How Words Do the Work of Politics: Moral Foundations Theory and the Debate over Stem Cell Research

Scott Clifford Duke University
Jennifer Jerit Stony Brook University

Moral considerations underlie partisan and ideological identification along with a variety of political attitudes, yet we know little about how elites strategically appeal to the public's moral intuitions. Building on Moral Foundations Theory, we investigate the causes and consequences of elite moral rhetoric in the debate over stem cell research. Through content analysis of 12 years of coverage in the New York Times, *we find that proponents and opponents of stem cell research engage in distinctive patterns of moral rhetoric and place different weight on the foundations. We also demonstrate that the prevalence of moral rhetoric increases during periods of legislative activity, and we find some evidence that moral rhetoric increases in response to the opposing side's use of moral language. Merging our content analysis with seven national surveys, the analysis shows that moral rhetoric has had a substantial effect on public attitudes regarding the fundamental considerations underpinning the debate.*

oral Foundations Theory (MFT) has changed the way scholars think about morality and the formation of political attitudes (e.g., Graham et al. 2011; Weber and Federico 2013).[1] In brief, MFT argues that moral intuitions are based on five psychological systems, or foundations (Harm, Fairness, In-group, Authority, and Purity), each linked to an adaptive challenge, such as protecting the young, reaping the gains of cooperation, or avoiding danger (Haidt and Joseph 2004). These psychological systems evolved with cultural institutions and practices, and they "provide parents and other socializing agents the moral 'foundations' to build on as they teach children their local virtues, vices, and moral practices" (Graham, Haidt, and Nosek 2009, 1030). Accordingly, the five foundations underlie much of the cross-cultural differences in moral reasoning (Haidt and Graham 2007; Haidt and Joseph 2004).[2] In recent years, MFT has been employed to understand differences across the political spectrum in the United States. Whereas liberals have been shown to draw primarily upon the Harm and Fairness dimensions when making moral judgments, conservatives endorse all five foundations more or less equally (Graham, Haidt, and Nosek 2009; Haidt and Graham 2007; McAdams et al. 2008). Thus, liberals and conservatives have a hard time seeing eye-to-eye because they make moral judgments using different configurations of the five foundations.

Another recent—and more provocative—finding is that the moral foundations predict support for specific policies on a wide range of political issues, including the death penalty, abortion, gun control, immigration, flag burning, and terrorism (Koleva et al. 2012). For example, on many "culture war" topics, a person's opinion was *best* predicted by a moral foundation, not political ideology. Koleva et al. (2012, 187) explain their findings by noting that the moral foundations reflect "more basic and

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[2]Haidt (2012) discusses a sixth foundation related to Liberty, but empirical work in this area is in its infancy. Researchers use the labels "Purity" and "Sanctity" interchangeably to describe the fifth foundation, though we rely on the former term in this study. The other foundations are sometimes referred to as "Care/harm," "Fairness/cheating," "Loyalty/betrayal," and "Authority/subversion."

generalized psychological tendencies" that may in turn predispose people to adopt particular attitudes. Our study examines a complementary proposition, one acknowledged by Koleva et al. (2012) but not tested empirically: through their rhetoric, political elites reinforce the connection between particular moral foundations and specific public policies.

To date, MFT's contributions have been largely conceptual, providing a framework for measuring and describing differences in moral concerns across individuals, groups, and cultures. Although empirical work on the five foundations is accumulating (e.g., Graham, Haidt, and Nosek 2009; Weber and Federico 2013), there has been little examination of the role contemporary political elites play in facilitating moral reasoning. What moral language do elites use? When are moral considerations invoked in a policy debate? And what effect does moral language have on the public? Drawing upon MFT, we develop an account of the moral language used by political elites and the factors influencing its use in policy debates, focusing on the words associated with the five moral foundations. We test our hypotheses with an original content analysis of the debate over stem cell research from 1999 to 2010 and then analyze the influence of elite rhetoric on stem cell opinion using survey data over this same time period.

Literature and Hypotheses

Words may do "the work of politics," as Graham, Haidt, and Nosek (2009, 1038) observe, but scholars are only beginning to understand the specific features that make an argument "strong" or effective. In an important recent study, Arceneaux (2012) argues that certain built-in predispositions—in his case, the tendency toward loss-aversion—cause people to perceive some arguments as more persuasive than others. The implication is that even in the face of elite competition, particular kinds of rhetoric may have an inherent advantage over other claims because of patterns in thought that have evolved over the course of human evolution.

Just as cognitive biases predispose people to respond to specific types of arguments, so too may the distinctive manner in which people process arguments invoking moral considerations. One of the key claims of MFT is that each of the foundations "produces fast, automatic gut-like reactions of like and dislike when certain kinds of patterns are perceived in the social world, which in turn guide moral judgments of right

and wrong" (Koleva et al. 2012, 185). Thus, moral intuition is the automatic output of a largely unconscious process, with people making moral judgments in a "rapid, easy, and holistic way" (Haidt 2001, 820; also see Bargh and Chartrand 1999). This particular characteristic of moral reasoning dovetails with existing knowledge about "strong" arguments—namely, that strong frames stress available and applicable considerations (Chong and Druckman 2007). In this way, strategic politicians have an incentive to invoke the relevant *moral* considerations in their public arguments. Previous studies have found some evidence for the persuasiveness of moral appeals in explanatory rhetoric or accounts (e.g., McGraw 1998; McGraw, Schwartz, and Tetlock 2013). Scholars have also analyzed the use of moral rhetoric in presidential speeches (Shogan 2006) and state legislatures (Mucciaroni 2011). The most effective arguments often seem to invoke cultural values and symbols (Chong 1996; Edleman 1964). To date, however, existing research has lacked a unifying theoretical framework for classifying and evaluating moral language.

