Crime as a Source of Solidarity: A Research Note Testing Durkheim's Assertion

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Durkheim’s assertion

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A basic premise of a functional theory of crime is that heinous crimes can be a source of solidarity. While anecdotal evidence exists to support this crime–solidarity relationship, no systematic studies have tested this assertion. We compare data from a sample of Virginia Tech students collected in 2006 to data from a sample of students collected five months, nine months, and one year after the mass shootings that occurred on campus in April 2007. The results indicate that solidarity significantly increased after the crime and remained elevated for six months. After six months, solidarity began to decrease.

While most citizens view crime as a pathological condition and seek individualistic causes for it, Durkheim saw crime as a normal and inevitable part of society. As Durkheim ([1895] 1938:65–66) states, "(Crime’s) form changes; the acts thus characterized are not the same everywhere; but, everywhere and always, there have been men who have..."
behaved in such a way as to draw upon themselves penal repression.’’ He deduces that ‘‘a society exempt from (crime) would be utterly impossible’’ (Durkheim [1895] 1938:67). Crime, according to Durkheim, is ‘‘normal’’ because it is inevitable; moreover, it is ‘‘normal’’ because it serves positive and necessary social functions. Crime ‘‘is bound up with the fundamental conditions of all social life, and by that very fact it is useful’’ (Durkheim [1895] 1938:70).

For Durkheim, crime is inevitable and useful for several reasons. First, no society could enforce total conformity, and if society could, it would be overly repressive. Nonconformity is necessary for society to remain flexible and open to change and new adaptations (Durkheim [1895] 1938). Second, crime not only permits social change, but ‘‘in certain cases it directly prepares these changes’’ (Durkheim [1895] 1938:71) and provides direction in which change occurs. Third, crime is punished, and punishment is a ‘‘passionate reaction of graduated intensity’’ (Durkheim [1915] 1964:90). The effect of punishing crimes is to express strongly and widely held sentiments of attachment to the collective. That is, the effect of punishment, according to Durkheim, is to promote social solidarity (Durkheim [1895] 1938; [1915] 1964).

This research is important for the study of deviance for two inter-related reasons. First, it permits a quantitative test of Durkheim’s assertion that deviant acts can promote group solidarity. While Durkheim’s arguments are well known, there is little systematic evidence of the solidarity-promoting effects of criminal or deviant behavior beyond anecdotes. For example, Collins (2004) and others (Smelser 2004; Harlow and Dundes 2004) reported perceived increases in solidarity after the 9/11 terrorist attacks. Numerous researchers (e.g., Carretero and Angel 2003; Carroll et al. 2005; Drabek 1986; Miki 2002) have also reported increases in solidarity after large-scale natural disasters. However, rarely are we able to demonstrate quantitatively an increase in solidarity because we lack the pre-crime or pre-disaster data needed to do so. To get such data, one would need to know where the tragic event is going to occur, and researchers, of course, typically lack this information. Thus, researchers rarely compare ‘‘pre’’ data with ‘‘post’’ data. Most research on the effect of tragedies on social solidarity relies on one-shot
case studies, non-equivalent comparison communities, time-series analysis of existing statistics to examine the consequences of the event, or retrospective accounts (e.g., for a discussion of the use of these methods in disaster research, see Sweet 1998). In this research, serendipity provided us with "pre-crime" data; thus, we compare "pre-crime" data, collected in April 2006, with "post-crime" data collected shortly after the April 16, 2007 mass murder of 27 students and 5 faculty members on the Virginia Tech campus. These data document and quantify the increase in solidarity witnessed anarchotally after the mass shootings. We then follow a panel of students to document and quantify the changes in solidarity at nine-months and one-year post tragedy.

Next, and most importantly, our research is important for the study of deviant behavior because Durkheimian thought has influenced several contemporary theories of deviant behavior, including strain theory, social control theory, social disorganization theory, and all of the theories that derive from those important works. Given the influence of Durkheimian thought on theories of deviant behavior, the accuracy of Durkheim’s statement is critically important. While we do not test Durkheim’s "theory," per se, we test a central aspect of it.

Although anecdotal evidence suggests solidarity increased immediately after the mass murders, we are left wondering if solidarity actually increased or was it merely more openly displayed. It is possible that the community was already highly solidified, but it rarely has the opportunity to display their solidarity so dramatically. Also, assuming solidarity did increase, by how much did it increase? Also, assuming solidarity increased, for how long did it remain elevated? We can only answer these types of questions with longitudinal data and in this case, serendipity allows us to provide such an analysis of pre- and post-tragic event levels of solidarity.

