



RESEARCH ARTICLE

Do changes in threat salience predict the moral content of sermons? The case of Friday Khutbas in Turkey

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Abstract

We analyzed the content of “Friday Khutbas” delivered in Turkish mosques between January 2001 and December 2018 to test the prediction of moral foundations theory (MFT) literature that threat salience would lead to an increased endorsement of binding moral foundations. As societal-level indicators of threat, we examined (a) historical data on the proportion of terrorism-related news published in a Turkish newspaper, (b) the geopolitical risk score of Turkey as measured by Geopolitical Risk Index, and (c) Google Trends data on the search frequency of words “terror”, “terrorism”, or “terrorist”. To measure the endorsement of moral foundations, we built a Turkish Moral Foundations Dictionary and counted the relative frequency of morality-related words in the khutbas delivered in Istanbul, Turkey. Time series analyses showed that risk salience in a certain month was positively related to endorsement of the loyalty/betrayal foundation in that month’s Friday Khutbas. There were mixed results for the other moral foundations.

KEYWORDS

binding, individualizing, moral foundations, religion, threat, time series analysis

1 | INTRODUCTION

Moral Foundations Theory (MFT; Haidt, 2007) has introduced a paradigmatic change in the field of moral psychology by defining ethics around five different foundations. MFT criticizes pre-existing theories for having a Western and liberal bias and argues that morality is not only about individual rights and duties; rather, ingroup-related moral foundations are also at the heart of moral judgments. The value given to these specific “core” moral foundations is affected by a number of contextual variables. The most important of these is the perception of threat. Although there are many studies in the literature investigating the relationship between threat perception and moral foundations (e.g., Van Leeuwen & Park, 2009), to our knowledge, there is a dearth of empirical studies on whether the theory has predictive power over the applied field data of long-term fluctuations (cf. Van de Vyver, Houston, Abrams, & Vasiljevic, 2015). This study examines whether the level of perceived threat across the country would lead to the increased endorsement of binding moral

foundations in societal-level data. We used the content of “Friday Khutbas” delivered in Turkish mosques between January 2001 and June 2018 and investigated whether the emphasis on the binding foundations in the khutbas would increase with the societal-level threats.

2 | THE MORAL FOUNDATIONS THEORY

Taking its roots from both evolutionary and anthropological findings, MFT posits five *foundations* for morality (Graham et al., 2013). The first two foundations, *care/harm*, and *fairness/cheating*, are called “individualizing” foundations because of their emphasis on the protection of individual rights. The care/harm foundation deals with the feelings of compassion towards the victim of psychological or physical harm, whereas the fairness/cheating foundation is concerned with justice, trust, and equity (Graham et al., 2013; Graham & Haidt, 2012). The remaining three foundations are categorized as

the “binding” foundations because they represent the moral systems that are connected to groups, ideologies, or organizations to which the individuals are related. The *loyalty/betrayal* foundation deals with the devotion to and support of an ingroup; the *authority/subversion* foundation covers the respect and obedience shown toward individuals who are higher in the social hierarchy; and lastly, the *sanctity/degradation* foundation is concerned with the moral disgust and purity of the body (Graham et al., 2011).

3 | MORAL FOUNDATIONS AND IDEOLOGY

The value given to each foundation may change depending on different variables, but the theory gained its popularity with its potential to explain the differences between political ideologies. Studies generally show that liberals endorse individualizing foundations, while conservatives endorse binding foundations (Graham, Haidt, & Nosek, 2009; Haidt, Graham, & Joseph, 2009). However, the endorsement of moral foundations is not always stable and can vary depending on the situational cues, especially the ones that increase the salience of threat. For instance, a study conducted after the 7/7 attack by Al Qaeda in London found that individuals who were recently exposed to terrorist attacks increased their endorsement of the loyalty/betrayal foundation whereas they decreased their endorsement of the fairness/reciprocity foundation, compared to their moral attitudes prior to the bombings (Van de Vyver et al., 2015). The finding that the Londoners started endorsing more conservative moral foundations is compatible with a long-standing theoretical framework of interpreting political conservatism as motivated social cognition (Jost, Glaser, Kruglanski, & Sulloway, 2003). According to this perspective, conservatism is motivated by the psychological need to manage threat and uncertainty (Jost et al., 2003). Past research provided extensive support for this claim: For example, longitudinal studies illustrated that perception of threat is related to conservatism (Matthews, Levin, & Sidanius, 2009; Onraet, Dhont, & Van Hiel, 2014) and political conservatives were found to have larger amygdalas (which processes responses to threat) and greater neural sensitivity to threat (Jost & Amodio, 2012). Even liberals become more conservative when exposed to threat (Nail, McGregor, Drinkwater, Steele, & Thompson, 2009; Landau et al., 2004), leading to what is called “conservative shift” (e.g., Bonanno & Jost, 2006). Similarly, threat increases liberals’ endorsement of binding foundations (Wright & Baril, 2013).

Terror management theory (TMT; Greenberg et al., 1997), on the other hand, provides an alternative to political conservatism as motivated social cognition account. TMT suggests that threat leads people to defend their existing worldviews rather than making them necessarily more conservative. In other words, threatening stimuli, especially those which remind us of our own mortality, would make liberals more liberal and conservatives more conservative (see Greenberg et al., 1997; Pyszczynski, Rothschild, & Abdollahi, 2008). There is evidence suggesting that TMT’s predictions apply to moral

foundations: Mortality salience was found to increase liberals’ ratings of the individualizing, but not binding, foundations (Bassett, Van Tongeren, Green, Sonntag, & Kilpatrick, 2015). In short, political conservatism as a motivated social cognition approach suggests that threat salience would bolster conservatism whereas TMT advocates that threat would relatively increase the level of conservatism, but only among those who are already leaning towards conservatism. Consequently, both approaches would have the same prediction of an increase in conservatism when the target audience is conservative while they would have opposite predictions for liberal participants.