In the present study, we explore the prevalence of moral rhetoric and the dynamics of rhetorical strategy during the debate over federal support of stem cell research. Aside from recent work by Nisbet, Brossard, and Kroepsch (2003), there is little accumulated wisdom regarding the content of stem cell rhetoric. In fact, stem cell research as an issue has received only limited attention from political scientists (see Mintrom 2008 for discussion). Fortunately, psychological research on the five foundations provides some guidance regarding the substance of elite debate on this issue. In particular, Graham, Haidt, and Nosek (2009) find that liberal and conservative religious leaders use foundation-related words in different ways when speaking to their congregants. Liberal sermons contained more Harm and Fairness words than did conservative sermons. By contrast, conservative sermons were more likely to use Authority and Purity words than were liberal services (see Lakoff 1996 for a related account).

Following the Graham, Haidt, and Nosek (2009) study, we expect that during policy debates, liberal and conservative political elites will place different weight on the five foundations in their rhetoric (Hypothesis 1). In our context we predict that supporters of stem cell research, who are for the most part liberal political elites, will rely more heavily on the Harm dimension than opponents of stem cell research, who are largely political conservatives. In contrast, opponents of stem cell research

should rely more heavily than would supporters on the Purity dimension in their public arguments.[3]

At the same time, another strategic imperative operates in policy debates and that is the need to appeal to broad segments of the electorate. In the U.S. political system, partisan elites cannot make policy change without appealing to citizens outside their own party (Jerit, Kuklinski, and Quirk 2009). Moreover, on many of the most important issues of the day, there is a sizeable group of citizens who do not initially favor one side or the other or who do so only weakly. Of the five moral foundations studied by Graham, Haidt, and Nosek (2009), Harm consistently enjoyed support from people across the political spectrum, a pattern the authors attribute to the widespread concern about caring, nurturing, and protecting people from harm. Thus, our second hypothesis predicts that Harm words will dominate the rhetorical landscape when compared with other moral words (Hypothesis 2).[4]

Previous research suggests that the frequency of moral rhetoric will be greater as the debate over stem cell research shifts from the administrative realm (e.g., the National Institutes of Health [NIH]) to more politically contentious venues such as the U.S. Congress (Nisbet, Brossard, and Kroepsch 2003). During periods of policy activity, news coverage of an issue tends to increase (e.g., Fowler et al. 2011), and politicians seek to build support for (or opposition to) specific policy proposals. Given the potential persuasiveness of moral language (Skitka, Bauman, and Sargis 2005), elites have an incentive to use moral words during key moments of a policy debate when the stakes are high (e.g., a presidential speech or passage of a bill). We therefore expect that the use of moral words will increase during periods of political activity (Hypothesis 3).

Issues involving moral considerations present unique challenges for political elites seeking to shape public opinion. People report being less able to imagine changing their minds on moral issues (Mooney and Schuldt 2008), and they often expe-

rience ''moral outrage'' at the suggestion that nonmoral considerations be weighed alongside moral ones (Tetlock et al. 2000). As a result, Haidt and others conclude that moral attitudes cannot be changed through logical argumentation, but only through the triggering of ''new affectively-valenced intuitions in the listener'' (2001, 819; also see Sherman and Kim 2002 or Tetlock et al. 2000).[5] Thus, the existing literature implies that once elites on one side of the issue introduce moral considerations, elites on the other side have to as well. Nonmoral arguments will be ineffective and may even backfire. Accordingly, our fourth hypothesis states that elites on opposing sides of the stem cell issue will pursue a ''tit for tat'' strategy—that is, elites will counter the other side's moral claims with moral language of their own (Hypothesis 4).

Our Case and the Data

We test our hypotheses using an original dataset constructed from a content analysis of news stories related to stem cell research over a 12-year period. We chose stem cell research because of its status as a ''moral issue'' (Mintrom 2008; Mooney 2001; Nisbet, Brossard, and Kroepsch 2003). Opponents of embryonic stem cell research view the harvesting of stem cells from potentially viable human embryos as immoral. Proponents, by contrast, believe not only that the research is permissible, but also that society has an ethical obligation to carry out life-saving biomedical research. Not too surprisingly, the imagery invoked by elites, especially critics of stem cell research, has been infused with references to morality: allusions to ''playing God,'' ''Dr. Frankenstein,'' ''Faustian bargains,'' and ''the Nazi Holocaust,'' as well as menacing words such as ''evil,'' ''murderous,'' and ''gruesome'' (Nisbet, Brossard, and Kroepsch 2003, 44). The public debate over stem cell research thus serves as an excellent case for examining the strategic use of moral language.
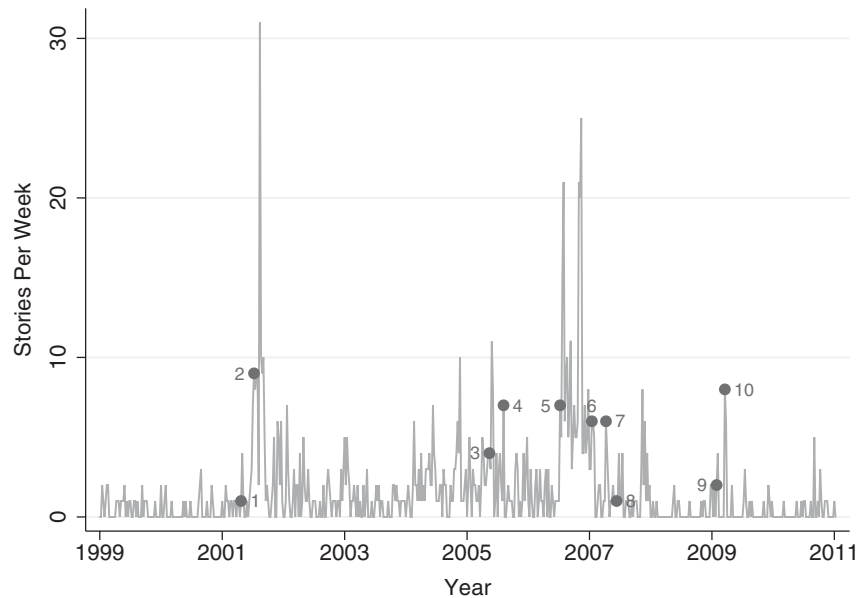
Figure 1 shows the key political events that served as the backdrop to the public debate. The figure also displays a plot of the number of *New York Times* stories mentioning ''stem cell'' (the content analysis that generated these data is described later in this section). Based on other accounts of the stem cell debate (e.g., Nisbet, Brossard, and Kroepsch 2003,

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[3]We focus on Harm and Purity because these foundations seemed the most relevant, given the religious and health dimensions of the stem cell issue. Arguments related to Harm historically have dominated elite discourse on both sides of this issue. And at the individual level, a person's score on the Purity dimension is one of the strongest predictors of stem cell opinion (Koleva et al. 2012).

