having an unbiased and representative sample of stimuli.

The present research

To examine how people spontaneously assess collective threats, it is important to ensure that the list of threats constitute a representative sample of the phenomena people spontaneously perceive as collective threats, and that the criteria on which

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collective threats are assessed reflect the criteria that people spontaneously use to assess threats. Previous research has used these guidelines to clarify the kind of content people spontaneously use to describe stereotypes (Koch, Imhoff, Dotsch, Unkelbach & Alves, 2016). Based on this research, the empirical program of the present research was guided by an effort to examine four central research questions: 1. Which phenomena do people perceive as collective threats? 2. How are these phenomena spontaneously categorized? 3. What dimensions do people spontaneously use to compare collective threat? and 4. In what way do the political left and right (or liberals and conservatives) differ in their valuation of collective threats? The first step was to generate a list of phenomena that people perceive as collective threats (Study 1). Following this, we examined how people categorize collective threats, by asking them to assess similarities between different threats, as well as to intuitively sort threats (Study 2). In Studies 3 and 4, we examined how many dimensions are needed to account for the perception of collective threat and what the contents of these dimensions are (research question 3). Finally, in Studies 5 and 6, we examined the ways in which the political left and right differ in their threat valuation and examined whether the obtained patterns were universal, looking at large-scale, representative samples from 22 countries. All studies are preregistered and all of the materials are accessible through the OSF (<https://osf.io/9cbvy/>).

Study 1

The purpose of Study 1 was to examine what phenomena people spontaneously perceive to be collective threats. A data-driven strategy was used, soliciting the phenomena that people mention when asked what the greatest threats against society are. Participants were not limited by definitions, examples or

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instructions and were asked to provide spontaneous responses. The study was preregistered on aspredicted.org <https://aspredicted.org/wn6fp.pdf>².

Method

Participants

Data was collected from 2 samples – one from the U.K. and one from the U.S. Each sample was representative of the general population in the ages 20-69 in terms of age and gender. Quotas for age and gender were based on the 2011 U.K. census (Office for national statistics, 2011) and the 2017 U.S. census (U.S. Census Bureau, 2017). The samples were taken from the online Prolific platform (www.prolific.ac) and age and gender quotas were based on Prolific's prescreening. The U.K. sample consisted of 359 participants (50% female, Mean age 43.33) and the U.S. sample consisted of 309 participants (50% female, Mean age 43.15). After completing the study, participants were given a quality assurance question. The question read: "For us as researchers, it is very important to get reliable answers to our questions. It may happen that some of our participants lack the energy or attention necessary to provide such reliable and accurate responses. Would you recommend us to use your response in our analyses of the results? Please note that your response to this question does not in any way affect your payment for participating in the study." The participants could choose between the options: "Yes, I recommend that you use my responses in the analyses of the results", "No, I do not recommend that you use my responses in the analyses of the results" and "Other:_____". In our preregistration of this study we indicated that participants that did not recommend using their responses would be excluded from the analyses. In this study, no participants indicated that they did not

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recommended that we use their results. Subsequently, no participants were excluded from further analysis.

Measures and procedure

The participants in the study were posed the open-ended question: "What are the three greatest threats against our society in your view?" They were then asked to provide basic demographic information.

Results

In accordance with the preregistration, we surveyed the list of threats mentioned by the participants, combining threats that clearly referred to the same category. For example, "terror", "terrorism", "terrorists" and "terror attacks" were combined into a single "terrorism" category. We then sorted the threats in each sample separately by prevalence, identifying the threats that, taken together, accounted for 2/3 (67%) of the threats mentioned in the sample. The remaining threats belonged to categories that each accounted for less than 0.7% of the mentioned threats. As per the preregistration, this cutoff point was chosen in order to create a list containing a clear majority of the mentioned threats, while still ensuring that the list did not include rarely mentioned threats. We then proceeded to identify threats that were among the most commonly mentioned in both samples. A number of adjustments were made for categories that referred to the same underlying threat, but for which somewhat different terms were used in the U.K. and U.S. Notably, in the U.S. sample, "inequality" and "economic inequality" were combined into a single "inequality" category. "Illegal immigration" in the U.S. sample was recategorized as "immigration" to correspond to the term used in the U.K. "Nuclear war" and "Nuclear weapons" were combined into a single "Nuclear weapons" category. "Donald Trump"

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was further commonly mentioned as a threat to society in both samples. His name was however excluded from further analysis, since the perception of him as a threat is clearly limited to his term as president and no other mentions were made of individual persons among the most commonly mentioned threats. The final list of threats commonly mentioned in both samples, in order of prevalence across the two samples, were the following:

1. Terrorism
2. Climate change
3. War
4. Poverty
5. Inequality
6. Immigration
7. Racism
8. Environmental damage
9. Crime
10. Nuclear Weapons
11. Government
12. Disease
13. Pollution
14. Religion
15. Economic collapse
16. Extremism
17. Overpopulation
18. Greed

Discussion

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The results from Study 1 provided us with a list of phenomena that participants perceived as collective threats. Doing so was an important first step, since no systematic examination without theoretical preconditions of this issue has been carried out in the past. We thereby approach the idea of representative design (Brunswik, 1955; 1956), ensuring that the corpus of stimuli material represents what people spontaneously intend when thinking of the construct in question. Prioritizing threats from a certain subcategory of the general construct of threat (e.g., security threats) could potentially skew the picture and lead to conclusions that focus on a certain subcategory of threat rather than collective threat as a general construct.

Study 2

Study 1 addressed the first research question: what phenomena do people perceive as collective threats? In Study 2, we moved forward with examining the second research question – how do people categorize threats? The two most commonly used methods for examining how people classify and categorize objects are similarity estimations (e.g., Forgas, 1976; Koch, et al., 2016; Rosenberg, Nelson, & Vivekananthan, 1968) and object sorting (e.g., Canter, Brown & Groat, 1985; Ward, 1977; Ward & Russell, 1981). The advantage of both of these approaches (to the extent that the participants are not asked to make their assessment on predefined dimensions) is that they allow each individual to base his/her judgment on any dimensions that he/she chooses. These techniques are therefore particularly suited for the investigation of how people spontaneously categorize objects without preconditions or theoretical assumptions. Similarity estimation entails estimating how similar pairs of objects are, while object sorting involves sorting a full set of objects into groups. Each of these approaches has its advantages and drawbacks. Similarity estimation provides data on perceived similarity between each of the different objects

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under study and masks the purpose of the task to a greater degree than the sorting task. Further, the sorting task may suggest to the participants the existence of more than one dimension of the construct under study, a risk that is significantly reduced when judging pairs of objects in isolation. Similarity estimations, however, rely on Likert-type response scales and there is a risk that participants calibrate the rating scale in different ways. In sorting tasks, the participants are typically exposed to, and thus aware of, the full range of phenomena when making their judgment, which presumably more accurately reflects the way humans categorize objects. Finally, the sorting task is considerably less mentally taxing and time consuming, reducing the risk of fatigue influencing the results. In order to offset the advantages and disadvantages of the two methodologies, participants in Study 2 carried out similarity estimations as well as a sorting task. The study was preregistered at aspredicted.org <http://aspredicted.org/blind.php?x=bw7ng4>.

Method

Participants

A sample of 502 participants from the U.K. was collected through the Prolific platform. As per the preregistration, Prolific's prescreening questionnaire was used to create quotas for gender (50/50) and political orientation (1/3 leftists, 1/3 centrists, 1/3 rightists). As in Study 1 and as indicated in the preregistration, a quality assurance question was posed to the participants, asking them if they recommend using their responses. Eleven participants recommended not to use their responses, making the final sample size 491 (50% female, Mean age = 38.60).

Measures

Similarity estimation

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The 18 threats generated in Study 1 were used as stimulus material in the study. The participants were presented with a pair of threats and were asked "To what degree do you think these two threats belong to different or similar types of threat?" Participants indicated their responses on a response scale from 1 (very different types of threat) to 7 (very similar types of threat). All possible combinations of the 18 threats were used, resulting in 153 threat pairs. In order to limit the length of the questionnaire and reduce fatigue from answering a large number of very similar questions, each participant was randomly shown half of the threat pairs (77 threat pairs). The order in which the threat pairs were presented, as well as the internal order between the two threats, were counterbalanced.