4 | MORAL FOUNDATIONS, IDEOLOGY, AND THREAT

As past research shows that societal threats, like terrorist attacks, can alter the endorsement of moral foundations (e.g., Van de Vyver et al., 2015), we aimed to examine whether a similar effect would be observed in Turkey, a country that is frequently targeted by terrorist attacks (Institute for Economics and Peace, 2017). As Turkey is a predominantly Muslim country where religious statements are given high regard, the effect of regional affairs on the sermons delivered by the religious authorities is unavoidable (Kettani, 2010). Religion and morality are usually intertwined, and while religious texts emphasize all five foundations, the most prominent ones are argued to be the binding foundations (Graham & Haidt, 2010; Piazza & Landy, 2013), which is not surprising because religion advocates unity and loyalty (Graham & Haidt, 2010; Piazza & Landy, 2013; Silver & Silver, 2017). In Islam, Friday Khutbas are given each week at the noon prayers on Fridays, where the *imam*—the religious authority—publicly addresses the community about a certain topic (Gaffney, 2004). Friday Khutbas, in fact, share some similarities with Sunday services in Christianity. Individuals attend the house of worship, pray, and engage in the rituals of their religion, and listen to the preaching of the religious authority; in this case, imam or pastor, depending on the religion. These sermons rely heavily on the verses of the holy books of these religions. Friday Khutbas in Turkey can cover many topics, including politics, and are prepared by an officially independent institution, the Presidency of Religious Affairs, and announced publicly at the mosques. Khutbas occasionally discuss terrorist attacks and relations with other countries—especially when they are negative, and the emphasis on certain attitudes and behaviors can change depending on what happened on that week.

Thus, the current research aimed to explore the relationship between social threats such as negative foreign relations and terrorism, and the endorsement of moral foundations in religious texts. We anticipated that the religious texts would have a more conservative tone (Graham & Haidt, 2010; Piazza & Landy, 2013; Silver & Silver, 2017); thus from both conservatism as motivated social cognition and TMT perspectives, the threat was expected to increase the endorsement of binding moral foundations. We explored this potential relationship by examining Turkish Friday Khutbas that were delivered between 2001 and 2018 and compared them in terms of each

moral foundation to illustrate whether social threats increased their emphasis on the binding foundations.

We have analyzed three distinct indicators for threat: terror-related news published in a Turkish newspaper, terror-related searches on Google, and Geopolitical Risk Index (GPR; Caldara & Iacoviello, 2018). The first two tap into concerns about terrorism, because Turkey has been targeted by terrorist attacks for decades (Institute for Economics and Peace, 2017) and terrorism has been frequently cited as the number one concern in public polls (e.g., Center for Turkish Studies, 2017). Although both indicators are about terrorism, frequency of terror-related news corresponds to how much terrorism was covered in the national media whereas Google searches on terror are assumed to indicate Turkish citizens' concern for terrorism. The third indicator, GPR, is based on the U.S. American and British newspapers' coverage of geopolitical threats, nuclear threats, war threats, terrorist threats, war acts, and terrorist acts in Turkey (see Section 5 for details). Thus, it is different from the first two indicators, because (a) it has a wider scope and is not limited to concerns for terrorism, and (b) it is based on how incidents in Turkey are perceived in foreign media outlets. We have utilized these three threat indicators to tap into different ways to measure societal-level threat and explored each threat indicator's relationship with historical fluctuations in the moral content of khutbas in Turkey.

5 | METHOD

5.1 | Measures

5.1.1 | Friday khutbas

Diyanet İşleri Başkanlığı (DIB; Presidency of Religious Affairs) is the sole authority in Turkey for organizing religious affairs, including determining the content of khutbas to be delivered throughout all Turkish mosques. Mostly, the same khutba is delivered across Turkey, although occasionally there might be minor variations between cities. We retrieved khutbas delivered in Istanbul, the largest city in Turkey, between January 2001 and December 2018 from the official website of DIB (*Diyanet İşleri Başkanlığı*, 2019).¹

5.1.2 | Turkish moral foundations dictionary

We followed a 3-step procedure. In the first step, two of the authors went through a Turkish dictionary (*Türk Dil Kurumu*, 2011) and identified all candidate words that might be related to care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, or sanctity/degradation foundations of morality (Graham et al., 2011). The initial list consisted of 562 words in total. In the second step, two other authors rated the relevance of the words to the moral foundations on a 3-point scale (-1 = *not related*, 0 = *not sure*, 1 = *related*). We eliminated the words that were not rated as related (i.e., received a rating of -1)

by both raters. This resulted in a list of 340 words. In the third step, two independent researchers, who were blind to our research question and familiar with MFT, rated the words in the revised list on the same 3-point scale. Similarly to the second stage of our procedure, we eliminated those words that were not rated as related by both raters, which resulted in a final list of 217 words.

After finalizing the wordlist, we proceeded with coding every single instance when one of the words was included in a khutba. The reason for this was that the mentioning of the word does not necessarily mean that the relevant moral foundation was endorsed. Our raters coded each instance on a 3-point scale (-1 = *challenges this moral foundation*, 0 = *unrelated to this moral foundation*, 1 = *endorses this moral foundation*). For example, the sentence "You should obey your parents" would be scored as 1 for loyalty, since it endorses the loyalty. However, the sentence "Do not obey unlawful orders" would be scored as -1, since what it does is the opposite of endorsing loyalty, although it similarly includes the word "obey". If the word "obey" is mentioned in a way that is completely unrelated to loyalty/betrayal, then the score would be 0.

We anonymized the date information of the khutbas to ensure that there was no possibility of bias in ratings. Two raters independently rated the sentence of each mentioning of any of the words included in the Turkish moral foundations dictionary. We later consulted with external reviewers who were blind to our research project but familiar with moral foundations theory. One of the two external reviewers went over each sentence and made the final decision on which score should be given. We summed up these scores for each foundation and each month and divided the number of scores by the total number of words in the khutbas in that month. Raw texts of khutbas, the words and the sentences that those words were in, and the ratings of each reviewer are documented online (<https://osf.io/y9zu4/>; Table 1).

