▲ Evaluation of Mental Health Emergency Preparedness Among Health Professionals

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The purpose of this study was to identify if health professionals report an increase in mental health preparedness abilities with having only two mental health components as part of a 2-day preparedness training conference. At each of three conferences, identical pretraining and posttraining surveys were administered to conference participants. A 3-month follow-up survey was administered to respondents who volunteered to complete them. At pretraining, respondents (n = 603) reported generally greater mental health preparedness abilities than non–mental health preparedness abilities. This trend continued at posttraining (n = 490) and at 3 months posttraining (n = 195). Participants reported significantly increased mental health preparedness abilities at immediate posttraining and at 3 months posttraining from pretraining. This current study suggests that even when mental health items are included as a secondary component of disaster preparedness training, significant and meaningful growth in participants' confidence in their abilities can occur. J Allied Health 2008; 37:144–149.

THE PSYCHOLOGICAL IMPLICATIONS of disasters have received increased attention in the wake of the September 11, 2001, terrorist attacks and the destruction caused by Hurricane Katrina in September 2005. Research has consistently established that a significant degree of psychological trauma occurs in connection with a disaster event and that this has the potential to be even more disabling than the physical effects.[1–12] Furthermore, the experience of psychological trauma is not limited to those directly impacted by disaster events.[3,7,13] For every person physically affected by a human-caused disaster, Demartino (as cited in Stein) estimates that as many as four to 50 people experience psychological effects.[13]

The majority of the potential harm to the populace that survives a natural disaster or terror attack will occur via compromised mental health and impaired functioning.[14] Those experiencing psychological trauma may manifest a variety of emotional, cognitive, and physical symptoms. These include stress, anxiety, depression, paranoia, guilt, immune system suppression, chronic pain, difficulty sleeping, and restricted ability to function on a daily basis.[1,15–17] On an individual level, psychological responses to disaster can vary according to gender, age, race, and proximity to event,[3,7,18] necessitating population-specific interventions. First responders and health care workers would not be exempt from psychological affects from a disaster,[15,19–21] which could compromise their ability to provide care.

It is widely agreed by researchers that mental health topics should be incorporated into preparedness planning and training so that a broad spectrum of health professionals will be able to address the psychological consequences of a disaster.[10,14,15,17,22–27] To date, however, no widely accepted mental health preparedness training standards or competencies exist.[27] It is therefore not known what degree of knowledge or training is needed by different populations within the field of health care, but this information is necessary for the development of effective training and interventions. While the needs of traditional first responders have been studied, health care professionals are considered first responders and receivers, and the needs of health professionals need to be assessed.[28] The current study begins to address this need through an assessment of first responders and first receivers who attended a statewide emergency preparedness training conference, "Can It Happen in Kansas?" Specifically, this report offers five questions. Without a substantial emphasis on mental

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health, when addressing emergency preparedness training, can trainees better (1) understand the mental health consequences of a terrorist event; (2) describe the importance of using psychological coping techniques to respond to terrorism; (3) identify the psychological causes of physical symptoms; (4) recognize the effect of terrorism on the mental health of individuals, families, communities, and the professionals who provide mental health services; and (5) understand the importance of including mental health into preparedness plans, immediately and three months following training (compared with pretraining)?

Methods

Participants

Participants included 603 potential first responders and receivers who attended one of three 2-day preparedness training conferences. Conference participants included emergency responders, allied health professionals, nurses, and mental health providers. Content was based on results from a statewide assessment that was conducted in 2003 and ranged from challenges with international terrorism, communicating with the media, emerging infections, and roles and responsibilities of disaster responders to psychosocial and community issues of disaster response and roles of mental health professionals in caring for emergency responders, victims, families, and the worried well.

Procedure

Two-day preparedness training conferences entitled "Can It Happen in Kansas?" were held in three Kansas cities (Overland Park, Hays, and Wichita) in November and December 2004. Curricula for the mental health sessions were provided by a psychiatrist and a psychologist, although the speakers varied by site. The sessions were entitled "Psychosocial and Community Issues of Disaster Response" and "Roles of the Mental Health Professional in Caring for Emergency Responders, Victims, Families, and the Worried Well." At each conference, identical pretraining and posttraining surveys were administered to conference participants, with instructions that completion of the survey was voluntary. The pretraining survey was administered to attendees before the commencement of the conference to determine participants' initial perceptions of their knowledge of emergency and terrorism preparedness. The posttraining survey was administered at the conclusion of the training.

