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BRIEF REPORT

Best practices for managing depression and suicide risk in World Trade Center responders and survivors

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ABSTRACT

A growing body of research supports the association between exposure to the World Trade Center attacks and increased risk of subsequent depression, particularly among individuals who directly witnessed the attacks or participated in the rescue and recovery efforts. Depressive disorders, often comorbid with PTSD and substance use disorders, present an ongoing and substantial health burden for 9/11 responders and survivors. These conditions are associated with an increased risk of suicide mortality, highlighting the importance of screening for depression and suicidal ideation in this population. This paper, part of a series for primary care and other clinicians, offers a brief overview of research on depression in WTC-exposed populations, summarizes critical elements for identifying and managing depression, and offers best practices for suicide prevention.

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Introduction

The World Trade Center (WTC) terrorist attacks and their aftermath exposed hundreds of thousands of people- rescue, recovery, restoration, and clean-up workers (hereafter, responders), and community residents, local workers, and students (survivors)- to a multitude of physical and psychological hazards. This resulted in elevated rates of medical and psychiatric conditions and subsequent loss of economic and social resources for thousands of affected individuals, many of whom are living with persistent symptoms and functional impairments.[1,2] The trajectory of psychiatric illnesse in this cohort is influenced by the severity of 9/11 exposure, presence of comorbid diagnoses, post-event adversities, and individual risk and resilience factors (Feder et al., 2016).[3]

This is one of three papers focused on best practices for screening and managing individuals with WTC-related psychiatric conditions, and it will focus on depression, suicide risk, and best practices for suicide prevention. It is part of a series for primary care physicians and other clinicians to promote the practice of high quality, evidence-based medicine when diagnosing and treating persons with WTC-related conditions (see Calvert et al.[4] for background details). The World Trade Center Health Program (WTCHP) is a limited federal health program that provides no-cost medical monitoring and treatment for WTC exposure-related health conditions to those directly affected by the 9/11 attacks (https://www.cdc.gov/wtc/about.html). Responders with health conditions resulting from work they performed as part of the response effort are eligible to apply for workers' compensation benefits. Disability assessments are not provided by the program, however, program members who require assistance applying for benefits or who have conditions that do not meet criteria for program enrollment (e.g., non-WTC related occupational conditions or injuries) may be referred to the WTCHP Clinical Centers of Excellence (CCE) for case management services and appropriate referrals.

Depressive disorders in WTC exposed populations

Depressive disorders- major depressive disorder (MDD), dysthymia, and depression due to other

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medical conditions- are among the most common illnesses worldwide, often resulting in significant functional impairment[5] and are a leading cause of disability.[6] While the etiology of depressive disorders is multifactorial, resulting from a complex interaction of biological and psychosocial factors, exposure to mass disasters is known to increase the risk of subsequent diagnosis of depression,[7] and some evidence indicates that human-made disasters may have a more pronounced psychological impact than natural ones.[8]

A growing body of research supports the association between WTC exposure and depressive disorders (see Santiago-Colon et al., 2020); MDD and depression not otherwise specified are, respectively, the third and fourth most diagnosed psychiatric conditions within the WTC Health Program (CDC Top 10 Certified Conditions, Program Statistics, https://www.cdc.gov/wtc/ataglance.html#top10Conditions). While most individuals with 9/11-related exposure did not develop psychiatric conditions or have recovered, some continue to experience clinically significant symptoms resulting in functional impairment. A longitudinal study[9] found that 18.8% of WTC exposed responders, residents, and area workers reported current symptoms of major depression on a self-administered measure (PHQ-8) either 11-12 years post 9/11, 14-15 years post 9/11, or at both timepoints. Additionally, a meta-analysis examining the associations between risk factors and post-9/11 depressive symptoms among survivors, residents, and passersby, found that social isolation, change in employment, and not being married were the factors most strongly associated with probable depression.[10] Overall, the likelihood of persistent depressive symptoms was increased by co-occurring PTSD, post-9/11 traumatic life events, unemployment, poor social integration, and chronic physical illness.[11]