5.1.3 | Terror-related news published in *Cumhuriyet*

Cumhuriyet (Republic), founded in 1924, is one of the oldest newspapers in Turkey. It has an online archive that indexes more than 5 million

TABLE 1 Example words in the Turkish Moral Foundations Dictionary

Moral Foundation	Total number of words	Example words
Care/harm	36	<i>Bakım</i> (care), <i>öldürmek</i> (kill), <i>mağdur</i> (victim)
Fairness/cheating	43	<i>Adil</i> (fair), <i>hukuk</i> (justice), <i>yolsuzluk</i> (corruption)
Loyalty/betrayal	37	<i>Hain</i> (traitor), <i>milli</i> (national), <i>vatan</i> (homeland)
Authority/subversion	41	<i>Düzen</i> (order), <i>itaat</i> (obedience), <i>yasak</i> (prohibition)
Sanctity/degradation	60	<i>Sapık</i> (pervert), <i>tiksinti</i> (disgust), <i>maneviyat</i> (spirituality)

Note: English translations of the words are in parentheses. Complete list of words is available online (<https://osf.io/y9zu4/>).

¹In personal communication with DIB, we requested access to older khutbas. However, we did not receive any reply despite our repeated attempts.

news articles (Cumhuriyet Gazetesi, 2018). In this archive, we searched the articles that included at least one of the following keywords: *Terror*, *terrorism*, or *terrorist*. We counted the number of articles that included these keywords in each month between January 2001 and December 2018, and divided those numbers by the total number of all articles published in that month. So we calculated scores that reflected the relative weight of terror-related news as compared to all news, potentially ranging from 0 to 1.²

5.1.4 | Terror-related search on Google

Google Trends (2018) provides data on the relative frequency of Google searches on given keywords (i.e., the number of searches for keywords divided by the total number of all searches). Google Trends standardizes these scores with a range from 0 to 100, where 0 corresponds to the lowest point of interest for those keywords during the specified date range and 100 corresponds to the highest point of interest. We set the date range between January 2004³ and December 2018 and retrieved scores on searches that were conducted in Turkey for at least one of the following keywords: *terror*, *terrorism*, or *terrorist*.

5.1.5 | Geopolitical Risk Index

GPR (Caldara & Iacoviello, 2018) is based on the counting of tension-related words on the following newspapers: *The Boston Globe*, *Chicago Tribune*, *The Daily Telegraph*, *Financial Times*, *The Globe and Mail*, *The Guardian*, *Los Angeles Times*, *The New York Times*, *The Times*, *The Wall Street Journal*, and *The Washington Post*. The search terms included words related to geopolitical threats (e.g., "military tension"), nuclear threats (e.g., "nuclear missile"), war threats (e.g., "war risk"), terrorist threats (e.g., "terror threat"), war acts (e.g., "air strike"), or terrorist acts (e.g., "terrorist act"). GPR provides monthly risk scores for Turkey beginning from January 1985 to today. These scores are calculated based on the relative frequency of tension-related words in the news on Turkey. We specified our date range of interest as between January 2001 and December 2018, because it was the date range for available khutbas.

5.2 | Time series analyses procedure

Although Friday Khutbas are delivered on a weekly basis, we calculated monthly averages of moral content and conducted the time series analyses monthly, for the following reasons: (a) In time series analysis, one first needs to define periodicity with fixed intervals. For example, we examined months each year and each year had a fixed number of months (i.e., 12). However, the number of weeks in a year is not fixed. A year, if it is not a leap year, has 365 days.

Fifty-two weeks, however, has 364 days. So, a year always has more than 52 but less than 53 weeks. Considering the additional variation caused by leap years, it is not possible to set fixed time intervals. (b) Google Trends does not provide weekly data for date ranges longer than 5 years. (c) GPR only provides monthly data for Turkey's risk scores. To overcome these limitations, we examined monthly, not weekly, changes.

For each of the moral foundations (care/harm, fairness/cheating, loyalty/betrayal, authority/subversion, or sanctity/degradation) and each threat indicator (terror-related news published in *Cumhuriyet*, Google Trends scores, and GPR), we investigated bivariate relations by conducting a total of 15 independent time series analyses (see Step 2 for further explanation). Using SPSS software (IBM Corp., 2011), a 3-step procedure was followed in the analyses.

5.2.1 | Step 1. Removing seasonal, trend, and cycle components

Time series data consist of multiple components, including trends, seasons, cycles, and residual values (Jebb, Tay, Wang, & Huang, 2015). Trends are the long-term direction of changes in time series. For example, it might be the case that there is a trend in Google search volumes because of the growing popularity of Google. Seasons are patterns of increases and/or decreases that consistently occur during the date range at hand. For example, Islam has multiple special days and months, like Ramadan, the month of fasting, that occur in each year and carry specific meanings that can potentially alter the content of Friday Khutbas. Cycles are non-seasonal patterns of fluctuations. It is different from seasons as, unlike seasons, the duration of each cycle is not fixed. All these components can potentially cloud the interpretation of the findings. To control for such confounding factors, one needs to remove all seasons, trends, and cycles. *Seasonal decomposition* command in SPSS (IBM Corp., 2011) carries out this task and calculates residual values that correspond to the remaining values after seasons, trends, and cycles were removed from the time series. By calculating these residual values, we made sure that the relationship between threat indicators and moral content of khutbas is not confounded by naturally occurring phenomena throughout the period being analyzed.

5.2.2 | Step 2. Removing autocorrelation

Autocorrelation occurs when the current state of a variable is dependent on its prior states. According to Jebb et al. (2015), "autocorrelation simply represents the Pearson correlation for a variable with itself at a previous time period, referred to as the lag of the autocorrelation" (p. 6). For example, a major terrorist attack might have an effect for a few months which would render the number of terror-related news in a month significantly correlated with terror-related news in the preceding months. To identify monthly changes, one needs to control for autocorrelation.

²We did not cherry-pick *Cumhuriyet* as a source. To our knowledge, it was the only Turkish newspaper with an open access online archive that allows for specifying date ranges and searching for multiple keywords at once.

³Google Trends does not index search frequency scores for dates earlier than January 2004.

