



Short report

Mental health of those directly exposed to the World Trade Center disaster: Unmet mental health care need, mental health treatment service use, and quality of life

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ABSTRACT

Mental health service utilization several years following a man-made or natural disaster can be lower than expected, despite a high prevalence of mental health disorders among those exposed. This study focused on factors associated with subjective unmet mental health care need (UMHCN) and its relationship to a combination of diagnostic history and current mental health symptoms, 5–6 years after the 9-11-01 World Trade Center (WTC) disaster in New York City, USA. Two survey waves of the WTC Health Registry, after exclusions, provided a sample of 36,625 enrollees for this analysis. Important differences were found among enrollees who were categorized according to the presence or absence of a self-reported mental health diagnosis and symptoms indicative of post-traumatic stress disorder or serious psychological distress. Persons with diagnoses and symptoms had the highest levels of UMHCN, poor mental health days, and mental health service use. Those with symptoms only were a vulnerable group much less likely to use mental health services yet reporting UMHCN and poor mental health days. Implications for delivering mental health services include recognizing that many persons with undiagnosed but symptomatic mental health symptoms are not using mental health services, despite having perceived need for mental health care.

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Introduction

Disasters such as the 1986 Chernobyl accident and 2001 attack on the World Trade Center (WTC) have documented long-term physical and mental health effects (Bromet, Havenaar, & Guey, 2011; Brackbill et al., 2009). In particular, the prevalence of stress disorders among Chernobyl clean-up workers remained high at 44% eight years after the event (Viel et al., 1997), as did post-traumatic stress symptom prevalence (23%) among directly exposed WTC disaster survivors up to six years after 9-11 (Brackbill et al., 2009). High prevalence of these illnesses years after a disaster translate into individual suffering and societal burden manifested by negative collateral effects on community and family intimacy as well as economic loss due to absence of income and treatment costs (Riggs, Byrne, Weathers, & Litz, 1998).

Although their effectiveness is unclear, early mental health interventions are usually implemented soon after disasters (Gray, Shira, & Litz, 2004). Following the 9-11 WTC disaster, public and

privately financed post-disaster mental health programs were implemented ranging from on-site crisis counseling to screening, referral and reimbursement systems (Felton, 2002). Despite this, large numbers of individuals did not avail themselves of these services (Stuber, Galea, Boscarino, & Schlesinger, 2006). In fact, immediate post 9-11 use of mental health services was surprisingly small as evidenced by a declining number of claims experienced between 9-11 and the first quarter of 2002 by one insurer of over 2 million New York City (NYC) residents (Green et al., 2006).

Given the high prevalence of persistent psychopathology five or more years after 9-11, it is important to understand the relationship between perceived need, quality of life, and healthcare utilization especially when it is frequently observed that people with mental health symptoms delay treatment (Wang et al., 2005) and that a majority of persons who have symptoms, do not seek help and have diminished functioning (Stuber et al., 2006). Perceived need or subjective unmet mental health care need (UMHCN) is a construct for measuring either choosing care but not receiving it because of financial or other barriers, or else not receiving expected care (Allin, Grignon, & Le Grand, 2010). Contrary to what might be expected, a cross-sectional Canadian population survey of perceived mental health care needs found that having a diagnosed

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mental health condition (e.g. depression, anxiety disorder, PTSD) and using mental health services were the strongest predictors of reporting an UMHCN (Nelson & Park, 2006). Prior studies have not evaluated how the presence of mental health disorder symptoms influence the perception of need, service use, and quality of life among those at risk for such disorders.

We use data from the World Trade Center Health Registry cohort to assess UMHCN post WTC disaster, in a population with a high prevalence of mental health symptoms 5–6 years after the event. We have two objectives. First, we describe the prevalence and predictors of UMHCN by demographics, social support level, WTC disaster exposure, quality of life, mental health status, and mental health service use. Second, to identify groups at risk of greater need and diminished quality of life, we evaluated the association between UMHCN and quality of life, mental health service use, social support, and 9–11 exposure with mental health status, defined by a combination of diagnosis status and presence or absence of current symptoms.

Methods

Study population

The Registry located in the New York City Department of Health and Mental Hygiene is a cohort study of 71,434 enrollees that prospectively monitors the physical and mental health of populations with reported exposure to the September 11 WTC attack and its aftermath. The present analysis is restricted to 46,226 persons who completed both an intake interview on enrollment in 2003–04 (Wave 1) and a follow-up questionnaire in 2006–07 (Wave 2) as described in detail elsewhere (Brackbill et al., 2009; Farfel, Digrande, Brackbill, Prann, Cone, Friedman, et al., 2008). Wave 1 provided data on gender, race/ethnicity, household income, exposure, and eligibility group membership. Data on perceived unmet health care needs, and other covariates such as social support, marital status, and current symptoms of PTSD and serious psychological distress (SPD) were obtained at Wave 2.