Sorting task

In addition, participants were given a sorting task, in which they were shown a list of all 18 threats and were asked to sort the different threats into boxes in any way they liked, by dragging and dropping the threats into a certain box. 18 boxes were shown on the screen, in case the participants wanted to place each threat in a separate box. A threat could not be placed in more than one box. The instructions to the participants were "Please sort the threats in the list below. You can divide them in any way you like, including putting all of them in the same box, putting each of them in separate boxes or any number of boxes in between. It is possible to leave some of the boxes empty. The order of the different items within the box does not matter, nor does the order of the different boxes." A screen shot of the sorting task is included in the online supplemental material.

Manipulation check

We further included a manipulation check item in which we asked the participants what the main criterion/criteria had been when they estimated similarity

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between threats and sorted the threats into different boxes. This question was posed after the participants had already completed both tasks. The participants could choose as many options as they liked and were given the following alternatives: a) whether the different threats could be said to belong to a common threat category; b) whether one threat might lead to another; c) whether the threats are likely to coincide d) whether the threats are directed at the same thing; e) whether the threats come from the same source; f) whether the threats have the same outcome; g) other:[free text option]. We assumed that the first alternative ("whether the different threats could be said to belong to a common threat category") would be the most common choice.

Results

In line with our expectation, the most common criterion indicated by the participants was whether the different threats could be said to belong to a common threat category (71%), followed by whether one threat might lead to another (38%), whether the threats are likely to coincide (31%), whether the threats come from the same source (26%), whether the threats have the same outcome (19%) and whether the threats are directed at the same thing (14%).

We analyzed the similarity estimations as well as the sorting task, using two different dimension reduction techniques, multidimensional scaling (MDS: Borg & Groenen, 2005) and principal component analysis (PCA: Jolliffe, 2002). The use of two different dimension reduction techniques allowed us to triangulate and examine where the results from the different approaches converge. For the purpose of the MDS and PCA, we created full matrices for each of the threat pairs, resulting in 18X18 matrices. For the purpose of the similarity estimates, the lower part of the matrix contained the mean similarity rating when the threat in the *row* was presented first and the upper part of the matrix the similarity rating when the threat in the *column* was

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presented first. For the sorting task, each cell of the matrix contained the number of instances in which the different threats appeared in the same box. The upper and lower parts of the matrix were thus identical for the sorting task.

We then proceeded to run separate MDS analyses on the similarity estimates and the sorting data, using the PROXSCAL procedure (Busing, Commandeur, Heiser, Bandilla, & Faulbaum, 1997), treating the scale as ordinal, e.g., not limited by the assumption that all scale steps were of equal magnitude. Similarly, we carried out PCAs for the similarity estimates and the sorting data, using oblimin rotation, allowing for the scales not to be orthogonal (Osborne, Costello, & Kellow, 2008).

These analyses were carried out for 1, 2, 3 and 4 dimensions to determine how many dimensions were sufficient to account for the data. We used a number of criteria to reach this decision. In MDS, the main criterion used is Kuskal's S, or stress (Kruskal, 1964), a measure of badness-of-fit. The stress value should be as low as possible, with a cut-off point of > 0.2 usually indicating an unsatisfactory fit to the data (Kruskal & Wish, 1978). A value of $\leq .15$ can be considered satisfactory and values $\leq .10$ as good (Kruskal & Wish, 1978). The use of PCA further gave us an indication of how much variance is explained by the component solution. There are no firmly established cutoff points for explained variance, but a common requirement is that the component solution can explain $\geq 60\%$ of the variance (Hair, Black, Babin, & Anderson, 2014).

Two other criteria are parsimony and interpretability. With regards to parsimony, dimension solutions containing fewer dimensions were preferred over solutions containing a larger number of dimensions. For interpretability, we compared the different dimension solutions for consistency across the different data collection methods (similarity estimates and sorting) and the different analysis strategies (MDS

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and PCA). Consistency was examined by identifying the extreme values on each of the dimensions (upper and lower third of coordinates/component loadings) and comparing across the four different solutions (MDS for similarity estimates, PCA for similarity estimates, MDS for sorting, PCA for sorting). If a certain threat belonged to the upper third of the same dimension across at least 3 out of the 4 different solutions, it was said to belong to the upper third of said dimension (and vice versa for threats belonging to the lower third). In order for a dimension solution to be consistent, we expected at least three threats to consistently belong to the same pole of a certain dimension across the different analyses. The 1-, 2- and 3-dimensional solutions satisfied our criteria of consistency in the sense that all dimensions had at least three threats that belonged to the same pole of a certain dimension. In the 4-dimensional solution, dimension 3 and 4 only had two threats consistently associated with the lower pole, making the 4-dimensional solution less interpretable. The full list of threats associated with the high and low poles of the different dimensions in the 2-, 3- and 4-dimension solutions can be found in Table 1.

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Table 1.

List of Threats Associated With the High and Low Poles of the Different Dimensions in the 2-, 3- and 4-dimension Solutions.

		Dimension solution		
		2	3	4
Dimension 1	<i>Low</i>	Terrorism	Racism	Extremism
		Racism	Religion	Racism
		Extremism	Extremism	Religion
		Religion	Terrorism	Terrorism
		War	War	War
	<i>High</i>	Climate change	Pollution	Pollution
		Pollution	Overpopulation	Env. damage
		Env. Damage	Disease	Climate change
		Overpopulation	Env. damage	Disease
		Disease	Climate change	Overpopulation
Dimension 2	<i>Low</i>		Economic collapse	Economic collapse
		Immigration	Inequality	Crime
		Inequality	Immigration	Economic collapse
		Poverty	Poverty	Immigration
		Greed	Crime	Inequality
	<i>High</i>		Economic collapse	
		Extremism	War	Env. damage
		Climate change	Env. damage	Pollution
		Env. Damage	Pollution	War
		War		
Dimension 3	<i>Low</i>		Terrorism	
			Immigration	Pollution
			Religion	Religion
	<i>High</i>		Pollution	
			Economic collapse	Bad government
			Bad government	Economic collapse
Dimension 4	<i>Low</i>		Greed	Greed
				Crime
	<i>High</i>			Economic collapse
				Immigration
				Poverty
				Crime
				Religion

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The results from the MDS and PCA analyses are presented in Table 2. The analysis indicated that one dimension was insufficient to account for the results, both in terms of stress levels (> 0.2 for the similarity estimates as well as for the sorting task) and in terms of explained variance (24% and 30% variance explained for similarity assessments and the sorting task, respectively). The 2- 3- and 4-dimensional solutions all had a satisfactory stress level (≤ 0.15 for both measures) but provided a relatively limited amount of explained variance (between 39% and 60% variance explained) (see Table 2). The results thus indicated that threat is a multidimensional rather than unidimensional construct, but did not allow us to determine whether 2, 3 or 4 dimensions are needed to accurately account for how people perceive threats.

Table 2.

Kruskal's Stress and Explained Variance for the 1-, 2-, 3- and 4-dimension Solutions.

		Kruskal's S	Explained variance
1 dimension	MDS similarity	.31	
	MDS sorting	.22	
	PCA similarity		24%
	PCA sorting		30%
2 dimensions	MDS similarity	.15	
	MDS sorting	.13	
	PCA similarity		39%
	PCA sorting		46%
3 dimensions	MDS similarity	.10	
	MDS sorting	.07	
	PCA similarity		49%
	PCA sorting		53%
4 dimensions	MDS similarity	.07	
	MDS sorting	.06	
	PCA similarity		57%
	PCA sorting		60%

Discussion

The results from Study 2 provide the first data-driven examination of how people categorize collective threats. Theories about threat have typically made certain

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theoretical assumptions about what constitutes threat, often operationalizing threat as a unidimensional construct. The results from Study 2 show that this assumption was incorrect and that threat is a multidimensional, rather than unidimensional construct. We were, however, not able to adjudicate with any certainty between the 2-, 3- and 4-dimension solutions, nor were we able to describe the nature of the dimensions in question. For these purposes, we carried out Studies 3 and 4.