One way of doing this is finding the best-fitting autoregressive, integrated, moving average (ARIMA) model (see Jebb et al., 2015, for a detailed explanation). Using SPSS's (IBM Corp., 2011) *Expert Modeler* command, we identified the best-fitting model for our predictors (threat indicators). Then, we applied this same model to the dependent measure. For example, when we examined the relationship between GPR and fairness-related content in khutbas, we determined the best-fitting ARIMA model for GPR and then applied the very same model to a fairness-related content variable. This procedure calculates residual values that make "white noise" series, a time series with no autocorrelation (Jebb et al., 2015). Thus, these residuals represented monthly variations in threat indicators and moral content of khutbas, after accounting for all potential trends, seasons, cycles, and autocorrelations between January 2001 and June 2018. Since the ARIMA model for each predictor was potentially different, white noise series of a specific moral foundation was produced differently for each threat indicator. That is why we present only bivariate relations and not an overall correlation matrix that includes all variables at the same time.

5.2.3 | Step 3. Calculating the regression coefficients

After calculating the white noise series, we investigated the relationship between a series of predictors (threat indicators) and dependent measures (moral content of khutbas). We report the regression coefficients depicting how threat indicators predict the moral content of khutbas for the same month. As the data included very small percentages, we standardized (calculated z scores of) the variables of interest to enhance legibility. As the white noise series of moral foundations for each series were potentially different, we used a meta-analytic approach to calculate the aggregate effect of all three threat indicators on each of the five moral foundations.

6 | RESULTS

We first compared the frequencies of individualizing (care/harm and fairness/cheating) and binding moral foundations (loyalty/betrayal, authority/subversion, and sanctity/degradation) in order to check for the dominant ideological tone in the khutbas.⁴ After counting the total number of words for each category, we adjusted them by their relative frequency in the Turkish language (Göz, 2003). The combined frequency score of all individualizing-related

words was 3,709 whereas it was 14,544 for binding foundations. We divided the frequencies in khutbas by these numbers to adjust for the difference in their usage in the Turkish language. A paired sample t -test revealed that, compared to the individualizing foundation, there were significantly more binding foundations-related words in the khutbas, $t(215) = 2.995$, $p = .003$, $d = .204$. So, there was an overall conservative tone in the khutbas that strengthened our prediction that threat salience would increase the endorsement of binding moral foundations. Next, we tested this prediction.

Linear regression analyses showed that terror related news in *Cumhuriyet*, $b = .076$, $SE = .068$, $t = 1.111$, $p = .268$, 95% CI [-0.059, 0.210], and Google Trends, $b = -.040$, $SE = .075$, $t = -.536$, $p = .593$, 95% CI [-0.188, 0.108], did not predict care content in khutbas whereas GPR was positively associated with it, $b = .159$, $SE = .067$, $t = 2.362$, $p = .019$, 95% CI [0.026, 0.292]. There was no heterogeneity in the effects, $Q(2) = 3.919$, $p = .141$, and the combined effect calculated by fixed effects method was nonsignificant, $b = .073$, $SE = .040$, $z = 1.802$, $p = .072$, 95% CI [-0.006, 0.152]. Thus, there was no overall effect of threat indicators on care/harm content in khutbas.

For fairness, *Cumhuriyet*, $b = .007$, $SE = .068$, $t = .106$, $p = .916$, 95% CI [-0.128, 0.142], and GPR, $b = .012$, $SE = .068$, $t = .174$, $p = .862$, 95% CI [-0.123, 0.147], were not significant predictors but Google Trends positively predicted the fairness content in the khutbas, $b = .239$, $SE = .073$, $t = 3.278$, $p = .001$, 95% CI [0.095, 0.382]. There was significant heterogeneity in the effects, $Q(2) = 6.896$, $p = .032$, and the combined effect calculated by restricted maximum likelihood method was nonsignificant, $b = .084$, $SE = .076$, $z = 1.112$, $p = .266$, 95% CI [-0.064, 0.232]. So, both care and fairness were found to be unrelated to threat salience (Figure 1).

For loyalty, the results were more consistent: GPR, $b = .196$, $SE = .067$, $t = 2.930$, $p = .004$, 95% CI [0.064, 0.329], and Google Trends, $b = .202$, $SE = .073$, $t = 2.752$, $p = .007$, 95% CI [0.057, 0.347], significantly predicted the loyalty content in khutbas while the prediction from *Cumhuriyet* news were slightly below the conventional significance threshold, $b = .124$, $SE = .068$, $t = 1.826$, $p = .069$, 95% CI [-0.010, 0.258]. There was no heterogeneity in the effects, $Q(2) = 0.795$, $p = .672$; the combined effect calculated by fixed effects method was statistically significant, $b = .173$, $SE = .040$, $z = 4.330$, $p < .001$, 95% CI [0.095, 0.251]. Therefore, threat salience significantly predicted loyalty/betrayal content in the khutbas. Higher levels of threat were associated with higher levels of endorsement of loyalty/betrayal foundation (Figures 2-5).

For authority/subversion, *Cumhuriyet*, $b = .054$, $SE = .068$, $t = .788$, $p = .431$, 95% CI [-0.081, 0.188], Google Trends, $b = .005$, $SE = .075$, $t = .072$, $p = .942$, 95% CI [-0.142, 0.153], and GPR, $b = .058$, $SE = .068$, $t = .848$, $p = .397$, 95% CI [-0.077, 0.192] did not predict the authority content in the khutbas. There was no heterogeneity in the effects, $Q(2) = .329$, $p = .848$; the combined effect calculated by fixed effects method was nonsignificant, $b = .041$, $SE = .041$, $z = 1.016$, $p = .309$, 95% CI [-0.038, 0.121]. Thus, threat salience was not associated with authority/subversion content in the khutbas.

⁴We have compared individualizing and binding moral foundations, instead of five individual foundations, because the aim was to identify whether the tone in the khutbas is more conservative or liberal. As conservatives endorse binding foundations more than liberals (Graham et al., 2009), we compared the composite scores for individualizing and binding foundations. In the subsequent analyses, however, we analyzed each of the five foundations separately in order to provide a more complete picture of how each moral foundation is related to threat salience.