[4]Fairness is widely embraced (Graham, Haidt, and Nosek 2009), but that foundation was not consistently related to stem cell opinion in the Koleva et al. (2012) study. As we note below, words associated with the Fairness, Authority, and In-group foundations rarely appeared in coverage of the stem cell debate.

[5]Persuasion is more likely when the content of an argument matches the structural (e.g., affective versus cognitive) or functional (e.g., values versus self-interest) basis of a preexisting attitude (Maio and Haddock 2007).

FIGURE 1   Timeline of Key Political Events in the Stem Cell Debate

Note: The gray line represents the number of stories mentioning "stem cell" in the *New York Times* per week. The points correspond to key policy events: (1) President George W. Bush cancels NIH meeting; (2) Bush gives prime time speech to the nation; (3) House passes the Stem Cell Research Enhancement Act (SCREA); (4) Senate Majority leader Bill Frist announces support for stem cell research; (5) Senate passes SCREA, Bush vetoes; (6) House considers a bill to expand stem cell research; (7) Senate passes the bill; (8) House passes the bill, Bush vetoes; (9) President Barack Obama is inaugurated; (10) Obama lifts restrictions on stem cell research through an executive order. See the text for additional details regarding the timeline.

Mintrom 2008), we chose 1999 as the starting point for our analysis. Just one year earlier, scientists successfully isolated stem cells from human embryos. Not long after that, media attention to the issue started to increase, along with other indicators of political activity, such as press releases and Capitol Hill testimony. Then presidential candidate George W. Bush declared his opposition to the research in various campaign speeches throughout 1999 and 2000.

There were two key events that slowed the development of stem cell research in 2001. First, President George W. Bush cancelled an NIH meeting to review funding requests (point 1 in the figure), a move that effectively put stem cell research on hold. Then, on August 9, 2001, just six months after he was inaugurated, the president addressed the nation on prime time television (point 2). Bush proclaimed that federal funds could be used to support research on only existing stem cell lines (i.e., he prohibited funding research using new stem cell lines).

The next period of activity occurs between 2005 and 2006. In May of 2005 the U.S. House of Representatives passed a bill (the Stem Cell Research Enhancement Act or SCREA) expanding federal

funding for embryonic stem cell research (point 3). Two months later, Bill Frist, a conservative Republican who had previously backed Bush on the issue, publicly reversed course to support funding the research (point 4). Roughly one year after SCREA was introduced in the House, the companion piece of legislation passed the U.S. Senate and was promptly vetoed by President Bush—the first veto of his term (point 5). In January of 2007, another bill expanding funding for stem cell research was introduced in the House (point 6). The bill passed the U.S. Senate (point 7) and House of Representatives (point 8), only to be vetoed by President Bush in the second veto of his administration. Soon after that, the president issued an executive order encouraging "ethical" research on stem cells. The debate over stem cell research took a major turning point with the inauguration of President Obama (point 9) and a subsequent executive order lifting the Bush administration's limits on human embryonic stem cell research (point 10).

As this overview suggests, stem cell research was a politically contested issue. Accordingly, political elites' positions on this issue could be predicted by their partisanship. For example, during the time

period of our study, more than 90% of the Democrats in Congress supported major bills loosening restrictions on stem cell research, while over 60% of Republicans opposed such measures (also see Nisbet 2004). There was a similar divide at the mass level, with a 30-point gap between partisans on the issue of federal funding for stem cell research (CNN/Opinion Research Corporation Poll, Sept. 1–2, 2010). Thus, at both the elite and mass levels, Democrats were largely in favor of federal funding of stem cell research while Republicans took the opposite position.

Perhaps because of the dramatic elements of this debate, the public indicated high levels of interest in the issue. For example, 32% of the public reported watching President George W. Bush's August 2001 speech on stem cell research and nearly two-thirds of the public rated the issue "very" or "somewhat" important (Nisbet 2004). However, knowledge about stem cell research was low, and people described themselves as having no opinion about several aspects of the issue (Nisbet 2004). Thus, there was plenty of room for elites to shape public opinion with their own characterizations of this issue. Over the time period of our study, public opinion moved gradually in support of policies favoring the development of stem cell research. According to a series of Pew surveys we analyze later in this study, 43% of the public voiced support for stem cell research in 2002. By 2009, the corresponding figure was 54%.

Content Analysis Procedures

Using Lexis-Nexis, we identified stories having to do with stem cell research in the *New York Times* (*NYT*) from 1999 to 2010. We chose to examine rhetoric as it was reported in the news because the mass media are "the principal arena" in which scientific controversies come to the attention of decision makers, interest groups, and the public (Nisbet, Brossard, and Kroepsch 2003, 38). By contrast, we do not analyze elite rhetoric (e.g., Congressional testimony) because few people are directly exposed to it; instead, they respond to political events as constructed (i.e., mediated) by news outlets.