Study 3

Study 2 provided us with a map of which collective threats are perceived as similar and different from each other. The next step in the investigation of how people categorize threats was to select content criteria that could be used to interpret the 2-, 3- and 4-dimensional spaces. This is usually done by allowing participants to rate the different stimuli on content criteria, typically derived from established theories in the field (e.g., Koch et al., 2016). In order to stay true to our data-driven strategy, we employed a novel procedure in Study 3, in which participants themselves were asked to generate content criteria on which they perceived collective threats to differ. In the study, participants were shown threats associated with the poles of the different dimensions for the 2-, 3- and 4-dimension solutions (see Table 1) and were asked to provide a free-text explanation of how these groups of threats differed from one another. The study was preregistered at aspredicted.org <http://aspredicted.org/blind.php?x=cv4gj9>.

Method

Participants

Participants were recruited from Prolific and, in accordance with the preregistration, the platform's prescreening was used to create quotas for gender

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(50/50) and political preference (1/3 left, 1/3 center, 1/3 right) among 60 U.K. participants who did not take part in Studies 1 or 2 (50% female, Mean age = 35.63).

Measures

The participants were presented with two groups of threat - one on the left side of the screen and one on the right side of the screen. They were told that participants in previous studies had estimated the threats in each group as being highly similar and that their task is to describe in what way the two groups of threats are different from each other. After being presented with the two groups of threat, they were posed the following free-text question: "In what way are the threats on the left different from the threats on the right in your view?" The groupings of threats were based on the results from Study 2 and the group of threats presented on the left side of the screen represented threats associated with the low pole of a certain dimension, while the group of threats presented on the right side of the screen represented threats associated with the high pole of the same dimension (see Table 1). The threat "religion" was in this study changed to the wording "religious fundamentalism" in order to provide this threat with a negative valence. Participants were randomly allocated to describe groups of threats taken either from the 2-, 3- or 4-dimension solution.

Following this free text task, participants were asked how difficult the task was on a scale from 1 (extremely easy) to 7 (extremely difficult). The measure of difficulty was included to provide an additional measure of interpretability of the dimension solution.

Results

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There were no significant differences in the difficulty of describing the 2-, 3- and 4-dimensional solutions. Descriptive statistics for perceived difficulty can be found in Table 3.

Table 3.

Means and Standard Deviations for Difficulty of Describing the Dimensions in the 2-, 3- and 4-dimensional Solutions.

	2-dimension solution		3-dimension solution		4-dimension solution	
	M	SD	M	SD	M	SD
Dimension 1	3.33	1.85	3.70	2.03	3.63	1.71
Dimension 2	4.76	1.67	5.05	1.70	4.58	1.46
Dimension 3			5.20	1.77	5.21	1.62
Dimension 4					3.95	1.08

We analyzed the contents of the descriptions using an inductive bottom-up thematic analysis (e.g., Braun & Clarke, 2006) in a 5-phase process. The process included the following steps: 1. Reading through the entire text; 2. Coding salient features in the text; 3. Organizing the data into potential themes; 4. Re-examining the relevance of the chosen themes to the gathered data and adjusting the theme content if needed; 5. Counting frequency of the different answers in each theme to establish the centrality and importance of each theme. In accordance with the preregistration, we proceeded to establish what were the most commonly used contents. The resulting list contained the following themes:

1. Local/Global consequences
2. Avoidability
3. Intentional/Unintentional
4. Related to economy

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5. Motivated by emotion
6. Direct/Indirect
7. Inter-human cruelty
8. Targets environment
9. Affects some/affects all
10. Motivated by ideology
11. Related to power
12. Collective-level/Individual-level consequences
13. Consequence of regular/irregular activity
14. Malicious intent
15. Physical/Symbolic
16. Clear perpetrator
17. Related to immigration
18. Long term/Short term consequences

Discussion

Study 3 allowed us to generate a list of criteria that could be used to disambiguate and interpret the different dimensions. Rather than basing the rating of collective threats on theoretical assumptions, the novel procedure employed in Study 3 enabled us to generate a list of criteria that reflect what criteria people spontaneously use to categorize and describe collective threats.

Study 4

We had thus generated a list of phenomena perceived as collective threats (Study 1), examined how these threats are categorized (Study 2) and generated a list of content dimensions on which these threats are perceived to differ (Study 3). This

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paved the way for Study 4, the purpose of which was to disambiguate and interpret the dimensions as well as adjudicate between the 2-, 3- and 4-dimensional solutions. This allowed us to finally determine the number and nature of the dimensions that are needed to account for the perception of collective threat. The study was preregistered at aspredicted.org <http://aspredicted.org/blind.php?x=ym2ku9>.

Method

Participants

Participants were recruited from the Prolific platform, creating quotas for gender, age and political preference among 300 U.K. participants who did not take part in any of the earlier studies. In accordance with the preregistration, 10 participants who recommended not to use their responses for the data analysis were excluded from further statistical analyses, making the final sample size 290 (49% female, Mean age = 42.96).

Measures

The 18 threats generated in Study 1 and the 18 criteria generated in Study 3 were used as stimuli in Study 4. We decided to divide the symbolic/physical criterion into two separate criteria, since the symbolic/physical division does not entail an unequivocal pair of opposites. We thus had a list of 19 criteria. In addition, we also included three valence criteria (concern for threats, severity of threats, importance of threats). The purpose of including these criteria was to be able to tease apart the influence of the general concern for the threat from the assessment of the threat on the different criteria. Participants were asked to assess each of the 18 threats on 7 out of the 19 criteria, requiring each participant to make 126 separate assessments. Seven criteria were randomly chosen for each participant. In addition, the order in which the 18 threats were presented was randomized. All participants assessed the threats on the

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three valence criteria. An example of the instruction for the local/global criteria was: "Threats can vary in the degree to which the consequences are felt on a global scale or on a local scale. For certain threats, the consequences would mainly be felt locally if the threat were to materialize, whereas for others, the consequences would be felt globally if the threat were to materialize. Please rate the following 18 threats according to how local or global the consequences would be." For each threat, participants were asked to assess the threat on the relevant criterion with a slider on a scale from 0-100, anchored at both sides with short descriptions of the low and high poles of the criterion (e.g., local consequences/global consequences).

Results

Mean ratings of all threats on each of the 22 criteria were calculated and entered into an 18X22 matrix. This matrix was used as input for a parallel analysis (Ledesma & Valero-Mora, 2007), using O'Connor's (2000) matrix. The parallel analysis indicated the existence of two dimensions. We thus ran a PCA, limiting the number of components to two, using oblimin rotation. The first two components accounted for 74% of the variance. The component solution indicated that 11 out of the 22 criteria loaded $> .4$ on the first component and $< .4$ on the second component, while 10 out of the 22 criteria loaded $> .4$ on the second component and $< .4$ on the first component. The only criterion which didn't load $> .4$ on either component was "related to economy". The full component solution from the PCA can be found in Table 4.

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Table 4.

Component Solution from the Study 4 PCA. Component Loadings of $< .4$ are Not Displayed in the Table.

	Component 1	Component 2
Malicious intent	.98	
Threats against symbolic values and principles	.96	
Clear perpetrator	.96	
Intentional	.96	
Interhuman cruelty	.94	
Ideologically motivated	.92	
Direct (active)	.91	
Emotional motivation	.91	
Related to power	.85	
Consequence of regular/irregular actions	.76	
Avoidable	.48	
Related to economy		
Affects all		.91
Severe		.87
Global		.87
Collective-level consequence		.87
Targets environment		.84
Long-term consequences		.84
Concerning		.76
Threats against something tangible or physical		.75
Related to immigration		-.72
Important		.65

We also ran parallel analyses and PCAs separately in each of the political groups (among leftists, centrists and rightists), entering the 19 criteria, but not the valence criteria. The results were highly similar in the different political groups. In each of the groups, the parallel analysis indicated the existence of 2 components explaining between 72% and 75% of the variance. Nine of the criteria (malicious intent, intentional, clear perpetrator, direct action, threats against symbolic values, ideological motivation, interhuman cruelty, related to power and emotional motivation) loaded $> .4$ on the first component and $< .4$ on the second component

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across all political groups. Further, seven of the criteria (affects all, global, collective-level, long-term consequences, related to the environment, threats against something physical and tangible and unrelated to immigration) loaded $> .4$ on component 2 and $< .4$ on component 1. These 16 criteria were considered as the final list of criteria associated with the two dimensions. The separate component loadings for leftists, centrists and rightists can be found in the online supplemental material. There was some variation across the different political groups with regards to the criteria irregular action and avoidability, and "related to economy" did not load $> .4$ on either of the components. The 6 threats that had the highest score on the first component were terrorism, war, extremism, religious fundamentalism, racism and nuclear weapons, while the threats with the lowest scores on this component were disease, overpopulation, climate change, poverty, pollution and economic instability. The threats with the highest score on the second component were climate change, nuclear weapons, environmental damage, pollution, war and overpopulation, while the threats with the lowest score on the second component were racism, immigration, inequality, crime, poverty and religious fundamentalism.

