# Terrorism and Mental Health in the Rural Midwest

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**Keywords:** mental health; perceived knowledge; preparedness; rural; terrorism; training

**Abbreviations:**
HRSA = Health Resources and Services Administration
ICS = Incident Command System
NIMS = National Incident Management System
PTSD = post-traumatic stress disorder

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## Abstract

**Introduction:** Since the terrorist attacks of 11 September 2001, the amount of terrorism preparedness training has increased substantially. However, gaps continue to exist in training for the mental health casualties that result from such events. Responders must be aware of the mental health effects of terrorism and how to prepare for and buffer these effects. However, the degree to which responders possess or value this knowledge has not been studied.

**Methods:** Multi-disciplinary terrorism preparedness training for healthcare professionals was conducted in Kansas in 2003. In order to assess knowledge and attitudes related to mental health preparedness training, post-test surveys were provided to 314 respondents 10 months after completion of the training. Respondents returned 197 completed surveys for an analysis response rate of 63%.

**Results:** In general, the results indicated that respondents have knowledge of and value the importance of mental health preparedness issues. The respondents who reported greater knowledge or value of mental health preparedness also indicated significantly higher ability levels in nationally recognized bioterrorism competencies ($p < 0.001$).

**Conclusions:** These results support the need for mental health components to be incorporated into terrorism preparedness training. Further studies to determine the most effective mental health preparedness training content and instruction modalities are needed.

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## Introduction

Terrorism is an assault on the mental health and well-being of the public; the goal of which is to disrupt normal life and instill worry and apprehension.[1,2] While physical wounds often can be detected and mended, the emotional wounds of terrorism are less apparent, but are much more widespread. As cited by Stein, *et al* Demartino estimated that 4–50 people are psychologically affected by terrorist events for every person who is affected physically.[3] For example, although people in several, localized regions of the US were harmed physically by the terrorist attacks of 11 September 2001, people across the country were affected emotionally. In the days immediately following the attacks, 90% of individuals surveyed reported at least one symptom suggestive of post-traumatic stress disorder (PTSD), and 44% of those surveyed experienced significant symptoms.[4] A longitudinal study conducted outside of New York City identified persistent symptoms of PTSD in 17% of the participant population two months after the attacks.[5]

Such findings indicate a need for mental health components in preparedness plans. Yet, significant gaps in mental health preparedness continue to exist. Terrorism preparedness plans have been implemented in every US state. They provide improved communications, upgraded public health infrastructure, and increased staffing.[6] However, these plans do not necessarily include provisions for mental health response, and in the past, assessments of state-level preparedness have not included a discussion of mental health topics.[7,8] In fact, Trust for America's Health tracks the preparedness of states according

to compliance with 10 specific terrorism preparedness indicators that addressed funding, basic training, and all-hazards awareness. However, none of these indicators include mental health topics.[9]

Thus, mental health topics generally have not been considered when evaluating the preparedness of an individual or organization. Instead, achievements on federal- and state-level competencies have been stressed. In the absence of practical objective measures of competency, previous research has made effective use of self-reporting measures to gauge preparedness levels[7] or achievement on preparedness competencies.[10] Although this achievement is important, other researchers have agreed that comprehensive and effective preparedness also will require the active integration of mental health plans into emergency response plans.[11–13] As of yet, no one has studied the degree to which potential first responders are knowledgeable of or engaged in mental health topics—i.e., the scope of the need for or the potential to implement mental health training.

The current study surveyed multidisciplinary first responders and healthcare workers in Kansas about their level of engagement in mental health preparedness topics. The purpose of this study was to determine the knowledge and value of mental health preparedness of health professionals. The study had three objectives: (1) to determine respondents' knowledge and perceptions of the value of mental health preparedness; (2) to determine whether the amount of emergency preparedness training provided was related to knowledge and the perceived value of mental health preparedness; and (3) to determine whether knowledge and perceived value of mental health preparedness was related to achievement in terrorism preparedness competencies.

## Methods

### *Procedure*

Kansas health professionals from a variety of disciplines attended a terrorism-preparedness training conference. This conference was developed to address the need for health professionals to become more knowledgeable about the consequences of biological, agricultural, chemical, and nuclear-related terrorist incidents. This training did not include any mental health information.