All *New York Times* stories containing the phrase "stem cell" in the full text of the article were retrieved as a part of the content analysis. Once the universe of potentially relevant stories was captured, coders read the stories and discarded duplicates, content summaries, and articles making only tangential references to stem cell research. This process resulted in 990 articles across the 12-year period. Naturally, the use of the *New York Times* as our media source deserves some justification. Like others who have worked in

this area (Nisbet, Brossard, and Kroepsch 2003), we selected an elite national newspaper because of the influence such papers have on the content and distribution of news in regional outlets around the country. In auxiliary analyses not reported here, the number of stories mentioning "stem cell" in *USA Today* was highly correlated with the count from the *NYT* (counts aggregated at six-month intervals correlate at $r = .93$). For a subset of our data we also compared the *NYT* to the *Washington Times*, an elite but arguably more conservative newspaper. The correlation in the number of stories mentioning "stem cell" at the weekly level was even higher ($r = .99$, $p < .01$).

When it came to coding the substance of the debate, we relied on Jesse Graham and Jonathan Haidt's Moral Foundations Dictionary (MoralFoundations.org; Graham, Haidt, and Nosek 2009), which lists the words and word stems associated with each of the foundations. Based on both empirical and logical grounds, we considered the Harm and Purity dimensions the most relevant to stem cell research. Thus, our content analysis focused on words related to these two foundations as well as a short list of "general" moral words from the Moral Foundations Dictionary.[6] We confirmed that words related to the other foundations rarely appeared in our news stories by content analyzing a small number of randomly selected articles. Table 1 provides a list of the words in each coding category.

The coding process consisted of two judgments. First, for each Harm, Purity, and general word that was identified, coders determined whether the target word invoked a consideration for or against stem cell research (e.g., "reducing human suffering" or "all life is sacred").[7] Next, coders decided whether the consideration implied by the moral word was being endorsed or rejected. To illustrate, the statement, "The United States is a nation founded on the principle that all life is **sacred**" uses a word from the Purity foundation ("sacred") to argue against stem cell research. By contrast, the sentence "For many Americans, stem cell research offers the promise of reducing human **suffering**" includes a Harm word ("suffer") to advocate in favor of stem cell research. In both cases, the consideration implied by the moral word (that life is sacred or that we should reduce human suffering) is being *endorsed*. It was possible, however, for

[6] A preliminary search indicated that several Harm and Purity words were unlikely to be mentioned in the context of stem cell research (e.g., the Harm words "shelter" and "war"; the Purity words "unclean" and "virgin"), so those words were excluded from our content analysis.

[7] We coded moral words from many different types of speakers (e.g., the president, members of Congress, scientists) and included direct quotations as well as paraphrased statements.

TABLE 1 Moral Words Used in Content Analysis of Stem Cell Rhetoric

Harm	Purity	General
Suffer	Sacred	Righteous
Protect	Integrity	Moral (immoral, morality)
Empathy (empathetic)	Decent (decency, indecent)	Ethic
Care (caring)	Sanctity (sacrosanct)	Value
Safe (safety, safely)	Disgust	Principle
Benefit	Depraved (depravity)	Wrong
Guard	Profane (profanity)	Offend (offensive, offense)
Preserve (preserving)	Degrade (degredation)	Transgress
Save	Wicked	Conscience
Alleviate	Gross	Conviction
Ravage (ravaging)	Repulsive (repulsed)	Violate (violation)
Abandon	Defile	Evil
Destroy	Taint	
Harm	Stain	
Compassion (compassionate)	Tarnish	
Hurt	Debase (debasing)	
Kill (killer, killing)	Desecrate (desecration)	
Endanger		
Cruel		
Brutal		
Abuse (abusing, abusive)		
Damage (damaged, damaging)		
Wound		
Exploit (exploiting)		
Agony		
Symphathy (sympathetic)		

Note: Words (and illustrative word stems) come from Jesse Graham and Jonathan Haidt's *Moral Foundations Dictionary*. The words "save," "alleviate," "agony," "sanctity," "degrade," "conscience," "conviction," and "violate" do not appear in the *Moral Foundations Dictionary*. We added them because they were consonant with words in the Harm, Purity, and General lists and seemed especially relevant to the topic of stem cell research.

political elites to reject a particular consideration. For example, the claim "We are not obligated to **protect** embryos" employs a Harm word ("protect") to invoke a consideration against stem cell research (i.e., that society is "obligated to protect embryos") but that consideration is *rejected*. Thus, a moral word could raise a consideration for or against stem cell research, which could then be endorsed or rejected.[8]

The resulting dataset consists of counts of Harm, Purity, and general moral words. Our data also indicate

[8]Graham, Haidt, and Nosek (2009) documented a similar phenomenon in their analysis of sermons. Liberal religious leaders were more likely to use words related to the In-group foundation (contrary to the authors' expectations), but this was because the religious leaders were raising In-group considerations and then *rejecting* them (also see Jerit's [2009] examination of rhetoric in policy debates). Accordingly, our content analysis accounts for endorsements and rejections of foundation-related words. We established the reliability of the coding instrument by having a research assistant who was blind to the hypotheses code a randomly selected subset of stories. A total of 3,192 words were double-coded with 98.75% agreement between the two coders (Krippendorff's alpha = .76).

the direction of the claim (e.g., for or against stem cell research) and whether the consideration implied by the moral word is being endorsed or rejected. We analyze the data in various ways to test our hypotheses, but the unit of analysis always is the week ($N = 626$). This particular level of aggregation seemed the most suitable for analyzing the dynamics of rhetorical strategy (see Jerit 2008 for a similar approach). Also, weekly data was a sensible middle ground between monthly data, which was too coarse to capture the dynamics of rhetorical strategy, and daily data, which contained an abundance of zero observations (i.e., zero stories).

