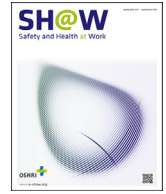




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Short Communication

Employee Perceptions of Their Organization's Level of Emergency Preparedness Following a Brief Workplace Emergency Planning Educational Presentation



Lauren A. Renschler, Elizabeth A. Terrigino, Sabiya Azim, Elsa Snider, Darson L. Rhodes, Carol C. Cox*

Department of Health Science, Truman State University, Kirksville, MO, USA

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ABSTRACT

A brief emergency planning educational presentation was taught during work hours to a convenience sample of employees of various workplaces in Northern Missouri, USA. Participants were familiarized with details about how an emergency plan is prepared by management and implemented by management-employee crisis management teams – focusing on both employee and management roles. They then applied the presentation information to assess their own organization's emergency preparedness level. Participants possessed significantly ($p < 0.05$) higher perceptions of their organization's level of emergency preparedness than non-participants. It is recommended that an assessment of organizational preparedness level supplement emergency planning educational presentations in order to immediately apply the material covered and encourage employees to become more involved in their organization's emergency planning and response. Educational strategies that involve management-employee collaboration in activities tailored to each workplace's operations and risk level for emergencies should be implemented.

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1. Introduction

Emergency preparedness, including developing crisis/disaster plans and training employees [1], is crucial for workplaces today. Whether it is a natural disaster, such as flooding, or a man-made disaster, such as a fire, emergencies cannot be predetermined. Businesses are the economic drivers of communities, and many even become important in community-wide emergency situations through provision of services and goods essential in emergency response [2]. Although businesses that have prepared for emergencies by training employees and creating disaster plans were more likely to have experienced a previous disaster [3], predisaster preparation is ultimately the key to successful workplace emergency response [1].

Key workplace preparedness activities specifically include developing emergency evacuation plans and providing emergency information to employees as well as outlining employee

emergency-response roles [2]. Workplaces with over 10 employees are required to have written emergency plans that are continually reviewed, train employees in the details of the plan, and designate emergency-response coordinators and their assigned roles [4]. Specific principles in preparing business for all types of emergencies include creating these formal plans and assigning responsibilities, coordinating efforts and encouraging employee ownership of the plan, overcoming organizational resistance and reluctance, and adapting response in light of surprise challenges [2].

Emergency preparedness plans attempt to prevent infrastructure and inventory loss as well as secure continuity of business operations both before and after a disaster. Emergency preparedness and business continuity plans should protect the firm from threats as well as outline recovery and resilience strategies [5]. Although emergency preparedness training and action plans better enable businesses to respond and recover from adverse conditions, many firms are still unprepared for disasters [2]. Some reports have

* Corresponding author. Department of Health Science, Truman State University, 2123 Pershing Building-HES, Kirksville, MO 63501, USA.
E-mail address: ccox@truman.edu (C.C. Cox).

suggested that even managers may not be active in the emergency planning process of their businesses [6]. Managers cite safety and emergency-response training regulations as drivers to their choice of educational and training offerings to their employees, but noted that they would provide fewer offerings if mandates were lessened [7]. However, those businesses that do provide emergency and crisis management training are better prepared for both safety and financial stability [8].

Managers, though, seem to have higher levels of perceived emergency preparedness than their employees [9]. Both management and employees need to be aware of emergencies that may occur and having procedures set aside beforehand can help address a number of workplace situations that may potentially arise. Planning can help reduce employee stress, anxiety, and overall fear, which are often experienced during a disaster or crisis. Having an emergency plan can insure that there is time for employees to become familiar with procedures and how to fulfill all steps within the plan. Creating an emergency plan and preparing in advance can help reduce property damage, help prevent injuries, and may even save lives [4].

Provision of information not only on the emergency action plan but also on employee emergency roles requires the involvement of all employees, not just management. Therefore, the purpose of this study was to describe employee perceptions of their organization's level of emergency preparedness following a brief workplace emergency planning educational presentation focused on both employee and management roles. Any effect of the presentation on employee emergency planning knowledge was also assessed.

2. Materials and methods

2.1. Sample

Managers from various workplace settings (food service, military, university physical plant, and juvenile justice) in Northern Missouri, USA were asked by the researchers if they would allow their employees to attend an hour-long emergency planning educational presentation during work hours. With management approval, a convenience sample of 45 adult employees from these workplaces were asked by the researchers to participate in the emergency planning educational presentation that included pre-post assessments (experimental group). A convenience sample of 37 adult employees from similar workplace settings in Northern Missouri were also asked by the researchers to participate in the pre-post assessments only (control group). All volunteered and freely agreed to participate in the study.