We begin with a brief review of Durkheim’s argument. Then, using common measures of "solidarity," we report the change in this measure that occurred between the spring of 2006 and the spring of 2007. We then report changes in levels of solidarity from spring 2007 through spring 2008. Finally, we discuss the data with respect to Durkheim’s argument.
DURKHEIM’S ARGUMENT

According to Durkheim, crimes elicit negative sanctions by arousing collective sentiments against the infringement of strongly held norms. In fact, an act is a crime (rather than a private grievance) because it arouses collective sentiments (Durkheim ([1915] 1964). Since crime disturbs collectively held sentiments, it produces a collective response. This response has the unanticipated consequence of strengthening normative consensus and promoting social solidarity. Durkheim ([1915] 1964:102) states,

Crime brings together upright consciences and concentrates them. We have only to notice what happens...when some moral scandal has just been committed. They stop each other on the street, they visit each other, they seek to come together to talk of the event and to wax indignant in common. From all the similar impressions which are exchanged, from all the temper that gets itself expressed, there emerges a unique temper...which is everybody’s without being anybody’s in particular. That is the public temper.

The collective response that crimes engender is due to the collective nature of the sentiments they offend. The sentiments are widely held—if they were not, we are unlikely to consider their violation criminal—and the unanimity of those sentiments give them authority. Yet, the sentiments are not “truly universally” held—if they were, the crime would not have been committed. Thus, crimes weaken the collective conscience by highlighting that not everyone necessarily agrees with or follows the rules. If unchallenged, this realization may lead to a reassessment of the necessity of conformity. The collective, in turn, resists this weakening by acting collectively. As Durkheim argues ([1915] 1964:103), “since it is the common conscience which is attacked, it must be that which resists, and accordingly the resistance must be collective.” Through this collective action, solidarity is promoted and the group’s unity is enhanced.

Since Durkheim’s argument nearly a century ago, other researchers (e.g., Barton 1969; Carretero and Angel 2003; Carroll et al. 2005; Collins 2004; Drabek 1986; Dynes 1970; Miki 2002; Pijawka et al. 1987; Quarantelli and
Crime as a Source of Solidarity

Dyanes 1976; Scarisbrick-Hauser and Lewis 1990; Shrum 2007; Siegel et al. 1999; Smelser 2004; Sweet 1998; Turkel 2002) have discussed the solidarity-producing effects of crime, natural disasters, or other mass tragedies. Collins (2004: 55), for example, perceived a surge in social solidarity after 9/11 that he believes lasted approximately six months after the attacks. Using logic similar to Durkheim, he argued that,

what creates the solidarity is the sharp rise in ritual intensity of social interaction, as very large numbers of persons focus their attention on the same event, are reminded constantly that other people are focusing their attention by the symbolic signals they give out, and hence are swept up into a collective mood.

Thus, the tragedy–solidarity relationship appears well established. However, this relationship is by no means automatic. Some disasters produce conflict at the community level (see, for example, Carroll et al. 2006; Fradkin 2005; Ryang 2003; Quarantelli and Dynes 1976), and reports of “routine crimes” can create fear and fracture a community (see, for example, Skogan 1990). In the Virginia Tech case, we predict support for Durkheim’s claim because, as others note (e.g., Drabek 1986; Dynes and Quarantelli 1971; Quarantelli and Dynes 1976; also see Tierney 2007), conflict is rare immediately following a community-level tragedy. As noted earlier, Collins (2004) argues that increased levels of solidarity can be observed for approximately six months. After that time, solidarity levels return to their pre-tragedy levels. Our “post-tragedy” data were collected prior to the six-month anniversary of the event. Second, the events of April 16, 2007 that occurred on the campus of Virginia Tech were not “routine.” Twenty-seven students and five faculty members were killed, and twenty-three others were wounded or hurt, making the Virginia Tech incident the most deadly school shooting in U.S. history.

ANECDOCTAL EVIDENCE OF INCREASED SOLIDARITY

As noted earlier in this article, much of the research that documents an increase in solidarity after tragic events relies
on anecdotal evidence. Often, researchers can only make post-event observations (e.g., Carretero and Angel 2003; Collins 2004), use trend data to estimate the event’s impact (e.g., Siegel et al. 1999), or gather retrospective accounts of subjects to evaluate what life was like prior to the disaster (e.g., Erikson 1976; Palinkas et al. 1993). These efforts and data are valuable and often paint a picture of heightened solidarity, especially immediately after the tragic event. Post-tragedy observations from Virginia Tech provide a similar picture. For example, over 10,000 people attended the university-sponsored Convocation held to honor the victims. Thousands of people also attended the candlelight vigil held the day after the shootings. On the Saturday following the tragedy, thousands of students and Blacksburg residents attended a picnic hosted by a community group on the university’s campus. Thus, there was, as Collins (2004:55) argues, a “sharp rise in ritual intensity of social interaction” among members of the Virginia Tech community. At the same time, as noted by Ryan and Hawdon (2008), counter frames of blaming university officials and law enforcement personnel were in circulation and could have undermined the perceived solidarity. However, if Durkheim and Collins are correct, this increase in ritualistic interaction should lead to a rise of solidarity among the group’s members. While the organized events that occurred immediately following the tragedy suggest solidarity increased, we turn to the analysis to document the changes in levels of solidarity from one year prior to the crime to one year following the crime.