Because the study was a longitudinal and nested study, respondents were also asked if they were willing to provide contact information to facilitate follow-up surveys. A 3-month follow-up survey, identical to the original survey, was mailed to interested respondents. They were asked to return the completed surveys via mail. The baseline pretraining responses were then compared with the posttraining and 3-month follow-up surveys and analyzed to identify patterns in respondents' self-reported ratings of their abilities.

Instrument

Mental health questions were developed by licensed mental health professionals with expertise in emergency preparedness and familiarity with recognized governmental resources, as well as peer-reviewed literature.[29,30] Respondents were asked to rate their abilities on 21 different items addressing three areas: mental health topics, Health Resources and Services Administration emergency preparedness competencies, and state-specific training topics. This report focuses on the mental health items. Respondents were asked to rate their abilities on five mental health items using a five-point Likert scale (very poor, poor, average, good, excellent). These items addressed respondents' self-reported abilities to (1) understand the mental health consequences of a terrorist event; (2) describe the importance of using psychological coping techniques to respond to terrorism; (3) identify the psychological causes of physical symptoms; (4) recognize the effect of terrorism on the mental health of individuals, families, communities, and the professionals who provide mental health services; and (5) understand the importance of including mental health into preparedness plans. The survey also requested demographic information.

Results

Demographics

Demographic data from pretraining, posttraining, and 3 months' posttraining are displayed in Table 1. There were no statistically significant differences in the demographic distribution of respondents when comparing the three data collection points. The majority of respondents were female at pretraining (65%), posttraining (67%), and 3 months' posttraining (65%). Nearly half of all respondents were 50 years or older at pretraining (47%), posttraining (47%), and 3 months' posttraining (46%).

Pretraining, Posttraining, and Follow-up Means

Participants assessed their abilities (ranging from 1 [very poor] to 5 [excellent]) on 21 different items (5 mental health items and 16 non–mental health items) at pretraining, posttraining, and 3 months posttraining. Means for the survey items at each data collection point are shown in Table 2. At pretraining, respondents' cumulative mean self-rated abilities on mental health items were 3.34. For the remaining non–mental health items, respondents' mean self-rated abilities were significantly lower at 3.10. The highest mean (3.62) for any single item was the mental health item assessing respondents' abilities to "understand

TABLE 1. Health Professional Trainee Self-Reported Demographics

	Pretraining No. (%)	Posttraining No. (%)	3 Months Posttraining No. (%)	Total No. (%)
Gender				
Female	378 (65)	322 (67)	101 (65)	801 (66)
Male	208 (35)	158 (33)	55 (35)	421 (34)
Total	586 (100)	480 (100)	156 (100)	1222 (100)
Age (yrs)				
< 30	48 (8)	43 (9)	14 (7)	105 (8)
30–39	104 (17)	78 (16)	22 (11)	204 (16)
40–49	165 (27)	141 (29)	44 (23)	350 (27)
50+	286 (47)	228 (47)	90 (46)	604 (47)
Total	603 (100)	490 (100)	194 (100)	1287 (100)
Occupation				
Physician	20 (3)	18 (4)	10 (5)	48 (4)
Nurse practitioner	30 (5)	20 (4)	7 (4)	57 (4)
Nurse	268 (45)	243 (50)	76 (39)	587 (46)
Emergency medical services/fire service	91 (15)	69 (14)	21 (11)	181 (14)
Laboratory professional	7 (1)	7 (1)	4 (2)	18 (1)
Allied health professional	25 (4)	17 (3)	8 (4)	50 (4)
Mental health provider	14 (2)	12 (2)	6 (3)	32 (3)
Hospital administration staff	13 (2)	8 (2)	5 (3)	26 (2)
Law enforcement	64 (11)	40 (8)	18 (9)	122 (10)
Other	66 (11)	52 (11)	17 (9)	135 (11)
Total	598 (100)	486 (100)	195 (100)	1279 (100)
Type of work performed				
Management	138 (23)	105 (22)	55 (32)	298 (24)
First responder	148 (25)	119 (25)	33 (19)	300 (24)
Secondary responder	85 (14)	76 (16)	20 (12)	181 (15)
Other	195 (33)	165 (34)	50 (29)	410 (33)
Retired	22 (4)	20 (4)	13 (8)	55 (4)
Total	588 (100)	485 (100)	171 (100)	1244 (100)

Note. No significant differences between pretraining, posttraining, and 3 months posttraining.

the importance of including mental health into preparedness plans."