2.2. Instruments

The *Pre-Post Emergency Planning Knowledge Quiz* [10] was the evaluation tool that accompanied The Marcom Group's standardized Emergency Planning curriculum. The quiz included six knowledge items based on content contained in the curriculum. Three questions were true-false style, and the other three questions were multiple-choice questions that asked about groups involved in coordinating an emergency plan, changes incorporated into an emergency plan, and the best test of an emergency plan.

The 21-question *Crisis/Disaster Preparedness Scale/Paper and Pencil Version* [9] has been demonstrated to be a valid, reliable instrument to measure perceptions of level of an organization's crisis/disaster emergency preparedness. Statements such as "I am very familiar with our building's evacuation plan," "If my organization suffered a serious crisis, I would still have my job," "Most of our employees are familiar with my organization's crisis/disaster plan," and "My organization's emergency plan has been coordinated with local agencies" were rated on a Likert-style scale (1 = strongly

disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). The instrument was used as a self-assessment.

2.3. Procedure

During spring 2015 and after Institutional Review Board's approval from Truman State University, Kirksville, MO, USA and participant consent, all experimental and control group participants were given the anonymous, confidential Pre-Emergency Planning Knowledge Quiz to complete before the emergency planning educational presentation. Completed instruments were placed in a clasp envelope, sealed, and returned to the researchers. The control group participants were free to go on their way for an hour after completing and returning the instruments. The experimental group participants attended the educational presentation, "Emergency Planning," following The Marcom Group's standardized curriculum [10].

The educational presentation was taught during work hours by undergraduate health education students from the local university and covered the concept of how an emergency and evacuation plan is prepared by management and implemented by management-employee crisis management teams. Although the presentation did not include a detailed review of the specific plans of each participant's organization, it focused on both employee and management roles for standard emergency plans. Specific topics included devastating effects of emergencies, the importance of the emergency plan, what and who needs to be included in an emergency plan, the importance of familiarity with your workplace emergency and evacuation plan, and testing the plan. Instructors followed the curriculum using lecture and visual aids as well as the active-learning techniques of role-plays, demonstrations, and scenario-based learning. Immediately following the educational presentation, the experimental group participants completed the anonymous, confidential Post-Emergency Planning Knowledge Quiz in addition to the Crisis/Disaster Preparedness Scale. After 1 hour, the control group participants also completed the anonymous, confidential Post-Emergency Planning Knowledge Quiz and the Crisis/Disaster Preparedness Scale. Completed instruments from both groups were placed in a clasp envelope, sealed, and returned to the researchers. Control group participants were then invited to attend the same emergency planning educational presentation that was given to the experimental group and scheduled by their managers for the near future.

2.4. Analysis

An analysis of covariance was used to assess pre-post changes in emergency planning knowledge among and between experimental group and control group participants. Measures of central tendency were assessed on the Crisis/Disaster Preparedness Scale for both experimental and control group participants.

3. Results

Possible scores on the 6-item emergency planning knowledge quiz ranged from 0 to 6. Among control group participants ($n = 37$), mean [standard deviation (SD)] pretest and post-test scores were 3.89 (1.26) and -3.97 (1.55), respectively. Among experimental group participants ($n = 33$), mean (SD) pretest and post-test scores were 4.46 (1.16) and 4.59 (1.09), respectively. After adjusting for pretest scores, results of the one-way between-group analysis of covariance revealed no statistically significant difference between the control and experimental groups' post-test scores $F_{1,67} = 0.73$, $p = 0.40$, and partial $\eta^2 = 0.01$. Therefore, there was no significant difference between the groups in knowledge of workplace emergency planning after the presentation (Table 1).

Table 1
Analysis of covariance on pre- and post-test knowledge quiz

Source	<i>n</i>	Mean	<i>SD</i>	<i>F</i>	Significance (<i>p</i>)	Partial η^2
Pre–Post Total						
Experimental	33	3.97	1.55	0.728	0.40	0.01
Control	37	4.59	1.09	–	–	–

SD, standard deviation

Possible scores on the Crisis/Disaster Preparedness Scale ranged from 21 to 84. Among control group participants ($n = 26$), mean (SD) scores were 50.23 (0.04), respectively. Among experimental group participants ($n = 23$), mean (SD) scores were 56.39 (6.65), respectively. Independent *t* tests revealed a statistically significant difference between the control and experimental groups' scale scores ($F_{1,47} = 5.381, p = 0.03$). Employees who participated in the presentation had a significantly ($p < 0.05$) higher perception of their organization's level of emergency preparedness than those who did not participate in the presentation (Table 2).

