When War Hits Home: The Geography of Military Losses and Support for War in Time and Space

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Abstract
The “proximate casualties” hypothesis holds that popular support for American wars is undermined more by the deaths of American personnel from nearby areas than by the deaths of those from far away. However, no previous research has tested the mechanisms that might produce this effect. This omission contributes to three areas of lingering uncertainty within the war support literature: whether national or local losses have a greater effect on war support, whether the negative effects of war deaths are durable or temporary, and whether the negative effects of war deaths have a greater influence on the most or least attentive citizens. Our analysis of Iraq War data shows that local losses have a greater effect on war support than national losses, that these casualty effects decay rapidly, and that citizens who closely follow news at the national and local levels are least affected by new information about war costs. These findings run contrary to the prevailing cost-benefit calculus model of war support.
The “proximate casualties” hypothesis (Gartner and Segura 2000; Gartner, Segura, and Wilkening 1997; Kriner and Shen 2010) holds that popular support for American wars is undermined more by the deaths of American personnel from nearby areas than by the deaths of those from far away. The strong association between local casualties and war support found in previous studies is thought to result from individual-level differences in exposure to information about war costs, but the proposed mechanisms underlying this effect have never been tested directly. Moreover, previous research has yielded mixed findings on the duration of proximate casualty effects, with one study concluding they disappear in a matter of weeks (Hayes and Myers 2009) and others suggesting they persist for at least several months (Gartner and Segura 2000; Gartner, Segura, and Wilkening 1997).

Resolving these uncertainties will clarify whether and how individual citizens weigh the costs of fighting against the benefits of victory. The prevailing view holds that popular support for war reflects an elaborate cost-benefit calculus in which individual attitudes are updated as a result of exposure to new information about a war’s goals, costs, and chances of eventual success (e.g., Eichenberg 2005; Gelpi 2010; Gelpi, Feaver, and Reifler 2005). If exposure to new information about war costs leads to durable attitude change, as this prevailing view suggests, then we should find the effects of proximate casualties accumulating rather than decaying over time. In contrast, if proximate casualties merely produce short-term priming effects that temporarily lower support for war without affecting underlying attitudes toward the war (Hayes and Myers 2009; more generally, see Althaus and Kim 2006; Roskos-Ewoldsen, Roskos-Ewoldsen, and Dillman Carpentier 2009), then local casualties may have little long-term impact on war support.
Additional insight into the nature of war support can be gained by testing the alternative mechanisms that have been proposed as causes of the proximate casualty effect. Most information about a war—including cumulative counts of national casualties—presumably reaches citizens in top-down fashion through exposure to national news coverage. Previous studies have hypothesized that the proximate casualty effect results from the additional attention given by local news outlets and interpersonal communication channels to war deaths beyond that provided more generally by national news coverage. Although local news coverage and social networks have been proposed as likely mechanisms underlying the proximate casualty effect (Gartner and Segura 2000; Gartner, Segura, and Wilkening 1997; Kriner and Shen 2010), neither possibility has been directly evaluated.

Our study gains insight into the complexities of the information diffusion process by leveraging the tendency for reports about local and national casualties to be carried differentially by national news, local news, and interpersonal networks. National news outlets focusing on the “big picture” of the war tend to ignore the personal details of individual casualties, while local news outlets specialize in hometown casualty stories. Although social networks can be widely dispersed, social network ties to a war casualty should be relatively dense in that individual’s hometown area. These expected differences between national, local, and interpersonal information flows mean that each casualty’s date of death and home of record can be used to estimate when news media and social networks in the vicinity of that hometown should be especially focused on information about war costs.

Our study models for the first time a wide range of variables thought to moderate casualty sensitivity at the individual level using survey data from the 2004 National Annenberg Election Study. The novel contribution of this study is to model the dynamics of both national and
proximate casualty effects (1) over time and (2) across space while accounting for (3) the influence of competing sources of relevant information and (4) features of each respondent’s local information environment that alter information costs and the nature of opinion change. The key to sorting out this tangle of competing influences at multiple levels lies in our ability to model in both time and space the appearance of key facts presumed to undermine support for the president’s handling of the Iraq war: the date of death and hometown of every American military casualty that occurred from the start of the Iraq invasion in March 2003 through the 2004 general election.

Our analysis of opinion dynamics in time and space yields three consistent findings. First, recent local deaths have a much larger negative influence on public support for the president’s handling of the Iraq War than cumulative national deaths. Second, the negative effects of local casualties are much larger among people who are inattentive to national and local news than among news junkies. This suggests that the social context in which the respondent is situated may be a more important mediator of information about war deaths than any direct exposure to news flows about war. Third, these local casualty effects decay substantially over time. These findings add to mounting evidence from recent studies (e.g., Baum and Groeling 2010; Berinsky 2009; Gaines et al. 2007; Myers and Hayes 2010) that collectively cast doubt on several key assumptions underlying the cost-benefit calculus model on which much research on war support is currently founded.

**The Effects of Casualty Information on Support for War**

It has long been assumed that current information about war casualties was somehow received by individual citizens, and that when received, this casualty information should tend to
erode support for military interventions. However, the information dissemination process was rarely examined: citizens presumably “just knew” what the current casualty levels were. These assumptions have been challenged by recent studies using individual-level data that reveal how few citizens possess accurate estimates of the cumulative national death toll in ongoing wars (e.g., Berinsky 2009; Boettcher and Cobb 2006; Myers and Hayes 2010), and that the effects of casualty information appear to be moderated by factors such as levels of elite dissensus and the perceived likelihood of eventual victory (e.g., Berinsky 2009; Feaver and Gelpi 2004; Gelpi, Feaver, and Reifler 2009). Yet even these revisionist studies continue to overlook the process by which citizens learn about casualties. Further progress in this important area of study requires understanding what sort of casualty information is reaching individuals, how individuals learn about this casualty information, and what impact it might be having on those who receive it.

These gaps in our understanding contribute to three areas of lingering uncertainty within the war support literature: whether national or local losses have a greater effect on war support, whether the negative effects of war deaths are durable or temporary, and whether the negative effects of war deaths have a greater influence on the most or least attentive citizens.

National or Local Casualties?