At posttraining, respondents rated their abilities on all mental health items at a mean of 3.94, a significant improvement from the pretraining mean for mental health items (t (1060) = –12.21; $p < 0.05$). The non–mental health items also improved significantly to a mean of 3.73 from pretraining to posttraining, a slightly greater increase than that seen by the mental health items (t (994) = –13.98; $p < 0.05$). The highest mean (4.07) for any single item assessed was again the mental health item assessing respondents' abilities to "understand the importance of including mental health into preparedness plans."

At the 3-month follow-up, respondents rated their abilities on mental health items at a mean of 3.79, a significant decrease from the posttraining mean of 3.94 (t (653) = 2.22; $p < 0.05$). Still, this result was a significant increase from the pretraining mean of 3.34 (t (747) = –6.49; $p < 0.05$). For non–mental health items, the mean at 3-month follow-up was 3.65, which was not significantly different from the posttraining mean of 3.73. However, the difference between pretraining means and 3-month follow-up means was significant for both mental health and non–mental health items (t (707) = –8.76; $p < 0.05$).

RELIABILITY AND CORRELATIONS

Three scales were computed by combining the five mental health items at each data collection point (pretraining, posttraining, and 3-month follow-up). For all three of the scales, the Cronbach's α was >0.70 (pretraining, 0.9101; posttraining, 0.9282; follow-up, 0.9112). The resulting scales were then analyzed using zero order correlation to compare respondents' means on the mental health items with their means on the non–mental health items at each of the three data collection points (Table 3). At all three data collection points, there was a strong, positive, and statistically significant ($p < 0.05$) relationship between respondents' mental health and non–mental health scores, indicating that those respondents who were more confident

TABLE 2. Comparison of Pretraining, Posttraining, and 3-Month Follow-up Means

Survey Questions	Pre-training	p-Value†	ES	Post-training	p-Value‡	ES	3-Month Follow-up	p-Value§	ES	Net Change
Rate your ability to:										
Mental Health Components	**3.34**	***	^	**3.94**	*	^	**3.79**	***	^	**0.45**
Understand the importance of including mental health into preparedness.	3.62	***	^	4.07			3.95	***	^	0.33
Identify the psychological causes of physical symptoms.	3.22	***	^	3.81	*	^	3.63	***	^	0.41
Understand the mental health consequences of a terrorist event.	3.41	***	^	4.02	**	^	3.83	***	^	0.42
Describe the importance of using psychological coping techniques.	3.26	***	^	3.89	*	^	3.71	***	^	0.45
Recognize terrorism's effect on mental health of different groups.	3.26	***	^	3.94			3.84	***	^	0.58
Other Components	**3.10**	***	^	**3.73**			**3.65**	***	^	**0.55**
Recognize a terrorist event or other public health emergency.	3.60	***	^	3.94			3.94	***	^	0.34
Identify and locate your agency emergency response plan.	3.59	***	^	3.81			3.95	***	^	0.36
Understand the role envhealth profs would play in a terrorist event.	3.51	***	^	3.99			3.87	***	^	0.36
Meet the acute care needs of patients during a terrorist event.	3.26	***	^	3.59			3.64	***	^	0.38
Participate in a coordinated multidisciplinary response.	3.45	***	^	3.80			3.84	***	^	0.39
Describe the public health role in emergency response.	3.19	***	^	3.73			3.60	***	^	0.41
Describe the chain of command in emergency response.	3.28	***	^	3.85			3.69	***	^	0.41
Alert the public health system during a terrorist event.	3.20	***	^	3.66			3.74	***	^	0.54
Identify diagnostic criteria for emerging infections.	2.79	***	^	3.59	**	^	3.37	***	^	0.58
Apply theories of simulations in preparation for actual disasters.	2.92	***	^	3.68	**	^	3.50	***	^	0.58
Discuss international, national, and local issues of terror response.	2.96	***	^	3.67			3.56	***	^	0.60
Describe the roles and responsibilities all groups in responding.	3.10	***	^	3.86			3.73	***	^	0.63
Be conversant with KPHERP.	2.66	***	^	3.47			3.32	***	^	0.66
Discuss key points of communication with the media.	2.96	***	^	3.77			3.66	***	^	0.70
Describe the ramifications of hospital surge capacity.	2.75	***	^	3.62			3.55	***	^	0.80
Describe components of new alliances.	2.64	***	^	3.71	***	^	3.47	***	^	0.83

Note. Scale: 1 = very poor; 5 = excellent.
ES^ = effect size of 0.20 or greater. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$.
†Difference between pretraining and posttraining.
‡Difference between posttraining and 3-month follow-up.
§Difference between pretraining and 3-month follow-up.

in their mental health–related abilities also tended to be more confident in their other abilities as well.