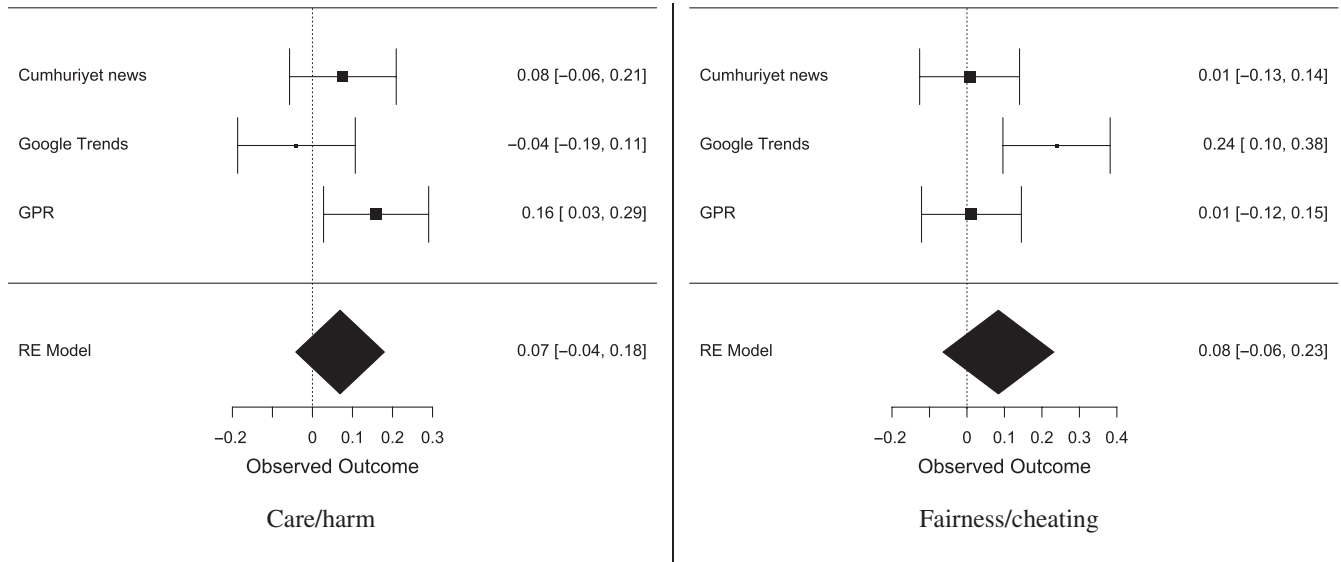


FIGURE 1 The distribution of standardized regression coefficients predicting care/harm and fairness/cheating from different measures of threat salience. Whiskers represent 95% confidence intervals for the coefficients

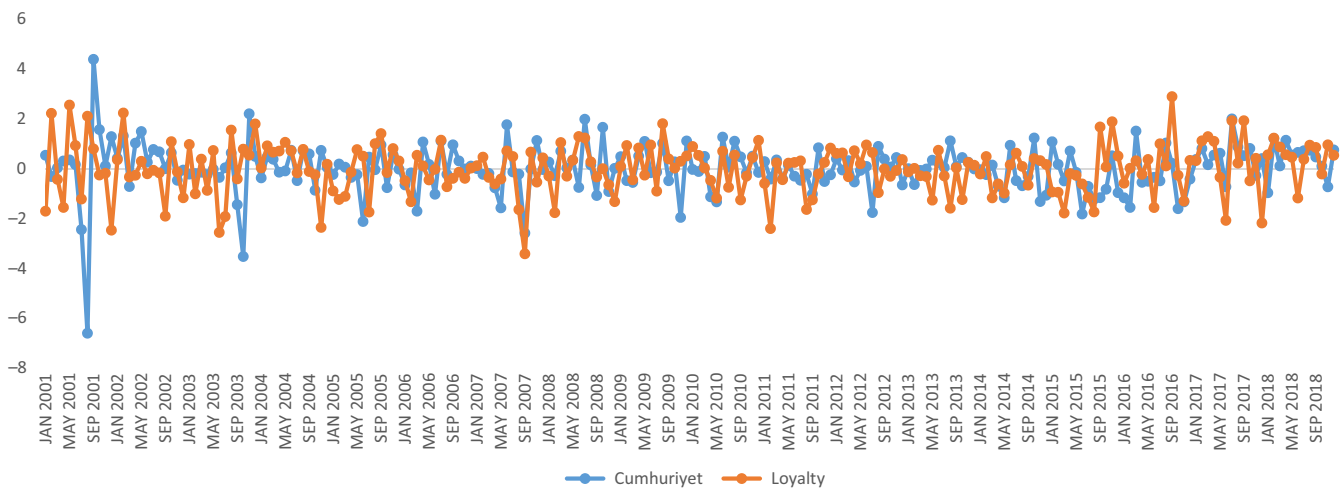


FIGURE 2 Line graph depicting the changes in white noise series of *Cumhuriyet* news and loyalty content in Friday khutbas. The figure does not include all months and lines represent standardized scores to enhance legibility. [Colour figure can be viewed at wileyonlinelibrary.com]

For sanctity/degradation, *Cumhuriyet*, $b = -.042$, $SE = .068$, $t = -.613$, $p = .540$, 95% CI [-0.177, 0.093], Google Trends, $b = -.038$, $SE = .075$, $t = -.501$, $p = .617$, 95% CI [-0.185, 0.110], or GPR, $b = .036$, $SE = .068$, $t = .522$, $p = .602$, 95% CI [-0.099, 0.170], did not have a significant association with the sanctity content in the khutbas. There was no heterogeneity in the effects, $Q(2) = .812$, $p = .666$, and the combined effect calculated by fixed effects method was non-significant, $b = -.013$, $SE = .041$, $z = -.326$, $p = .744$, 95% CI [-0.093, 0.066]. Hence, sanctity/degradation content in the khutbas was not related to threat salience indicators.

In short, increases in perception of threat were associated with an increase in the endorsement of loyalty in khutbas. However, other moral foundations did not have any consistent relationship

with threat indicators.⁵ Therefore, the findings partially supported our expectation that a higher-level societal-level threat would be related to a higher level of endorsement of binding foundations. It is partial, because, among three binding foundations, only loyalty/betrayal foundation was found to be related to threat.