The eight-hour training conferences were offered during the month of December 2003. Training sites across Kansas included Overland Park, Pittsburg, Topeka, Wichita, Garden City, and Hays. The University of Kansas Medical Center's Department of Health and Technology Outreach, the Kansas Area Health Education Centers, and University of Kansas Continuing Education sponsored the training. It was co-sponsored by the Kansas Department of Health and Environment. The training content was centered on the Health Resources and Services Administration's (HRSA) four core bioterrorism preparedness and response competencies: (1) recognize a terrorist event or other health emergency; (2) participate in a coordinated, multidisciplinary response to a terrorist event; (3) meet the acute care needs of patients, including pediatric patients and vulnerable populations, in a safe and appropriate manner during a terrorist event; and (4) rapidly and effectively alert the public health system at the community, state, and national levels during a terrorist event.

Additional items that focused on knowledge and the perceived value of mental health included: "Rate your ability to list coping factors that may buffer psychological and physical symptoms", and "Rate your level of understanding of the importance of including mental health into preparedness plans." A final item, "Rate your ability to describe the chain of command in emergency response," also was included as an indicator for National Incident Management Systems (NIMS) and Incident Command Systems (ICS) because of the increasing importance of these concepts in terrorism preparedness.[14–16]

The 10-month follow-up survey, a 21-item terrorism preparedness questionnaire that included demographic information (e.g., sex, age, profession, and site of training) and course objectives, was sent to participants. Respondents were asked to rate their abilities to achieve the four HRSA competencies on a five-point Likert scale, from "very poor" to "excellent." In order to control for the response bias of answering questions in the affirmative, the Likert scales used in the current study were reversed halfway through the survey.

To test whether overall value ratings (mean = 3.77) and knowledge ratings (mean = 3.33) differed to a significant degree, a non-parametric dependent *t*-test (Wilcoxon Sign Rank) was conducted. A Spearman rank correlation was conducted to determine whether knowledge and value of mental health preparedness was related to achievement in terrorism preparedness competencies.

The relationships between mental health preparedness and terrorism competency skills were then evaluated further to test whether competency skill level could reflect knowledge and value of mental health preparedness. This was accomplished by comparing responses on the mental health questions with respondents who were categorized as "high" and "low" achievers in terrorism preparedness competencies.

## Results

### *Participants*

Eight hundred thirty-six health professionals in Kansas attended a state-level, multidisciplinary, terrorism preparedness training conference. A total of 314 attendees agreed to be contacted after the training for survey purposes. Of the 314 who received 10-month follow-up surveys, 197 returned completed surveys for analysis (63% response rate). The 197 respondents in this survey included 57 men (29%) and 140 women (71%). Of the respondents, 15% were >30 years old; 11% were 30–39 years; 28% were 40–49 years; and 58% were ≥50 years of age. Ninety percent of the respondents were Caucasian; 3% African-American; 3% Hispanic; 1% Asian-American; 1.5% were listed as "Other"; and 1.5% did not report race/ethnicity. The occupational backgrounds of the respondents were 47% nurses; 12% emergency medical service (EMS) workers; 6% physicians; 6% nurse practitioners; 6% laboratory workers; 4% pharmacists; 2% physician assistants; 1% respiratory therapists; 1% physical therapists; and 17% "Other" (included mental health workers). This sample was representative of the training workshop attendees in terms of sex, age, and occupation.