4. Discussion

During an emergency planning educational presentation, participants were familiarized with details about how an emergency plan is prepared by management and implemented by management–employee crisis management teams. They then assessed their organization's emergency preparedness level. No significant

difference was found in emergency planning knowledge between presentation participants and nonparticipants; however, participants (experimental group) had higher perceptions of their organization's level of emergency preparedness. Both presentation participants and nonparticipants seemed to know the basics of emergency planning, but when participants applied that knowledge and had to specifically assess their own organizations' preparedness, a difference was found. It is recommended that an assessment of organizational preparedness level supplements emergency planning educational presentations to immediately apply the material covered and encourage employees to become more involved in their organization's emergency planning and response. Quality emergency planning includes employee training as well as employee ownership of and involvement with the plan [2] to better prepare workplaces for emergency situations.

Because successful planning needs the involvement of both employees and management [4], it was thought that an educational presentation that focused on how management prepared the organizational plan in addition to how both employees and management implemented the plan would improve participants' emergency planning knowledge. Taking part in this hour-long workplace emergency planning presentation, however, appeared not to influence participants' overall emergency planning knowledge. Considering that the presentation was conducted for a variety of workplace sectors, it is likely that each workplace implements differing processes and protocols regarding educating their employees on

Table 2
Measures of tendency of the Crisis Disaster Preparedness Scale

Scale questions	<i>n</i>	Mean	<i>SD</i>	Minimum	Maximum
I am very familiar with our building's evacuation plan.	76	2.18	0.96	1.00	4.00
It would be easy for a potentially threatening nonemployee to gain access to my workplace.	73	2.84	1.13	1.00	4.00
If my organization suffered a serious crisis, I might lose my job.	72	2.89	1.01	1.00	4.00
If my organization suffered a serious crisis, I would still get paid until we could reopen.	73	2.40	1.13	1.00	4.00
My organization has provided each employee with a basic emergency preparedness kit (e.g., flashlight, smoke mask, etc.)	75	1.69	0.96	1.00	4.00
The security at my workplace is adequate.	75	2.63	1.00	1.00	4.00
If a crisis occurred at my organization, I am familiar with the plan for how family members can get information on the status (e.g., safety) of their relatives.	75	2.31	1.08	1.00	4.00
In the event of an emergency or disaster, I am familiar with my organization's plan to continue operations from another location.	75	2.13	1.08	1.00	4.00
All organization members are required to rehearse portions of our crisis plan, for example evacuation.	74	2.47	1.11	1.00	4.00
If my organization suffered a serious crisis, I would still have my job.	73	2.82	1.06	1.00	4.00
If my organization suffered a crisis, I would still be covered by my organization's employee benefits (e.g., health insurance).	70	2.51	1.18	1.00	4.00
Security at my workplace has been significantly increased since Sep 11, 2001.	74	2.50	0.94	1.00	4.00
I know where the nearest fire extinguisher is to my desk/workstation.	73	3.16	0.93	1.00	4.00
If a crisis and evacuation occurred at my organization, I am familiar with our plan on how to communicate with my fellow employees from scattered or emergency locations (such as cell phone numbers, websites, or e-mail lists).	75	2.67	1.03	1.00	4.00
Most of our employees are familiar with my organization's crisis/disaster plan.	73	2.47	0.98	1.00	4.00
As part of our emergency plan, customers and suppliers would be able to contact us for information.	66	2.73	0.92	1.00	4.00
If my organization suffered a crisis/disaster, I would have the data I need to do my job backed up at a remote site.	73	2.26	0.99	1.00	4.00
My organization offers to pay to have volunteer employees trained in basic life support techniques, such as CPR, 1 st aid.	72	2.28	1.08	1.00	4.00
My organization has contingency plans in place so our customers would be covered if we suffered a disaster.	69	2.36	0.95	1.00	4.00
I know where the nearest emergency exits are to my desk/workstation.	73	3.42	0.85	1.00	5.00
My organization's emergency plan has been coordinated with local agencies, such as the fire department, hospitals, etc.	71	3.01	1.14	1.00	5.00