Research on public sensitivity to wartime casualties was initially stimulated by Mueller’s finding (1973) of an inverse relationship between aggregate levels of public support for war and the national American death toll: mounting deaths at the national level were associated with declines in public support for both the war and the president overseeing it (e.g., Eichenberg, Stoll, and Lebo 2006; Mueller 2005). A second stage of research introduced local casualties—that is, the number of persons from a survey respondent’s community of residence who died in an overseas war—as an additional influence on levels of war support. For several years, the
strongest evidence for what is sometimes called the “proximate casualties” hypothesis came from two studies of California data collected during the Vietnam War (Gartner and Segura 2000; Gartner, Segura, and Wilkening 1997). These studies demonstrated that county-level casualty rates during the four months leading up to a survey interview were negatively associated with support for the president’s handling of the war, even after controlling for cumulative national casualties and a host of other factors.

National-level analysis of survey data from the Vietnam and Iraq wars by Kriner and Shen (2010) confirmed more generally that county-level casualty rates depressed levels of war support above and beyond the effects of cumulative national casualties. Related studies analyzing voting patterns during the wars in Vietnam and Iraq confirmed the local casualty effect on war support and in voting behavior (e.g., Gartner and Segura 2008; Karol and Miguel 2007). However, the only studies to have measured the effect of both national and local casualties arrive at mixed results: one finds that both types of casualty effects are significant, but didn’t estimate their relative sizes (Kriner and Shen 2010), one finds that local casualties are relatively more important (Gartner and Segura 2000), while the other finds that national casualties are more important (Hayes and Myers 2009). Further theoretical development of the casualty effects research requires clarifying whether the casualty information that enters into decisions to support or oppose a war draws more heavily from national or local death tolls.

**Durable or Temporary Effects?**

Recent contributions to the war support literature have noted how the theoretical expectations underlying the cost-benefit calculus are out of step with empirical findings in the public opinion literature (e.g., Baum and Groeling 2010; Berinsky 2009; although see Gelpi
One of these expectations is that attitudes about war should be constantly updated as new casualty information becomes available. In contrast, the public opinion literature tends to conclude that once formed, attitudes are difficult to change (e.g., McGuire 1985; Zaller 1992). This perspective challenges the view that casualties should produce durable effects on war support through the mechanism of attitude change.

Social psychologists posit two different processes by which opinion change can come about: change in an underlying attitude that is used for making a judgment and change in the inferential processes used to decide which among several relevant attitudes should be used for making a judgment (for recent reviews of dual-process models, see Chen and Chaiken 1999; Kruglanski and Orehek 2007; Petty and Wegener 1999). Attitude change is hard to bring about but durable once it occurs, while priming effects that change inferential strategies are easy to bring about but often short-lived when the priming stimulus fades from memory (Althaus and Kim 2006; Roskos-Ewoldsen, Roskos-Ewoldsen, and Dillman Carpentier 2009). If new information about friendly losses is used to update underlying attitudes about the war, then local casualty effects should be long-lived and durable: a casualty that occurred a year ago should produce the same effect on war support than a casualty that occurred a week ago. In contrast, if new information about friendly losses merely primes casualties as a relevant construct for evaluating the war without changing underlying attitudes about the war, then the effect of that prime should diminish over time as subsequent primes activate other relevant constructs for inferring current opinions about war support.

Identifying whether casualty effects decay over time, and how rapid any decay might be, can clarify whether the dominant individual-level mechanism for casualty effects is long-term attitude change or short-term priming. The prevailing assumption within the war support
literature has been that casualties change attitudes about war, and that the effects of rising cumulative deaths are durable (e.g., Eichenberg, Stoll, and Lebo 2006; Klarevas 2002; Larson 1996; Lorell and Kelley 1985). The possibility that casualty effects might be short-lived has not been explored in any detail within the war support literature, although this expectation sometimes appears (e.g., Baum and Groeling 2010) and the literature offers some interesting hints along these lines. For example, if temporally recent national casualties have greater explanatory power for aggregate war support trends than cumulative national casualties (Gartner and Segura 1998; Gartner 2008), this must be because the effects of recent casualties diminish at least somewhat over time. Otherwise, the cumulative count would be a superior predictor of aggregate war support.

The only study to specifically test for decay functions in casualty effects found that the negative effects of statewide losses disappeared within a few weeks (Hayes and Myers 2009), although this result is out of step with other studies that find evidence of county-level casualty effects several months after losses have been incurred (Gartner and Segura 2000; Gartner, Segura, and Wilkening 1997). Clearing up this uncertainty requires a comprehensive effort to trace how long the effects of local casualties last.

Affecting Those Who Are Most or Least Attentive to News About War?

The prevailing cost-benefit model of war support indicates that the effects of new war-related information should be most easily observed among persons attentive to news coverage about war. Most studies of public opinion dynamics have tended to assume that information relevant to wars and other national concerns reaches citizens mainly through a top-down dissemination process involving news outlets catering to national audiences (e.g., Baum and
However, top-down information diffusion in the United States operates through a two-tier system made up of a single national media market overlaying a patchwork of more than 200 local media markets. Local media are therefore a second channel through which citizens receive war-related information (e.g., Gartner 2004; Howell and Pevehouse 2007; Kriner and Shen 2010). Because national news media ordinarily emphasize information about national casualty levels while local news media tend to emphasize information about local casualties, the cost-benefit view implies that citizens attentive to national news should be especially sensitive to changes in national casualty levels, while citizens attentive to local news should be especially sensitive to changes in local casualty levels.

In stark contrast to the logic of the cost-benefit view, public opinion research based on individual-level analysis tends to conclude that the attitudes of highly attentive citizens are unlikely to change in response to new information carried to them through the news. There are at least three reasons why attentive people should be less influenced by new information about war casualties than inattentive people. First, the highly attentive are likely to have developed attitudes about a wide range of war-related issues, and once developed, new information tends to be interpreted in ways that reinforce the prevailing attitudes rather than challenge them (e.g., Hovland, Lumsdaine, and Sheffield 1949; Molden and Higgins 2005). For example, recent studies find that partisanship is a much more important predictor of support for the Iraq war than knowledge of current casualty levels, because new information about casualties is being interpreted differentially: war supporters see new casualties as justified costs, but war opponents see new casualties as additional reasons why the war should be opposed (Berinsky 2009; Gaines et al. 2007). Second, because the attitudes of highly attentive citizens are anchored in a rich array of knowledge, beliefs, and other attitudes, any isolated piece of new information is unlikely to
counterbalance the cumulative influence of these other elements (e.g., Hastie and Park 1986; Zaller 1992). Third, because news exposure is associated with chronic accessibility of aggressiveness, news audiences should be more pro-war than news avoiders (Butz 2009; Ferguson, Carter, and Hassin 2009; Ferguson and Hassin 2007). For example, despite consistently negative news coverage during the closing years of the Vietnam War, research on news audiences found frequent viewers of news programs were much more positive about the war than those who avoided news programs on television (Hofstetter and Moore 1979).