The Centers for Disease Control and Prevention (CDC) and the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) institutional review boards approved the study protocol.

Measures

A detailed description of study measures is available in the electronic [Appendix A](#)

Unmet mental health care need (UMHCN) is defined as a response of not receiving needed “mental health care or counseling” during the last 12 months.

Socio-demographic variables included gender, age at Wave 2 interview, race/ethnicity, household income at Wave 1, and marital status.

WTC disaster exposure was the sum of twelve experiences grouped as none/low (0–1 experiences), medium (2–3), high (4–5), and very high (6 or more) consistent with Adams’s definition (Adams & Boscarino, 2006).

Social support had four categories: none, 1 to 2 sources, 3 sources, and 4 or more sources of support.

Probable Post-traumatic Stress Disorder (PTSD) was assessed with a 9–11 specific PTSD Checklist (PCL), a validated measure (McDonald & Calhoun). A cut-off score of 44 or greater indicated probable PTSD (McDonald & Calhoun, 2010).

Serious Psychological Distress (SPD) was based on the K6 scale, a psychometrically validated epidemiologic measure, using a cut-

off score of 13 (Kessler, Barker, Colpe, Epstein, Gfroerer, Hiripi, et al., 2003).

Mental health status was categorized based on having or not having a previously reported mental health diagnosis or symptoms indicative of PTSD or SPD. The categories were: diagnosed with current symptoms (D+S+); undiagnosed with current symptoms (D–S+); diagnosed but with no current symptoms (D+S–), and neither (D–S–). Diagnosed mental health conditions included generalized anxiety, probable PTSD, and depression with reported year of diagnosis between September 11, 2001 and December 31, 2005, so that diagnosis occurred before the assessed period of need and use of services (2006–2007).

Poor mental health days was defined as self-report of 14 or more days of poor mental health in the past 30 days, using the health related quality of life measure (Zahran, et al., 2005).

Any mental health service was considered to be an enrollee report of any mental health counseling, medication, or both in the preceding 12 months.

Data analysis

The final sample was 36,625 after excluding persons who reported a physician diagnosis of depression, anxiety, or PTSD prior to 9–11 ($n = 3819$), a diagnosis of depression, anxiety, or PTSD in 2006–2007 ($n = 833$), or were missing data for PTSD checklist or K6 (SPD screen) at Wave 1 or Wave 2 ($n = 4949$).

The first objective addressed UMHCN prevalence by demographic variables, social support, mental health status, 9–11 WTC disaster exposure, and mental health service using logistic regression to estimate adjusted odds ratios and 95% confidence intervals for the association of these characteristics with UMHCN.

The second objective involved multinomial logistic regression using mental health status categories (D+S+, D–S+, D+S–, D–S– [reference]) as multiple outcome levels. This technique is used when the dependent variable is categorical with more than two levels. It can simultaneously fit all levels of the dependent variable to provide estimated odds ratios. There are thus two implicit references in this type of analysis, one is a specified level of the categorical dependent variable (e.g. D–S–) and the other is the reference for the independent variable such as UMHCN relative to its reference (no UMHCN) (see Hosmer and Lemeshow, 2004).

All analyses were conducted using SAS version 9.2 (SAS Institute Inc., Cary, North Carolina).

Results

Over four percent (4.2%) of the study population reported UMHCN in the past 12 months (Table 1). The prevalence of UMHCN was higher among younger persons (e.g. 19–29 year olds 7.0% vs. 45–64 years olds 3.9%; adjusted odds ratio (AOR) = 2.3), and those with low incomes vs. high income (e.g. \$10–25,000, 8.6% vs. \$150,000, 2.2%, AOR = 1.6). UMHCN was prominently mentioned by those with 14 or more poor mental health days (16%) vs. fewer than 14 days (2.1%), AOR = 2.6, no sources of social support (13.1%) vs. 4 or more (2.9%), AOR = 1.6 and very high level of 9–11 WTC exposure (10.5%) vs. low/none (1.7%), AOR = 2.0.

Mental health status

In this analysis, we evaluated the relationship between subjective UMHCN and other factors and current mental health symptoms with and without a mental health diagnosis. Among those who had mental health symptoms at Wave 2 (28% of the total sample), 54% reported a mental health diagnosis in the period 9–11–01 to 12–31–05. Fig. 1 shows that a relatively high

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