Empirical Results

Our first hypothesis predicts that supporters and opponents of stem cell research—who tended to be political liberals and conservatives, respectively—will use distinctive foundation-related words. More specifically, the proportion of Harm words should be

greater for proponents of stem cell research than for opponents. In contrast, the proportion of Purity words should be greater for opponents than for proponents.[9] We test Hypothesis 1 by examining the proportion of Harm words to all moral words (i.e., Harm/(Harm + Purity + General)), with a similar calculation for Purity (i.e., Purity/(Harm + Purity + General)). We limit our attention to endorsements because these types of statements represent each side's attempt to frame the issue to their advantage (rejections, by contrast, imply a reaction to the other side's rhetoric). Consistent with expectations, proponents (liberals) used a greater proportion of Harm words than did opponents: 80% versus 49%, a difference that is statistically significant ($|t| = 7.2$; $p < .01$; $df = 99$). By contrast, opponents used a greater proportion of Purity words (2.6%) than proponents (0%), a difference that also is statistically significant ($|t| = 2.2$; $p < .05$; $df = 99$). Notwithstanding this significant difference, opponent's use of Purity words (2.6%) was surprisingly low given the strong relationship between this foundation and opposition to stem cell research (e.g., Koleva et al. 2012). The individual-level relationship uncovered by previous research may stem from some other source, such as social relationships or religious affiliations (Rai and Fiske 2011).[10]

The distinctive pattern of word usage is consistent with previous work showing that liberal and conservative religious leaders emphasize different foundations when speaking to congregations (Graham, Haidt, and Nosek 2009). However, this research has also shown that the Harm foundation is widely embraced by political liberals and conservatives. Thus, our second hypothesis predicted that Harm words would be more prevalent in the stem cell debate compared with the Purity words. Based on the coders' impressions of the debate, the data fit this pattern. The dominant supporting argument stressed the harm and

suffering that could be avoided through the discovery of life-saving cures. The primary opposition argument was that embryos were potential human beings and, as such, should not be destroyed (harmed) for any reason.

As in the preceding analysis, we limited our attention to endorsements in our test of this hypothesis. Looking at weekly counts of foundation-related words, we found significantly more Harm words than Purity words ($|t| = 8.0$; $p < .01$; $df = 625$). On average, Harm words were used once a week, while the corresponding value for Purity words was .03.[11] When Harm and Purity words are examined as a percentage of all moral endorsements, the difference remains significant. Fifty-seven percent of all moral words were related to the Harm foundation, compared with just 1% for Purity words ($|t| = 23.3$; $p < .01$; $df = 209$).[12]

So far, the language used by liberal and conservative elites shows a striking resemblance to the patterns documented by Graham, Haidt, and Nosek (2009), with supporters and opponents of stem cell research relying on the Harm and Purity foundations to different degrees in their rhetoric. This finding is important because it suggests that some of the patterns observed at the mass level might be due in part to the rhetoric of public policy debates. We provide additional evidence for this supposition in our final series of analyses, but first we consider what motivates elites to use moral language—*when* and *why* does it occur?

Figure 1 shows that the politically active periods of our time series correspond to several high-stakes events, such as Bush's 2001 speech and his administration's first and second vetoes. Our third hypothesis stated that moral words would be more frequent during these periods, on the assumption that this is when political actors most try to influence public opinion. As an initial test of this hypothesis, we compared the average number of moral endorsements during periods of policy activity and inactivity.[13] During the weeks of inactivity, approximately one moral endorsement per week appeared in news stories. That figure rises to *12* when elites were actively engaged in the issue ($|t| = 12.5$; $p < .01$;

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[9]By "proponents" we mean speakers who raised considerations favoring stem cell research, either by endorsing a moral word used in a pro stem cell argument or by rejecting a moral word used in an anti stem cell argument. Likewise, "opponents" highlighted considerations against stem cell research, either by endorsing a moral word used in an anti stem cell argument or by rejecting a moral word used in a pro stem cell argument.

[10]In addition, opponents used a greater proportion of general moral words than did proponents (48% versus 20%; $|t| = 6.7$; $p < .01$; $df = 99$). This finding suggests that opponents may have been using general moral words in place of Purity words. The lack of Purity words was not due to the use of the *New York Times* as our media source. Content analyses of a random sample of 30 weeks from the *Washington Times* also show a low incidence of Purity words.

[11]There is a significant difference between Harm and Purity words even when supporters and opponents are analyzed separately ($|t| = 6.5$ and $|t| = 8.5$, respectively; $p < .01$; $df = 625$).

[12]Once again, both supporters and opponents use a higher percentage of Harm words ($|t| = 26.4$ and $|t| = 16.7$, respectively; $p < .01$).

[13]The *Policy Activity* variable takes on a value of 1 when action was being taken either by the president, Congress, or key actors (e.g., officials at the NIH). See the discussion of Figure 1.

$df = 624$). Importantly, there also was a significant difference when the number of moral words *per story* is examined ($|t| = 2.0$; $p < .05$; $df = 347$). An additional test of this hypothesis appears in statistical models reported later in this study. The initial results are consistent with Hypothesis 3, which predicted that moral language would be used more frequently during the most politically active periods of the debate. This particular finding may seem obvious, but the implications are not. To the extent that elite rhetoric facilitates the connection between the five foundations and public opinion, these results imply that the strength of the associations observed by Koleva et al. (2012) may vary throughout the course of an issue's history or even throughout the course of a single policy debate.

Our fourth and final hypothesis pertains to the dynamics of rhetorical strategy. Previous work in psychology shows that counterarguments that do not "match" the original claim (in terms of moral vs. nonmoral content) may backfire and even lead to "outrage" (Tetlock et al. 2000; also see Sherman and Kim 2002). We therefore expect that elites will counter the other side's moral claims by also appealing to a moral foundation. We are less certain, however, what this tit-for-tat will look like. Our earlier analyses showed that while liberal and conservative elites relied on the Harm and Purity foundations to different degrees, both sides relied primarily upon the Harm dimension in their public arguments. There also are differences in the extent to which opposing elites relied on endorsements and rejections. Opponents of stem cell research relied almost exclusively on the endorsement of general moral words and Harm words in their arguments against it (48% and 46%, respectively). By contrast, proponents used a combination of endorsements *and* rejections. More than half of their arguments (53%) endorsed Harm considerations, but proponents also rejected the other side's use of Harm words and general moral words (16% and 18%, respectively).[14] Given the predominance of the Harm foundation, in the analyses below we model each side's use of Harm endorsements as a function of the most frequently used strategies by the opposing side.

