Perceptions of Risk Factors for School Violence: Concordance with FBI Risk Profile

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Daniel A. Sass
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ABSTRACT. The Federal Bureau of Investigation (FBI, 2000) recently released a report on common background characteristics of school shooters, which also stressed the importance of evaluating the reality of threat. The present study evaluated respondents’ ability to discriminate between an unrealistic and a realistic threat and between a low and high risk level based on the FBI’s background profile characteristics as well.

ADDENDUM
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as to determine attitudes about whether some intervention was necessary. Respondents completed one of four randomly distributed vignettes, which differed in a 2 x 2 design (high vs. low background risk x realistic vs. unrealistic threat). These vignettes described a student who made a threatening statement regarding a teacher. Respondents then rated the student’s level of risk for violence and indicated the degree to which they would intervene. Results revealed that, in keeping with the FBI guidelines, both reality of threat and background risk characteristics significantly influenced respondents’ perceived risk for violence and need to intervene. Implications for educational settings and future research are discussed. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2005 by The Haworth Press, Inc. All rights reserved.]

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As national concerns grow regarding school shootings, researchers and health professionals have examined some of the warning signs of school violence. There is no one identified risk factor for targeted school violence that will differentiate dangerous individuals from others; however, a number of risk factors have been presumed to assist in the prediction of who will engage in violence. Studies have shown that personality variables, such as poor coping skills or anger management problems (FBI, 2000; Kelder et al., 1996; Verlinden, Hersen, & Thomas, 2000), family variables, such as lack of parental monitoring and poor relationships with parents (Bailey, Flewelling, & Rosenbaum, 1997; FBI, 2000; Kelder et al., 1996; Mushinski, 1994; Orpinas, Murray, & Kelder, 1999; Saner & Ellickson, 1996; Verlinden et al., 2000), school variables, such as lack of attachment to school (FBI, 2000; Saner & Ellickson, 1996; Verlinden et al., 2000), and social-environmental variables, such as exposure to violence and access to weapons (Bailey, Flewelling, & Rosenbaum, 1997; FBI, 2000; Kelder et al., 1996; Orpinas, Murray, & Kelder, 1999; Saner & Ellickson, 1996; Verlinden et al., 2000), may be risk factors that could presumably increase the probability of an adolescent committing a violent act.

In a study of recent school shootings, the Federal Bureau of Investigation (FBI, 2000) identified a number of background characteristics of school shooters, but explained that these characteristics should not be used as a profile for school violence. The occurrence of school shoot-
ings is rare, but threats are a potential problem in any school setting. Therefore, one should evaluate an adolescent’s risk for school violence after a threat has been made.

The FBI (2000) cautions that threats should be categorized into three levels of risk: low, medium, and high. A low level threat contains a vague plan, is indirect, and lacks realism. The information in the threat may be inconsistent, implausible or lack details. A medium level of threat is more direct and concrete than a low level threat and may include details, such as a time or place for the event. However, there may not be any indication that the threatener has taken preparatory steps. A high level of threat is direct, specific, plausible, and contains concrete steps that indicate the threatener has already taken some preparation for the act, such as access to a weapon or surveillance of the potential victim.

Once the level of threat is determined, health officials and administrators should investigate the risk factors in the threatener’s personality, family, school, and social environment (FBI, 2000). Only after both the level of threat and types of background characteristics have been analyzed can the level of risk be estimated. The FBI (2000) concluded their report by stating, “there is a compelling need to field test, evaluate, and further develop these assessment recommendations [so that] appropriate interventions [can be] designed to respond to the mental health needs of the students involved” (p. 31).

Before a threat, and then background characteristics, can be evaluated, it must first be brought to the attention of school officials. Along with the school officials, parents and adolescents may come into contact with threats made toward teachers or other students. Students have been found to report seeing and fearing more violence than teachers (Mushinski, 1994). Given that some studies have shown that parents and children are aware of the different levels of frequency and intensity of violence facing the children (Hill & Jones, 1997), it seems appropriate to investigate how parents and students view threats and the background characteristics of the threatener.