METHODS

We use data collected from four Web-based surveys of Virginia Tech students. While Web-based surveys are known for problems of sampling bias, all enrolled students have e-mail accounts that they are required to check routinely. Thus, this population is unusually accessible through the Internet, and the typical problem associated with Web surveys of coverage error is not an issue (see Schonlau et al. 2007, 2009). Second, this population is familiar with communicating via e-mail, so selection bias is likely minimal for these samples. In fact, Web-based surveys may be superior to phone surveys because so many students rely
solely on cell phones (see Brick et al. (2007) and Tucker et al. (2007) for a discussion of the limits with telephone samples; see Witte and Howard (2002) for a general discussion of the representativeness of Web-based samples).

The Pre-Tragedy Survey
The current researchers were involved in an evaluation of Virginia Tech’s campus climate during the 2006 spring semester. The Virginia Tech Office of Multi-Cultural Affairs sponsored the evaluation project, and the university registrar’s office e-mailed all students enrolled at the Blacksburg campus during the 2006 spring semester to invite them to participate in the survey. The survey, which included items measuring solidarity with or attachment to the university community, attitudes toward cultural diversity on campus, and experiences with crime and harassment on campus, was administered during the last week of March and first week of April 2006. In total, 2,205 students responded to the survey. This total represents an overall response rate of approximately 10.3%. Due to missing data, 42 cases were eliminated. We analyze the 2,163 respondents with complete data.¹

The Post-Tragedy Surveys
After the tragedy, the researchers received National Science Foundation funding to track how the mass murder affected levels of solidarity. For the post-tragedy survey, we had hoped to canvass the student population as we had in 2006; however, due to the university’s concerns of having students asked to complete too many surveys and the fear of potential lawsuits from victims or their families, the university created a committee to oversee all survey research dealing with the tragedy. This committee, which took a number of researchers’ suggestions into consideration, determined that only samples of students could receive surveys. The committee decided that the maximum number of students that could be contacted for participation in any

¹An analysis of the missing data revealed that the missing data were missing at random; that is, the missing data mechanism is independent of all variables (missing and observed) in the data set (see Little and Rubin 1987). Thus, the missing data would not bias the estimates. Therefore, the analyses were conducted on data for which all data were observed.
project would be limited. Therefore, we were limited to sampling from the student body.

Working within these limitations and using Dillman’s (1999) Tailored Design Method to maximize response rates, the Virginia Tech Center for Survey Research randomly selected 2,000 students from those enrolled at the Blacksburg campus in the fall of 2007 to form a panel for three post-tragedy surveys that dealt with the students’ response to the tragic events of April 16. We used the same solidarity items that were used in 2006 survey, but added items specifically dealing with the tragedy. After several delays because of university concerns for protecting the subjects, the first post-tragedy survey was sent via an e-mail link to the panel of students on August 25, 2007. The data collection for the first wave was completed October 1, 2007. In total, 626 undergraduate students completed surveys; thus, the response rate was 31.3%.

The second wave of the survey, which ran from January 12 to February 10, 2008, was fielded approximately nine months after the tragedy. For this wave, the Virginia Tech Center for Survey Research contacted those who had completed the first-wave survey and invited them to participate in the second wave. Of the 626 undergraduate students who completed the first-wave survey, 478 (76.4%) completed the second wave. This response rate was adversely affected by the approximately 26% of sampled students who were seniors in the Fall semester 2007. Many of these students graduated from and left the university between the fall 2007 and spring 2008 semesters.\(^2\) The third wave of the Web survey was fielded between May 1 and May 30, 2009, just over one year after the tragedy. In the third wave, 267 students completed the survey. Thus, 42.7% of the original student sample responded to the third-wave survey. In total, 194 students have complete data for all three waves of the survey.