The content description of the two dimensions was chosen based on the criteria that loaded on the different dimensions in the PCA as well as the specific threats associated with the high and low poles of the different dimensions. We term the first component Omission/Commission with threats low on this dimension being the result of indirect, unintentional passivity without malicious intent (e.g., disease, overpopulation, climate change), while threats high on this dimension are direct, intentional action with malicious intent (e.g., terrorism, war, extremism). The second dimension was termed Local/Global, with threats that are low on this dimension being local threats with short-term consequences affecting parts of the population (e.g.,

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racism, immigration, inequality), while threats that are high on this dimension could best be described as global threats with long-term consequences that affect the entire population (e.g., climate change, nuclear weapons, environmental damage). These dimensions could also be said to capture the *intent* and *extent* of collective threat – the degree to which the threat is perceived as the result of intentional action and the extent of the threat in question.

We were further interested in comparing the coordinates of the different threats on the two dimensions across Study 2 and Study 4, studies that included three different methods of measurement, analyzed with two different dimension reduction techniques. For each threat, we calculated standardized scores for the MDS and PCA of the similarity assessment and sorting task (Study 2) as well as the PCA of the criteria assessment (Study 4), resulting in 5 standardized scores for each threat on each of the two dimensions. The placement of the threats in the two-dimensional space was strikingly similar across the different studies, different measurements and different statistical approaches, as indicated by intercorrelations for placement of the threats on the same dimension across the different scores between $r = .43$ and $r = .98$, with 14 out of 20 correlations having intercorrelations of $r > .70$. To graph the different threats in a 2-dimensional space, we calculated average placement on the two dimensions for the different threats in Study 2 and Study 4. These composite placements on the different dimensions had very high reliability – dimension 1 $\alpha = .98$, dimension 2 $\alpha = .90$ – again attesting to the high degree of consistency regardless of measurement and statistical approach. Figure 1 shows the placement of each of the threats in the 2-dimensional space, based on this composite placement. Property-fitting analyses was further carried out to compare the suitability of the two dimensions for interpreting the threats' 1D, 2D, 3D and 4D similarity space. Details

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from these analyses can be found in the online supplemental material (this research was conducted before the coronavirus pandemic. It is likely that today disease would be rated higher in extent).

Figure 1.

Placement of collective threats on the intent and extent dimensions, based on average placement on the composite, combining results from Studies 2 and 4.

We were further interested in examining the relationship between political preference and threat assessment. These analyses were not preregistered. We divided the threats into high and low on the two dimensions, based on median split of the composite placement across studies 2 and 4. This allowed us to categorize the threats into four categories: Global Omission threats, Local Omission threats, Local Commission threats and Global Commission threats. We then ran multiple regression analyses for each of the collective threats, entering political preference as predictor and threat valuation as criterion, controlling for age and gender.

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The results showed that leftists were generally more concerned than rightists by omission threats. This included global omission threats, such as climate change, pollution, environmental damage and bad government as well as the local omission threats poverty and greed. Overpopulation was an exception to this general pattern and was emphasized more by rightists than by leftists. Rightists, on the other hand, tended to be more concerned by commission threats, including global commission threats such as terrorism, religious fundamentalism and extremism as well as local commission threats, such as crime and immigration. Inequality and racism were exceptions to this general rule and were associated with left-wing political preferences (see Table 5).

Table 5.

Regression Coefficients (Beta-values) of the Relationship Between Political Preference and Threat Valuation, Controlling for Age and Gender.

	Political preference X threat valuation
Global omission threats	
Environmental damage	-.25**
Climate change	-.24**
Pollution	-.23**
Bad government	-.22**
Local omission threats	
Greed	-.28**
Poverty	-.34**
Economic collapse	-.03
Disease	-.01
Overpopulation	.17**
Local commission threats	
Inequality	-.47**
Racism	-.29**
Crime	.14*
Immigration	.43**
Global commission threats	
Nuclear weapons	-.09

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War	-.06
Extremism	.10 [†]
Religious fundamentalism	.15 [*]
Terrorism	.21 ^{**}

Discussion

Study 4 showed that people perceive threats along two main dimensions – Omission/Commission and Local/Global; in other words, the intent and extent of collective threat. The Omission/Commission dimension refers to the degree to which the threat in question is the result of indirect, unintentional passivity without malicious intent (Omission), or direct, intentional action with malicious intent (Commission). The Local/Global dimension refers to the degree to which the threat is a local phenomenon with short-term consequences affecting parts of the population (Local), or a global phenomenon with long-term consequences affecting the entire population (Global). This finding constitutes an important theoretical advancement in the study of threat perception. The present series of studies is the first to carry out a data-driven examination of the perception of collective threats, free from theoretical assumptions.

The results from the study further show that whereas leftists tend to emphasize omission threats, political rightists tend to emphasize commission threats. Dominant theories in the field of political psychology have postulated that conservatives, or political rightists, are more threat prone and perceive the world as more dangerous than political liberals, or leftists (Altemeyer, 1998; Duckitt, 2001; Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost, Nosek, & Gosling, 2008; Jost, Stern, Rule, & Sterling, 2017;). The results of Study 4 suggest that there are boundary conditions to the conservatism X threat relationship. Whereas conservatives indeed are more concerned by commission threats, notably threats against collective security

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and stability, liberals are more concerned by omission threats, such as environmental threats and threats against social justice (e.g., poverty and greed). Our studies show that a wide range of phenomena are perceived as collective threats against society and that what differentiates between conservatives and liberals is not the degree to which they are concerned by collective threats, but rather which threats they emphasize. We suggest that a key variable in understanding and interpreting the difference between liberals and conservatives is the attitude towards social change versus social stability. The degree to which one endorses change or stability in society lies at the heart of the conservative-liberal, or right-left, divide (Burke, 1790/1973; Jost et al., 2003; Jost, Federico, & Napier, 2009; Paine, 1791/1986). Whereas conservative ideology emphasizes collective stability and values associated with conservation, tradition and security, liberal ideology tends to emphasize values associated with openness to change (e.g., Piurko, Schwartz, & Davidov, 2011). Indeed, the ideology of conservatism historically grew out of resistance to chaos, disorder and anarchy (e.g., Burke, 1790/1973), while the historical roots of liberal (e.g., Locke, 1690/1976; Paine, 1791/1986) as well as socialist (e.g., Marx, 1974/1867; Rousseau, 1762/1968) ideology can be traced to attempts to bring about a new social order, by means of collective reform or revolution.

While the danger in omission threats lies in passivity and the failure to implement necessary changes, the danger in commission threats lies in the carrying out of an action that threatens security and stability. To use a naval metaphor, if the danger in omission threats lies in not changing a catastrophic course, the danger in commission threats lies in someone hijacking the ship, steering it into dangerous waters. Therefore, conservatives' safeguarding of collective stability and security may underlie their greater emphasis on commission threats, while liberals' openness to

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collective change may underlie their greater emphasis on omission threats. Further research is however needed in order to examine the validity of this interpretation.

Study 5

Studies 1-4 were restricted to two cultural settings – the U.S. and the U.K. We carried out studies 5 and 6 in order to examine whether the patterns could be obtained in a wide variety of cultural settings. We had access to data from the PEW Global Attitudes and Trends survey from 2017 (Pew Research Center, 2017), including data from a wide range of countries regarding political preferences and valuation of different collective threats. In order to map these threats on the Omission/Commission and Local/Global dimensions, we carried out Study 5. This study also provided an opportunity to test the two-dimensional model of collective threat, using a different list of threats, generated by independent researchers. The study was preregistered at aspredicted.org <http://aspredicted.org/blind.php?x=5q22jk>.