At the same time, the public opinion literature tends to conclude that inattentive citizens are unlikely to have their attitudes changed because they are unlikely to be exposed to new information carried in news coverage. For this reason, the standard expectation within the public opinion literature is that opinion change in response to new information should occur among the moderately attentive more than among either the highly attentive or inattentive citizens (e.g., Zaller 1992). In the case of local casualties, however, even inattentive citizens are likely to receive information about recent deaths through interpersonal social networks. Because news of local casualties can be expected to reach even the inattentive through these social networks, comparing local casualty effects between people who are attentive to local news and those who are inattentive can shed important light on whether war support is shaped by a cost-benefit or an information-processing framework.

To our knowledge, only two studies have directly tested the relationship between casualty effects and attentiveness. Neither offers a clean test of the underlying mechanisms, and they arrived at opposite conclusions: one found that state-level casualty effects were larger among more attentive persons (Hayes and Myers 2009), while the other found that national-level casualty effects were smaller among more attentive persons (Gartner 2008). Resolving this
uncertainty is important for clarifying whether information updating is likely to be a general mechanism underlying individual-level changes in war support.

Taken together, these three sets of conflicting expectations—whether casualty effects are caused more by national or local death tolls, whether casualty effects are durable or temporary, and whether casualty effects influence the most or least attentive citizens—generate considerable uncertainty about the individual-level mechanisms that shape popular support for war. This uncertainty is heightened by recent findings suggesting a complex set of conditional relationships that moderate the impact of war deaths on supportive attitudes toward military conflict (e.g., Eichenberg 2005; Voetin and Brewer 2006), as this recent work has left largely unexplored the communication processes by which individuals become exposed to war-related information, and the psychological processes by which this information is incorporated or ignored in the process of updating judgments about war. The present study aims to simultaneously address all three areas of uncertainty.

**Data and Methods**

*Individual-Level Survey Data*

Survey data used in this analysis come from the National Rolling Cross-Section component of the 2004 National Annenberg Election Study (NAES). This is a pooled data set in which 81,422 respondents were interviewed in rolling cross-sections that ran from October 2003 through November 2004. Each daily cross-section was sampled to be nationally representative of American adults, and random digit dialing was used to conduct on average between 150 and 300 telephone interviews per day. The response rate for households of known eligibility was 25%
(for additional methodological details, see Romer et al. 2006). Because so few respondents were interviewed from Alaska and Hawaii, our analysis considers only respondents living in the contiguous 48 states.

These individual-level data provide the dependent variable used in this analysis along with news exposure variables and a set of control variables. The dependent variable in the analysis is the president’s Iraq approval (coded approve = 1, disapprove = 0) from the question “Do you approve or disapprove of the way George W. Bush is currently handling the situation in Iraq?” The 2004 NAES includes news exposure questions measuring how many days in the past week respondents read daily newspapers and watched local television news, network television news, or cable news channels. To facilitate the analysis of interactions between news exposure and counts of local and national war deaths, we constructed measures of cable television news exposure, network television news exposure, local television news exposure, and newspaper exposure, each coded as zero to seven days per week.

To address standard individual-level predictors of war support, our analysis controls for gender (male = 1, female = 0), age and age squared (in years), minority status (Latino or African-American = 1, else = 0), party identification (measured on a 7-point scale from strong Democrat = 1 to strong Republican = 7), and years of education (to capture nonlinearities, we use dummy-coded indicator variables for less than high school, high school graduates, and a four-year college degree recipients, leaving as the contrast category high school graduates with less than a four-year college degree). We also include a dummy variable for military families (anyone in the respondent’s household ever served in the armed forces = 1, else = 0), which we expect to be positively related to approval of the president’s Iraq policy.
Casualty Data

Data on war deaths incurred by American forces in Operation Iraqi Freedom were obtained from the Department of Defense.\textsuperscript{1} These data provide details on the hometown and date of death for every American serviceperson who died in the course of service in Iraq, and we used this information to constructed two sets of casualty variables that were calculated for each respondent in the NAES surveys. *Cumulative national deaths* are measured as the total number of American war deaths incurred from March 19, 2003, when the war began, to the date of the respondent’s interview. Studies demonstrating the effects of cumulative national casualties are often criticized for their inability to sort out casualty effects from the effects of any other variable that might be associated with the passage of time (e.g., Gartner and Segura 1998; Lai and Reiter 2005; Kriner and Shen 2010). To correct for potential artifacts in our estimates, we also include a control for *elapsed time since the start of the war* that counts the number of days between March 19, 2003, and the date of each survey respondent’s interview.

Previous studies of proximate casualty effects have defined geographic proximity as counts of war deaths that occurred in the same state (e.g., Hayes and Myers 2009) or county (e.g., Gartner, Segura, and Wilkening 1997; Kriner and Shen 2010) as the respondent lives in. These definitions were rough approximations imposed on researchers by limitations in both available data and the software available to analyze those data. The level of states is clearly too large, since a casualty from San Diego is treated as equivalent to one from San Francisco, even for the California respondent who lives hundreds of miles away on the state’s northern border with Oregon. The level of counties is also problematic, as this approach ignores the proximity of survey respondents to county borders, where casualties in neighboring counties may be physically more proximate than casualties in one’s own county. Using counties as the units of
analysis also forces Loving County, Texas (less than 700 square miles of total area, containing fewer than 100 residents) and Los Angeles County (more than 4,000 square miles of total area, containing 10 million residents) to be treated as equivalent units.

In contrast to previous approaches, our analysis employs a geographic information system (GIS) that compares the latitude and longitude for each respondent’s county of residence with the latitude and longitude for the hometown of every American who died in Iraq. Drawing radii around the centroid of each respondent’s county of residence allows us to define local war deaths as the number of fallen Americans whose hometowns lie within 25 miles from the geographic center of each survey respondent’s county. To put this in scale, a circle with a radius of 25 miles covers an area of 1,963 square miles, which is nearly twice the size of Rhode Island. Within these 25-mile radii, we further measured the exact distance in miles$^2$ between the center of each respondent’s county and the center of each casualty’s hometown. Since our variable of interest is proximity rather than distance, we take the inverse of this quantity as our measure of casualty proximity within each local radius. In this way, the closest casualties obtain a value of up to 25, while those further away receive values that eventually approach zero at the edge of the radius. Respondents living in areas that have no geographically proximate casualties at the time of interview are assigned a score of zero on measures of casualty proximity.

