



Workplace Disruption following Psychological Trauma: Influence of Incident Severity Level on Organizations' Post-Incident Response Planning and Execution

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Abstract

Background: Psychologically traumatic workplace events (known as critical incidents), which occur globally, are increasing in prevalence within the USA. Assisting employers in their response is a growing practice area for occupational medicine, occupational social work, industrial psychology and other occupational health professions. Traumatic workplace events vary greatly in their level of organizational disruption.

Objective: To explore whether extent of workplace disruption influences organizations' decisions for post-incident response planning and plan execution.

Methods: Administrative data mining was employed to examine practice data from a workplace trauma response unit in the USA. Bivariate analyses were conducted to test whether scores from an instrument measuring extent of workplace disruption associated with organizational decisions regarding post-incident response.

Results: The more severe and disruptive the incident, the more likely organizations planned for and followed through to deliver on-site interventions. Following more severe incidents, organizations were also more likely to deliver group sessions and to complete follow-up consultations to ensure ongoing worker recovery.

Conclusion: Increasing occupational health practitioners' knowledge of varying levels of organizational disruption and familiarity with a range of organizational response strategies improves incident assessment, consultation and planning, and ensures interventions delivered are consistent with the level of assistance needed on both worker and organizational levels.

Keywords: Workplace; Workplace violence; Occupational injuries; Psychology, industrial

Introduction

Psychologically traumatic events such as industrial accidents, natural disasters, mass shootings and terror-

ism are increasingly prevalent within the workplace. Recent occurrences include highly visible acts of terrorism (shooting of public health employees in San Bernardino, California, USA, 2015; bombings

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and shootings in Paris, France, 2015; Kunming train station stabbings, China 2014; Boston Marathon bombing, USA, 2013), deadly industrial disasters (DuPont's toxic chemical's leak in La Porte, Texas, USA, 2014; West Fertilizer Company's explosion, West, Texas, USA, 2013; Amuay refinery explosion in Punto Fijo, Venezuela, 2012), and tragic gun violence in schools (Sandy Hook Elementary School, USA, 2012). When occurring within the workplace, traumatic events are referred to as "critical incidents,"^{1,2}. While such incidents occur within workplaces globally, employees within the USA are particularly vulnerable to workplace violence, accidents and deaths. Although frequent in occurrence, workplace incidents do not affect organizations uniformly. Extent of organizational disruption varies from minimal to catastrophic, depending on the nature of the event. Incidents vary in scale (large scale *vs* localized), human intentionality^{3,4} (intentional acts *vs* natural or accidental), predictability (anticipated *vs* unanticipated), duration (singular event *vs* enduring), scope (number of employees affected), and whether fatalities occur. Additionally, variation is observed among employers' response to incidents. Subsequent to exposure to similar events, the US employers implement diverse response plans, reflecting a range of decisions regarding the types of interventions provided to support workers. This article explores whether incident severity level influences organizations' decisions regarding post-incident response. It first reports on the prevalence of workplace incidents within the USA and then reviews how incidents affect workers and the workplace. It next introduces the specialized process of critical incident response and discusses the content of critical incident response plans. The article then profiles a high-volume critical incident response unit in the USA, outlines its scope of practice, and describes its extensive da-

tabase of critical incident records, which serves as the data set for an observational study. Following a discussion of the study's results, the article closes with implications for occupational health practitioners and provides recommendations for continued research.

Prevalence of Workplace Trauma within the USA

The USA Bureau of Labor Statistics reports the occurrence of over 5000 workplace fatalities and over 4.6 million serious workplace injuries annually.⁵ Among mass shootings within the USA between 2000 and 2013, over 50% occurred in the workplace.⁶ The US Federal Bureau of Investigation (FBI) data reveal there are over 5000 bank robberies annually.⁷ As workplace trauma becomes more prevalent and disruptive to work environments, it becomes increasingly relevant to occupational health professionals assisting affected organizations.