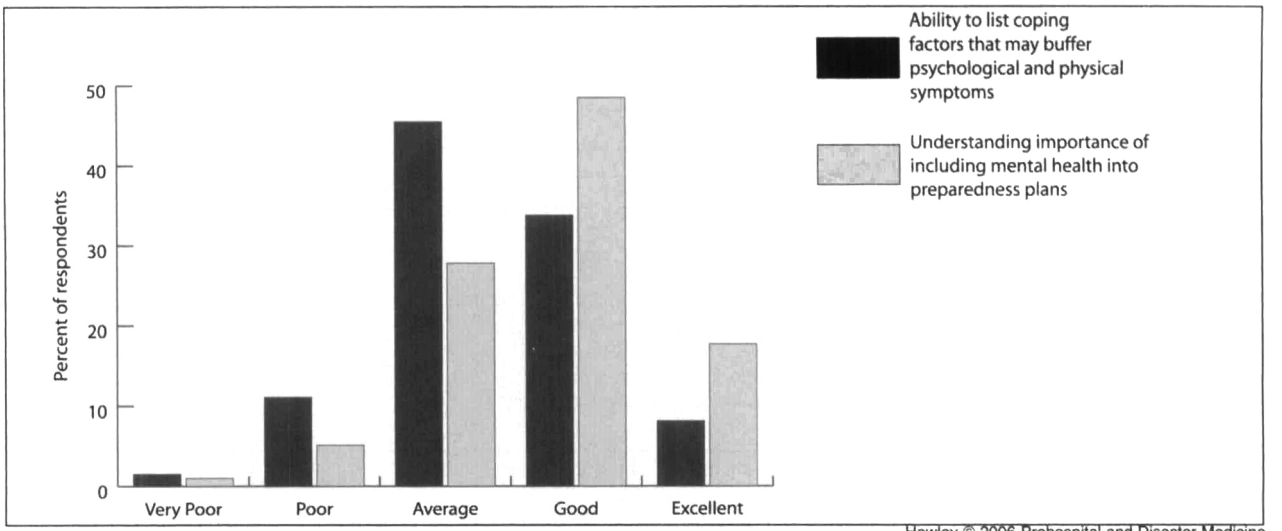


**Figure 1**—Frequency ratings for mental health preparedness knowledge and value

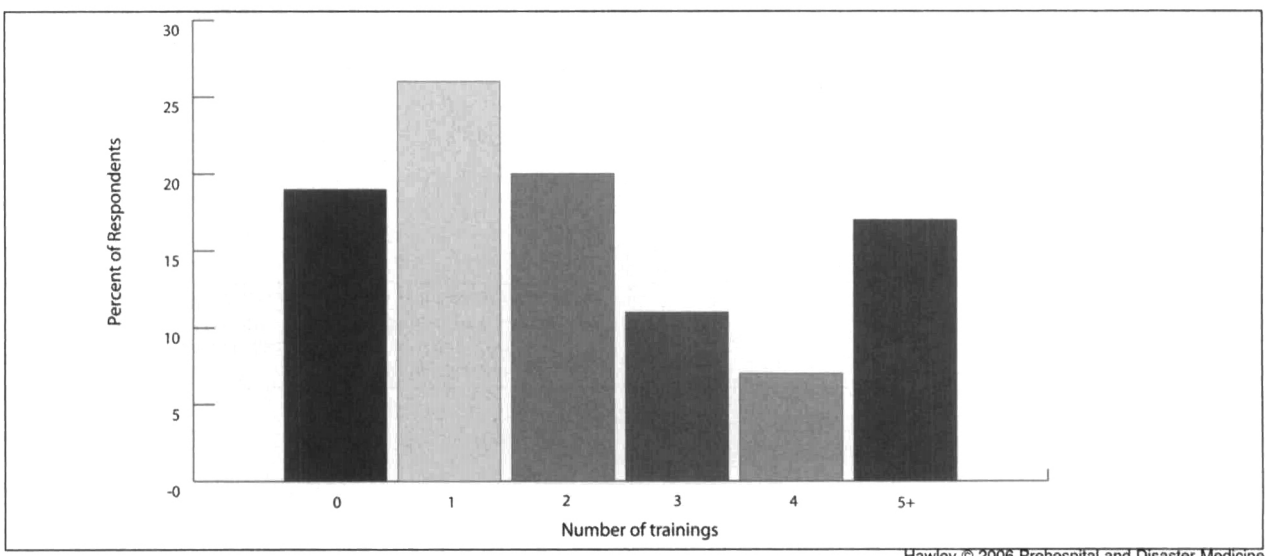


**Figure 2**—Number of emergency preparedness trainings attended since 11 September 2001

*Objective 1—Knowledge and Perceived Value of Mental Health Preparedness*

Of the respondents, 67% reported having a "good" (49%) or "excellent" (18%) understanding of the importance of including mental health as a part of preparedness plans. A smaller percentage (42%) reported that they were "good" (34%) to "excellent" (8%) at being able to list coping factors that might be used to buffer psychological and physical symptoms following a terrorist attack (Figure 1). The mean of the values for perceived value importance was 3.77, and for knowledge was 3.33. The knowledge ratings were significantly lower than participant's reported value of mental health preparedness ($n$ = 197, $Z$ = -6.62, $p$ <0.001).

*Objective 2—Relation of Amount of Emergency Preparedness Training to Knowledge and Value of Mental Health Preparedness*

Respondents reported the number of emergency preparedness trainings they had attended since 11 September 2001 on a scale of 8 or ≥5. (Figure 2). No statistically significant relationships to existed between the number of preparedness trainings attended and a participant's perceived knowledge or value of mental health preparedness. By contrast, knowledge of most of the HRSA bioterrorism competencies and the NIMS/ICS item increased significantly when correlated with the number of training sessions attended ($p$ <0.05) (Table 1).

*Objective 3—Relation of Knowledge and Value of Mental Health Preparedness to Achievement in Terrorism Preparedness Competencies*

Statistically significant positive correlations existed for all of the four HRSA competencies and the NIMS/ICS item ($p$ <0.01) (Table 2).

Respondents who rated their abilities on each competency as either "good" or "excellent" were compared to respondents who rated themselves "poor" or "very poor" on the same questions (Figures 3 and 4). Respondents rated above average tended to rate their knowledge and perceived value of mental health preparedness higher. Mann Whitney



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| | | Number of emergency preparedness trainings attened since 11 September 2001 |