The geographic information system is illustrated in Figure 1, which plots a subset of our data for two NAES respondents—each represented by a telephone icon—who lived near Dallas, Texas. One respondent is located slightly right of center in the map, at the centroid for Rockwall County (population around 75,000 in 2004). A second respondent is located slightly left of center in the map, at the centroid for Dallas County (population around 1.2 million in 2004). A 25-mile radius around the respondent to the right encompasses three local war deaths that have occurred
since the Iraq invasion, each represented by a gravestone. Although the hometowns of these casualties are fairly close to where the respondent lives, none of these three deaths occurred within the respondent’s home county. A 25-mile radius around the respondent to the left encompasses the hometowns of six fallen veterans, including one that is also counted as proximate to the first respondent. Of these six war deaths, only two are from the same county as the leftmost respondent. One additional fallen veteran is located to the far left of the figure, just outside the 25-mile radius for the respondent on the left, and is not counted for purposes of ascertaining local casualty counts for that respondent.

Our analysis also considers the temporal proximity of local casualties in conjunction with their geographic proximity. That is, we also define local casualties according to the recency of death in order to examine whether proximity in time matters in a similar way as proximity in space. To retain flexibility in capturing a range of short-term and long-term effects, we conducted separate analyses for the number of local casualties that occurred within 14, 28, 42 and 56 days prior to the survey respondent’s interview. We also model the effects of the cumulative total of local casualties that have occurred from the start of the Iraq war up to the respondent’s date of interview.

**DMA-Level Contextual Data**

Exploratory data analysis on the state-level relationship between war deaths and war support revealed a very weak correlation ($r = -.06$), a surprising finding given the standard expectations for proximate casualty effects.\(^3\) This is because support for the Iraq War has a distinctive geographic structure, in which military recruiting patterns create a positive relationship between
casualty levels and Republican voting patterns in recent national elections. The geographic
distribution of Iraq casualties relative to the general population creates a challenge for estimating
the effects of proximate casualties. This artifact becomes less pronounced as data are
disaggregated into smaller units, and there are sound theoretical reasons to use lower levels of
aggregation when testing for proximate casualty effects (Kriner and Shen 2010). Media markets
are the level at which local television programming is broadcast, and because media markets are
not always contiguous with state borders, market-level data provide important analytical leverage
for controlling state-level effects. County-level data on broadcast television viewing habits are
used by Nielsen Media Research to assign each county in the United States to one of currently
210 Designated Market Areas (DMAs). Among the 206 DMAs in the contiguous 48 states the
bivariate correlation between local casualty counts and war support is −.33, which is in line with
previous findings of a negative relationship. We therefore conclude that multilevel modeling
which clusters cases within media markets offers an especially beneficial design for controlling
geographic artifacts of composition while testing for the effects of varying sources of casualty
information.

For each of the 206 DMAs in the contiguous 48 states, we constructed three control
variables to address the geographic structure of war support. We expect that the most urban and
Democratic locations will have lower support for the president’s conduct of the war, net of other
effects. Population density is measured by dividing DMA population by DMA land area in
square miles, using county-level data from the 2000 Census. Average Democratic vote share is
the mean percentage of the Democratic vote from the presidential elections of 1992, 1996, and
2000. Finally, we include the percentage of the DMA population with a four-year college degree
or more, as captured by the 2000 U.S. Census, to control for disparities in military recruitment.
associated with local levels of socioeconomic status (Kriner and Shen 2010) and to further ensure that our measures of media consumption are not merely gauging the information exposure of well- and poorly-educated populations.4

In addition to these DMA-level controls for opinion about the war, we also included a number of DMA-level features that could potentially moderate the impact of casualty proximity on war support. We hypothesize that regional and local news consumption cultures (Althaus, Cizmar, and Gimpel 2009) should moderate the effects of casualty proximity. Regardless of how much they personally attend to local news, respondents living in areas with higher average levels of local news exposure should have higher levels of indirect exposure to the information carried in local news outlets resulting from interpersonal conversations stimulated by news exposure among opinion leaders (e.g., Mondak 1995; Katz and Lazarsfeld 1955). We therefore expect that the effects of casualty proximity should be greater in areas with higher aggregate levels of local news exposure. In addition to DMA-level average newspaper exposure and average local television news exposure, we also control for average network television news exposure and average cable television news exposure to ensure that our measure of local news attentiveness are not merely capturing general tendencies for all forms of news exposure.5

Methods

Multilevel modeling is dictated by our theoretical expectation that individual-level influences on opinion (Level 1) may vary in strength according to the media market a person lives within (Level 2). This estimation procedure allows the Level-1 intercept and slopes to vary across the Level-2 units. It is also advantageous from a methodological standpoint because it does not assume, as OLS regression does, that the observations are independently distributed
across space. Our observations are grouped into media market areas, because while individuals may be independent across markets, individuals within markets share a host of similar traits germane to political opinion.

Since our dependent variable is binary, we incorporate a binomial sampling model with a logit link function, i.e., a hierarchical generalized linear model (HGLM) rather than an HLM.

Our individual-level model can be written as:

\[
\text{Approval}_{ij} = \beta_{0j} + \beta_{1j}(\text{Time})_{ij} + \beta_{2j}(\text{Age})_{ij} + \beta_{3j}(\text{Age}^2)_{ij} + \beta_{4j}(\text{Gender})_{ij} + \beta_{5j}(\text{Minority})_{ij} + \beta_{6j}(\text{< High School})_{ij} + \beta_{7j}(\text{College or More})_{ij} + \beta_{8j}(\text{Military Family})_{ij} + \beta_{9j}(\text{Party Id})_{ij} + \beta_{10j}(\text{Network TV News})_{ij} + \beta_{11j}(\text{Cable News})_{ij} + \beta_{12j}(\text{Local TV News})_{ij} + \beta_{13j}(\text{Newspaper News})_{ij} + \beta_{14j}(\text{Nat’l Casualties})_{ij} + \beta_{15j}(\text{Local Casualties})_{ij} + \beta_{16j}(\text{Casualty Proximity})_{ij} + \beta_{17j}(\text{Network TV News x Nat’l Casualties})_{ij} + \beta_{18j}(\text{Cable News x Nat’l Casualties})_{ij} + \beta_{19j}(\text{Local TV News x Local Casualties})_{ij} + \beta_{20j}(\text{Newspaper x Local Casualties})_{ij} + r_{ij}
\]

where \(i\) indexes individuals, \(j\) indexes the media market, and \(r_{ij}\) represents the residual for individual \(i\) in market \(j\).