Because our dependent variables are counts (i.e., the number of moral words used in any given week), standard linear time-series models are inappropriate (Brandt and Williams 2001; Brandt et al. 2000).

Sample autocorrelation functions demonstrate moderate, but not long, persistence, suggesting that the series are stationary. Accordingly, we use the Linear Poisson Autoregressive Model (PAR[p]) developed by Brandt and Williams (2001) for stationary, mean-reverting event-count data.[15]

The first portion of Table 2 shows the results of a model predicting a count of proponents' endorsement of Harm words. Lagged values of the count of opponent endorsements of Harm and general considerations are the key independent variables along with a control for the number of stories in previous weeks. Recall that nearly all opponent arguments consisted of an endorsement of either a Harm word or a general moral word. The two series correlate at .76 ($p < .001$), so we combined them into a single variable. Similar results are obtained in a model with separate terms for opponent Harm endorsements and opponent general endorsements (though model fit is worse). The positive sign on the second lag of *Opponent Harm and General Words* indicates that opponent Harm and general moral endorsements lead to an increase in proponent Harm endorsements two weeks later (coeff = .137; $p < .001$). Thus, supporters of stem cell research countered opponent's arguments with endorsements of Harm considerations—i.e., they used Harm words (e.g., "save," "alleviate," "empathy," "compassion") to illustrate the benefits of stem cell research. The reaction occurred at a two-week lag, suggesting that opponent arguments persisted for some time before proponents responded. As an additional test of Hypothesis 3, we also included *Policy Activity* in the model. Consistent with expectations, *Policy Activity* increased the number of proponent endorsements of Harm words (coeff = 1.154; $p < .001$).

The bottom half of the table shows the results of a model predicting opponents' endorsement of Harm words (e.g., "destroy," "exploit," "kill"). Lagged values of the count of proponent Harm endorsements are the primary independent variables. Because proponents also rejected opponents' arguments by using Harm and general moral words, lagged values of the count of these rejections (combined into a single measure) also were included in the model. Once again,

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[14]This pattern is consistent with previous research documenting the need for proponents to provide positive reasons for policy change (i.e., endorsements) and to defend their preferred policy alternative from attack (i.e., rejections; see Jerit 2008).

[15]We estimate our models in R 2.13.2 using code available from Patrick Brandt's website (http://www.utdallas.edu/~pbrandt/pbrandt/Home.html). We include one- and two-week lags of the independent variables, though the results are robust to the inclusion of additional lags. Lag lengths were based on model fit and the particular dynamics of this issue (e.g., periods of policy activity generally did not last for more than a few weeks). Wald tests strongly reject the null hypothesis that a Poisson model is appropriate for our data.

TABLE 2 Predicting Use of Moral Words as
a Function of Opposing Side's Rhetoric

	Coefficient Standard Error
Proponent Endorsements of Harm Words	
Opponent Harm and General Words (one–week lag)	-.128 (.132)
Opponent Harm and General Words (two–week lag)	.137 (.051)***
Policy Activity	1.154 (.342)***
Stories (one–week lag)	-.045 (.116)
Stories (two–week lag)	-.355 (.162)**
rho (1)	.257 (.045)***
rho (2)	.101 (.043)**
rho (3)	.114 (.043)***
rho (4)	.142 (.040)***
AIC = 923.82	
N = 623	
Log-likelihood = -453.91	
Opponent Endorsements of Harm Words	
Proponent Harm Endorsements (one–week lag)	.084 (.071)
Proponent Harm Endorsements (two–week lag)	-.322 (.169)*
Proponent Rejections (Harm, Gen) (one–week lag)	-.018 (.083)
Proponent Rejections (Harm, Gen) (two–week lag)	-.099 (.123)
Policy Activity	.920 (.235)***
Stories (one–week lag)	-.058 (.066)
Stories (two–week lag)	.038 (.038)
rho (1)	.171 (.037)***
rho (2)	.087 (.037)**
rho (3)	.079 (.040)**
rho (4)	.077 (.038)**
AIC = 1142.83	
N = 623	
Log-likelihood = -561.41	

Note: Cell entries represent coefficients from a PAR(p) model. Standard errors appear in parentheses below the coefficients. Rho terms represent lagged values of the dependent measure.
***$p < .01$ **$p < .05$ *$p < .10$ (two-tailed).

we controlled for the number of stories in previous weeks and policy activity. In contrast to the top panel of results, proponents' endorsement of Harm considerations leads to *fewer* opponent arguments invoking Harm words (coeff = −.322; $p < .10$). Proponent rejections have no effect on opponents' use of Harm words. However, the coefficient on *Policy Activity* was positive and significant, indicating greater usage of opponent Harm endorsements during periods of policy activity (coeff = .920, $p < .01$).

The results in Table 2 provide partial support for Hypothesis 4. Consistent with our expectations, proponents respond to the other side's Harm words with their own endorsements of Harm considerations. However, the opposite pattern holds for opponents of stem cell research; i.e., they used fewer Harm words in response to the other side. This last result comes as a surprise, given that nearly half of all arguments made by opponents endorsed a Harm consideration. In auxiliary analyses (not reported here), we examined whether opponents' rhetorical strategy changed across the first and second halves of the debate. Those analyses indicate that opponents *did* respond to proponents' Harm words by significantly increasing their use of Harm words (coeff = .379; $p < .01$), but this pattern reverses itself in the second half of the debate. As we suggest in the next and final series of analyses, opponents' eventual unwillingness to respond with Harm words might reflect their losing position in the stem cell debate.

The Effect of Stem Cell Rhetoric on Public Opinion

So far we have shown that elites strategically invoke moral language to build support for their policy goals, and we have argued that such rhetoric helps citizens connect their moral beliefs to their political attitudes. But is the message received? We address this question by examining how moral rhetoric in the media affects mass attitudes toward stem cell research.