Screening for depression in the primary care setting

The chronicity, considerable psychiatric co-morbidity, high rate of relapse, and elevated risk of suicide associated with MDD highlights the need for clinical surveillance in vulnerable populations. A strong body of evidence supports depression screening in primary care for early identification and intervention. The United States Preventive Services Task Force (USPSTF) recommends screening all adults for depression in clinical practices that have systems in place to ensure accurate diagnosis, treatment, and follow-up. The optimal timing and interval for screening is not known; a reasonable approach is to screen all adults who have not been previously screened for depression and then using clinical judgment (i.e., consideration of risk factors, comorbid conditions, and life events) to determine when additional assessment of higher-risk patients is warranted.[12] The Patient Health Questionnaire (PHQ)–2 and PHQ-9 (patient-health-questionnaire.pdf[13]) are the most used screening tools for adult depression and have demonstrated clinical utility and diagnostic accuracy in primary care settings.[14] While there is no evidence that screening tools predict risk of suicide,[15] VA/DoD CPGs recommend use of the PHQ-9 for universal screening of suicide risk.[16] Suicide risk assessment, management and prevention strategies are discussed below.

Diagnosis of major depressive disorder

Major depressive disorder is characterized by persistent feelings of extreme sadness or marked loss of interest or pleasure in normal activities that cause clinically significant distress or impairment in function. Associated features include:

- excessive guilt or feelings of worthlessness, helplessness, or hopelessness
- problems with sleep, appetite, memory, or concentration
- fatigue or loss of energy
- thoughts of death and/or suicide

MDD is a clinical diagnosis based on a mental status examination focused on current signs and symptoms, and a review of psychiatric, medical, psychosocial, and family history. Inquiring about prior suicidal behavior, speaking with caregivers, family (with patient consent unless there is imminent risk), and healthcare providers are key elements to conducting a comprehensive assessment. Primary care and other clinicians should ask all patients who were present at any of the 9/11 sites about their exposures and assess for symptoms of psychiatric illness and harmful substance use. Due to the numerous medical comorbidities found in the 9/11 affected population, it is important to rule out other causes of depressive symptoms such as substance or medication induced mood disorder, or depressive symptoms due to an underlying medical condition (e.g., cancer, stroke, MI, hypothyroidism, chronic pain). For more information on MDD, including the full diagnostic criteria, please refer to https://www.icd10data.com/ICD10CM/Codes/F01-F99/F30-F39/F33-/F33.9

Treatment

Prior treatment response, individual patient characteristics (e.g., co-occurring conditions, cultural factors, social determinants, cognitive status) and patient preference are key factors when deciding on clinical management. First-line treatments include antidepressants, psychotherapy, and the combination of both. If the preferred treatment is psychotherapy, providers should refer to a mental health specialist. Psychiatric consultation is recommended for patients with severe symptoms who have not responded to first-line treatments. Many effective interventions are available for treatment resistant depression: electroconvulsive therapy (ECT), repetitive transcranial magnetic stimulation (rTMS), or ketamine, a medication that provides a rapid antidepressant effect and is particularly helpful in patients with suicidal thoughts.[17] Lifestyle modification (i.e., exercise, mindfulness practices) may be used as adjunct interventions to support overall physical and emotional health. Using a quantitative measure of depression severity (e.g., PHQ-9) to monitor treatment progress is recommended by most clinical practice guidelines.

Two clinical practice guidelines for MDD management are suggested:

- American Psychological Association Clinical Practice Guideline for the Treatment of Depression Across Three Age Cohorts https://www.apa.org/depression-guideline[11]
- VA/DoD Clinical Practice Guideline for the Management of Major Depressive Disorder VA/DoD_Clinical_Practice_Guideline_for_the_Management_of_Major_Depressive_Disorder_(MDD)[17]

Together, these guidelines can inform the care of patients from across the diverse spectrum of the 9/11 affected cohort: community members (some of whom were children on 9/11), traditional responders, civilian workers, and military personnel.