At the media-market level, we model \(\beta_{0j}\) as a function of three predictors: the Democratic leaning of the market as captured by the mean Democratic percentage of the vote for the 1992, 1996, and 2000 elections, the percentage of the DMA with a four-year college degree or more, and the population density of the market.

\[
\beta_{0j} = \gamma_{00} + \gamma_{01}(\% \text{Democratic Vote})_{j} + \gamma_{02}(\text{Population Density})_{j} + \gamma_{03}(\text{College or More})_{j} + u_{0j}
\]

The individual-level coefficient for casualty proximity is further modeled as shown below.

\[
\beta_{16j} = \gamma_{160} + \gamma_{161}(\text{DMA-Level Network News})_{j} + \gamma_{162}(\text{DMA-Level Cable News})_{j}
\]
\[ + \gamma_{163}(\text{DMA-Level Local News})_j + \gamma_{164}(\text{DMA-Level Newspapers})_j + \gamma_{165}(\text{College or More})_j + u_{16j} \]

\[ \beta_{pj} = \gamma_{p0} \text{ for } p = 1–15, 17–20 \] (4)

Equation 3 is important because it assesses the extent to which news exposure and educational attainment at the media market level moderate the individual-level relationship between casualty proximity and approval of the president’s war policy. We obtain the full model by substituting Equations 2–3 into Equation 1. By including the error at both the individual and media market levels, we avoid common problems with single-level approaches, which understate the standard errors and potentially bias the coefficients.

**Patterns of Proximate Casualties**

Our analysis of casualty patterns reveals that most Americans during the period from late 2003 through late 2004 were living in areas that had already experienced local war deaths at some point since the start of the invasion. Table 1 shows that 63% of respondents in the 2004 NAES lived within 25 miles of an American serviceperson who had fallen in battle at some point since the beginning of the war. However, far fewer lived near the hometowns of recent casualties. Only 8% of respondents lived within 25 miles of a casualty who had died within 14 days prior to the respondent’s interview. The second and third columns of Table 1 show the average and maximum number of local war deaths experienced by NAES respondents. Moving from the 14-day to the 56-day measures of recency corresponds to a fourfold increase the average local death toll, while moving from the 56-day period to the cumulative local losses since the start of the war involves another sixfold increase in average war deaths. The maximum number of war deaths shown in the third column of Table 1 follows similar patterns.
As the NAES survey data cover more than a year of time, these estimates must be interpreted with care: the United States had experienced only 364 war deaths by the end of October 2003 when the NAES interviews began. By November 2004, the American death toll had risen to over 1,200. Losses during this period averaged 67 deaths per month, with a low of 20 in February 2004 and a high of 137 in November 2004. The results in Table 1 should therefore be seen as averages not only in space but across time, during a period in which the Iraqi insurrection steadily gained in momentum and lethality.

**Effects of Proximate Casualties**

Given the complexity of our modeling exercise, which spans five recency periods at two levels of analysis, we present findings from key sets of variables in turn: the relative effects of national and local casualty counts on Iraq approval, the effects of local casualties that occur at different periods of time prior to the interview, and finally the effects of casualty proximity. Coefficients for the principal independent variables are presented in Table 2, while coefficients for the control variables are presented in Table A1 of the online appendix. The effects of control variables on approval for the president’s handling of Iraq are in line with conventional expectations, and are discussed separately in the online appendix.

**Relative Effects of Casualties and News Exposure on Iraq Approval**

The coefficients reported in Table 2 confirm that Iraq approval goes down as elapsed time in the war, local deaths, and cumulative national deaths go up. These relationships are consistent in direction and significance across all five models, confirming that the negative
relationships between Iraq approval on the one hand and elapsed time, local deaths, and national
deaths on the other, are independent from one another. However, the number of interaction coefficients in these models hinders a straightforward interpretation of the coefficients. For example, because cumulative national deaths are interacted with both cable and network television news exposure, the coefficient for cumulative national deaths represents the direction and size of the national casualties effect only when news exposure to both cable and network news sources is zero. To complicate things further, the mean and maximum number of local deaths varies across the five models (see Table 1), so that the apparently smaller coefficient for local deaths in the “all deaths prior to interview model” must be understood within the context of a much higher local death toll than was factored into the other models.

To address these challenges, we present a series of effect estimates that include all relevant interactions and use the same number of war deaths to compare the size of effects across models. We estimate the effects of five local war deaths, which is the maximum number of local war deaths experienced within 14 days prior to an interview, and twice the average number of war deaths experienced since the start of the war. Our intent is not to model “typical” effect sizes—we are convinced to the contrary that “typical” is nearly impossible to define in these complex data—but rather to provide a clear metric of comparison that can used to assess the changing impact of local war deaths across different spans of time.

If news exposure increases the amount of unique information a person receives about war deaths, then news exposure should have an interactive effect with war support, so that the effects of casualty information should fall heaviest on regular consumers of news. Of course, exposure to national news entails a wide range of war-related information beyond just casualty counts. This is why separate attention must be paid to the effects of local news exposure, since the
tendency for local news to specialize in news of hometown casualties rather than news about the conflict more generally should tend to offer a cleaner test of exposure to casualty information. Previous studies hypothesized that the proximate casualty effect was associated with exposure to local news, but limitations of the available data prevented a direct test of this expectation (Gartner 2004; Gartner, Segura, and Wilkening 1997; Kriner and Shen 2010; although see Hayes and Myers 2009). We therefore examined this possibility at both the national and local levels. Beginning with the relationship between national news consumption and national casualty figures, Figure 2 estimates the effects of 500 additional national deaths for respondents exposed to either zero or seven days per week of cable and network television news (these estimates are taken from the fifth model in Table 2). In this figure and all that follow, all other variables in the model are set to mean levels unless otherwise noted.

Turning first to the findings for cable television news exposure, the effect of an additional 500 casualties nationally within the 56 days prior to a respondent’s interview is expected to decrease the probability of approving the president’s Iraq policy by nearly 10 points among respondents exposed to no cable news coverage at all. Among those who watch cable television news seven days per week, the expected decrease is just seven points. From this we can conclude that 500 deaths nationally have a slightly larger negative effect on the person who watches no cable news at all than on the heavy consumer of cable television news. A similar pattern is seen for the impact of network television news (the middle bars of Figure 2), except that the difference between no exposure and high exposure is only slightly more than one percentage point. The third set of bars in Figure 2 shows the combined effect of exposure to both cable and network television news after experiencing an additional 500 deaths nationally. The negative
impact of these war deaths is heaviest among those exposed to neither source of national news, and is relatively lighter among those exposed to more national news.