Impact of Traumatic Stress on Workers and Work Organizations

Workers exposed to a critical incident frequently experience emotional, cognitive and behavioral symptoms that compromise occupational functioning. Symptoms include restlessness, insomnia, anxiety, detachment, intrusive images, poor concentration, social withdrawal or hypervigilance. These symptoms emerge in the workplace as absenteeism, poor presenteeism (present at work, but in a highly distracted state), task avoidance, employee conflicts, accidents, or loss of motivation. Employees may socially isolate themselves as a means of avoiding talking about the incident. Anxiety, fear, sadness and dissociative symptoms impair cognitive functioning and work skills. Arousal symptoms create difficulties with sleep, resulting in poor concentration, irritability with co-workers and tardiness or absenteeism. Due

For more information on post-traumatic stress disorder see <http://www.theijoem.com/ijoem/index.php/ijoem/article/view/127>



to workplace reminders of the event, an employee may become distressed merely at the thought of entering the workplace.⁸ If not addressed such symptoms compromise organizational functioning through sick leave, missed deadlines, reduced work quality and declining productivity. US employers also face financial risks associated with psychiatric disability claims, worker compensation claims, increased health and mental health costs and legal liability.⁹ To address these personnel, operational and financial risks, many US employers rely on a specialized procedure known as critical incident response.^{10,11}

Critical Incident Response

The objective of critical incident response is to facilitate worker resilience and recovery, reduce subsequent workplace disruption, restore operations and maintain organizational stability. Critical incident response procedures typically include evaluating the nature of the incident, assessing worker and organizational functioning and determining which services and interventions will be implemented. The strategies organizations elect to implement are incorporated into critical incident response plans—post-incident procedures designed to mitigate risks and guide the organization through an event.

Critical Incident Response Plans

Critical incident response plans are alternately known as business continuity plans, crisis mitigation plans,^{12,13} crisis or disaster recovery plans, or occupational contingency plans. Most organizations establish plans prior to the occurrence of an incident. Typically, they specify several decisions to be made and steps to be followed during and subsequent to an incident. While the comprehensiveness of recovery plans vary, they normally cover steps to quickly establish a command center, restore facilities, re-establish communications, protect

data, replace technology, and manage human resources. While human resource components of plans typically involve procedures to ensure worker's physical safety and restore productivity, they vary in the extent to which they also include strategies to reduce emotional and psychological impacts of events.¹⁴ Given that numerous studies indicate a supportive environment is as predictive for individual recovery as clinical treatment,¹⁵⁻²¹ the manner in which employers respond to potentially traumatic workplace events is critical. Employers seeking to reduce the impact of workplace traumatic stress²²⁻²⁴ will ensure a supportive organizational environment and incorporate psychological interventions into their critical incident response plans. Emotional support for workers not only addresses individual symptoms, but also supports organizational resilience—the degree to which an organization preserves its structure, stability and functioning following an incident.²⁵ In other words, planning for both business and human continuity ensures organizational continuity.²⁶

Critical Incident Response Units

The response to an incident is frequently coordinated and delivered by specially trained critical incident response teams or units operating within government agencies, community organizations, law enforcement, emergency services, unions, airlines, banks, schools, and various industries.^{10,27} To facilitate worker recovery, assist managers and stabilize the organization, critical incident response units provide various services—incident assessment, post-incident response planning, consultation to managers, delivery of on-site interventions, and follow-up consultation. Various occupational health professionals deliver this wide range of services, including physicians and nurses, industrial psychologists, occupational social workers, employee assistance professionals and

other health-related disciplines. While some employers establish internal units staffed by their own employees, most US critical incident response units are external, independent organizations contracting with multiple employers to provide critical incident services as needed. The unit serving as the setting for this study is an external, independent unit.

Gaps in the Literature and Research Objective

While critical incident response seeks to support both the recovery of individual employees emotionally and the recovery of organizations functionally, research oriented towards treating individual traumatic symptoms dominates the literature.²⁸⁻³⁴ Correspondingly, the trauma assessment literature predominantly reflects scales designed to screen individuals for risk fac-

tors and post-traumatic stress disorder (PTSD),³⁵⁻⁴² This research contributes to less prevalent literature on measures of incident characteristics disruptive on the organizational level. Additionally, while critical incident response units collect massive amounts of practice information, there are few published studies capitalizing on potential discoveries within their data.^{25,43}

Building on previous studies analyzing this unique database,^{14,25,43,44} this research tested for whether incident severity level (operationalized as a measure of disruption to organizations) influences organizations' decisions regarding response planning and types of interventions delivered to employees.