⁵A more conservative approach to interpreting the results would be to compare for multiple comparisons using Bonferroni correction. As each moral foundation is compared with three different threat indicators, there is a total of three comparisons. Using the Bonferroni formula of alpha (.05) divided by the number of comparisons (3), the new critical p value for significance would be .017. As a result, the association between care/harm content and GPR becomes nonsignificant whereas the relationship between Google Trends and fairness, Google Trends and loyalty, and GPR and loyalty remained significant. So, the overall interpretation would not substantially change when controlling for multiple comparisons.

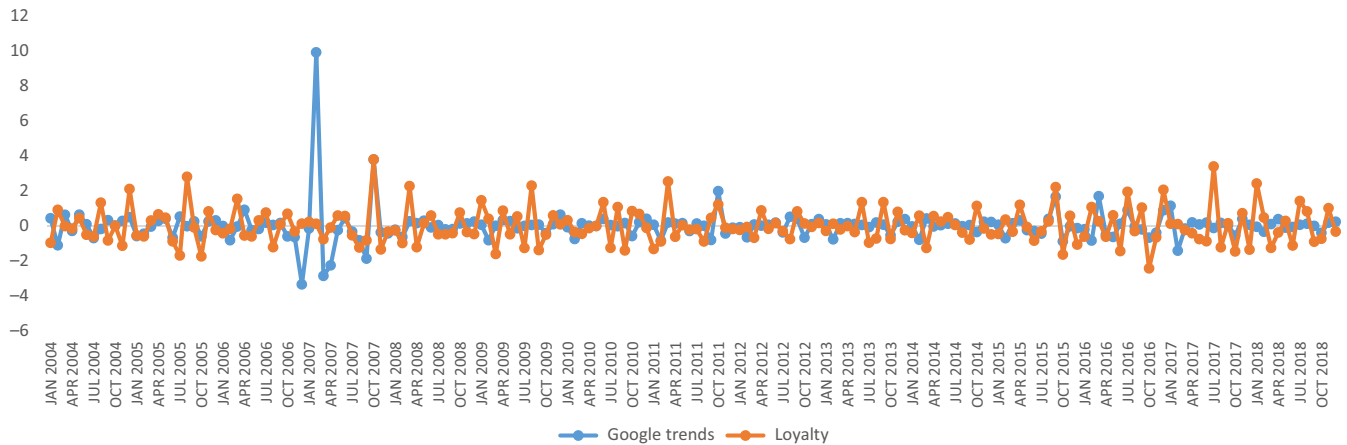


FIGURE 3 Line graph depicting the changes in white noise series of Google Trends and loyalty content in Friday khutbas. The figure does not include all months and lines represent standardized scores to enhance legibility. [Colour figure can be viewed at wileyonlinelibrary.com]

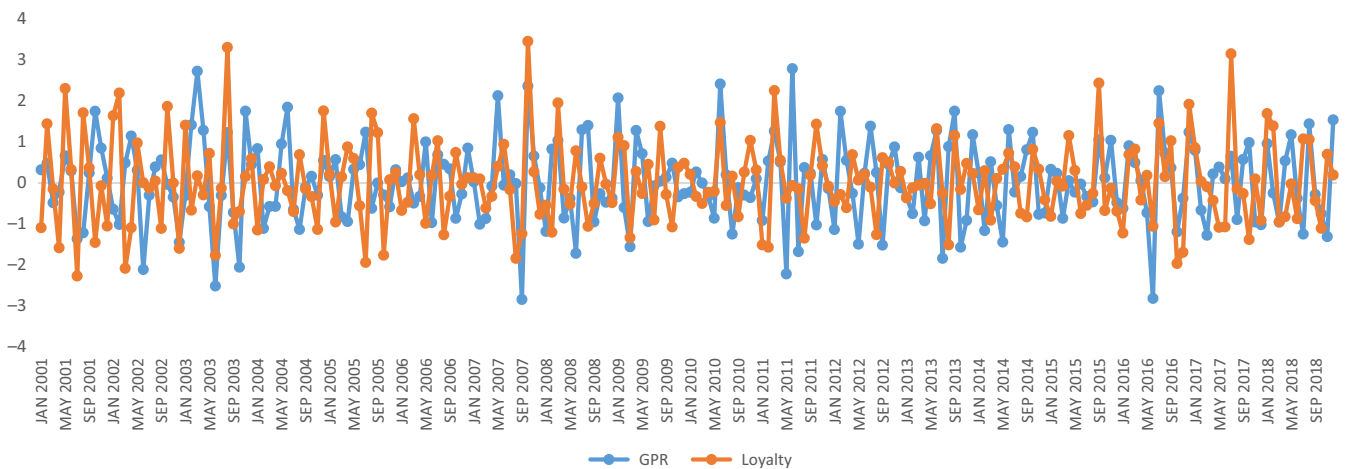


FIGURE 4 Line graph depicting the changes in white noise series of GPR and loyalty content in Friday khutbas. The figure does not include all months and lines represent standardized scores to enhance legibility. [Colour figure can be viewed at wileyonlinelibrary.com]

7 | DISCUSSION

The current research sought to determine whether the Friday Khutbas' emphasis on the moral foundations was influenced by the social threats in Turkey, a predominantly Muslim country. To do so, three sources were used to measure the social threats: (1) the proportion of terror-related news in a national newspaper's database, (2) terror-related searches on Google, and (3) GPR. Time series analyses indicated that only the loyalty/betrayal foundation had a significant association with more than one threat indicator and the combined effect of all three indicators was significant only for the loyalty/betrayal foundation. The increased perceived threat was significantly associated with an increased emphasis on the loyalty/betrayal foundation in the content of Friday Khutbas delivered in Turkey.

We did not find any consistent relationship between the other foundations and the threat indicators. This could have sociopolitical reasons. The Republic of Turkey was founded and built upon nationalistic ideas (Bora, 2003), and terrorist acts (which are the most

salient social threats in Turkey; Center for Turkish Studies, 2017) are extreme forms of disloyalty undermining these ideals, considering most of the terrorist acts in Turkey are carried out by separatists attacking military personnel (Criss, 1995). Therefore, it is not counterintuitive that the loyalty/betrayal foundation was the one most influenced by perceived threat in society. Although it was previously indicated that terrorism was strongly associated with the sanctity/degradation foundation (Koleva, Graham, Iyer, Ditto, & Haidt, 2012), our findings lay emphasis on the endorsement of the loyalty/betrayal foundation in the societal-level data.