[INSERT FIGURE 2 HERE]

These findings run counter to current scholarly expectations within the literature on war support, where the prevailing framework would suggest that exposure to information about war costs should lower support for war. But the findings in Figure 2 are consistent with the findings of every prior study known to the authors that has used “real world” survey data to estimate the relationship between war support and national news exposure during periods of military conflict. Although it would seem to follow logically that exposure to news about war costs ought to increase opposition rather than support, previous studies that have tested for the effects of news exposure on war support (where news exposure is usually approximated from levels of political knowledge) reveal the opposite: news exposure usually has a positive association with war support. This positive relationship between news exposure and war support came as a surprise to public opinion analysts studying survey data from late in the Vietnam War (Hofstetter and Moore 1979), but this basic relationship has been consistently confirmed in survey data from the Second World War (Berinsky 2009), the Korean War (Belknap and Campbell 1951-1952; Suchman, Goldsen, and Williams 1953), the Vietnam War (Hofstetter and Moore 1979; Verba et al. 1967; Zaller 1992), the Persian Gulf War (Iyengar and Simon 1994; Zaller 1996), the Afghanistan War (Feldman, Huddy, and Marcus 2007; Berinsky 2009) and the Iraq War (Hayes and Myers 2009; Feldman, Huddy, and Marcus 2007). Few of the authors of these studies seem to have made much of this routine finding, probably because they tended to focus on the process of opinion polarization among those with higher levels of news exposure rather than on the effects of high and low levels of news exposure. Seen against this backdrop, the finding that
heavier exposure to national news about war bolsters approval of executive policy is not so surprising. The surprising findings are that exposure to casualty information through the news is positively correlated with Iraq approval, and that local news exposure has a larger dampening effect for local war deaths than national news has for national war deaths.

Previous studies suggest that local casualty counts should have larger effects on Iraq approval than national casualty counts. Our analysis offers a precise estimate of just how much larger: five local war deaths occurring within 25 miles of the center of the respondent’s home county within the past 56 days had nearly the same negative impact on Iraq approval as an additional 500 war deaths over that same period at the national level. Figure 3 shows that among respondents watching no local television news and reading no newspapers, five local war deaths over the previous 56 days are associated with a sizable 10 percentage point drop in Iraq approval. In comparison, Figure 2 shows that respondents with no exposure to cable or network television news experience a similar 10-point drop only after an increase of around 500 war deaths nationwide. Nearby casualties clearly make a profound impression.

The corrosive effect of local casualties on war support at the individual level may be nearly 100 times larger than that produced by national casualties, but the dampening effect of local news exposure is also more pronounced than that of national news exposure. Figure 3 shows that the negative effect of experiencing five local casualties is much larger among respondents who are exposed to no local news coverage than among respondents who are regularly exposed to local news flows. Among respondents who have no direct exposure to local news information, the effect of five local deaths is estimated to lower Iraq approval by 10 points. But among heavy users of both local television and newspapers, the effect of five local deaths is
estimated to lower Iraq approval by less than one point. Once again, the corrosive effects of five local casualties are minimized among respondents who are highly attentive to local news coverage, and maximized among those who ignore local news altogether.

This finding at both the national and local levels could be consistent with at least three explanations: either the people who avoid news are simply different from news junkies in ways that our models fail to capture, or the news avoiders are attending to news flowing through interpersonal channels that amplifies the impact of local deaths, or the people who immerse themselves in news are attending to information that somehow counteracts the negative impact of local deaths. Since our models already control for so many variables associated with war support, and since the correlation in our data between local and national news exposure is positive ($r = .47$) rather than negative, selection biases alone seem unlikely to fully account for the differences.

The survey data at our disposal are ill-suited to address either of the other possibilities because we lack any direct measures of news content carried by local and national outlets or of the informational content of interpersonal exchanges. The small number of content analysis studies that have been done on local news coverage of foreign wars suggests that this coverage tends to be more positive and supportive of a military intervention than news coverage flowing through national news outlets (e.g., Howell and Pevehouse 2007). However, local news reporting also tends to specialize in casualty coverage of local residents who died in combat (Gartner 2004). Given these differences in local and national news coverage of war, the similar effects of local and national news exposure suggest that something other than content may be driving these effects.

*The Temporal Dynamics of Proximate Casualty Effects*
Analysis of the onset, decay and duration of the proximate casualties effect offers further insights into the mechanisms by which local war deaths affect war support. For people having no exposure at all to local television news while holding all other variables constant at mean levels (light bars in the top graph in Figure 4), the occurrence of five nearby casualties within the 14 days prior to the respondent’s interview registers an immediate and sizeable negative effect on Iraq approval, dropping approval levels by 11.6 percentage points. Notably, as these five deaths are spread out over longer periods of time leading up to the interview, the impact of these deaths on opinion Iraq approval gradually diminishes among those having no exposure to local television news. In the final model that considers all local deaths since the start of the Iraq invasion, the impact of five deaths from the respondent’s local area lowers Iraq approval by only 1.7 percentage points among those who avoid local news. Temporal distance from local deaths certainly matters for the opinions of the less attentive.

In contrast, among those who watch local television news seven days per week (dark bars in the top graph in Figure 4) the impact of five local deaths on Iraq approval varies hardly at all across time. Whether the five deaths occur within the 14 days prior to being interviewed, or over the full span of time since the invasion began, their impact on Iraq approval among heavy local television news viewers is roughly the same in each model, lowering Iraq approval by two percentage points or less.

[INSERT FIGURE 4 HERE]

A different pattern emerges for newspaper exposure (lower graph in Figure 4). Unlike watching local television news, which consistently minimizes the impact of nearby war deaths, newspaper reading immediately amplifies the impact of proximate casualties. But this effect is temporary, and begins to decline steadily in magnitude as the five deaths occur further back in
time. After controlling for everything else, Iraq approval among regular newspaper readers registers an immediate 7.3 point drop when five local deaths occur within 14 days of the interview. When the deaths have occurred within 28 days, the negative effect on Iraq approval is reduced to 4.5 points, and it continues dropping thereafter until leveling off at less than one percentage point when the five deaths occur at any point since the invasion began. Among respondents who completely avoid newspapers, the size of the proximate casualty effect grows from 5.1 points when the deaths have occurred within 14 days to 8.4 points when they have occurred within 42 days, before dropping in magnitude as the five deaths occur over longer stretches of time prior to the interview.