Materials and Methods

Research Setting

The research setting was an external critical incident response unit, one of the largest in the USA. The unit served over 1400 client organizations with over 43 million residents (one out of every six individuals) eligible for its services. Since beginning operations in 1995 the unit collected extensive data on over 60 000 workplace incidents. Two characteristics position this unit as an appropriate setting for an observational, exploratory study—its large volume of requests for assistance and its extensive database. Specifically, the data represented an opportunity to explore variation of incident severity levels and the range of interventions planned and implemented by employers.

Administrative Data Mining

Administrative data mining was employed to examine data produced by a single critical incident response unit. Critical incident response services are initiated by requests for assistance from site managers, medical directors, human resource professionals,

TAKE-HOME MESSAGE

- The manner in which employers respond to traumatic workplace events predicts for both individual and organizational recovery. Post-incident response planning is a process of consulting with an organization to determine the types of interventions to be implemented, their frequency and the portion of employees identified to receive them.
- The amount of organizational disruption caused by a traumatic workplace event ranges from minimal to catastrophic. Assessment of incident severity level informs incident response planning and assists occupational health practitioners with aligning incident characteristics, organizational priorities and workers' needs with various types of interventions—from the least invasive to intensive.
- While on-site interventions for a large portion of employees are often indicated following more severe incidents, supportive educational information and individual worker-initiated counseling may be sufficient for less severe incidents. For organizations planning to provide few support services following highly severe incidents or those demanding intensive interventions for events of low severity, consultation from occupational health practitioners can increase organizations' awareness about best practices.

union representatives or other organizational officials. During intake assessment, staff gathers details about the incident, workgroup history and composition, and identifies needs and expectations. They assess the severity of the incident on their Critical Incident Severity Index Scale-Revised (CrISIS-R), determine the range of services to be delivered, and record subsequent service delivery. All information is entered into a computerized Microsoft® Access® database. Over a three-year period (2006–2008), there were complete records for 5181 incidents in the database. These incidents served as the study's sample.

Measurement of Incident Severity Level: CrISIS-R

Within the field of trauma psychology, there is a proliferation of clinical assessment tools that screen for varying levels of individual PTSD symptoms.³⁵⁻⁴² Collectively, they are classified as “impact of event scales.”^{42,45} While within some practice settings it is feasible to employ individualized scales, within the frequently chaotic post-incident workplace environment, administration is generally not feasible. Employer demands for immediate on-site response result in time and resource constraints, which make it unfeasible to administer individual assessments. As an alternative to clinical measures based on post-traumatic symptoms disruptive to individuals (a symptom severity scale), the unit in the study developed a measurement based on incident characteristics disruptive to organizations (an incident severity scale)—CrISIS-R. The instrument is quickly and easily administered during intake and it proved practical and usable within the unit's high-volume incident environment.

CrISIS-R includes six 5-point Likert scale indices, each corresponding to an incident characteristic—portion of employees involved in the incident, number

of workers with direct *vs* indirect exposure, level of perceived threat, level of violence, impact on productivity, and extent of media exposure. Their combined ratings comprise an overall CrISIS-R score with a maximum of 30 points. Reliability testing showed the scale to have a Cronbach's α of 0.7. Further details on scale development, administration and reliability are reported elsewhere.⁴⁴ Staff administers the scale for each incident at intake, with scores grouped into five incident severity categories ranging in impact from “low” to “catastrophic.”

Organizational Decisions Regarding Post-incident Response Planning and Execution

Based on the telephonic consultation the unit develops an incident response plan. Typical strategies include distribution of supportive educational materials, interventions to support employees, assistance for managers and leadership, and follow-up consultation to ensure ongoing organizational recovery. Staff first documents the organization's decision for method of service delivery—whether the organization elects to receive interventions on-site or telephonically. Later, the unit records whether the organization delivered at least one type of intervention on-site. Staff records the type of intervention delivered (group sessions, individual counseling or consultations to managers on restoring performance). At two days and four weeks post-incident, the unit contacts the organization to offer follow-up consultation, which includes monitoring worker and organizational recovery and determining need for additional interventions. Staff records whether follow-up was completed at both time frames.