**Representativeness of the Samples**

Despite the relatively low response rate in the pre-tragedy sample (10.3%), the sample adequately represented the

\(^2\)Most of these students graduated from the university; however, some students leave for other reasons, including, but not limited to, medical, personal, or academic reasons.
Comparing the sample to the University undergraduate population (http://www.vt.edu/about/factbook/student-overview.html), the sample is within the expected margin of error of $\pm 2.5\%$ for all ethnic categories except “white.” White students were slightly over-represented (by 3.6%). Similarly, the post-tragedy survey falls well within the margin of error for the sample size of approximately $\pm 4.0\%$ for African-American, Asian, and Hispanic students. Whites are over-represented and “unknown” is under-represented. The “unknown”/“not specified” category, which was included on the first survey due to the survey’s emphasis on campus race relations, was not included in the post-tragedy survey. Given that the sample statistics for the other ethnic categories closely match the population parameter, it appears that white students are the ones who do not provide the administration with race/ethnic data and who do not specify a race or ethnic group affiliation on surveys. The critical factor here, however, is that the University’s minority population is adequately represented in both the pre- and post-tragedy samples. Table 1 provides a comparison between the sample and the University population based on ethnicity.

In addition, the sample accurately reflected the population with respect to the distribution of students across the university’s eight colleges. As is common in surveys, females were over represented in both the pre- and post-tragedy samples.

3Response rates, while important, do not necessarily differentiate reliably between accurate and inaccurate data (see AAPOR 2008).
Whereas 58.4% of undergraduate students are male, only 45.5% of the pre-tragedy sample and 42.8% of the post-tragedy sample were males. All of the analyses were conducted using weighted data to correct for the over-sampling of female students.

**Measures**

Our dependent variable, strongly and widely held sentiments of attachment to the collective or social solidarity, is measured using questions derived from Bachrach and Zautra’s (1985) sense of community scale. The items included, “I am proud to be a member of the Virginia Tech community,” “I trust the students at Virginia Tech,” “I trust the faculty at Virginia Tech,” “I trust the staff at Virginia Tech,” “I feel I am a part of the Virginia Tech community,” and “People at Virginia Tech share the same values.” All items responses were five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree), and the index’s possible range was from five to thirty. Similar items have been used in previous research (e.g., Hawdon et al., 2000) and display high levels of reliability. In the 2006 data, the alpha reliability coefficient was .848; in the 2007 data, the alpha was .803. 

**RESULTS**

We begin by comparing 2007 levels of solidarity with 2006 solidarity levels. As Durkheim would predict, solidarity, as measured with our items, increased after the campus witnessed a dramatic crime. Levels of solidarity increased from 23.2 in 2006 to 27.5 in 2007, an increase of over 18%. Because the pre-tragedy and post-tragedy data are independent and the individual respondents’ data cannot be linked, we used an independent sample t-test to determine if the difference between pre- and post-tragedy levels of solidarity were statistically significant. Results of the test indicate

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4We also performed a factor analysis to determine if the items reflect a single concept or multiple dimensions of a concept. The analyses in both the pre- and post-tragedy data resulted in a one-factor solution accounting for 58.8% of the total variance in the six items in the pre-tragedy and 57.2% of the total variance in the six items in the post-tragedy data. Therefore, the six items reflect a one-dimensional concept.
that the difference was statistically significant \((t=27.81; p<.001)\); thus, it appears levels of solidarity increased after the tragedy as the anecdotal evidence suggests.

Approximately nine months after the shootings, the heightened levels of solidarity were still evident; however, solidarity decreased from the high of 27.47 to 26.91. One year after the tragedy, expressed levels of solidarity again decreased to 26.73. Since the post-tragedy data are from a panel of respondents, we used paired-sample \(t\)-tests to determine if these decreases in solidarity were statistically significant. The difference between the five-month, post-tragedy levels of solidarity and the nine-month, post-tragedy levels of solidarity were statistically significant \((t=5.80; p<.001)\). The difference between the nine-month and one-year post-tragedy levels were not significantly different \((t=0.54; p=.591)\). Figure 1 depicts the changes in expressed levels of solidarity over time.

While solidarity clearly increased among Virginia Tech students between 2006 and 2007, it is important to examine

![Mean Level of Solidarity](image)

**FIGURE 1** Solidarity among Virginia Tech undergraduate students pre- and post-tragedy. (1) Scale ranges from 6–30. (2) Standard deviations in parentheses. (3) Differences between pre-tragedy and 5 month post-tragedy and the difference between the 5-month and nine-month post-tragedy are significant at \(p<.001\). Difference between nine month and one-year is not statistically significant.
differences between subgroups. Harlow and Dundes (2004), studying a sample of undergraduates at a small liberal arts college two weeks after the 9/11 attacks, found that African Americans were twice as likely as whites were to believe that those who hate the United States have valid criticisms. While both white and African-American students reported a boost in patriotism, whites expressed higher levels of pre-attack patriotism and were four times more likely than African Americans were to report that the attack greatly increased their patriotism. Moreover, white students were twice as likely to believe that the attacks precipitated closer bonds to others. Sales (2002) also argues that many African Americans had mixed feelings about the super-patriotism popular in the United States after the attacks. Did a similar pattern emerge in terms of solidarity experienced after the tragedy at Virginia Tech?