This differential impact of newspaper and local television news exposure on proximate casualty effects is confirmed in the only other study known to us that tests for the relationships between war support and exposure to different news media. Feldman, Huddy, and Marcus (2007) showed that support for wars in Afghanistan and Iraq varied consistently among those exposed to newspapers and television. After controlling for levels of political knowledge, Feldman et al. found that exposure to newspapers tended to lessen war support, while exposure to television news tended to augment war support, although both relationships were moderated by partisanship and the particular war in question. Since the Feldman et al. study did not differentiate between exposure to national and local television news, and since it did not examine the effects of casualties on war support, its findings are not directly comparable to those reported here. But it nonetheless is consistent with our finding that the impact of casualties on war support varies as a function of whether and how a person seeks out news.

In a similar way, our finding that the impact of each local casualty on opinion diminishes rather than accumulates over time is consistent with the only other study known to us that tested
for a temporal decay function in local casualty effects (Hayes and Myers 2009). Hayes and Myers found that state-level proximate casualty effects peaked and became briefly significant at between 15 and 17 days after a local death had occurred (where “local” was broadly defined as occurring within the same state as the respondent lived in). When more than 17 days transpired between the state-level death and the respondent’s interview, these casualties were found to have no significant lasting impact. We find a similar pattern of decay in the size of effects over time, although our more geographically sensitive data show that small local casualty effects do persist over much longer spans of time than previous work has found.

On balance, these findings suggest that there is something about either the viewers or the content of local news that minimizes the proximate casualty effect. However, they do little to shed light on why the proximate casualty effect should be larger among those who avoid exposure to local news. One possibility is that news avoidance might be associated with diminished potential for motivated reasoning (e.g., Lodge and Taber 2000; Redlawsk 2002). News junkies should have stronger opinions about war than news avoiders, and these motivated reasoners should have their opinions reinforced rather than challenged by additional exposure to news about casualties (Gaines et al. 2007). At least two other possibilities are suggested by the literature on war support. First, news avoiders might be receiving casualty information through interpersonal networks rather than mediated channels. The findings reported here are consistent with this possibility, particularly if—as we suspect—non-mediated interpersonal channels specialize in information about individual casualties. Another possibility is that the proximate casualty effect among news avoiders might be moderated by features of their immediate social environment. Although the NAES data have no measures of social ties to war casualties, and few
measures of social context, our analysis of whether the effects of casualty proximity are
moderated by DMA-level variables sheds some preliminary light on these possibilities.

*Effects of Casualty Proximity on Iraq Approval*

Along with counts of local war deaths, we also measured average distances between the
centroids of respondent counties and casualty hometowns. Respondents for whom the average
casualty hometown lies 25 or more miles away receive a casualty proximity score of zero, while
respondents from the same hometown as local war casualties receive scores nearer to the
maximum value of 25. Table 2 shows that after controlling for the number of local war deaths,
the coefficients for casualty proximity take positive values in all five of the models, indicating
that closer geographic proximity is associated with higher levels of Iraq approval rather than the
lower levels that might have been expected within the standard paradigm. However, only two of
these positive coefficients approach or exceed conventional levels of significance, and these
significant coefficients are in the 14- and 28-day models that register the short-term impact of
recent casualties from the local area. Aside from producing a temporary increase in Iraq
approval, geographic proximity to casualty hometowns appears to have little additional
explanatory power at the individual level after the number of local casualties is taken into
account. However, these coefficients represent only the average effect of geographic proximity
for respondents in the United States as a whole.

We also tested for moderators of casualty proximity effects at the level of media markets.
Most of these coefficients were nonsignificant (see Table 2). However, living in media markets
with higher than average levels of newspaper reading exerted a consistently negative effect on
the value of the casualty proximity coefficient that was significant in four of the five models. In
particular, living in close geographic proximity to the hometowns of the fallen has a more corrosive effect on the president’s Iraq support among respondents in media markets with higher average levels of newspaper reading.

This interaction is illustrated in Figure 5, which plots the expected effect of casualty proximity on the probability of approving the president’s Iraq policies among respondents living in those media markets that are at the 25th and 75th percentiles for average newspaper exposure. Figure 5 shows that as casualty proximity increases, a marked polarization develops between the high and low newspaper readership markets. In markets at the 25th percentile of newspaper readership, three of the four models with significant coefficients for average newspaper reading show that living closer to the hometown of a military casualty either increases or has no effect on the probability of supporting the president’s handling of Iraq. Only in the final model from Table 2 does casualty proximity predict a slight decrease in Iraq approval among respondents living in markets with relatively light levels of newspaper reading. In markets at the 75th percentile of newspaper readership, Iraq approval goes down consistently as casualty proximity rises. The largest effect is in the final model from Table 2, where persons living in the same hometown as a fallen American (casualty proximity = 25) are four percentage points less likely to approve of the president’s handling of Iraq than those living 25 or more miles from that hometown (casualty proximity = 0), when average newspaper readership in the media market is at relatively high levels.

These effects of average newspaper reading on the relationship between casualty proximity and Iraq approval are not trivial. In each of the five models, the predicted difference in Iraq approval between higher and lower levels of average newspaper reading is about three
percentage points when casualty proximity is at its maximum value. Since this relationship obtains even after controlling for news exposure at the individual level, this pattern is most easily explained as the impact of interpersonal communication about war costs that has been stimulated or muted by average levels of newspaper consumption.

**Conclusions and Implications**

The spatial and temporal dynamics examined here provide new insights into how tragic events shape public opinion as well as how the dynamics of war support evolve in complex information environments. This study is among the first to test the proximate casualties hypothesis using nationally representative survey data at a fine level of spatial resolution (see also Kriner and Shen 2010), and the only study to test a variety of possible mechanisms underlying proximate casualty effects. Our analysis confirms the findings of previous research that local deaths affect war support more than does the cumulative national death toll, and that the effects of local and national death tolls are independent of one another (similar findings are reported in Hayes and Myers 2009; Kriner and Shen 2010). However, our findings also support three general conclusions that are broadly consistent with public opinion research on attitude change and priming effects, but that undermine the cost-benefit model of war support upon which so much of the current research is currently anchored.