Given that it is unlikely that perpetrators first inform professionals of their intended actions, it appears crucial that those students and parents who become aware of the risk be prepared to take action. In a U.S. Secret Service and the U.S. Department of Education study of 37 incidents of school violence from 1974 to 1999 (USSS & USDE, 2002), less than one quarter of the attackers communicated a threat to the intended target prior to the attack. However, in most cases (81%), someone was informed prior to the attack at school. Most often a peer (93%), such as friends, schoolmates, or siblings, received prior knowledge of the at-
tack. In only two cases, these individuals notified an adult of the idea or
plan. In addition to discussing plans of the attack with others, most of
the attackers (93%) displayed some behavior prior to the attack about
the plan or preparations to harm the target (e.g., obtaining weapons or
ammunition). In 93% of the cases, the attackers had engaged in some
behavior prior to the attack that caused others to be concerned about the
safety of the attackers or the targets (e.g., writing about homicide); in
88% of these cases an adult reported he or she was concerned. This re-
port also found that the incidents of targeted violence were rarely sud-
den, impulsive acts. Most attackers spent between 1-2 days or up to one
year developing the plan to harm the target.

Because most intentions for targeted school violence are revealed to
peers, but not reported to school officials, and that there is often a num-
ber of days before attacks take place (USSS & USDE, 2002), there is
need to assess the perceptions of risk for these actions in both adoles-
cents and non-professional adults. While there are studies assessing risk
factors for individuals who commit school violence, there is a lack of re-
search examining whether those most likely to hear threats of violence
can accurately determine the risk level for violence. Equally important,
if there is a serious risk, will students or parents intend to take action to
prevent the violence from occurring?

The current study sought to determine how individuals assess the
level of risk for school violence, based on differential levels of threat
and background characteristics. Along with assessing the level of risk,
this study also examined what actions respondents would take in notify-
ing the proper officials about the threat. It was hypothesized that re-
spondents would be able to differentiate between the level of risk for
violence in students who present a higher level of threat and more back-
ground risk characteristics, compared to students with a lower level
threat and possessing fewer background risk characteristics.

METHODS

Participants

Two types of samples were desired, those respondents without chil-
dren (later labeled as young adults) and those with school-aged children
(later labeled as parents). Young adults ($n = 231$, 64% female, 96% un-
wed, 74% college students) ranged from ages 18 to 25 ($M = 21.27$, $SD =
2.07$) and all received education at or beyond the high school level ($M =$
15.00 years, \(SD = 1.50\). Racial breakdown for this group was as follows: African American (3.9%), Asian (3.9%), Caucasian (81.4%), Latino (3.0%), Native American (0.9%), Mixed/Biracial (3.9%), and Other (3.0%). Parents (\(n = 194\), 61% female, 65% married) ranged from ages 20 to 67 (\(M = 38.20, SD = 9.32\)) and were largely (78%) educated at or beyond the high school level (\(M = 15.18, SD = 2.87\)). Self-reported race/ethnicity for this group was as follows: African American (12.9%), Asian (2.6%), Caucasian (79.4%), Latino (4.6%), and Native American (0.5%).

**Procedures**

Participant selection was based on a snowball sample technique, which involved 6 graduate and 25 undergraduate students from an upper-level psychology course obtaining data from approximately sixteen people. Each student recruited equal numbers of young adults and parents. Respondents read informed consent, which stated that completion of the questionnaire indicated voluntary consent. Completion of the questionnaire took approximately 10 minutes and varied in location for the participants’ convenience. The Institutional Review Board approved the study, and informed consent was indicated by the completion of the survey.