To answer the question of whether the tragedy differentially affected sub-groups of the population, we regressed solidarity on gender (dummy variable with female coded as 1), ethnic status (dummy variable with ethnic minorities coded as 1), age, time (dummy variable of pre-tragedy versus post-tragedy coded as 1), and the interaction of the three demographic variables and time. Age was centered to reduce the possibility of multicollinearity (see Aiken and West 1991). The model was statistically significant ($F_{7, df} = 86.82; p < .001$) and explained 19.2% of the variance in solidarity. The results of the model are presented in Table 2.

**Table 2. OLS Regression Predicting Pre- and Post-Tragedy Levels of Solidarity**

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>Standard Error</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (pre/post tragedy)</td>
<td>4.285***</td>
<td>.269</td>
<td>.408</td>
</tr>
<tr>
<td>Female</td>
<td>.407*</td>
<td>.175</td>
<td>.047</td>
</tr>
<tr>
<td>Ethnic Minority</td>
<td>-1.716***</td>
<td>.283</td>
<td>-.122</td>
</tr>
<tr>
<td>Age (centered)</td>
<td>-.299**</td>
<td>.116</td>
<td>-.069</td>
</tr>
<tr>
<td>Female by time</td>
<td>.332</td>
<td>.377</td>
<td>.023</td>
</tr>
<tr>
<td>Age by time</td>
<td>.018</td>
<td>.161</td>
<td>.003</td>
</tr>
<tr>
<td>Minority by time</td>
<td>.934</td>
<td>.603</td>
<td>.033</td>
</tr>
<tr>
<td>Constant</td>
<td>23.11***</td>
<td>.115</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001.

$R^2 = .192$. 
Based on this model, female, non-minority, and younger students expressed higher levels of solidarity than did male, minority, and older students both before and after the tragedy (beta female $= .047$; beta minority students $= -.122$; beta age $= -.069$). The solidarity-producing effect of the tragedy is evident in the “time” coefficient, which produced the greatest effect on solidarity (beta $= .408$). While all of the main effects were statistically significant, no interaction effect achieved significance. Therefore, solidarity levels increased after the tragedy, and they apparently increased by similar levels for all sub-groups of the population.

Because of the panel design where the same respondents answered questions at different times, the observations are dependent; we therefore perform General Linear Model analysis with repeated measures that predicts respondent levels of solidarity at approximately five months, nine months, and twelve months after the tragedy. The analysis includes the 197 students for whom data for all three waves were available, and the predictors are gender ($0 = \text{male}$, $1 = \text{female}$), ethnic minority status ($0 = \text{non-minority}$, $1 = \text{ethnic minority}$), age, and all two-way interactions. None of the interaction terms were statistically significant, so we re-estimated the model excluding these terms. For this analysis, there was no sphericity problem (Mauchly’s $W (2) = 0.987$, approximate $X^2 = 2.57$, $p = .276$).

Looking at the between-factor effects at approximately five months after the tragedy, females expressed higher levels of solidarity than did males ($b = .764$, $p = .056$), non-minority students expressed higher levels of solidarity than did minority students ($b \text{ minority} = -6.31; p = .001$), and age was inversely related to solidarity ($b = -.133$, $p = .003$). These time, results confirm the above analysis that uses the two independent samples. The between-subject effects account for approximately 12% of the variance in time, solidarity. The intercept’s partial eta-square (.402) indicates that nearly half of the variance accounted for by the model is due to the estimated marginal mean. This reflects the fact that levels of solidarity did not vary tremendously between the respondents; almost everyone’s feelings of solidarity were high, and there was relatively little variation separating people.

At nine months, female and age are no longer significant predictors of solidarity, although age approaches significance.
Minority students still expressed significantly lower levels of solidarity than did non-minority students ($b = -7.73; p < .001$). The between-subject effects account for approximately 9% of the variance in time$_2$ solidarity. At one-year post-tragedy, minority students had lower levels of solidarity than did non-minority students ($b = -7.32; p = .001$), and age was again a significant predictor of solidarity ($b = -1.50; p = .004$). Females and males did not significantly differ in their expressed levels of solidarity one year after the tragedy. The between-subject effects account for approximately 10% of the variance in time$_3$ solidarity. Table 3 reports the between-subject results for the analysis of solidarity over time.