First, our study shows that recent deaths at the local level had greater corrosive effects on Iraq approval than did local deaths that occurred farther in the past. This suggests that exposure to local casualty information is mainly producing short-term priming effects rather than long-term attitude change. As reminders of local deaths fade from memory, war support levels return to nearly where they were before the local deaths occurred.
Second, we find clear evidence that exposure to national and local news tends to reduce rather than enhance the negative impact of both national and local casualties on opinion of the president’s war policies. Although data limitations prevent us from identifying the precise reasons for this consistent finding, we can confidently rule out exposure to local television news as an important source of the proximate casualty effects that are observed here and in previous studies. Newspaper exposure amplified the negative impact of local casualties in the immediate weeks following the deaths of those casualties, but this effect gradually wore off as local deaths faded farther into the past. These findings lead us to conclude that the negative correlation between war support and local casualties observed in previous studies is unlikely to be moderated by news exposure.

Third, although exposure to news coverage does not appear to explain how proximate casualties diminish levels of war support, we find consistent circumstantial evidence that the corrosive effects of mounting American casualties might be shaped to a large degree by information that flows through interpersonal channels. Such a relationship has been proposed but never tested in previous research (Gartner 2008, 2009; Kriner and Shen 2010). We find that the impact of casualty proximity is conditioned by contextual forces that either frame war deaths in ways that affect the impact of local casualties, or amplify the volume of information about local casualties that is carried through interpersonal channels of communication.

These three findings offer a significant challenge to the cost-benefit calculus model on which much of the war support literature is currently founded. Our findings are nonetheless consistent with these standard expectations about public opinion dynamics drawn from decades of literature on individual-level attitude change. The unexpected finding was that citizens who avoided news coverage about war should be the most responsive to new information about
casualties at the local and national levels. This pattern underscores the central role that social influence processes play alongside mediated forms of communication in the dynamics of public opinion (e.g., Beck et al. 2002). Future research would do well to incorporate social influence processes into research designs so that their unique influences could be more directly studied.

Our efforts to model the appearance in time and space of local information about American casualties clarifies the roles played by local events in the dynamics of approval for the president’s Iraq policies. Local casualties matter, but only in the short term. Information about war costs matters, but the casualty information that undermines support for war appears to flow from a bottom-up process through social networks more than from a top-down process formed by traditional channels of national and local news coverage. Our study confirms that public opinion on issues of national and international importance can be influenced more by small events affecting local communities than by big events affecting the nation as a whole. But it also underscores the need for more research to help us understand why.
Endnotes

1 We obtained this information on Operation Iraqi Freedom deaths from the Department of Defense at http://siadapp.dmdc.osd.mil/personnel/CASUALTY/oif_list_of_names.xls.

2 In this instance we use straight line (Euclidean) distance rather than either network or block distance. In practice for these applications, the specific distance measure does not make a large substantive difference.

3 Alaska and Hawaii also experienced war deaths, but there were insufficient numbers of survey respondents interviewed in these states to permit a summary of approval for the president’s handling of the war. They are therefore omitted from all analyses reported in this paper.

4 We also estimated the effect of geographic proximity to major military bases, but dropped this variable from later analyses due to lack of statistical significance.

5 All DMA-level news exposure variables are scored in average days per week of exposure among respondents to the 2000 and 2004 NAES surveys (methodological details on these variables can be found in Althaus, Cizmar, and Gimpel 2009).
References


Hastie, Reid, and Bernadette Park. 1986. The relationship between memory and judgment depends on whether the judgment task is memory-based or on-line. *Psychological Review* 93 (3):258-268.


Figure 1. Geographic Information System for Estimating the Effects of Local War Deaths on the President’s Iraq War Approval
Table 1: Descriptive Statistics for War Deaths within 25 Miles of the Respondent by Days Prior to Interview

<table>
<thead>
<tr>
<th>Time Period Leading Up to Interview</th>
<th>% Experiencing Local War Deaths</th>
<th>Mean Number of Local War Deaths</th>
<th>Maximum Number of Local War Deaths $^a$</th>
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<tr>
<td>Within 14 Days</td>
<td>8.2</td>
<td>0.1</td>
<td>5.0</td>
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<td>Within 28 Days</td>
<td>14.8</td>
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<td>Within 42 Days</td>
<td>20.2</td>
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<td>7.0</td>
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<td>Within 56 Days</td>
<td>24.8</td>
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<td>8.0</td>
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<td>Since the Start of the War</td>
<td>62.9</td>
<td>2.6</td>
<td>27.0</td>
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</table>

$^a$ Minimum number of local war deaths is always zero.
Table 2. Impact of Spatial and Temporal Proximity of Local War Deaths on Approval of President Bush's Handling of the Iraq War

<table>
<thead>
<tr>
<th>Individual-Level Variables</th>
<th>Local Deaths within 14 Days</th>
<th>Local Deaths within 28 Days</th>
<th>Local Deaths within 42 Days</th>
<th>Local Deaths within 56 Days</th>
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<td>-.010*</td>
<td>-.009*</td>
</tr>
<tr>
<td>(0.008)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.003)</td>
<td></td>
</tr>
<tr>
<td>% of DMA with College Degree</td>
<td>-.0003</td>
<td>-.001</td>
<td>-.0003</td>
<td>-.00005</td>
<td>-.0001</td>
</tr>
<tr>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80,556</td>
<td>80,556</td>
<td>80,556</td>
<td>80,556</td>
<td>80,556</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
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<td>--------</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

# p < .10  * p < .05

Note: Hierarchical Generalized Logistic Regression Estimation; cell entries are log-odds coefficients (standard errors). All models also control for DMA-level effects of education level, Democratic vote share, and population density, as well as individual-level effects of age, age squared, gender, minority status, education, military family status, and party identification.

Dependent variable: 1=Approve of President’s Handling of Iraq War; 0=Disapprove.

Figure 2: Impact of 500 Additional National Deaths when National News Exposure Varies from Minimum to Maximum

Note: These effects are estimated from the “All Local Deaths within 56 Days of Interview” model in Table 3.
Figure 3: Impact of Five Additional Local Deaths when Local News Exposure Varies from Minimum to Maximum

Note: These effects are estimated from the “All Local Deaths within 56 Days of Interview” model in Table 3.
Figure 4: Impact of Five Local Deaths When Exposure to Either Newspapers or Local Television News Varies from Zero to Seven Days per Week

a. When Local TV News Exposure is Minimum and Maximum

Recency of Local Deaths

- Local TV News = 0
- Local TV News = 7

b. When Newspaper Exposure is Minimum and Maximum

Recency of Local Deaths

- Newspaper = 0
- Newspaper = 7
Figure 5: Interaction of DMA-Level Newspaper Readership and Casualty Proximity on Iraq Approval, by Time Period Prior to Interview

a. DMA-Level Newspaper Readership at 25th Percentile

b. DMA-Level Newspaper Readership at 75th Percentile