The first survey page consisted of questions used to obtain participant background information, followed by one of four vignettes. Vignettes differed according to a 2 \(\times\) 2 design (high vs. low background risk \(\times\) realistic vs. unrealistic threat) and were accompanied by 14 questions intended to examine respondents’ perceptions of a potentially violent student. The items used in the current study, along with their means and standard deviations, are presented in Table 1. Student characteristics in the vignettes were designed to evaluate whether background characteristics and/or reality of threat altered respondent’s concern for violence and need to intervene by contacting the proper authorities. Based on the FBI (2000) criteria for potentially violent students, vignettes were constructed to depict characters with varying backgrounds and threat levels. A 5-point ordinal rating scale was applied to evaluate participant responses, anchored at 1 (strongly disagree) and 5 (strongly agree).

Based on question content, the Risk for Violence factor was operationally defined as the probability that the vignette character would commit a violent act towards the teacher. The Need to Intervene factor was operationally defined as the likelihood that the participant would contact school authorities, the threatener’s parents, and/or prohibit their child from having further contact with the potential attacker.
Measurement Evaluation

A polychoric correlation matrix\(^3\) created by PRELIS 2 (Jöreskog & Sörbom, 2001) was analyzed by LISREL 8.51 (Jöreskog & Sörbom, 2001b) given that the data was on an ordinal scale. Confirmatory factor analysis (CFA) in LISREL 8.51 (Jöreskog & Sörbom, 2001b) was employed using the maximum likelihood procedure to evaluate the two-factor measurement model proposed by the authors. The statistics employed to evaluate model fit were the Chi-square, Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), and Root Mean Square Residuals (RMSEA). Justification and description of these model fit statistics can be obtained from Bollen (1989), Hoyle (1995), MacCallum, Browne, and Sugawara (1996), and Hu and Bentler (1999).

Each factor was developed a priori with questions written to assess two distinct areas, Risk for Violence and Need to Intervene. It was hypothesized that this measure could be explained by two first-order factors (Risk for Violence and Need for Intervene) and one second-order factor (School Violence Concern). The error terms between the items were assumed to be uncorrelated and the covariation between the two first-order factors could be fully explained by their regression on the second-order factor. Furthermore, for the purposes of latent variable

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk for Violence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. There is a high level of risk that Jimmy will commit a different violent act.</td>
<td>3.74</td>
<td>0.95</td>
</tr>
<tr>
<td>3. Jimmy is only trying to “blow off” some steam about his situation.*</td>
<td>3.03</td>
<td>1.07</td>
</tr>
<tr>
<td>7. There is a low level of risk that Jimmy will commit the shooting.*</td>
<td>3.45</td>
<td>1.11</td>
</tr>
<tr>
<td>9. Jimmy was only joking when he made those comments.*</td>
<td>3.53</td>
<td>0.90</td>
</tr>
<tr>
<td><strong>Need to Intervene</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I would prohibit my child from further contacts with Jimmy.</td>
<td>3.68</td>
<td>1.15</td>
</tr>
<tr>
<td>5. I would notify the school of Jimmy’s comments.</td>
<td>4.02</td>
<td>1.04</td>
</tr>
<tr>
<td>6. I would attempt to get in touch with Jimmy’s parents to notify them of his comments.</td>
<td>3.93</td>
<td>1.07</td>
</tr>
<tr>
<td>10. I would allow my child to continue a relationship with Jimmy.*</td>
<td>3.66</td>
<td>1.15</td>
</tr>
<tr>
<td>13. Jimmy’s feelings about his situation are probably already known by his parents.*</td>
<td>3.85</td>
<td>1.01</td>
</tr>
<tr>
<td>14. Jimmy’s background information is probably already known to school officials.*</td>
<td>3.61</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Note. Item mean reflect the following response choices: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree or disagree, 4 = Agree, and 5 = Strongly agree. Items marked with an *"* were reverse coded.
scaling and statistical identification, the first construct loading for each latent variable was set to one.

This two-factor measurement model was posited given the expected high correlation between the Risk for Violence and Need to Intervene factors. A test of this association resulted in Pearson correlation of .666 between the Risk for Violence and Need to Intervene factors. The question content adopted for these constructs measured distinct information for the Risk for Violence and Need to Intervene factors and these two factors were the primary focus of investigation.