|---|---|---|
| HRSA Bioterrorism Competence 1 | Recognize a terrorist event or other health emergency | $r = 0.18^{**}$ |
| HRSA Bioterrorism Competence 2 | Participate in a coordinated, multi-disciplinary response to a terrorist event | $r = 0.03^{**}$ |
| HRSA Bioterrorism Competence 3 | Meet the acute needs of patients, including pediatric patients and vulnerable populations, in a safe and appropriate manner during a terrorist event | $r = 0.05$ |
| HRSA Bioterrorism Competence 4 | Rapidly and effectively alert the public health system at the community, state, and national levels during a terrorist event | $r = 0.19^{*}$ |
| NIMS/ICS | Describe the chain of command in emergency response | $r = 0.40^{**}$ |



**Table 1**—Correlations between number of emergency preparedness trainings attended and bioterrorism preparedness competencies (HRSA = Health Resources and Services Administration; ICS = incident command system; NIMS = National Incident Management System)
$^{*}p < 0.01$
$^{**}p < 0.001$

| | | Understanding the importance of including mental health in preparedness plans | List coping factors that may buffer psychological symptoms following a terrorist attack |
|---|---|---|---|
| HRSA Bioterrorism Competence 1 | Recognize a terrorist event or other health emergency | $r = 0.34^{**}$ | $r = 0.34^{**}$ |
| HRSA Bioterrorism Competence 2 | Participate in a coordinated, multi-disciplinary response to a terrorist event | $r = 0.44^{**}$ | $r = 0.37^{**}$ |
| HRSA Bioterrorism Competence 3 | Meet the acute care needs of patients, including pediatric patients and vulnerable populations, in a safe and appropriate manner during a terrorist event | $r = 0.15^{*}$ | $r = 0.18^{*}$ |
| HRSA Bioterrorism Competence 4 | Rapidly and effectively alert the public health system at the community, state, and national levels during a terrorist event | $r = 0.15^{*}$ | $r = 0.18^{*}$ |
| NIMS/ICS | Describe the chain of command in emergency response | $r = 0.42^{**}$ | $r = 0.39^{*}$ |



**Table 2**—Correlations between mental health preparedness items and bioterrorism preparedness competencies (HRSA = Health Resources and Services Administration; ICS = incident command system; NIMS = National Incident Management System)
$^{*}p < 0.01$
$^{**}p < 0.001$