CPR, cardiopulmonary resuscitation; SD, standard deviation

emergency policies and procedures. Therefore, it is possible that some participants entered the presentation having more robust emergency planning knowledge as compared with others employed at workplaces that may not stress this topic area. Providing information to increase employees' knowledge about their workplaces' emergency action plan and their personal role in the plan is a management responsibility. In order for successful emergency response, it is necessary to have the involvement of all employees [4]. A coordination of these efforts and employee ownership of the plan is recommended as the best practice [2]. Therefore, other educational methods or strategies that involve management–employee collaboration in educational activities tailored to each workplace's operations and risk level for emergencies should be implemented. Future research efforts should study innovative methods in aiding workplaces in the creation of comprehensive training on emergency planning that are accessible and useful for every employee.

Employees who participated in the presentation, though, had a higher perception of their organization's level of emergency preparedness than those who did not participate in the presentation. Possibly after becoming more familiar with the details about how an emergency plan is prepared and implemented, these participants perceived that their organizations were generally prepared for an emergency as demonstrated by only one mean score on the Crisis/Disaster Preparedness Scale of less than 2.0/4.0. Planning seems to reduce employee stress about emergencies [4]. Not only management but also employees need to be aware of what and who needs to be included in an emergency and evacuation plan. Managers, with generally higher perceived levels of preparedness [9], should encourage employees to also "own" the emergency plan [2]. When employees perceive their organizations are prepared for an emergency, anxiety and fear about a potential crisis or stress during a disaster may decrease. Successful emergency response requires not only comprehensive planning beforehand but also calm reactions during a crisis to keep situations from escalating.

Although it seems managers may not make emergency planning employee training a priority [6], the managers in this study were very willing to make their employees available for the presentation. Possibly, these workplaces may have had emergency plans and protocols already in place, and management would be more at ease about participation in the presentation compared to those with poor emergency plans or none whatsoever. In addition, some workplaces in the study may have experienced previous emergencies, so they may have been more likely to have plans and trainings in place [3]. The presentation followed best practices [2] as it specifically covered aspects of not only emergency plan design and employee implementation of the plan but also included in-depth coverage of the importance of emergency response and evacuation procedures. This emphasis may have contributed to the higher level of perceived workplace preparedness by participants.

Interestingly, the highest scoring mean for the Crisis Disaster Preparedness Scale questions was attributed to the statement, "I know where the nearest emergency exits are to my desk/workstation." The lowest scoring mean, though, was associated with the statement, "My organization has provided each employee with a basic emergency preparedness kit (e.g., flashlight, smoke mask, etc.)." Because having posted emergency exit signs is a requirement by law for all workplaces, employees are usually familiar with this aspect of emergency planning. However, it is not surprising to find that many of the participants reported, in general, a disagreement with the latter statement. For example, equipping every employee with a flashlight or a smoke mask would be more necessary in industrial and maintenance workplaces.

The majority of participants also reported general agreement to three statements on the Crisis Disaster Preparedness Scale: (1)

"I know where the nearest fire extinguisher is to my desk/workstation"; (2) "I know where the nearest emergency exits are to my desk/workstation"; and (3) "My organization's emergency plan has been coordinated with local agencies, such as the fire department, hospitals, etc." All three statements, again, are related to policies mandated by law for all workplaces, and thus, these findings are neither unreasonable nor surprising. However, the lowest scoring statements were "I am very familiar with our building's evacuation plan" and "In the event of an emergency or disaster, I am familiar with my organization's plan to continue operations from another location." Evacuation plans are critical for injury prevention [4], and emergency plans are essential for business continuity and resilience after crisis [5]. Emergency response and evacuation were covered in the presentation; however, it may need to be emphasized even more in any future presentations or employee trainings.

4.1. Limitations

While this emergency planning educational presentation produced interesting results, the limitations of this study should be taken into consideration. Type or sector of workplace was an influencing factor that was unable to be controlled for in this design. Moreover, an employee's risk for emergency in a food service setting may be vastly different from those risks posed while working at a university's physical plant. In recruiting employees to the presentation, workplace managers and employees were asked on a volunteer basis. Given the fact that the sample of workplaces that participated may have been biased in this manner, the knowledge test results in addition to the Crisis/Disaster Preparedness Scale results may have been skewed. Although the presentation lasted only 1 hour so as not to take up too much work time, it is also possible that the presentation was given to employees at a less than optimal time of day for their concentration level. The aforementioned limitations should be taken into consideration for any future research endeavors in this area.

Conflicts of interest

All authors have no conflicts of interest to declare.

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