Data Extraction

Data for the variables—CrISIS-R scores and organizational decisions regarding

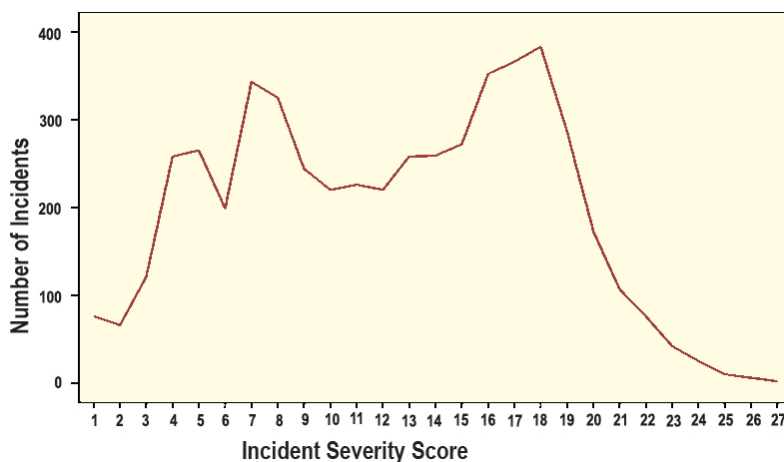


Figure 1: Distribution of CrISIS-R Scores (2006–2008).¹⁴

post-incident response planning and execution—were extracted from 5181 incident records for 2006–2008.

Statistical Analysis

To test the potential association of CrISIS-R scores (incident severity) with organizational decisions, bivariate analyses were conducted using *Student's t* test. A *p* value <0.05 was considered statistically significant.

Results

Figure 1 displays the number of incidents in the sample (*n*=5181) and scores' distribution. The sample scores had a median of

13.0 (range 27.0, SD 5.6) (Fig 1).

Table 1 presents severity categories, score ranges and distribution of CrISIS-R scores.

The mean CrISIS-R score was 12.2, indicating most incidents are of mild to moderate severity.

Table 2 summaries frequencies for organizational decisions at intake regarding on-site interventions, whether they were implemented, type of interventions implemented and whether organizations completed follow-up consultation at two days and four weeks post-incident.

CrISIS-R score was significant (*p*=0.014) and positive for organizations' initial decision to provide interventions on-site (delivery method elected), as well as for organizations following through in providing at least one intervention on-site (delivery method implemented), (*p*<0.001). CrISIS-R score also associated significantly (*p*<0.001) and positively with delivery of group sessions, follow-up at two days (*p*<0.001), and follow-up at four weeks (*p*<0.001). Incident severity was significant (*p*=0.018) but negative for manager consultations. Whether organizations implemented individual counseling did not significantly (*p*=0.770) associate with incident severity score (Table 3).

Discussion

Method of Intervention Delivery: Elected vs Implemented

With more severe incidents, the affected organization was more likely to initially elect to deliver interventions on-site and to later implement at least one on-site (whether groups, individual counseling or manager consultations). It is observed however that while 87% of organizations intended to provide on-site services, somewhat fewer (84%) subsequently implemented them, suggesting factors beyond incident sever-

Table 1: Distribution of CrISIS-R scores by severity category (2006–2008)

Level of impact	CrISIS-R score range	Frequency (%)
Catastrophic	25 to 30	18 (0.3)
Severe	19 to 24	710 (13.7)
Moderate	13 to 18	1890 (36.5)
Mild	7 to 12	1578 (30.5)
Low	0 to 6	985 (19.0)
Total incidents		5181 (100.0)

Table 2: Organization decisions regarding post-incident services (2006–2008, n=5181)

Method of delivery	On-site interventions frequency (%)	Telephonic services frequency (%)
Delivery method elected	4500 (87)	681 (13)
Delivery method implemented	4337 (84)	844 (16)
Types of interventions implemented	Implemented frequency (%)	Not implemented frequency (%)
Group sessions	3048 (59)	2133 (41)
Individual counseling	2942 (56)	2239 (44)
Manager consultations	2980 (58)	2201 (42)
Follow-up consultation	Completed frequency (%)	Not completed frequency (%)
Follow-up at two days	4434 (86)	747 (14)
Follow-up at four weeks	3442 (66)	1739 (34)

ity level intervene in the decision to follow through with delivering interventions on-site. Beyond logistical challenges such as last minute cancellations due to a lack of meeting space or scheduling conflicts, the following are potentially intervening influences.