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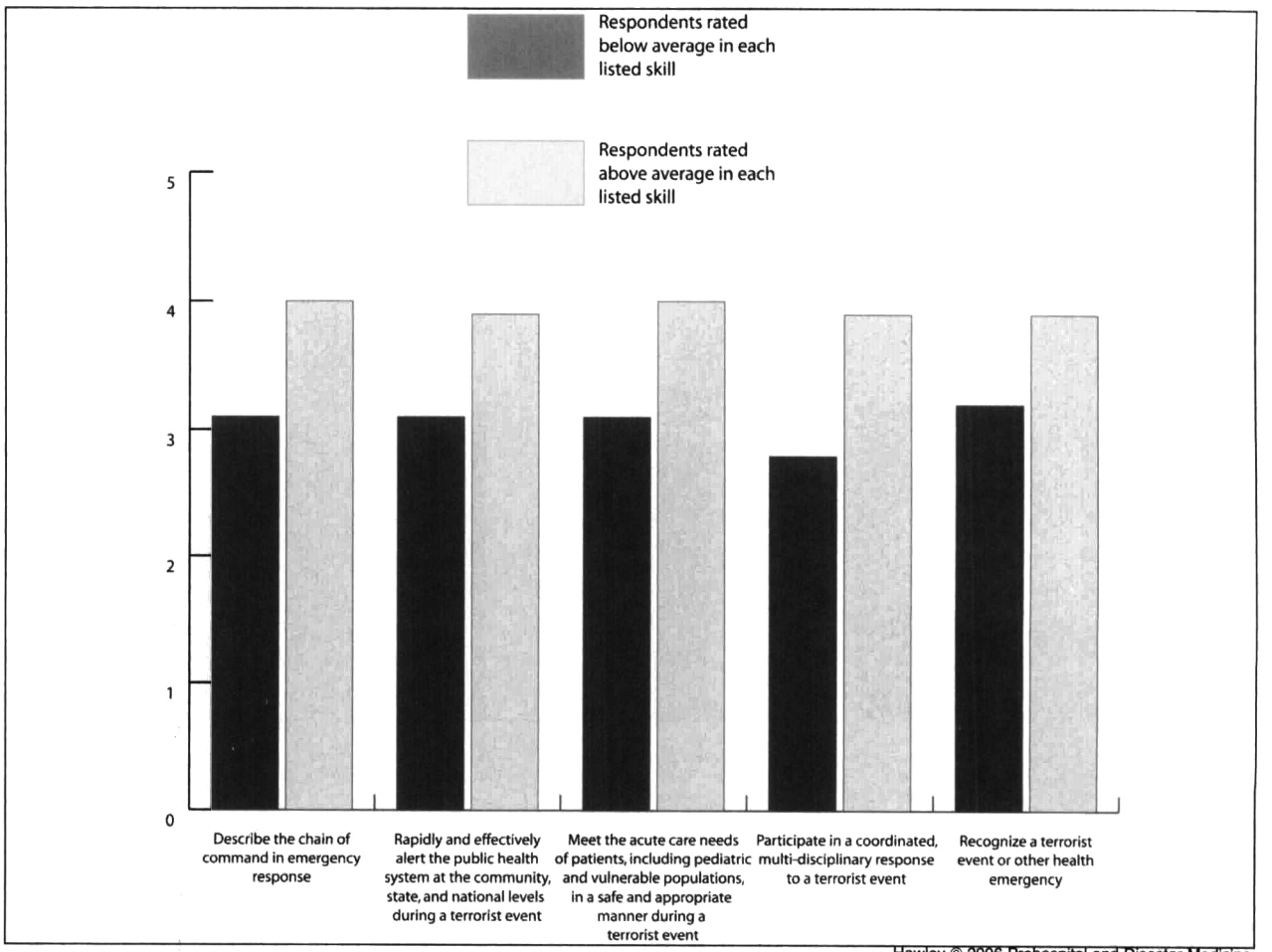


**Figure 3**—Mean ratings for "Understanding of importance of including mental health into preparedness plans"
n = 197
$p < 0.05$

*U*-tests indicated that all scores were significantly different ($p < 0.05$).