The CFA analysis indicated that the original model only moderately fit the data, $\chi^2 (34) = 397.383, p = .001, \text{NFI} = .886, \text{NNFI} = .861, \text{CFI} = .895, \text{RMSEA} = .152$ (95% confidence interval .138 to .166), with a relatively high chi-square to degrees of freedom ratio and other fit indices (viz., NFI, NNFI, & CFI) below .90. Therefore, the modification indices generated by LISREL were utilized to estimate parameters that may result in an improved model. Modification indices showed that a theta-epsilon parameter between question 13 and 14 would add significantly to the model fit, $\chi^2 (1) = 231.885, p = .001$, and therefore was added based on statistical justification. The modified model suggests a good model fit, $\chi^2 (33) = 165.498, p = .001, \text{NFI} = .953, \text{NNFI} = .948, \text{CFI} = .962, \text{RMSEA} = .099$ (95% confidence interval .085 to .115), and provides support for the utility and factor structure of this model (see Figure 1).

**Reliability Analyses**

The first-order factors, Risk for Violence ($\alpha = .75$) and Need to Intervene ($\alpha = .77$), both demonstrated adequate internal consistency of the two dependant variables. Corrected item-total correlation coefficients for the Risk for Violence and Need to Intervene factors ranged from .49 to .63 ($M = .55$) and .39 to .61 ($M = .51$), respectively. Inter-item correlations within the Risk for Violence and Need to Intervene had a mean of .43 ($SD = .06$) and .36 ($SD = .18$), respectively. Standardized structure coefficients, corrected item-total correlation, and inter-item coefficients provided evidence for both content and construct validity, while also adequately capturing the constructs of interest. It should also be noted that the high correlation between the two factors provides some concurrent validity evidence of these constructs.

Although the second-order factor, School Violence Concern, will not be used for later analyses because none of the hypotheses dealt with it, the Cronbach alpha coefficient for the overall factor was .85, with corrected item-total correlations that ranged from .37 to .66 ($M = .55; SD =$...
Mean inter-item correlations for the School Violence Concern construct was .36 (SD = .13).

To compute factor scores, responses were summed and averaged to correspond with a mean rating on the five-point scale. Therefore, score interpretation is based on the actual 5-point rating scale, with a mean score of one corresponding to an average response of “Strongly Disagree” and a mean score of five representing a mean response of “Strongly Agree.”
RESULTS

Given the significant correlation between the two dependent variables (Risk for Violence and Need to Intervene), a \(2 \times 2 \times 2 \times 2\) (parental status \(\times\) respondent gender \(\times\) reality of threat \(\times\) threatener background characteristics) between groups multivariate analyses of variance (MANOVA) was employed with the SAS statistical software package (Version 8; SAS Institute, Inc, Cary, NC) to examine the hypotheses.\(^4\) Omnibus results revealed significant effects on both the Risk for Violence, \(F(15, 395) = 8.00, p < .0001,\) partial \(R^2 = .23,\) and Need to Intervene, \(F(15, 395) = 6.00, p < .0001,\) partial \(R^2 = .19,\) dependent variables.

To produce a more parsimonious model, a backward elimination procedure was conducted on the MANOVA. Therefore, complex interaction terms that were statistically non-significant were removed from the model, starting with the most complex interactions. As neither the four-way, three-way, nor two-way interactions were statistically significant after the Bonferroni adjustment, these parameters were removed for parsimonious reasons. Consequently, the final main-effect model resulted with significant differences on the factors Risk for Violence, \(F(4, 406) = 25.64, p < .0001,\) \(R^2 = .19,\) and Need to Intervene, \(F(4, 406) = 17.39, p < .0001,\) \(R^2 = .14.\) Note that if a main effect was not significant it remained in the model, because all the independent variables were of theoretical interest.