Method

Participants

We used the representative sample function of the Prolific platform to collect 312 U.S. participants, representative of the general population in terms of gender, age and race/ethnicity (i.e., White, Black, Asian, Mixed or Other). As in previous studies, and as per the preregistration, we excluded participants who did not recommend us to use their responses in the statistical analysis ($N = 9$), making the final sample size $N = 303$ (51% female, Mean age = 43.90).

Measures

The threat items appeared in PEW surveys between 2012 and 2017 with slight variations from year to year. In Study 5, we opted for general phrasings of the threats that would encompass the different variations across the different surveys. For

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example, in some of the surveys, participants were asked about Islamic militant groups and in some surveys about the threat of the Islamic State. We chose to ask about the more general phenomenon of "Islamic militant groups". In order to clarify, we also added the phrase "The threat emanating by...", followed by the different threats. Ten threats from the PEW surveys were included in Study 5:

1. Climate change
2. Islamic militant groups
3. Cyberattacks on governments, banks or corporations
4. Large-scale immigration of refugees from countries such as Iraq and Syria
5. Economic instability
6. Pollution and other environmental problems
7. Spread of nuclear weapons
8. AIDS and other infectious diseases
9. Religious and ethnic hatred
10. Growing gap between rich and poor

We further included an 11th threat – right-wing extremist groups – in order for participants not to experience the survey as biased against Muslims. This threat, however, was not included in any of the PEW surveys and was, in accordance with the preregistration, excluded from further analysis.

Participants were asked to rate each of these 10 threats on the final 16 criteria associated with the two dimensions as per Study 4, with a few notable revisions. We combined emotional and ideological motivation into one item (ideological and/or emotional motivation) and removed two criteria related to specific contents ('related to the environment' and 'related to immigration'). This was done in accordance with the preregistration. Participants were asked to assess each of the 10 threats on all 13

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criteria. The order of the criteria as well as the order of the threats within each criterion were counterbalanced. All participants further assessed the threats on the three valence criteria used in Study 4. As in Study 4, for each threat, participants were asked to assess the threat on the relevant criterion with a slider on a scale from 0-100, anchored at both sides with short descriptions of the low and high poles of the criterion.

Results

A parallel analysis indicated the existence of two main dimensions and a PCA confirmed the dimension structure obtained in Study 4. The two first components accounted for 86% of the variance and had eigenvalues of > 4 , with subsequent components having eigenvalues of < 1 . The criteria intentional, direct action, clear perpetrator, malicious intent, interhuman cruelty, ideological/emotional motivation, symbolic values, and power loaded $> .40$ on the Omission/Commission component, while loading $< .40$ on the Local/Global component. The criteria local/global, affects all, collective level, long-term consequences and physical loaded $> .40$ on the Local/Global component, while loading $< .40$ on the Omission/Commission component. We calculated the mean score on each of the two components for each threat. This enabled us to classify the different threats. We divided the threats, using median split, into local omission threats, global commission threats and local commission threats. As in Study 4, leftists (liberals) were more concerned with omission threats (climate change, pollution, economic instability and growing gap between rich and poor). Rightists, on the other hand, tended to be more concerned by commission threats, primarily Islamic militant threats and immigration (see Table 6).

Table 6.

Beta coefficients for the relationship between political preference and threat valuation, controlling for age and gender.

	Political preference X threat valuation
Global omission threats	
Climate change	-.45**
Pollution	-.38**
Economic instability	-.22**
Local omission threats	
Growing gap between rich and poor	-.37**
AIDS and other infectious diseases	-.09
Global commission threats	
Islamic militant groups	.28**
Spread of nuclear weapons	-.03
Local commission threats	
Immigration	.48**
Cyberattacks on governments, banks or corporations	.01
Religious and ethnic hatred	-.09

Discussion

In addition to mapping the threats from the Pew global attitudes and trends survey on the omission/commission and local/global dimensions, the study provided an opportunity to replicate the dimension structure of collective threat, using a different list of threats, generated by independent researchers. The study provided further support for the 2-dimensional model of collective threat. The results from Study 5 replicated the result from Study 4, that while rightists emphasize commission threats to a greater degree than leftists, leftists emphasize omission threats to a greater degree than rightists.

Study 6

Study 6 was carried out to examine whether the political left and right differ in their threat valuation and more specifically, if the political left emphasizes omission

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threats while the political right emphasizes commission threats. We were further interested in examining whether these patterns were context-dependent or are cross-culturally valid. This study was based on an analysis of the data from PEW research center's global attitudes and trends survey from 2017 (Pew Research Center, 2017). The survey was carried out in 38 countries in large (N ~1000) samples – altogether 41,953 participants. In 22 of these countries (Argentina, Australia, Brazil, Canada, Chile, Colombia, France, Germany, Greece, Hungary, Israel, Italy, Mexico, Netherlands, Peru, Poland, South Korea, Spain, Sweden, United Kingdom, United States and Venezuela, aggregate N = 22,529), participants were asked to indicate their political orientation on a scale from 0 (Left) to 6 (Right). In the U.S., participants were asked to indicate their political orientation on a scale from 1 (Very conservative) to 5 (Very liberal). The US scale was reversed and recoded to align with the other countries (1=6, 2=4.5, 3=3, 4=1.5, 5=0).

Participants were further asked to rate how big of a threat different phenomena constituted. They were asked: "I'd like your opinion about some possible international concerns for (survey country). Do you think that ____ is a major threat, a minor threat or not a threat to (survey country)?" The threats that were listed included the following: Global omission threats: global climate change and the condition of the global economy; Global commission threats: the Islamic militant group known as ISIS; Local commission threats: cyberattacks from other countries and large number of refugees leaving countries such as Iraq and Syria. Participants were finally asked to what degree China, the U.S. and Russia constituted threats, but the results regarding these country-based threat were not analyzed, since these items referred to the origin of the threat rather than its' nature. For the five other threats, we carried out Multilevel modeling.

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As a first step, we examined whether there was significant clustering of observations within different countries that would justify running Multi-Level Modeling (MLM). The proportion of variation in the perception of threat that was due to cross-national differences (the intra-class correlation coefficients or ICC) was 7% for climate change, 9% for ISIS, 5% for cyberattacks, 8% for refugees and 9% for the economy. Since ICC's $> .5\%$ are usually seen as indicating substantial clustering on level 2 units, we were justified in carrying out MLM.

In the second step, we entered political orientation as a fixed effect, i.e., assuming that the intercepts and slopes do not vary between the different countries. As hypothesized, left-wing political preference was related to perceiving omission threats as major threats: climate change $\beta = -.10$, $t = -21.03$, $p < .001$; the condition of the global economy $\beta = -.02$, $t = -3.40$, $p = .001$. Right-wing political preference was related to perceiving commission threats as major threats: ISIS $\beta = .05$, $t = 11.36$, $p < .001$; Syrian/Iraqi refugees $\beta = .13$, $t = 23.74$, $p < .001$. Cyberattacks from other countries, one of the commission threats, was however unrelated to political preference. All means as well as all correlation coefficients in the different countries can be seen in Table 7.

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Table 7.

Means of Political Preference (polM) and the Perception of Climate Change (cliM), Islamic Militant Groups (IslM), Refugees (refM) and Economic Instability (ecoM) as Major Threats, as well as the Intercorrelations Between Political Preference and Perception of the Different Threats in the Different Countries.