As the khutbas had a more conservative tone with greater emphasis on binding foundations, both from the political conservatism as motivated social cognition and TMT perspectives (Bassett et al., 2015; Koleva et al., 2012; Wright & Baril, 2013; Van de Vyver et al., 2015), increases in threat were expected to be associated with increases in binding foundations, namely loyalty/betrayal, authority/subversion, and sanctity/degradation. The results provided only partial support for our expectation, as loyalty/betrayal was the only

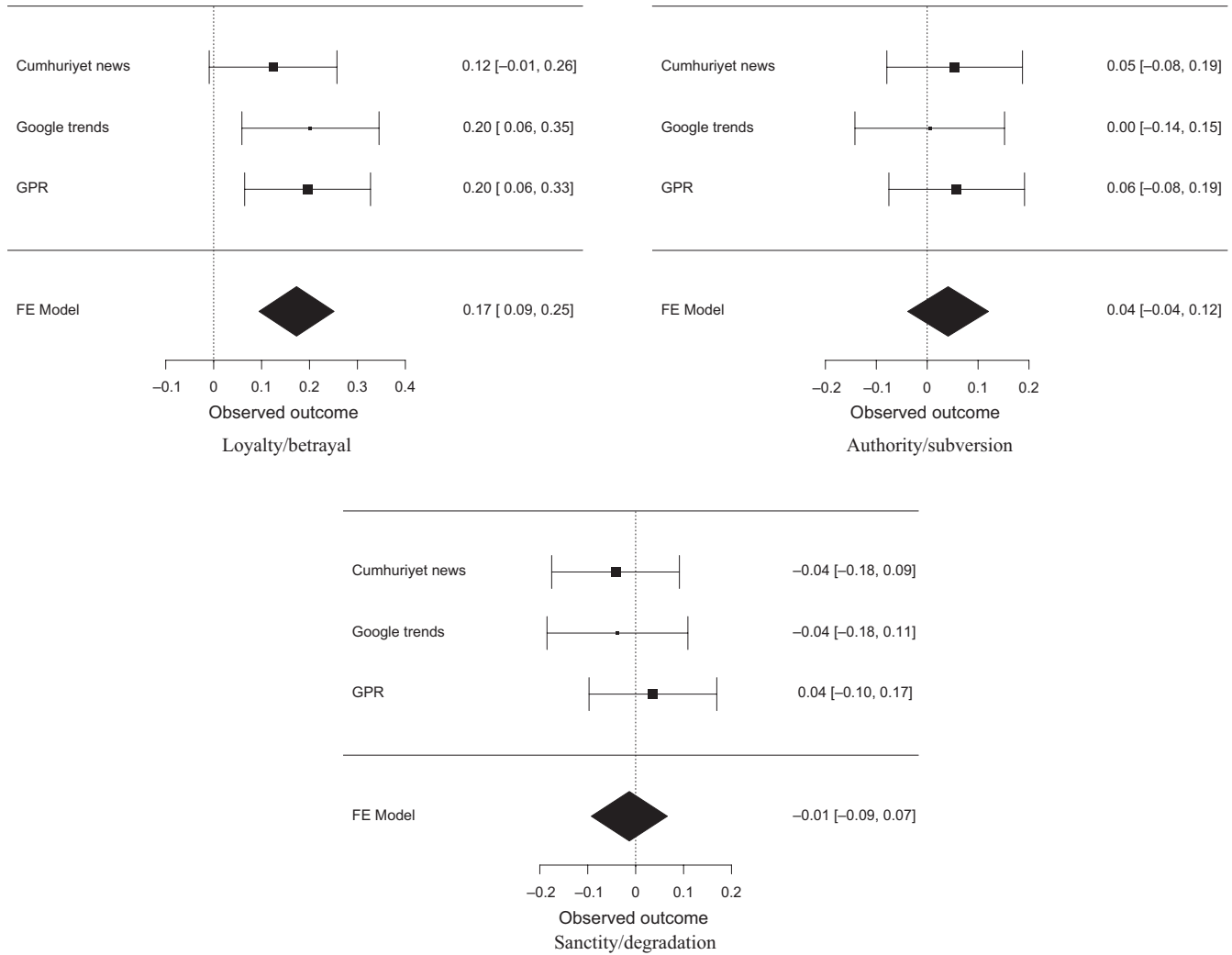


FIGURE 5 The distribution of standardized regression coefficients predicting loyalty/betrayal, authority/subversion, and sanctity/ degradation from different measures of threat salience. Whiskers represent 95% confidence intervals for the coefficients

binding foundation that had a consistent relationship with threat across different threat indicators. These results could be due the core values of nationalism and patriotism, as discussed above (Bora, 2003). As terrorist attacks in Turkey are usually treated as acts of betrayal of the country (e.g., Sezgin & Wall, 2005), rather than subversive attempts to challenge specific authority figures, it might be understandable that authority/subversion foundation was not predicted by threat salience as much as loyalty/betrayal was. As for the sanctity/degradation foundation, one reason why it was not associated with threat could be a potential ceiling effect. Mean proportion (frequency of foundation-related words divided by total number of words in the khutba) for sanctity/degradation content in khutbas across all months was 0.023 whereas it ranged from 0.002 to 0.004 for the other four moral foundations. This was also not unexpected, as the sanctity/degradation foundation includes matters related to spiritual beliefs and values that are widely covered in any religious text. A potential ceiling effect might have prevented the sanctity/ degradation scores from varying across time and thus this could be the reason why it was not associated with changes in threat salience.

We argue that future research is needed to examine whether loyalty/ betrayal is the foundation that is most affected by threats against society, or whether this effect is confounded by other factors, like the type of threat or the sociocultural context being examined.