Overestimation of Distress

In some cases, despite unit assessment to the contrary, organizations reactively insist on scheduling on-site interventions immediately after an incident, neglecting to consider whether employees need them or are willing to attend. When organizational officials self-determine what they need prior to contacting the unit, it may be difficult to alter their perceptions. At intake requestors reacting emotionally themselves or responding to other's reactions perceive on-site services as essential. Later, as the situation stabilizes and resilience emerges, they may cancel them. Alternatively, if on-site services remain scheduled, counselors deploy to the site but employees decline to participate in support services. Despite intending to deliver on-site interventions and making

Table 3: Organizational decisions and mean (SD) incident severity score (n=581)

Parameter		Number of incidents	CrISIS-R score Mean (SD)
Delivery method elected	On-site	4500	12.30 (5.6)
	Telephonic	681	11.72 (5.3)
Delivery method implemented	On-site	4337	12.37 (5.6)
	Telephonic	844	11.46 (5.5)
Group sessions	Delivered	3048	12.84 (5.6)
	Not delivered	2133	11.33 (5.5)
Individual counseling	Delivered	2942	12.20 (5.6)
	Not delivered	2239	12.25 (5.6)
Manager consultations	Delivered	2980	12.44 (5.5)
	Not delivered	2201	12.06 (5.6)
Follow-up consultation at two days	Completed	4434	12.53 (5.6)
	Not completed	747	10.37 (5.4)
Follow-up consultation at four weeks	Completed	3442	12.91 (5.5)
	Not completed	1739	10.86 (5.5)
Total incidents		5181	12.20 (5.6)

them available, none are delivered.

Competing Objectives: Public Relations, Liability Mitigation and Worker Recovery

Another factor potentially contributing to undelivered services is the nature of the primary objective. Some organizations may place a high priority on ensuring they are perceived as responding adequately or on limiting organizational liability for worker injury. These objectives may influence planning decisions more than the intention to facilitate worker recovery. Making groups available on-site may meet public relations purposes and reduce liability while employees elect not to attend.

Cost Arrangements

The fee structure for some critical incident service contracts specifies a certain number of on-site service hours is included within prepaid, fixed fees. Other contracts are structured as a fee-for-service arrangement. Employers with fee-for-service arrangements, who initially request on-site services, may later develop concerns about additional costs. Unless the need for services remains visibly compelling, they may cancel them.

Group Sessions and Follow-up Consultation

Organizations experiencing more severe incidents were more likely to deliver group sessions on-site and to later respond to outreach to complete follow-up consultation to monitor organizational recovery. In addition to organization officials perceiving a need for group sessions in the immediate aftermath, they may also understand recovery is a developmental process, and appreciate that provision of one-time group sessions may not be sufficient to ensure workers resume their previous level of functioning. Comparing follow-up consultations completed at the two time frames shows 86% of organizations completed

follow-up consultation at two days, with the percentage completed at four weeks declining to 66%. This is consistent with the trajectory of normal employee resilience, where most stress symptoms resolve within one month of an event, which may lessen the perceived need for follow-up.

Management Consultations and Individual Employee Counseling

Two results were unexpected: First, there was a negative association between incident severity and management consultations, which were more likely to be delivered for less severe incidents. Second, there was an absence of any association between incident severity and the provision of individual counseling. Results may relate to how these two services are scheduled by this particular unit. Unlike groups, which are scheduled proactively at intake as part of the response plan, on-site counselors schedule management consultations and individual counseling reactively—after they arrive on-site. Once on site, counselors offer consultations to managers based on manager interactions, interest and availability, and will meet individually with any employees who request or accept counseling. From interacting with employees before, during or after group sessions, counselors will offer individual sessions to workers observed to be under duress. Therefore, factors such as manager availability, and individual risk factors that predispose workers to visible duress may influence whether the unit delivers these services, regardless of the severity level of the incident.