	Pol M	Cli M	Isl M	Ref M	Cyb M	Eco M	polX cli	polX Isl	polX ref	polX cyb	polX eco
U.S.	-.10	2.38	2.70	2.11	2.71	2.19	-.54**	.25**	.51**	-.04	.03
Australia	.01	2.46	2.54	2.06	2.51	2.32	-.40**	.31**	.38**	.12**	-.02
U.K.	-.07	2.53	2.70	2.09	2.59	2.26	-.20**	.20**	.27**	.10**	-.11**
Canada	-.02	2.53	2.49	1.88	2.41	2.22	-.25**	.17**	.26**	.02	-.03
Netherlands	.14	2.59	2.64	2.04	2.56	1.92	-.24**	.14**	.25**	.03	-.03
Germany	-.36	2.60	2.75	2.05	2.66	2.00	-.16**	.12**	.23**	.03	-.04
Sweden	.01	2.61	2.51	1.88	2.44	2.05	-.13**	.13**	.29**	.03	.04
Spain	-.21	2.87	2.88	2.06	2.61	2.67	-.14**	.12**	.16**	.05	-.05
France	.00	2.68	2.90	2.16	2.62	2.32	-.06*	.11**	.30**	.08*	.05
Greece	-.22	2.77	2.74	2.52	2.49	2.85	-.10*	.08*	.20**	.02	.01
Israel	.07	2.21	2.47	2.06	2.24	2.20	-.09**	.07*	.06	-.10**	-.14**
Argentina	.03	2.76	2.46	1.91	2.47	2.60	-.06	.10**	.06	.08	-.10*
Brazil	.28	2.66	2.43	2.03	2.51	2.54	-.11**	.01	.09*	-.06	-.07*
Hungary	.12	2.58	2.61	2.62	2.30	2.28	-.06	.07	.13**	-.01	.02
Poland	.43	2.30	2.59	2.51	2.43	1.99	-.04	.10**	.14**	.05	.06
Colombia	.09	2.65	2.29	2.01	2.40	2.51	-.09**	-.02	.01	-.06	-.08*
South Korea	-.21	2.76	2.53	2.12	2.75	2.75	-.04	.08*	.01	.03	-.02
Chile	-.30	2.84	2.41	1.94	2.57	2.65	-.06	-.01	.06	.06	-.01
Mexico	-.08	2.67	2.33	2.09	2.46	2.59	-.03	-.04	.06	.04	-.06
Italy	-.20	2.65	2.84	2.60	2.40	2.54	.05	.07	.17**	.08	.08
Peru	.24	2.73	2.23	1.94	2.27	2.35	-.14**	-.12**	-.02	-.16**	-.09**
Venezuela	.31	2.37	2.18	1.88	2.23	2.41	.04	.05	.05	-.09*	.03

In the next model in the MLM we tested for the possibility that the relationship between political preference and threat perception differed in the different countries by adding political preference as a random effect, allowing for the intercepts as well as the slopes to vary across the different countries. This analysis indicated that

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the intercepts as well as the slopes varied across the different countries for all threats. Specifically, intercepts (the absolute level of perceived threat) varied between the different countries for climate change $\beta = .03$, Wald $z = 3.27$, $p = .001$, ISIS $\beta = .04$, Wald $z = 3.27$, $p = .001$, cyberattacks $\beta = .02$, Wald $z = 3.23$, $p = .001$, refugees $\beta = .05$, Wald $z = 3.26$, $p = .001$ and economy $\beta = .07$, Wald $z = 3.29$, $p = .001$. Further, slopes (the relation between political preference and threat) varied for climate change $\beta = .01$, Wald $z = 3.18$, $p = .001$, ISIS $\beta = .003$, Wald $z = 2.88$, $p = .004$, cyberattacks $\beta = .002$, Wald $z = 2.57$, $p = .010$, refugees $\beta = .01$, Wald $z = 3.14$, $p = .002$ and economy $\beta = .001$, Wald $z = 2.15$, $p = .031$.

With regards to the differing slopes in the different countries, it is worth noting that in 10 out of the countries, these slopes were particularly pronounced in the United States, Australia, United Kingdom, Canada, Netherlands, Germany, Sweden, Spain, France and Greece. These are all countries in North America, Western and Southern Europe and Australia. Thus, the overall relationship between political identity and perception of threat seemed to be mainly due to these patterns in North America, Western and Southern Europe and Australia

Discussion

The results of Study 6 corroborated the finding that rightists emphasize commission threats while leftists emphasize omission threats. This pattern was apparent across large-scale representative samples from 22 countries located in 5 different continents. The obtained pattern mainly stemmed from liberal Western democracies in North America, Europe and Australia and we thus limit our conclusions regarding the link between political preference and threat valuation to such countries at present.

General Discussion

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The results of the current six large-scale preregistered studies reveal how collective threats are perceived. They clarify the kind of phenomena that people perceive as collective threat and demonstrate that people tend to categorize collective threats according to their extent (local/global) and intent (omission/commission). The results further show that while political rightists (or conservatives) emphasize commission threats more than do leftists (or liberals), leftists emphasize omission threats to a greater degree than do rightists. Specifically, after compiling a list of phenomena that participants spontaneously perceived as collective threats (Study 1), we showed that threat is a multidimensional, rather than unidimensional construct (Study 2). We further generated a list of criteria which participants used to disambiguate and interpret the different dimensions (Study 3), and found that people perceive collective threat along two main dimensions – Omission/Commission and Local/Global. The Omission/Commission dimension refers to the degree to which the threat in question is the result of indirect, unintentional passivity without malicious intent (Omission), or direct, intentional action with malicious intent (Commission). The Local/Global dimension refers to the degree to which the threat is a local phenomenon with short-term consequences affecting parts of the population (Local), or a global phenomenon with long-term consequences that affect the entire population (Global) (Study 4). This finding was replicated in a separate sample, using a different list of collective threats, generated by independent researchers (Study 5). The results from the studies further show that whereas leftists tend to emphasize omission threats, political rightists tend to emphasize commission threats (Studies 4, 5 and 6). This pattern was validated across large-scale representative samples from 22 countries located in 5 different continents. The obtained pattern mainly stemmed from liberal Western democracies in North America, Europe and Australia (Study 6).

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These results have important theoretical implications since they provide the basis for the first conceptualization of collective threat entirely built on lay perceptions, without theoretical preconceptions and assumptions. As such, the two-dimensional model of collective threat provides a unique opportunity to reexamine the relationship between collective threat and political preference while dramatically reducing the risk of bias. The results produced a surprisingly unequivocal picture with regards to the number of dimensions along which threats differ and the content of these dimensions. The dimensions in question (Omission/Commission and Local/Global) further paint a clear theoretical picture and allow for a mapping of societal threats into different types, or categories, of threat.

Implications for the study of political preference and threat

In this article, we demonstrated the importance of the two-dimensional model of threat for the study of the motivational bases of political preferences. According to the theory of conservatism as motivated social cognition, conservatives are more sensitive to threat and more motivated to reduce threat and uncertainty (Jost et al., 2003). This general conclusion regarding the role of threat, however, is based almost entirely on research operationalizing threat as security and stability threats (Eadeh & Chang, 2019; Jost et al., 2017). The current research indicates that the conclusion reached in this theoretical perspective is overly broad. We show that the perception of collective threat extends beyond threats to security and stability to include phenomena that are the consequence of unintentional passivity – indeed at times threats that are the consequence of *exaggerated* stability, a failure to make necessary changes in the status quo. We reason that any comprehensive conclusion regarding the relationship between the perception of threat and political preferences, should take into account a wider range of collective threats, including omission threats as well as commission

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threats and local threats as well as global threats. In our studies, we find that while conservatives indeed tend to be more concerned by threats that are the result of intentional activity with malicious intent, they are in fact less concerned than liberals with threats that are the result of unintentional passivity. What differentiates, therefore, between conservatives and liberals is not the degree to which they are concerned by collective threat overall, but rather which collective threats they emphasize. On this basis, we suggest that the basic hypothesis about the relationship between threat and political preference should be restated to claim that conservatives are more motivated to reduce the uncertainty and threat arising from threats to security and stability (i.e., commission threats), and that all *political ideology*, not only conservative ideology, serves the psychological function of managing threat and uncertainty (see also Greenberg & Jonas, 2003 for a similar perspective).

The importance of studying perceptions of threat

Our approach to threat research emphasizes the need to differentiate between threat as an abstract theoretical concept and the subjective perception of threat. Conceptual discussions about what phenomena should be included in the threat construct and what differentiates between different threats have serious pitfalls. Either, proponents of different worldviews will argue that the phenomena that they consider threatening to society are the "real" threats, while the phenomena that their ideological opponents are concerned with are the result of a distorted world view, and an ideologically motivated attempt to influence the political agenda. Another possibility, which could arguably be said to reflect the current situation in the field, is to view *only* the phenomena that the ideological opponents are concerned with as threats, while considering the societal challenges one's own side focuses on as 'legitimate concerns' or 'social problems to tackle' rather than motivationally based

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fears and threats. The latter perspective is presumably based on an assumption that one's own political side is less influenced by motivational biases and distorting emotional responses than the other side. We suggest that the best way to resolve this issue and avoid the pitfalls of conceptual discussions about threat is to focus on the subjective perception of threat, as we have in the present article. It is, after all, the subjective experience of threat that ends up influencing political attitudes, decisions and behaviors.