To control for Type 1 errors while examining the univariate follow-ups, a Bonferroni correction was used resulting in an alpha level set at \(.006 (.05/8)\) for statistical significance. Descriptive statistics, along with Cohen’s (1988) measure of effect size, are presented in Table 2. Effect size interpretation will be based on the following standards reported by Cohen (1988): “small, \(d = .2,\)” “medium, \(d = .5,\)” and “large, \(d = .8.\)”

MANOVA results revealed a statistically significant main effect for respondents’ gender on the Risk for Violence variable, \(F(1, 406) = 18.24, p < .0001,\) with female respondents reporting a higher level of concern for potential school violence than males. A statistically significant main effect for the reality of threat was also found on the Risk for Violence variable, \(F(1, 406) = 24.59, p < .0001,\) as respondents who received vignettes that displayed a greater reality of threat, such as a detailed plan to obtain a weapon, were more prone to rate the character as being a threat to commit a violent act. In addition, the level of background risk significantly affected the Risk for Violence variable, \(F(1, 406) = 44.66, p < .0001,\) with mean scores indicating that high-risk background characteristics received higher mean scores on
the Risk for Violence variable. Parental status also slightly influenced rating on the Risk for Violence variable, $F(1, 406) = 10.87, p = .0010$, thus parents reported a greater risk for violence compared to young adults. This finding demonstrates a trend that parents would be more sensitive to the school violence symptoms and behaviors compared to those respondents without children.

The Need to Intervene dependent variable displayed similar findings compared to the Risk for Violence variable, with three statistically significant main effects. Analyses indicated a significant effect of respondents’ gender on the Need to Intervene scores, $F(1, 406) = 22.21, p < .0001$, with females reporting that they were more likely to intervene than males. Again, vignette characters presenting a higher reality of threat, $F(1, 406) = 32.75, p < .0001$, and higher levels of background risk, $F(1, 406) = 8.40, p = .004$, were more inclined to receive a higher Need to Intervene score compared to those presenting a less realistic warning sign. As a result, vignettes depicting characters with increased risks according to the FBI criteria elicited elevated mean scores on the Need to Intervene variable compared to vignettes depicting fewer indicators of dangerous risk factors. Contrary to the Risk for Violence variable, parental status did not have a statistically significant effect on the Need to Intervene, $F(1, 406) = 3.23, p = .0733$.

### TABLE 2. Means, Standard Deviations, and Effect Sizes for the Main Effects on the Risk for Violence and Need to Intervene Constructs

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Risk for Violence</th>
<th>Need to Intervene</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Low Background Risk ($n = 208$)</td>
<td>3.21$^1$</td>
<td>.78</td>
</tr>
<tr>
<td>High Background Risk ($n = 203$)</td>
<td>3.68$^1$</td>
<td>.67</td>
</tr>
<tr>
<td>Unrealistic Threat ($n = 213$)</td>
<td>3.28$^2$</td>
<td>.78</td>
</tr>
<tr>
<td>Realistic Threat ($n = 198$)</td>
<td>3.61$^2$</td>
<td>.72</td>
</tr>
<tr>
<td>Male Respondent ($n = 154$)</td>
<td>3.23$^3$</td>
<td>.81</td>
</tr>
<tr>
<td>Female Respondent ($n = 257$)</td>
<td>3.57$^3$</td>
<td>.71</td>
</tr>
<tr>
<td>Parents ($n = 182$)</td>
<td>3.56$^5$</td>
<td>.80</td>
</tr>
<tr>
<td>Young Adults ($n = 229$)</td>
<td>3.35$^5$</td>
<td>.73</td>
</tr>
</tbody>
</table>

Note: Similar superscripted numbers represent significant mean differences between the main effects, with “ns” representing non-significant differences at the .006 level.
DISCUSSION

The results indicate that both young adults and parents were able to differentiate between low and high levels of realism in a threat and between low and high levels of risk in background characteristics. Therefore, the hypothesis was supported. In keeping with the FBI (2000) guidelines, the presence of personality and environmental risk combined with a realistic threat of violence appeared to have contributed to increased risk perception in both young adults and parents.

There were no significant differences between the parents and young adults on Need for Intervention and Risk for Violence. In both groups a higher level of realism in the threat and more background risk characteristics resulted in a significantly higher intent to perform some interventions, such as informing the threatener’s parents or school officials. Taken together, these findings are in keeping with threat assessment procedures described by Borum et al. (1999) and Reddy et al. (2001), to ascertain risk and take appropriate measures.