## Discussion

The results of this study demonstrate that healthcare professionals value mental health preparedness training, and that this level of endorsement increases significantly as terrorism competencies increase. Each of the study objectives has implications for further mental health preparedness research.

*Objective 1—Knowledge and Value of Mental Health Preparedness*

The results of this study indicate an unmet need for training in mental health preparedness topics exists. However, mental health practitioners only were asked to identify themselves as "Other" in the occupational category, and their responses to these questions could not be separated from the other respondents. Therefore, it was not clear whether the presence of mental health practitioners in the "Other" pool of respondents affected the reported responses. To address this issue, frequencies were inspected with all "Other" occupational responses removed, and the distribution of scores did not change. Therefore, it was ascertained that the presence or absence of mental health practitioners in the response pool did not affect scores.

Another limitation was that the respondents were asked only two questions about mental health. While a perception of general knowledge and value of mental health preparedness could be assessed from the data, no specific mental health knowledge or training experience could be extrapolated. Still, the results provide a mechanism to better understand the education and training needs in this area.

*Objective 2—Relation of Amount of Emergency Preparedness Training to Knowledge and Value of Mental Health Preparedness*

While the number of preparedness training sessions attended by participants correlated with general preparedness competencies, it was not predictive of the respondents' knowledge or value of mental health preparedness. These results indicate that mental health information is not included or addressed appropriately in preparedness training programs. However, respondents were not asked to report the amount of mental health content received in past training sessions. Such information could assist future studies in determining how much mental health content is being incorporated into a variety of preparedness training sessions.



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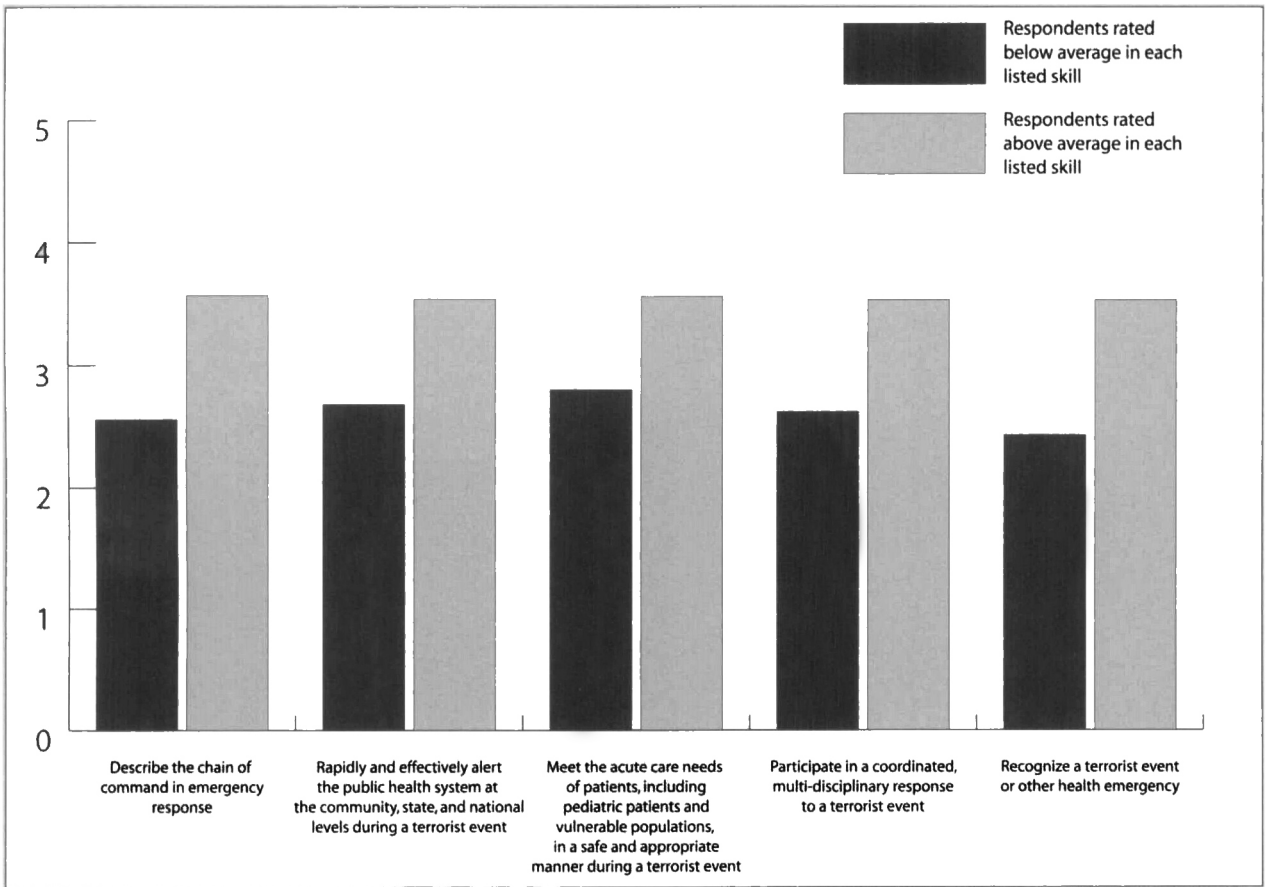