The within-subject effect was not statistically significant ($F_{sphericity assumed} = 2.37, p = .094$); however, the within-subject time$_1$ versus time$_2$ contrast was significant ($F = 4.96; p = .027$). Thus, as seen in the basic analysis of solidarity over time presented in Figure 1, the heightened solidarity witnessed shortly after the tragedy significantly decreased by nine-month post-tragedy. The difference

<table>
<thead>
<tr>
<th>TABLE 3 Between-Subject Effects on Solidarity Based on Repeated Measures Analysis</th>
<th>b</th>
<th>Standard error</th>
<th>Partial eta-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five-month post tragedy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>-6.319**</td>
<td>1.945</td>
<td>.052</td>
</tr>
<tr>
<td>Female</td>
<td>.764#</td>
<td>.398</td>
<td>.019</td>
</tr>
<tr>
<td>Age</td>
<td>-.133**</td>
<td>.045</td>
<td>.044</td>
</tr>
<tr>
<td>Intercept</td>
<td>24.493***</td>
<td>2.152</td>
<td>.402</td>
</tr>
<tr>
<td>Nine-month post tragedy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>-7.738***</td>
<td>2.138</td>
<td>.064</td>
</tr>
<tr>
<td>Female</td>
<td>.649</td>
<td>.438</td>
<td>.011</td>
</tr>
<tr>
<td>Age</td>
<td>-.085</td>
<td>.049</td>
<td>.015</td>
</tr>
<tr>
<td>Intercept</td>
<td>21.383***</td>
<td>2.364</td>
<td>.298</td>
</tr>
<tr>
<td>One-year post tragedy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority</td>
<td>-7.324**</td>
<td>2.218</td>
<td>.053</td>
</tr>
<tr>
<td>Female</td>
<td>.520</td>
<td>.454</td>
<td>.007</td>
</tr>
<tr>
<td>Age</td>
<td>-.150**</td>
<td>.051</td>
<td>.043</td>
</tr>
<tr>
<td>Intercept</td>
<td>23.090***</td>
<td>2.453</td>
<td>.315</td>
</tr>
</tbody>
</table>

$^*p = .056; \ **p < .01; \ ***p < .001.$
between nine-month and one-year post tragedy, however, was not statistically significant ($F = 1.84; p = .176$).

Finally, none of the within-subject by between-subjects interaction effects were statistically significant. The lack of significance among the within-subject by between-subjects interactions indicates parallelism; that is, the initial increase in solidarity after the tragedy and the subsequent decrease in solidarity nine months and one year after the tragedy were similar among the various sub-groups of the population.

**DISCUSSION**

As predicted, solidarity significantly increased among Virginia Tech students following the April 16 tragedy. The heightened levels of solidarity displayed on the campus Drillfield the day following the shootings were still evident five months later. Levels of expressed solidarity increased for all racial/ethnic groups of Virginia Tech students; they increased for all students regardless of age; and, they increased for both men and women. These findings clearly support Durkheim’s argument that the collective response to crime promotes social solidarity, at least when the crime is particularly visible and heinous, as was the case at Virginia Tech.

Similar to what Collins (2004) observed after the 9/11 terrorist attacks, levels of solidarity began to decrease sometime after the five-month mark. By nine months after the tragedy, levels of solidarity had significantly declined from their immediate post-tragedy high. Solidarity levels decreased again by the 12-month mark; however, the difference between the nine-month and one-year levels was not statistically significant. Yet, while the solidarity expressed by Virginia Tech students had begun to “normalize” after approximately six months, it had not returned to the pre-tragedy levels observed in 2006.

The pattern of increased solidarity for approximately six months followed by a slow return to “normal” occurred for all sub-groups of the Virginia Tech student population analyzed here. White and minority students, women and men, and older and younger students expressed the same pattern of increased solidarity followed by decreased solidarity. This finding is contrary to Harlow and Dundes’
(2004) findings in terms of differential levels of patriotism experienced by African-American and white students after 9/11.

The finding in the repeated measures analysis that gender was significant predictor of solidarity only at time1 could indicate that male and female students responded differently following the tragedy. It could indicate, for example, that solidarity levels among male students remained elevated more so than solidarity levels among female students. However, this does not appear to be the case. Instead, the lack of significance at time2 and time3 is more likely due to the smaller sample sizes at those times. As reported in Table 4, the difference in mean levels of solidarity for men and women remained relatively stable across the study. Moreover, the decline in solidarity from the five-month to one-year mark was 2.7% for men and 2.8% for women. Thus, it is likely that the finding that gender no longer significantly predicted levels of solidarity nine months after the tragedy is a statistical artifact rather than a substantive finding.