Why do liberals and conservatives differ in their valuation of threat?

Our interpretation of the results regarding the relationship between collective threat and political preference is that while conservatives emphasize threats that threaten the stability of the status quo (i.e., commission threats), liberals emphasize threats that *emanate* from the status quo – threats that will occur as a consequence of passivity and the failure to make necessary changes and reforms (i.e., omission threats). This interpretation resonates with previous conceptualizations of political ideology, which emphasize attitudes towards social change as one of the key elements of conservative/liberal ideology (Jost et al., 2003; 2009). We were, however, unable to corroborate this interpretation, since no measures of attitude towards social change were included in the studies. We believe that the endeavor to uncover the reasons and mediating variables that can explain *why* conservatives and liberals differ in the way they do in their valuation of omission and commission threats is an important topic for future research.

Why Omission/Commission and Local/Global?

The presented studies do not provide an answer to why threats were primarily organized in terms of omission/commission and local/global. It is however interesting to note the parallel to a long tradition in attribution theory (Darley & Shultz,

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1990; Fincham & Roberts, 1985; Heider, 1958; Shaver, 1985; Shultz et al., 1981; Weiner, 1995) and the cognitive development tradition of moral psychology (e.g. Baron & Ritov, 2004; Hebble, 1971; Shultz et al., 1986; Yuill & Perner, 1988; Zelazo et al., 1996), which have both contrasted the relative weight given to consequences vs. intentions of negative actions. In moral judgment, people tend to base their judgment on the scope of the negative consequences and the degree to which the agent had malevolent intentions (e.g., Cushman, 2008). Viewed from this perspective, it is conceivable that participants in our studies assessed the threat in a similar way, comparing them in terms of degree of intentionality (omission/commission) and the extent of the negative consequences (local/global).

Implications for threat taxonomies

The obtained results also have important implications for existing threat taxonomies. Integrated threat theory (Stephan & Stephan, 2000, Stephan & Renfro, 2003), the multidimensional existential threat model (Hirschberger et al., 2016) and the compensatory political behavior model (Crawford, 2017) all differentiate between physical and symbolic threats (or realistic/symbolic threats, physical/meaning threats). These theories come close to the subjective perception people tend to have of collective threats. Physical threats tend to be commission threats, typically of a local nature. That is, threats with immediate, local consequences that are the result of intentional activity, intending to harm others. These include, notably, threats such as terrorism, war, crime and other acts of violence. The present research, therefore, corroborates the MET model (Hirschberger et al., 2016), and can help to explain why rightists tend to focus on physical threats while leftists tend to focus on symbolic threats. Notably, and consistent with the results from the present studies, rightists may emphasize physical threats since they tend to have a clear origin – a perpetrator whose

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intentional actions threaten the physical welfare of society. Symbolic threats on the other hand, tend to lack a clear perpetrator and the consequences of such threats are less immediate.

This research can also clarify previous inconsistencies in this literature. While leftists have been found to emphasize existential symbolic threats, such as threats to democracy, research on ITT typically indicates that *rightists* emphasize symbolic threats, such as threats to the national culture and values posed by immigrants. The present results indicates that it is not the symbolic or physical nature of the threats per se that determines whether they will be emphasized by the political left or right, but rather whether they are omission or commission threats – threats that are perceived as the result of intentional activity or unintentional passivity.

Applied importance

Society is becoming ever more divided and polarized along political partisan lines, with each side being convinced of the virtue of their own perception of reality and the folly of their opponents'. One of the main points of contention regards what collective threats are the most pressing and urgent to deal with. Each side in ideological disputes tends to be convinced that the other side is unaware, or chooses to ignore, the most pressing threats against society. In order to decrease such polarization and deal effectively with the threats and challenges facing society, what is needed is increased awareness and understanding of the processes involved in the experience of threat and the effect such threat experiences have on attitudes, behavior and decisions. Such increased awareness and understanding of one's own and others' perception of collective threats enables policy makers to consider the full domain of threats to society and be aware of their own ideological blind spots.

Limitations

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The results from the studies provide validity for the relationship between collective threat and political preferences across large-scale representative samples from 22 countries. This enables us to delineate the boundaries and limitations of this relationship and clarify the degree of universality of the findings. Our results indicate that while the difference between political leftists and rightists is generalizable across a wide range of Western democracies, these differences may be limited to this cultural-political sphere. This finding is in line with earlier results, which have indicated that the left-right division is uncommon outside of Western cultures (Malka et al., 2017). In many countries, the influential political dividing lines are more likely to be between religious and secular, moderates and militant, or different ethnic groups. It is important to note that this limitation is shared with the current dominant perspectives in the literature, which have relied heavily on samples from the U.S. in order to draw universal conclusions about the relationship between threat and political preferences. In order to keep the focus on the complexities involved in the perception of collective threat, we used a simple measurement of political preference in the present studies, asking people to characterize their political preferences on a unidimensional left-right, or liberal-conservative, scale. We do however acknowledge that there are additional potential dimensions on which political preference may vary (e.g., Carmines, Ensley, & Wagner, 2012; Feldman & Johnston, 2014). Notably, political preferences are commonly differentiated along cultural/social and economic political dimensions (Treier & Hillygus, 2009) and research has shown that these dimensions are weakly, sometimes even negatively, related (Malka, Lelkes, & Soto, 2017). The present studies thus take a first step in examining the relationship between political preferences and threat, using a fully data-driven approach. Future studies could take the next step in this investigation, examining how people spontaneously

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perceive political preferences. Such an investigation would enable a full mapping of how lay perceptions of political preferences relate to lay perceptions of collective threat and would constitute an additional important theoretical advancement.

Further, since the reported studies are correlational rather than experimental, we cannot draw conclusions about the causal relationship between perception of threat and political preference. Future studies could examine the causal relationship by raising the salience of omission vs. commission threats to see whether doing so affects political preferences in the expected way. Further, while the list of threats used in the studies was data-driven, we do not claim that this list constitutes an exhaustive list of all phenomena people perceive as collective threats. We assume and believe that there would be differences in the phenomena mentioned across different cultural settings and across different time periods. We do suggest, however, that although the specific phenomena experienced as collective threat may vary, the main dimensions along which they are perceived (i.e., Local/Global and Omission/Commission) will be stable.

Concluding thoughts

Although the research reported here took place before the outbreak of Covid-19 – a global viral pandemic that poses a serious worldwide health threat, the model derived from this research offers a new perspective and sheds unique light on the type of threat Covid-19 poses, and on how people perceive such threats. According to our model, Covid-19 is a global threat of omission – there is no intentional perpetrator and to offset the potential catastrophic consequences of the threat substantial preemptive measures must be taken. The various reactions of politicians to the threat also seem to fit our model quite well. Whereas liberals tend to emphasize the necessity of public healthcare systems that are capable of providing care for all in

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such times, many conservative politicians and pundits focus on the global economic consequences of the extreme reactions governments have taken in response to Covid-19. Indeed, conservatives are considerably less concerned by covid-19 compared to liberals (Cova, 2020). These different responses correspond with our contention that liberals are more attune to global threats of omission such as threats to the environment, to democratic institutions, and to public health.

In sum, assessment of the threats facing society to a large extent determine how we face the challenges of the future. Understanding how we perceive and assess collective threats and how this informs political preferences is therefore a central question for social psychological research. Using a data-driven strategy, free from theoretical preconditions, we show that the perception of threats include a wide range of phenomena that tend to be organized around intent and extent of the threat. This conceptualization of collective threats allowed us to revisit the relationship between threat and political preferences and, in contrast to dominant theories in the field, we show that what differentiates between conservatives and liberals is not the degree to which they are motivated to reduce threats, but rather which threats they are motivated to reduce.