Discussion

Means for the five mental health items revealed that respondents were perhaps more comfortable with these topics than they were with the other preparedness topics, despite the fact that the conference objectives primarily emphasized non–mental health emergency preparedness topics. The increase in means for mental health items from pretraining to posttraining suggests that even two presentations addressing mental health bolstered participants' abilities. The increase also might imply that there is some generalizability from general preparedness to mental health–specific topics, even with a little mental health preparedness training. In fact, the larger mean increase of non–mental health items at posttraining and the smaller mean decline from posttraining to 3-month follow-up suggests that respondents built and maintained the most con-

TABLE 3. Correlation Between Mental Health Scales and Other Non–Mental Health Items

	Pretraining		Posttraining		3-Month Follow-up	
	Mental Health	Non–Mental Health	Mental Health	Non–Mental Health	Mental Health	Non–Mental Health
Pretest mental health components	1	0.665***				
Pretest non–mental health components		1				
Posttest mental health components			1	0.740***		
Posttest non–mental health components				1		
Follow-up test mental health components					1	0.672***
Follow-up non–mental health components						1

***$p < 0.001$.

fidence in their preparedness on the topics on which they were primarily trained.

These findings support the idea that inclusion of mental health emergency preparedness training, at the very least, does not hinder participants' abilities with regard to other preparedness objectives. Furthermore, the introduction of two mental health preparedness topics served to increase participants' confidence in their abilities to identify psychological causes of physical symptoms, describe the importance of using psychological coping techniques, and recognize the effect of terrorism on mental health among various groups, among other abilities.

With limited resources and time for preparedness training, content areas for preparedness such as mental health have, in the past, been minimized. As a result of the positive relationship between the mental health and non–mental health items, further studies are needed to determine whether there is any cause-and-effect relationship between higher self-reported mental health abilities and higher self-reported abilities in other aspects of emergency preparedness. However, it is not clear whether participants' previous training or professional experiences allowed them to recognize the severity of emergencies and identify the need for mental health services and plans in the event of an emergency. Future studies may benefit from assessing participants' previous preparedness training and experience.

A limitation of this study is the loss of participants at the immediate posttraining survey and 3-month follow-up survey. This could have resulted in a threat to internal validity of the study; however, demographics of the participants did not change across time, which allowed for comparisons to be conducted.

This study is also limited by the self-report nature of respondents' confidence in their abilities based on the conference objectives. There was no testing of respondents' actual abilities or any observational data to support respondents' self-reported abilities; therefore, it is impossible to report with certainty that respondents did, in fact, gain more confidence in their abilities. Demonstrable skill improvement will be an important area for training such as this to grow and improve, but despite the limitations of self-report assessment, it serves as an important first step.

Conclusions

Because the mental health consequences of a disaster event will be more far-reaching than the physical destruction of such an event, mental health must be an integral component of any comprehensive disaster preparedness training. Despite its limitations, the current study indicates that even when mental health items are included as a secondary component of disaster preparedness training, such as in "Can It Happen in Kansas," significant and meaningful growth in participants' confidence in their abilities can occur. Although significant improvement was shown in both the mental health and non–mental health items, more improvement was shown in the non–mental health items. Given this finding, it is likely that a similar emergency preparedness training focusing on mental health components of disaster preparedness would yield even greater participant confidence in their abilities.

Previous disasters continue to demonstrate that mental health preparedness training is too important to be relegated to an afterthought. Future research must explore the delivery and evaluation of holistic emergency preparedness curricula, with an emphasis on mental health. In addition, evaluations of future training conferences would benefit by expanding from self-report assessments to an evaluation method that would allow for outside corroboration of respondents' self-reported abilities. These research steps would assist in the development of a more confident and capable health workforce that is prepared for the physical and psychological implications of disasters.

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