Occupational Practice Implications

When intake assessment identifies severe incidents, unit staff should emphasize the importance of on-site organizational support and follow-up consultation. If organizations experiencing a severe incident decline to provide services on-site, do not

follow through with implementing them or disengage from follow-up, critical incident practitioners can raise the organization's awareness about best practices for severe incidents. Conversely, when an organization impacted by an event of low severity demands immediate and intensive interventions that are inappropriate or unnecessary, consultation to temper reactivity and demand is indicated. Expanding the organization's understanding of the incident and recommending phased interventions, from the least invasive to intensive, may assist.

As an alternative to reactively scheduling management consultations on-site, during intake consultation, critical incident units should recommend proactively scheduling management consultations as part of the incident response plan. Occupational health practitioners should emphasize managers' pivotal role in employee recovery and communicate the benefits of consultation. Increasing manager awareness of how symptoms of traumatic stress emerge in the workplace assists with managing performance in the aftermath of an incident.

For individual counseling immediately following an incident, it is often not feasible for an organization to identify individuals needing assistance or to obtain informed consent in order to schedule sessions proactively. Continuing reactive scheduling of individual sessions for those observed to be under duress remains the best practice for most circumstances.

Study Limitations

Since bivariate analyses conducted on large samples have an increased likelihood of producing statistically significant relationships, results must be viewed cautiously. Additionally, effect sizes observed were small for incident severity level's influence on method of service delivery elected, method implemented and man-

ager consultations. Furthermore, while the reliability of CrISIS-R scale was considered adequate for an exploratory study (Cronbach's α 0.7), it needs continued refinement to achieve the desired level of reliability (Cronbach's α 0.9). Finally, generalizability is constrained in three ways: First, analyses of pre-existing administrative data are by definition retrospective, precluding randomization within a controlled design. Second, results from a single incident response unit are not applicable to other settings, and third, findings and conclusions generated from a US-based study are not generalizable to other countries.

Future Research

Initial Organizational Decision for On-site Interventions

While this study suggests incident severity level may influence whether organizations elect on-site interventions, other factors warrant exploration. These include employer overestimation or underestimation of event impact, the nature of the incident, variation in practitioner's consultation skills or other situational factors within the affected organization.

Implementation of On-Site Services

For organizations intending to provide services on-site, what factors influence whether they subsequently follow through to deliver them? Further research could explore factors such as employer overestimation of employee needs, receptivity of employees to support services, rapidity of organization stabilization post-incident, cost structure for fees or other post-incident organizational circumstances.

Types of On-site Services Implemented by Organizations

While results suggest organizations implement group sessions when incident sever-

ity is high, other influences could be examined. These include manager awareness of processes to request and schedule groups, employee awareness of their availability, organizations' prior experience with group sessions or other factors. Further studies could also explore factors influencing delivery of individual counseling or management consultations.

Completion of Post-incident Follow-up Services

Given the importance of follow-up consultation as a component of critical incident practice, further research should examine why organizations that initially agreed to participate in follow-up do not respond to outreach. Explanatory factors could include overestimating the impact of the event, employee's restoring performance to prior levels quickly, officials needing to attend to higher organizational priorities or other factors.

Conclusion

Well-developed standards for workplace safety and prevention protect workers from known health risks. Traumatic workplace events however, are frequently unpredictable or are not preventable. Organizational response, therefore, is critically important. While affected organizations within the USA routinely request assistance from critical incident units, there is much variability in the decisions organizations make regarding provision of supportive services. This study tested for whether the severity level of an incident influenced such decisions. Results suggest the more severe is an incident, the more likely the affected organization elects to provide on-site group interventions, delivers them and completes follow-up consultations. Findings translate into evidenced informed practice recommendations, especially in the areas of intake assessment, organizational consultation and critical incident response

planning.

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