To measure public attitudes toward stem cell research, we use a question from a series of Pew Research surveys that asked, "All in all, which is more important: conducting stem cell research that might result in new medical cures or not destroying the potential life of human embryos involved in this research?" This question is ideal both because it was asked seven times between 2002 and 2009 and because it gets to the heart of the issue—the protection of nascent life versus the alleviation of pain and suffering. In the analyses below, the dependent variable is coded "1" for respondents who prioritize medical cures and

"0" for those who prioritize the protection of embryos. If elite rhetoric facilitates the connection between moral beliefs and political attitudes, moral rhetoric in the media should affect respondents' views toward stem cell research.

The seven Pew surveys were combined into a single dataset to create measures of stem cell opinion over the course of our study period. Naturally, this creates a significant amount of clustering in the resulting dataset because people interviewed at particular points in time face the same news environment. Moreover, the individual Pew surveys were fielded over the course of several days and sometimes weeks, meaning that respondents in any given survey were exposed to different combinations of arguments for and against stem cell research. To address this potential complication, we refined our earlier content analysis and created a count of the number of moral words for and against stem cell research in the seven days prior to a person's interview.[16] In the analyses below, we focus on the total number of proponent moral words and the total number of opponent moral words, called *Total Proponent Moral Words* and *Total Opponent Moral Words*. As anticipated, respondents faced substantially different media environments depending on which of the 67 possible days they were interviewed. The number of *Total Proponent Moral Words*, which we expected to be positively related to the dependent variable, range from 0 to 10, while the number of *Total Opponent Moral Words*, which we expected to be negatively related to the dependent variable, range from 0 to 18.[17]

Our outcome measure is dichotomous, so we estimate a probit model.[18] In addition to a variety of standard demographic controls, dummy variables for each survey are included (with the 2002 survey serving as the baseline). Because the date of interview was not randomly assigned, respondents interviewed later in a survey may differ in some unobserved way from respondents who were interviewed earlier. We control for these potential differences with a variable that represents the amount of time from the start of

the survey to the date of a respondent's interview. Standard errors are clustered on the date of interview to account for shared media environments. The full table of coefficients appears in the online appendix. Here we describe the key findings and focus on the predicted probabilities generated from the statistical model.

As expected, the effect of *Total Proponent Moral Words* is positive and statistically significant (coeff = .031; $p < .01$), indicating that a rise in *Total Proponent Moral Words* increases the likelihood of respondents saying that potential medical cures are more important than the lives of human embryos. The effect of *Total Opponent Moral Words* is negative and statistically significant (coeff = $-.013$; $p < .05$), implying that opponent moral words decrease the probability that respondents prioritize medical cures over human embryos.[19]

Predicted probabilities (see Figure 2) display the substantive effects of moral rhetoric. The left panel shows the predicted probability of placing priority on medical cures over embryos as *Total Proponent Moral Words* varies, with all other independent variables held at the central tendency and *Total Opponent Moral Words* held at zero. In the absence of moral language, the probability of respondents saying they want to prioritize medical cures is 67%. When 10 proponent moral words are used in the previous week (the maximum observed across these surveys), that probability increases to 77%. The center panel of Figure 2 shows the effect of *Total Opponent Moral Words*. As this variable increases from 0 to 10, the probability of respondents saying they want to prioritize medical cures drops from 67% to 62%. Finally, the right panel of Figure 2 shows the combined effect of both kinds of rhetoric as they increase in equal increments. When moral rhetoric on both sides increases from 0 to 10, the probability of respondents prioritizing medical cures increases from 67% to 73%. This final result demonstrates that proponent moral language was significantly more effective in persuading the public than was opponent moral language.

Although the effects shown in Figure 2 are substantial, they likely understate the persuasive power of moral rhetoric. In the time period surrounding the surveys, the maximum values of *Total Proponent Moral Words* and *Total Opponent Moral Words* were 10 and 18, respectively. However, at the
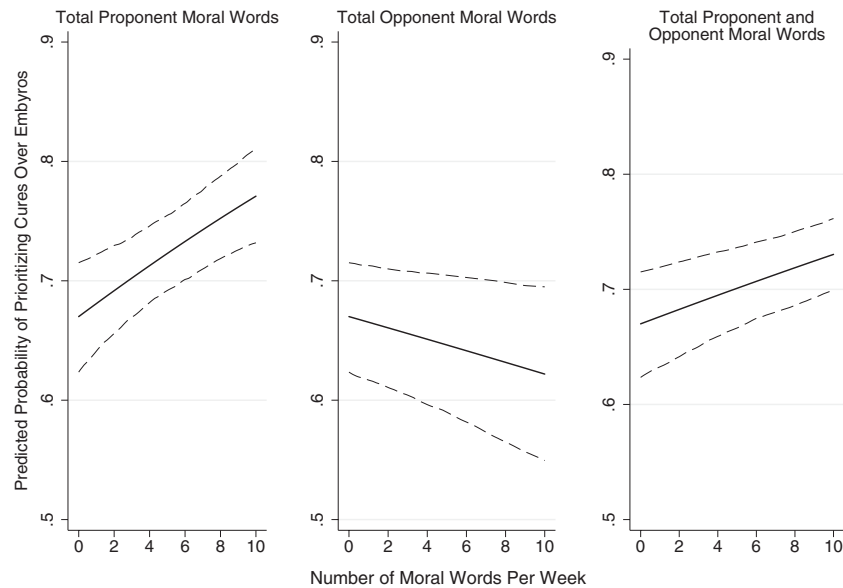
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[16]Based on previous research (e.g., Gerber et al. 2011), a seven-day lag was used. Across all surveys, there are 67 possible interview days.

[17]Due to the limited number of surveys and the potential for multicollinearity between the rhetoric variables, we do not include separate terms for endorsements and rejections (though both are included in *Total Proponent Moral Words* and *Total Opponent Moral Words*).

[18]Respondents who answered "Don't know" (13%) were excluded from the analysis. Modeling the "Don't know" responses (e.g., via multinomial models) was inconsequential to our results.