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Footnotes

¹ We use the terms conservative/liberal and right/left interchangeably in the current article. The terms conservative and liberal are primarily used in the U.S., whereas the terms right and left in other countries, notably in European countries, where the term liberal usually is reserved for those who support a free market economy and small government. We switch between these terminologies in order to stay true to the terminology used in the theoretical perspective under discussion as well as the terms used in the political setting under discussion.

² The preregistration refers to the U.K. sample. We carried out an exact replication in a U.S. sample for which we did not create a separate preregistration.

Online supplemental material**Study 1 – Additional analyses**

We were interested in whether political preference was associated with the mention of the threats from the final scale (although this analysis was not preregistered). In order to examine this, we created dummy variables for each of the 18 threats (0 = not mentioned, 1 = mentioned) and ran binary logistic regressions for each of the threats, entering political preference as predictor, controlling for age and gender.

In both samples, right-wing/conservative political preference was associated with the mention of terrorism (U.K.: $B = .20$, $SE = .09$, $p = .022$; U.S.: $B = .34$, $SE = .08$, $p < .001$) and immigration (U.K.: $B = .65$, $SE = .15$, $p < .001$; U.S.: $B = .69$, $SE = .16$, $p < .001$), while left-wing/liberal political preference was associated with inequality (U.K.: $B = -.41$, $SE = .21$, $p = .045$; U.S.: $B = -.50$, $SE = .13$, $p < .001$). In the U.S. sample, right-wing/conservative political preference was further associated with the mention of crime $B = .44$, $SE = .19$, $p = .023$ and economic collapse $B = .46$, $SE = .20$, $p = .019$, while left-wing/liberal political preferences was associated with the mention of climate change $B = .39$, $SE = .09$, $p < .001$ and racism $B = .45$, $SE = .14$, $p = .001$.

Study 4 – additional analyses

Matrices were created for leftists (from "very leftist" to "center left"), centrists ("center") and rightists ("very rightist" "center right"). We carried out parallel analyses (Ledesma & Valero-Mora, 2007), using O'Connor's (2000) matrix for each of these groups separately. The parallel analyses all indicated the existence of two dimensions. We thus ran three separate PCAs, limiting the number of components to

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two, using oblimin rotation. The first two components accounted for 75% of the variance among leftists, while the corresponding explained variances were 72% for centrists and 75% for rightists. The component solutions were strikingly similar, with 9 out of the 19 criteria loading $> .4$ on the first component and $< .4$ on the second component, while 7 criteria loaded $> .4$ on the second component and $< .4$ on the first component. The full component solutions from the PCAs can be found in Table i.

Table i.

Component Solution from the Study 4 PCAs for the different political groups.

Component Loadings of $< .4$ are Not Displayed in the Table.

	Left		Center		Right	
	C1	C2	C1	C2	C1	C2
Malicious intent	.96		.94		.96	
Symbolic values	.95		.96		.94	
Clear perpetrator	.93		.87		.94	
Intentional	.96		.98		.91	
Interhuman cruelty	.89		.96		.90	
Ideology motive	.90		.93		.89	
Direct (active)	.92		.91		.88	
Emotion motive	.85		.95		.86	
Related to power	.88		.81		.84	
Irregular actions	.80				.82	
Avoidable		.57	.63		.78	
Economy						
Affects all		.92		.91		.92
Global		.91		.92		.92
Collective-level		.90		.82		.91
Environment		.88		.86		.90
Long-term cons.		.82		.90		.83
Tangible/physical		.76		.74		.64
Immigration		-.74		-.65		-.50

Property-fitting analyses

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We carried out property-fitting analyses to compare the suitability of the two dimensions for interpreting the threats' 1D, 2D, 3D and 4D dissimilarity space. These analyses consisted of multiple regressions, entering the two dimensions as criteria and their coordinates from the Study 2 MDS as predictors. In other words, for the 1D dimension solution, we ran two regressions, first entering the coordinates for the single dimension (from Study 2) as predictor and the component score for the commission/omission component (from Study 4) as criterion. We then ran a second regression entering the coordinates for the single dimension (from Study 2) as predictor and the component score for the local/global component (from Study 4) as criterion. For the 2D dimension solution, we entered the coordinates for both dimensions into a multiple regression, again using the component score for the commission/omission component as a criterion. The same analysis was then carried out, using the component score for the local/global component as criterion. The same strategy was used for the 3D and 4D dimension solution, with the difference that for the 3- and 4-dimension solutions, coordinates for 3 and 4 dimensions were entered as predictors. These regression analyses were all conducted twice, once for the coordinates from the similarity estimations and once for the coordinates from the threat sorting. The results showed that the local/global component was unsuitable for interpreting the 1D threat space (R .31 and .09, ideally the R^2 should be $> .80$). The Commission/Omission component was better (R .57 and .73), but still not up to par, at least for the similarity estimates. Both threat components (Commission/Omission and local/global) were however suitable interpretations for the 2D, 3D and 4D threat spaces for the similarity estimates as well as for the threat sorting (R^2 s between .74 and .95). It can be noted, however, that while the explained variance increased dramatically with the inclusion of a second dimension, there was a small, if any,

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increase in explained variance as a result of the inclusion of a 3rd and 4th dimension (see Table ii).

Table ii.

Regression coefficients predicting component score on the different dimensions (Study 4) with the coordinates from Study 2.

		R (1D axis)	R (2D axis)	R (3D axis)	R (4D axis)
Threat content					
Commission/Omission	Similarity	.572	.902	.941	.947
	Sorting	.731	.852	.896	.921
Local/Global	Similarity	.308	.751	.736	.743
	Sorting	.087	.918	.909	.914

We then carried out correlational analyses between the component scores (from Study 4) and the coordinates (from Study 2). For the 1D solution, the coordinates for the single dimension were highly correlated with the Commission/Omission component, but not necessarily for the local/global component. For the 2D solution, the commission/omission component was highly correlated with the coordinates for D1, while the coordinates for D2 were relatively more weakly correlated (this pattern was more apparent for the threat sorting data than for the similarity estimations, although the pattern could be seen for the similarity estimations as well). In contrast, the local/global component had a relatively stronger correlation with the coordinates for D2 than with the coordinates for D1. The same pattern could be seen for the correlations between the two components and the coordinates for D1 and D2 in the 3- and 4-dimension solutions. The third and fourth

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dimensions however, were not correlated with either of these two dimensions (r s between .01 and .28, see Table iii). Taken together, these analyses indicate that the 2-factor solution was suitable for interpreting the 2D dissimilarity space, but not the 1D, 3D and 4D space.

Table iii.

Correlation coefficients for component scores on the different dimensions in the different dimension solutions (Study 4) and the coordinates from the Multidimensional scaling from Study 2.

		Commission/Omission	Severity of consequences
1D - D1	Similarity	-.757	.555
	Sorting	-.855	.295
2D - D1	Similarity	-.746	.555
	Sorting	-.837	.397
2D - D2	Similarity	.588	.666
	Sorting	.390	.872
3D - D1	Similarity	-.761	.544
	Sorting	.880	-.334
3D - D2	Similarity	.590	.657
	Sorting	-.289	-.835
3D - D3	Similarity	.118	.096
	Sorting	-.194	-.316
4D - D1	Similarity	.744	-.563
	Sorting	.875	-.344
4D - D2	Similarity	.605	.652
	Sorting	-.326	-.838
4D - D3	Similarity	.151	.009
	Sorting	-.137	-.278
4D - D4	Similarity	-.057	.037
	Sorting	-.173	.132

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Please sort the threats in the list below. You can divide them in any way you like, including putting all of them in the same box, putting each of them in separate boxes or any number of boxes in between. It is possible to leave some of the boxes empty. The order of the different items within the box does not matter, nor does the order of the different boxes

Items	1	2
Terrorism		
Climate change		
War		
Poverty		
Inequality		
Immigration	3	4
Racism		
Environmental damage		
Crime		
Nuclear Weapons		
Bad government		
Disease	5	6
Pollution		
Religion		
Economic collapse		
Extremism		
Overpopulation		
Greed	7	8
	9	10

Figure i.

Screen shot of the sorting task as it appeared for the participants in the Qualtrics software. 18 boxes were presented to the participants altogether.