While loyalty/betrayal was the only binding foundation to be consistently associated with threat level, the results were inconclusive for the individualizing foundations, namely care/harm and fairness/cheating. Care/harm was associated with only GPR and fairness/cheating was related to only terror-related Google searches. These associations could be due to the words included in our moral foundations dictionary. For example, *killing*, *merciless*, and *oppressed* are among the care/harm-related words whereas *justice*, *punishment*, and *legal* are among the fairness/cheating-related words. Such words are likely to be used in reactions to societal-level threats and this might be the reason behind the observed correlations. However, it should be noted that (a) the association between care/harm and GPR becomes nonsignificant when adjusted for multiple comparisons and (b) both moral foundations were found to be related to only one of three threat indicators and the combined effect was nonsignificant

in both cases. Therefore, the results were largely too inconclusive to suggest any relationship between threat salience and individualizing moral foundations.

The current study possesses several strengths. First and foremost, to our knowledge, it is the first study to examine applied data of long-term fluctuations in a cultural/political product, Friday Khutbas, to understand the effect of threat on the moral foundations. The moral content of khutbas was illustrative of the *zeitgeist* in Turkey for 18 years and the moral endorsements in the khutbas were found to be partially associated with objective measures of perceived threat in Turkish society. Although loyalty/betrayal was reliably related to threat, other binding foundations (authority/subversion and sanctity/degradation) were not found to be affected by it, contrary to what would be expected based on past research (Koleva et al., 2012; Van de Vyver et al., 2015; Wright & Baril, 2013). We believe it is a good example of how the MFT applies to real-life contexts and to what extent its implications are supported by field data. Second, we focused on Turkish society which is a predominantly Muslim society underrepresented in the psychological literature, similar to many other non-WEIRD societies (Henrich, Heine, & Norenzayan, 2010). Past findings in the MFT literature were mixed with regard to the reproducibility of the five moral foundations and other basic tenets of the MFT in different cultures (e.g., Davies, Sibley, & Liu, 2014; Nilsson & Erlandsson, 2015; Yilmaz, Harma, Bahçekapili, & Cesur, 2016), so the current findings contribute to this literature, especially in showing which of the binding foundations is the one associated with perceived threat. Third, when aiming to fill important gaps in the literature, we also carried out a rigorous procedure in our analysis. We examined every single word in the Turkish language to create a Turkish moral foundations dictionary; we had two independent raters to finalize it in order to make sure that we are not cherry-picking the words in a way that would support our expectations; and we examined every single instance where one of the words in our dictionary was included in a sentence. We also ran time-series analyses, which controlled for potentially confounding factors, like seasons, trends, cycles, and autocorrelation in the data, and examined the combined effect of three different threat indicators. The tools that were created in the process of the current study (Turkish moral foundations dictionary and the index for terror-related news published in Turkish media) and the utilization of a previously underexplored set of khutbas can facilitate future innovative research designs aimed at examining the predictors of changes in moral foundations.

There are also some limitations that future research should address. One of them is the date range we analyzed, between January 2001 and December 2018. Although this range was imposed by practical limitations, it would be more informative to look into longer periods of time. Another limitation concerns our measures of threat. We have utilized threat indicators that are as objective as they can get, but still they are largely related to media coverage and social media activity, which might bias the results. In addition, one can argue that three indicators of threat might measure somewhat different constructs. For example, news of a terrorist attack published in *Cumhuriyet* and Google Trends might

be about a terrorist incident in another country and might be a general trend in the world, rather than Turkey. But we argue that it is not very likely that terrorism in other countries would dominate the news coverage in Turkey, which is itself a hot spot for terrorism, and such explanation would not extend to one of our threat indicators, GPR, which eliminates this limitation by assessing region-specific risks. Furthermore, the type of threats we examined were all human-made, like terrorist attacks and war acts; but natural disasters, for example, can also be threatening. An investigation of different types of threats and different ways of measuring them would be needed in future research. One might argue that the emphasis on the khutbas might not reflect the *zeitgeist* in Turkey (i.e., Turkish people's psychological reaction toward threat) but the governmental goals being communicated to citizens. Even so, these findings would bring novelty by showing how governmental policies can use moral foundations as a means of communication. Future studies should use other societal-level data, especially in different countries, to test and compare the current explanation with this alternative.

Lastly, we urge caution when evaluating the causal link between threat and moral foundations, given the correlational nature of our data. If it is the case that threat salience causes an increase in the endorsement of loyalty/betrayal content, it would be consistent with the past literature. It might also be the case that the loyalty/betrayal content causes threat salience, not the other way around. However, it should be noted that such causality would be counterintuitive: It is not entirely reasonable to expect the content of khutbas to cause changes in some of the threat indicators, like the frequency of terror-related news in the media or the geopolitical risk score of the country. Another alternative explanation could be the existence of a potential confounding factor that is responsible for changes in both threat and moral foundations. Future research should further investigate the causal link and establish whether threat causes an increase in (at least certain) binding moral foundations.

8 | CONCLUSION

The current findings provide partial support for the positive association between threat salience and endorsement of binding moral foundations, similarly to some past research (Bassett et al., 2015; Koleva et al., 2012; Wright & Baril, 2013; Van de Vyver et al., 2015). We examined this association using previously underexplored applied field data (real-life religious sermons being delivered) and have found that the loyalty/betrayal foundation was the only one to be predicted by historical fluctuations in societal-level threat salience. This finding, along with the methodology used, paves the way for future research tapping into applied field data to test the MFT's suggestions and sets an example of how historical fluctuations in the textual content can be used in research in moral psychology. Regularly published religious texts are externally valid sources for research in moral psychology and the current study provides one of the earliest attempts to examine such data

in a non-WEIRD context. We argue that future research should adopt more comprehensive tools to analyze applied data, and conduct analyses in multiple cultural contexts to examine the hypothesized relationship between perception of threat and moral foundations.

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CONFLICT OF INTEREST

The authors declare that none of the authors have any conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed to the study design. Development of materials was performed by Fatih Bayrak and Elif Öykü Us. Data analysis and interpretation were performed by Sinan Alper. All authors drafted the manuscript and approved the final version of the manuscript for submission.

ETHICAL STATEMENT

The authors confirm that the manuscript adheres to ethical guidelines specified in the APA Code of Conduct.

TRANSPARENCY STATEMENT

Data, materials, and analysis code are accessible at <https://osf.io/y9zu4/>.

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