[19]We obtained substantively similar results in a random effects model, though the significance of the rhetoric terms is weaker. The results also hold with a control for the number of stories in the previous week.

FIGURE 2   **Predicted Probability of Supporting Stem Cell Research under Different Combinations of Proponent and Opponent Moral Language**

Note: Predicted probabilities are based on the analyses reported in Table A1 of the online appendix (dashed lines represent 95% confidence intervals). The maximum value of *Total Opponent Moral Words* is 18, but we display predicted probabilities out to 10 words to ease comparison with the *Total Proponent Moral Words* plot. See text for model details.

peak of the debate, the corresponding values on the rhetoric variables were 49 and 66. While we hesitate to extrapolate beyond the data, elite rhetoric may have had even larger effects on public opinion. Moreover, there may be consequences for other aspects of public opinion if elite rhetoric increases the level of moral conviction among the mass public. Skitka and colleagues have shown that when people perceive an issue to be rooted in their moral convictions, they report being more likely to take political action (Skitka and Bauman 2008). Increased political engagement would seem to enhance electoral accountability and the quality of representation. However, morally convicted people are less likely to tolerate and to cooperate with others having dissimilar views (Skitka, Bauman, and Sargis 2005). They also judge the fairness of political outcomes (e.g., court rulings) according to whether such outcomes are in alignment with their moral views (Skitka 2002). In this way, the effects of elite rhetoric—and the resulting moralization of the political environment—may extend well beyond the public's opinion regarding specific policy proposals.

Conclusion

Moral foundations shape partisanship, ideology, and a variety of political attitudes, yet we know little about how elites strategically appeal to the public's moral foundations. Building on MFT, we investigate the causes and consequences of elite moral rhetoric in the debate over stem cell research. Our analysis examines the kind of moral language used by elites, the incentives for using moral rhetoric in a policy debate, and the effects of moral rhetoric on public opinion (see Marietta 2008 for related investigation).

We find that elites on opposing sides of the stem cell debate used distinctive patterns of moral words in an effort to influence the public. Proponents of stem cell research have focused almost exclusively on Harm language to bolster their position. Opponents employed Harm language, general moral language, and to a lesser degree Purity language. In spite of the strong relationship between the Purity foundation and stem cell attitudes at the individual level, Purity language was surprisingly uncommon in the debate. This finding has important implications for the rhetorical landscape in the United States. If partisan political actors invoke only the most widely endorsed foundations, elite rhetoric may come to be dominated by Harm and Fairness appeals.

We also investigated the incentives for moral rhetoric, demonstrating that the frequency of moral rhetoric increases along with the level of policy activity (e.g., action in Congress). Additionally, there was some evidence that elites respond to opponents' use of moral

rhetoric with their own moral arguments, although this effect occurred most consistently among supporters of stem cell research. Moral rhetoric by proponents increased the prevalence of moral arguments by opponents, but only in the first half of the debate. This last pattern was unexpected, but it may be explained by the differential strength of the moral arguments used by each side.

Indeed, our final analysis shows that moral rhetoric had a substantial effect on public attitudes toward the fundamental considerations underlying the debate—the relative importance of protecting the life of human embryos versus the potential reduction in suffering from medical research. Both proponent and opponent moral language had the expected effects on public opinion: increasing support for the targeted position. However, when proponent and opponent moral language were equally prevalent, the net effect was an increase in support for stem cell research. Overall, these results demonstrate the power of moral rhetoric in persuading the public. They also potentially explain why proponent moral rhetoric actually drove down opponent moral rhetoric. When matched head-to-head, proponent arguments were significantly more persuasive.

Extrapolating beyond the single issue we examine here, we believe Moral Foundations Theory can illuminate the possibilities for successful political action on a wide range of policies. Whereas the Purity foundation seems central to understanding opinion on many culture war issues (e.g., creationism, same-sex marriage), the In-group and Authority foundations are more closely related to attitudes regarding flag burning, terrorism, and the use of torture (Koleva et al. 2012). More importantly, insights from MFT might help policy entrepreneurs bridge the differences between ideological groups. Consider global warming, which is a polarizing, but not necessarily "moral," issue. Polling data suggest there are vast differences between liberals and conservatives on the topic of global warming, but these divisions are not inevitable. According to one recent study, contemporary discourse on global warming is based on the Harm foundation (Feinberg and Willer 2013). However, when pro-environmental arguments are framed in terms of values that resonate with conservatives (i.e., Purity), differences between ideological groups all but vanish. In this way, greater attention to the varying moral intuitions of the American electorate might facilitate political action on a wide range of issues, even those not traditionally considered "moral issues" (Haidt and Graham 2007).

Finally, our research makes a conceptual contribution to the study of moral rhetoric. Previous work in political science has operationalized moral rhetoric loosely, categorizing language as moral if it relies on "traditional" values (e.g., Nisbet, Brossard, and Kroepsch 2003) or if it makes a judgment of individual or social behavior (e.g., Mucciaroni 2011). Our work improves upon previous studies by building on a unified, comprehensive framework—Moral Foundations Theory—to generate predictions about elite rhetoric. This framework offers much needed guidance to the study of rhetoric and suggests a variety of avenues for future research. Foremost among them, do political elites gravitate to particular moral words as a result of the specific foundations they themselves endorse; or, as strategic actors do elites provide the moral justifications they believe citizens desire or expect (e.g., McGraw, Schwartz, and Tetlock 2013; McGraw 1998)? Answering these kinds of questions is essential for understanding when political debates are likely to become moralized and how the distinctive features of an issue constrain (or expand) the rhetorical strategies of political actors.

Acknowledgments

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Scott Clifford is a Postdoctoral Fellow at the Duke Initiative on Survey Methodology at Duke University's Social Science Research Institute, Durham, NC 27705.

Jennifer Jerit is Associate Professor of Political Science at Stony Brook University, Stony Brook, NY 11794.