Suicide risk in the 9/11 exposed cohort

Despite available treatment, some 9/11 affected individuals continue to struggle with depressive symptoms, often compounded by comorbid PTSD, unhealthy substance use, and chronic medical conditions: all established risk factors for suicide. Factors contributing to increased risk include barriers to health care access, stigma associated with psychiatric diagnosis, and treatment resistant illness.[18] A retrospective study among responders who completed a self-report scale (PHQ-9) an average of 5.5 years post-9/11[18] found that more nontraditional responders (i.e., those not trained in disaster response) reported suicidal ideation (SI) (point prevalence of 12.5%) compared to the general US adult population (4.8%). Of note, only 2.2% of police responders (firefighters were not included) reported SI in this study; this may be in part attributed to underreporting resulting from stigma and/or fear of negative job consequences.[19] Given the likelihood that prevalence and severity of SI within the 9/11 affected cohort fluctuated during this period, and that most suicide risk is self- limited, longitudinal studies are needed to clarify trajectories of SI and suicidal behaviors. One longitudinal study[20] examining mortality patterns in individuals exposed to the 9/11 attacks found increased risk of death from suicide among responders, especially among nontraditional responders, compared to the general US population. In contrast, a more recent paper did not observe excess deaths from any major cause, including suicide.[21]

Risk assessment and suicide prevention

Suicide is among the most devastating consequences of mental illness and remains a major public health concern. The first steps to suicide prevention are screening and conducting a suicide risk assessment. The Suicide Prevention Resource Center[22] recommends using a standardized tool such as the Columbia Suicide Severity Rating Scale (C-SSRS) to assess suicide risk. The C-SSRS is a brief, easy to use set of questions with a robust evidence base in preventing suicides (https://cssrs.columbia.edu/).[23] For individuals at elevated risk, creating a safety plan (Stanley-Brown-Safety-Plan-8-6-21.pdf (myftpupload.com) is a best practice to help them become more aware of their personal warning signs that a suicidal crisis is beginning and provides an opportunity to intervene before someone acts on suicidal impulses. Other important suicide prevention strategies include strengthening family and social supports, engaging individuals in treatment, improving access to health care, lethal means counseling (see Lethal Means Counseling: Recommendations for Providers (va.gov),[24] and referral to a mental health specialist.

The 988 Suicide and Crisis Lifeline (988lifeline.org) provides free and confidential support or crisis intervention 24 hours per day to anyone experiencing emotional distress, thoughts of suicide, or any other mental health related crisis.

Conclusion

Research supports an association between depressive disorders and WTC exposure, particularly among those individuals who directly witnessed the WTC attacks and participated in the rescue and recovery efforts. Among responders with MDD, co-occurring PTSD, chronic physical illnesses, substance misuse, and psychosocial factors contribute to the persistence and severity of symptoms many years after 9/11. The considerable morbidity and elevated risk of suicide associated with MDD highlights the need for ongoing clinical surveillance and targeted interventions to promote mental care access in at-risk populations.

Coverage

The WTCHP is a limited federal health program that provides no-cost medical monitoring and treatment for certified WTC exposure-related health conditions to those directly affected by the 9/11 attacks in New York, the Pentagon, and Shanksville, Pennsylvania. To receive certification, a WTCHP physician must attest that 9/11 exposures were substantially likely to have been a significant factor in aggravating, contributing to, or causing the enrolled WTC member's condition. For additional information specific to mental health coverage and resources, refer to the WTCHP Mental Health Resource Webpage www.cdc.gov/wtc/mental-health.html.

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Disclaimer

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Institutional review board (IRB) review

This activity did not involve human subjects and therefore did not require IRB review.

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The authors report there are no competing interests to declare.

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