There are two alternative hypotheses that could possibly explain the increase in solidarity witnessed after the tragedy. First, we do not have the data to conclude definitively that the April 16 shootings were the cause of the increased solidarity. It is possible that levels of solidarity would have been higher in 2007 than in 2006 even in the absence of the murders. However, we believe this is unlikely. First, the April shooting was undoubtedly the most significant event on campus that occurred in the time between the two surveys as indicated by the extensive national and international coverage of the event and the public displays

| Table 4 Mean Levels of Solidarity among Female and Male Students over Time |
|-----------------------------|-----------------------------|-----------------------------|
| Males | Females | Difference between females and males |
| Five-month post tragedy | 27.15 (3.03) | 27.93 (2.59) | 0.78 |
| Nine-month post tragedy | 26.56 (3.48) | 27.39 (2.75) | 0.83 |
| One-year post tragedy | 26.43 (3.54) | 27.14 (2.95) | 0.71 |

Standard deviations in parentheses.
of solidarity that followed. In fact, the murders were likely the most significant event that occurred on the Virginia Tech campus since the university was founded.

Second, the level of increase—an increase of over 18%—is substantial, and this increase was matched by an impressive decrease in the standard deviation. The increase of 4.3 on a scale that ranges from 6 to 30 was greater than the 2006 standard deviation for the measure (2006 SD = 4.08). Not only did the mean level of solidarity increase between 2006 and 2007, but also the standard deviation of the solidarity scale decreased substantially. The standard deviation of the scale in 2006 was 4.08; in 2007, the standard deviation of the scale was 2.88. This 29.4% reduction in the standard deviation clearly indicates that there was more agreement among Virginia Tech students after the tragedy than there was in 2006. Thus, not only did feelings of cohesion increase, there was a reduction in the variability in those feelings.

Third, other, less systematic, indicators of solidarity also increased significantly after the shootings. As previously noted, several mass displays of solidarity occurred throughout the week after the tragedy. Even the differences in the response rates between the 2006 and 2007 surveys are telling. The response rate for the 2007 survey was nearly three times that of the 2006 survey. Given all these factors, we are confident that the significant increase in solidarity was in large part due to the tragedy the community suffered.

Another plausible alternative hypothesis is that the increase in solidarity was not because of the Durkheimian theorized processes of recognizing the violation of strongly held normative sentiments and bonding together to reaffirm those norms, but instead the increase in solidarity was a consequence of the group suffering a sudden collective trauma. Observers have often commented on increases in solidarity after natural disasters or other collective tragedies. Which was it?

Our measure of solidarity can address this issue to some extent if we look at the items that comprise the measure. One item, “I feel that I am part of the Virginia Tech community,” reflects an increased identification with the victimized group. Another, “people at Virginia Tech share the same values as me,” reflects shared normative sentiments.
Both of these items significantly increased between the 2006 pre-tragedy data and the first wave of post-tragedy data. The mean response on the “part of the community” item increased from 4.16 in 2006 to 4.79 in 2007. This 15% increase was statistically significant ($p < .001$). The mean response on the “shared values” item increased from 2.73 in 2006 to 4.13 in 2007. The 51% increase was also statistically significant ($p < .01$). Based on these items, it appears that group members identified with the group more and developed a greater sense of shared normative sentiments. Therefore, it is likely that both processes occurred at Virginia Tech after the tragedy. It is telling, we believe, that the increase in average response to the “shared values” item was substantially greater than was the increase in the identification item; however, the difference in the increases could be a function of a relative ceiling effect in the identification item. Since the item’s maximum response is 5.0, and the 2006 mean of 4.16 had little room to improve, we do not base our argument solely on the greater increase in the sentiment item than in the identification item; there is other evidence that what Durkheim predicted occurred at Virginia Tech.

First, as Durkheim (1915:102) explained, when a crime occurs, “they stop each other on the street, they visit each other, they seek to come together to talk of the event and to wax indignant in common.” There is evidence this process occurred at Virginia Tech after the mass shootings, and this process occurred in both formal and informal settings. Formally, as mentioned previously, thousands gathered at the university-sponsored Convocation and vigil. During the Convocation, the audience was told by poet and Virginia Tech professor Nikki Giovanni,

The Hokie Nation embraces our own and reaches out with open heart and hands to those who offer their hearts and minds. We are strong, and brave, and innocent, and unafraid. We are better than we think and not quite what we want to be. We are alive to the imaginations and the possibilities. We will continue to invent the future through our blood and tears and through all our sadness. We are the Hokies. We will prevail. We will prevail. We will prevail. We are Virginia Tech.
The reference to the “Hokie Nation” and repeated use of the collective pronoun identified the group; the listing of traits that make the group “special” highlighted the group’s values; and, the reference to the group’s future survival and triumph provided reassurance that the group and its values would overcome the threat the crime posed to the community. As Durkheim ([1915] 1964:102) says,

we always love the company of those who feel and think as we do, but it is with passion, and no longer solely with pleasure, that we seek it immediately after discussions where our common beliefs have been greatly combated. Crime brings together upright consciences and concentrates them.

The Convocation of April 17 did exactly this.

