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 terrorism 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 intentionality3,4 (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 database 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 hyper-vigilance. These symptoms emerge in the workplace as absenteeism, poor presence (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
to workplace reminders of the event, an employee may become distressed merely
at the thought of entering the workplace. If not addressed such symptoms compro-
mise 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. To address these personnel, operational
and financial risks, many US employers rely on a specialized procedure known as
critical incident response.

Critical Incident Response
The objective of critical incident response is to facilitate worker resilience and re-
covery, reduce subsequent workplace disruption, restore operations and maintain
organizational stability. Critical incident response procedures typically include evalu-
ating 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 incor-
porated into critical incident response
plans—post-incident procedures designed
to mitigate risks and guide the organiza-
tion through an event.

Critical Incident Response Plans
Critical incident response plans are alter-
nately known as business continuity plans,
crisis mitigation plans, crisis or disaster recovery plans, or occupational contin-
gency 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 facili-
ties, re-establish communications, protect

data, replace technology, and manage hu-
man resources. While human resource components of plans typically involve pro-
cedures 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. Given that numerous
studies indicate a supportive environment
is as predictive for individual recovery as
clinical treatment, the manner in which
employers respond to potentially trauma-
ic workplace events is critical. Employers
seeking to reduce the impact of workplace traumatic stress will ensure a sup-
portive organizational environment and incorporate psychological interventions
into their critical incident response plans. Emotional support for workers not only
dresses individual symptoms, but also
supports organizational resilience—the
degree to which an organization preserves
its structure, stability and functioning fol-
lowing an incident. In other words, plan-
ing for both business and human contin-
uity ensures organizational continuity.

Critical Incident Response Units
The response to an incident is frequently
directed and delivered by specially
trained critical incident response teams or
units operating within government agen-
cies, community organizations, law en-
forcement, emergency services, unions,
airlines, banks, schools, and various in-
dustries. To facilitate worker recovery,
assist managers and stabilize the organ-
ization, critical incident response units
provide various services—incident assess-
ment, post-incident response planning,
consultation to managers, delivery of on-
site interventions, and follow-up consulta-
tion. Various occupational health profes-
sionals deliver this wide range of services,
including physicians and nurses, industri-
al psychologists, occupational social work-
ers, 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. Correspondingly, the trauma assessment literature predominantly reflects scales designed to screen individuals for risk factors and post-traumatic stress disorder (PTSD). 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.

Building on previous studies analyzing this unique database, 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 600000 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,
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. Collectively, they are classified as “impact of event scales.” 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. 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
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-

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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)                   |

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)              |
| Delivery method elected Telephonic| 681                 | 11.72 (5.3)              |
| Delivery method implemented On-site | 4337             | 12.37 (5.6)              |
| Delivery method implemented Telephonic | 844             | 11.46 (5.5)              |
| Group sessions Delivered         | 3048                | 12.84 (5.6)              |
| Group sessions Not delivered     | 2133                | 11.33 (5.5)              |
| Individual counseling Delivered  | 2942                | 12.20 (5.6)              |
| Individual counseling Not delivered | 2239         | 12.25 (5.6)              |
| Manager consultations Delivered  | 2980                | 12.44 (5.5)              |
| Manager consultations Not delivered | 2201         | 12.06 (5.6)              |
| Follow-up consultation at two days Completed | 4434 | 12.53 (5.6) |
| Follow-up consultation at two days Not completed | 747  | 10.37 (5.4) |
| Follow-up consultation at four weeks Completed | 3442 | 12.91 (5.5) |
| Follow-up consultation at four weeks 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 manager 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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