**Figure 4**—Mean ratings for "Ability to list coping factors that may buffer psychological and physical symptoms"
n = 197
$p < 0.05$

*Objective 3—Relationship of Knowledge and Perceived Value of Mental Health Preparedness*

Individuals who reported higher levels of achievement in terrorism preparedness competencies were significantly more likely to value the importance of mental health topics as a part of terrorism preparedness plans. In addition, individuals who reported higher levels of achievement in terrorism preparedness competencies also were more likely to report a higher ability to list coping factors that may buffer psychological and physical symptoms. While all of the respondents in the study expressed some knowledge and value of mental health preparedness, terrorism preparedness competencies were important predictors of the strength of these scores.

It is important to note that the differences between achievement groups in the perceived knowledge and value of mental health preparedness are both clinically and statistically significant. In light of the fact that mental health content had not been included in the respondents' preparedness training sessions, these findings actually may under-report the interest that health professionals have in mental health issues. In order to clarify this issue, similar analyses of preparedness training that incorporates mental health content are needed. Future researchers should strive to develop practicable objective measures for gauging preparedness competency, including the mental health field, and to determine the most effective mental health preparedness training content and instruction modalities. Particular attention should be given to health professionals with greater expertise in terrorism preparedness in order to ensure the further development of this complex area of study.

In order for mental health preparedness to be improved appreciably, health practitioners must be able to draw upon a set of training competencies for this field that can be implemented not only statewide, but also on a national level. Currently, there is no national model for the integration of mental health into all-hazards preparedness planning. An agreed-upon set of mental health preparedness training competencies does not exist, though some research has been performed toward formulating them.[17–19] As the importance of mental health issues becomes recognized more in terrorism preparedness research, training efforts in this area will receive further support. In fact, the importance of the type of knowledge surveyed in the current study (through the item "Rate your ability to list coping factors that may buffer psychological and physical symptoms") already has been supported extensively in the disaster mental health literature.[20–22] Coping and resiliency factors are some of many promising content areas for mental health preparedness competency development.

## Conclusion

The need to develop a fully prepared network of first responders and healthcare providers has increased the

responsibility of these workers to become informed about all aspects of preparedness. The current study, supported by previous research, suggests that mental health topics continue to be overlooked in preparedness training. Due to the enormous psychological toll exacted upon the public by disasters and terrorist events, mental health topics must be incorporated into training. Training in psychological first aid, coping, and resiliency can facilitate first responders and healthcare workers to mitigate harmful psychological effects.

The current study also indicates that first responders and healthcare workers value mental health knowledge, and that the more competent workers also value mental health training the most. Currently, few health professionals have been able to receive mental health preparedness training. Further translational research in this field will provide a more complete picture of mental health preparedness training needs, thus facilitating the development of appropriate training and education in order to enhance the level of protection from the devastating effects of terrorism and disasters.

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