Moreover, informally, the vast majority of community members engaged in conversations with their family and friends about the event. In the first wave of the post-tragedy survey, we asked respondents “in the week following April 16, approximately how many conversations about April 16 did you have with family members?” The responses for this item ranged from 1 (I did not talk to family members) to 8 (I had several conversations about April 16 everyday). We also asked how many conversations about April 16 they had during the week with close friends. Of the students surveyed, 29.7% had a conversation with their family “about once a day” or “several times a day,” and an additional 34.4% discussed April 16 with their family members “about 2 to 4 times that week.” Thus, nearly two-thirds of the respondents discussed the event with family members on numerous occasions. Even more respondents discussed the event with their close friends. Slightly over 54% discussed the event with their close friends “several times a day” during the week after the tragedy, 20.2% discussed the event with friends “about once a day,” and 16.8% discussed the event with friends “about 2 to 4 times that week.” Thus, 91.5% of respondents had numerous conversations with close friends about the event immediately following the tragedy. This coming “together to talk of the event” is exactly what Durkheim predicted. And, as Durkheim would predict, the correlation with the number of conversations one had in the week after the tragedy and solidarity is significant and
positive \((r = .204; p < .001)\). Therefore, at least based on this evidence, discussing the event promoted solidarity.

Next, as Durkheim ([1895] 1938) argued, the event gave rise to the opportunity to discuss moral issues, explore our moral boundaries, and usher in social change. The Virginia Tech tragedy directly led to numerous discussions about gun laws, privacy issues, and the treatment of mental illness (see Spielman 2008). With respect to mental health laws, the tragedy directly led to significant social changes. In response to the Virginia Tech incident, Virginia passed a series of bills that make it easier to involuntary commit people considered dangerous, restricts the ability of those with mental illness to purchase firearms, and allows greater leeway in disclosing mental health records to authorities (Walker 2008).

We are therefore confident that the processes witnessed after the Virginia Tech mass murder confirm Durkheim’s predictions. It is unlikely that the value that the mass murder threatened and that needed re-affirming was “thou shall not kill.” We are confident that most members of the Virginia Tech community firmly believe and adhere to this value. Yet, the events of April 16, 2007 severely threatened the community member’s sentiments that Virginia Tech is “special,” “unified,” and “safe.” In response to this threat, the community came together so the “community as a whole (could) experience them more vividly” ([1895] 1938:67).

CONCLUSION

As Durkheim argued, crimes can be solidarity-producing events. They shock the group and, therefore, the group responds collectively. There is evidence of this collective response from Virginia Tech. While this research supports Durkheim’s general point, we recognize that he may have overstated the case. Not just any crime results in high levels of group solidarity. Indeed, not all tragedies produce solidarity and a sense of community; at times, they produce conflict and destroy a sense of community (see Erikson 1976; Carroll et al., 2006). It is likely that specific conditions may need to be met before a tragedy or disaster produces solidarity (see Ryan and Hawdon 2008; also see Räsänen et al. 2008). One of those conditions is undoubtedly the extent of the tragedy. As Collins (2004:55) state, “The key to such
a pattern is the dramatic incident, the attention-focusing
event: a sudden attack and response to the attack.” The Vir-
ginia Tech case does not represent a “routine murder;”
instead, it was the most deadly attack on a college campus
in the history of the United States. Thus, it was a heinous
crime. Moreover, as Ryan and Hawdon (2008) note, the
crime was quickly (and deliberately) framed in such a way
as to promote the notion that this was an attack on the entire
community, not the community’s fault, and unavoidable.
They argue that the “solidarity effect” requires or at least is
enhanced by various forms of framing work that is purpose-
fully pursued by key opinion makers.

In this way, like some tragedies and disasters, particularly
heinous crimes create centripetal acceleration; they move
the body toward the center. In the physical world, centripetal
force is directly proportional to mass and velocity. In the
social world, we predict that the centripetal force of
solidarity is directly proportional to the strength of norms that
are violated or questioned by the tragic event. The events of
April 16, 2007 on the Virginia Tech campus produced such a
strong outpouring of communal grief and heightened sense
of solidarity not only because of the number of victims
and heinousness of the act; the acts violated our sense of
normalcy and expectations for safety. Universities are
“hallowed grounds” and university students are “our
future.” In our collective minds, these areas and these people
are supposed to be safe. Having these assumptions shattered
creates a social hurricane that tests the group’s foundation.

Yet, out of the emotional rubble, a stronger, more solidified,
group emerged (at least for a time). While the dysfunctions
of crime are many, we are reminded that, as Durkheim
argued, crime does serve some positive functions for
society. Unfortunately, the cost for those functions are often
far too high.

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effectiveness of community policing, and the relationship among grassroots neighborhood anti-crime organizations, community policing, social disorganization, and crime. He is former Chair of the Social Science Panel of the Ford Foundation Minority Fellowship Program.

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