The USSS and USDE suggest that part of the remedy may lie in the school environment (2002). Educators should be encouraged to help create an environment where students feel comfortable telling an adult when they hear about a potential target for violence. The schools must then enact a “fair, thoughtful, and effective system to respond to whatever information students bring forward” (p. 35). An emphasis should be placed on handling concerns in a fair and responsible manner, as students may be concerned about how adults react to the information. Without such a system, students may be less likely to come forward.

The results also indicated that the perception of the threat differed based on respondent’s gender, with females taking greater preventive measures across vignette conditions compared to males, regardless of whether they were parents. These results suggest that females feel the need to take greater precautions, such as informing the proper officials to prevent the occurrence of violence. Prevention programs may benefit from tailoring their messages based on gender.

There are some limitations to the current study. While the snowball sampling procedure produces more variability than some recruitment procedures, the sample was ultimately one of convenience, which affects the generalizability of the results to the population. The sample also underrepresented minorities and overrepresented highly educated individuals, which could have significantly affected responses to the vignettes and limited the understanding of how ecological variables influence perceptions of violence. Therefore, effects of ecological variables,
such as rural vs. urban residence, level of community crime, and ethnic make-up of the neighborhood should be investigated in the future. Respondents’ level of exposure to violence might also be a highly relevant predictor variable.

Because the current study addressed only two levels of threat and two types of background characteristics of the threatener, altering these variables may affect respondent ratings of the risk for violence or the need to intervene. Determining how severe the threat must be or how “troubled” the threatener is portrayed may help to guide education and prevention programs. Other variables besides the threat level and background characteristics could be varied. The ethnicity, age, and sex of the threatener might all affect respondents’ views of the risk for violence and need for intervention.

In addition to these improvements, qualitative questions accompanying the ratings may be included, which could explore general themes in the rationale of the respondents’ ratings. Clarifying these attitudes or stereotypes would help shape the interventions needed to dispel myths or educate people about the risk of targeted school violence. Future research might also investigate which risk factors were most influential in determining the risk of the individual, as well as what action should be taken. This type of study could be useful for developing educational programs on risk factors or types of threats that are taken less seriously, but still warrant concern.

Follow-up studies may increase the validity of this measure by administering the vignettes to junior high and high school students. Based on prior incidents of targeted school violence, the threatener’s peers appear to be the most likely to receive knowledge of a planned attack (USSS & USDE, 2002). Identifying students’ reactions to the threat of future school violence may help to determine the need for future educational programs or skills training to foster an environment that makes it easier for students to tell a school official about a potential threat.

This study attempted to evaluate whether young adults and parents could identify a difference in the levels of risk associated with a threatener’s background characteristics and the reality of their threat. Respondents were able to identify the differences between high and low levels of danger as reflected in the FBI recommendations and in fact continuously reported a greater need to intervene than actual risk for violence (see Table 2). Further research is needed to investigate whether appropriate actions would actually be taken to alleviate potential school shootings or other violent acts. If responses are low in varying conditions or ecological areas, this may suggest the need for educational ef-
forts to reinforce the tendencies towards appropriate risk assessment and action plans. Vignettes such as the ones used here appear to be a reliable and valid means of eliciting attitudes in this area, which could allow for more focused and systematic education efforts. This is especially important, as notification of proper authorities by the public has been identified as central to preventing future attacks (USSS & USDE, 2002).

NOTES

1. Data were collected approximately 18 months after 15 students (including killers) and one teacher were killed at Columbine High School in the nation’s deadliest school shooting.

2. Copies of the four vignettes may be obtained from the corresponding author.

3. Due to space limitations, the polychoric correlation matrix used may be obtained from the corresponding author.

4. Participant’s age and education level did not influence responses on the Risk for Violence or Need to Intervene variables as indicated by multiple regression analyses.

REFERENCES


