

2003

The Impact of 9/11 and its Aftermath on Substance Use and Psychological Functioning: An Overview

Patrick B. Johnson

Linda Richter

Follow this and additional works at: <https://ir.lawnet.fordham.edu/ulj>



Part of the [Health Law and Policy Commons](#)

Recommended Citation

Patrick B. Johnson and Linda Richter, *The Impact of 9/11 and its Aftermath on Substance Use and Psychological Functioning: An Overview*, 30 Fordham Urb. L.J. 1455 (2003).

Available at: <https://ir.lawnet.fordham.edu/ulj/vol30/iss4/5>

This Article is brought to you for free and open access by FLASH: The Fordham Law Archive of Scholarship and History. It has been accepted for inclusion in Fordham Urban Law Journal by an authorized editor of FLASH: The Fordham Law Archive of Scholarship and History. For more information, please contact tmelnick@law.fordham.edu.

THE IMPACT OF 9/11 AND ITS AFTERMATH ON SUBSTANCE USE AND PSYCHOLOGICAL FUNCTIONING: AN OVERVIEW

*Patrick B. Johnson**
*and Linda Richter***

Like Pearl Harbor six decades previously, the tragic events of September 11, 2001 transformed this nation. In some respects, however, because the events occurred in the electronic age, and in the nation's capitol and its largest city, these events seemed to possess greater immediacy and possibly greater short- and long-range consequences as well. This Essay provides a brief summary and evaluation of findings on the mental health and substance abuse consequences of the events of 9/11 throughout the nation and in our cities. It also presents new data obtained from clients who entered substance abuse treatment in New York and other cities either before 9/11 or during a six-month period following the events. This Essay concludes with a discussion of how best to interpret these various research findings.

Two general types of data have been used to explore the nature and extent of the consequences of the 9/11 tragedy. The first approach utilized retrospective reports either from interviews with randomly selected respondents¹ or from interviews with respondents who either represented groups with some specialized respon-

* Ph.D., Fellow in the Division of Health and Treatment Research and Analysis at the National Center on Addiction and Substance Abuse (CASA) at Columbia University. Educated at the University of California at Los Angeles and the University of Wisconsin-Madison, Dr. Johnson is a social psychologist who has been involved in substance abuse research for over two decades. He has also been involved in the development of the Drug Evaluation Network System, a real-time treatment intake monitoring system. This system is to become the platform for the National Treatment Outcome Monitoring study to be funded by the Substance Abuse and Mental Health Services Administration.

** Ph.D., Senior Research Associate, Policy Research and Analysis Division of the National Center on Addiction and Substance Abuse (CASA) at Columbia University where her area of concentration is adolescent substance use and the pathways to addiction. She also teaches in the psychology department at Barnard College and in the Department of Organization and Leadership at Teachers College, Columbia University.

1. Mark A. Schuster et al., *A National Survey of Stress Reactions After the September 11, 2001 Terrorist Attacks*, 345 *NEW ENG. J. MED.* 1507, 1507 (2001); Linda Weiss et al., *A Vulnerable Population in a Time of Crisis: Drug Users and the Attacks on the World Trade Center*, 79 *J. URB. HEALTH* 392, 393 (2002).

sibility for addressing the consequences (for example, government officials charged with providing social services)² or who represented specific vulnerable populations (for example, drug addicts or children).³ In each instance, these reports only contained data collected post-9/11 in which respondents were asked to report on their reactions at the time of the attacks or in their aftermath.⁴

The second type of approach looked at data collection systems that had been in place before 9/11 and continued collecting information afterward.⁵ Some of this ongoing research data enabled researchers to compare the responses of the same individuals before and after the terrorist attacks.⁶ Other studies enabled researchers to compare the responses of different people before and after the terrorist attacks.⁷ The Authors' research on the characteristics of clients entering substance abuse treatment facilities pre- and post-9/11 falls into this latter category.

The results of the various retrospective studies suggest both the specific, localized effects, as well as the more widespread, national effects of the events of 9/11. For example, a telephone survey conducted by the Rand Corporation in the days immediately following the attacks found that while ninety percent of the 560 adults interviewed had one or more symptoms of stress to some degree, forty-four percent reported "one or more substantial symptoms."⁸ Included among these stress symptoms were sleeplessness, night-

2. Connie Kendig et al., *Perceived Changes in the Behaviors of Counselors and Patients Following the September 11th Attacks*, Presentation at the College for Prevention of Drug Dependence Convention (June 2002) (PowerPoint presentation on file with the *Fordham Urban Law Journal*).

3. Weiss et al., *supra* note 1, at 393.

4. Schuster et al., *supra* note 1, at 1507; Weiss et al., *supra* note 1, at 392.

5. See, e.g., Stephanie H. Factor et al., *Drug Use Frequency Among Street-Recruited Heroin and Cocaine Users in Harlem and the Bronx Before and After September 11, 2001*, 79 J. URB. HEALTH 404, 405 (2002); M.W. Perrine et al., *The Impact of September 11 on Alcohol Consumption and Selected Psychological Variable*, Presentation at the Twenty-Fifth Annual Scientific Meeting of the Research Society on Alcoholism (June 2002) (on file with the *Fordham Urban Law Journal*).

6. See Deni Carise et al., *Changes in Characteristics of Individuals Seeking Substance Abuse Treatment After the September 11th Terrorist Attacks*, Presentation at the College for Prevention of Drug Dependence Convention (June 2002) (PowerPoint presentation on file with the *Fordham Urban Law Journal*) (describing how the Drug Evaluation Network System ("DENS"), a nationwide electronic system providing clinical information on patients entering substance abuse treatment, was utilized to compare information pre- and post-9/11).

7. Patrick B. Johnson et al., *Alcohol Use Patterns Before and After September 11th*, 21 AM. CLINICAL LABORATORY 25, 25 (2002).

8. Schuster et al., *supra* note 1, at 1507.

mares, an inability to concentrate, and irritability.⁹ These researchers also reported that although the effects were widespread, “the people we surveyed who were closest to New York had the highest rate of substantial stress reactions.”¹⁰

Similarly, a telephone survey of Manhattan residents directed by researchers at the New York Academy of Medicine found increased levels of self-reported alcohol, tobacco, and marijuana use.¹¹ While the increase in marijuana use was relatively small (3.2 percent), larger increases were reported for smoking (9.7 percent), and alcohol use (28.8 percent).¹² Interestingly, symptoms of post-traumatic stress disorder were associated with increases in marijuana use and cigarette smoking, while symptoms of depression were associated with increases in the use of each of the three substances.¹³

Retrospective reports by current or former users of heroin and cocaine from a qualitative investigation designed to determine the impact of 9/11 events on this vulnerable population indicated that they also reported serious emotional turmoil, including anger, anxiety, and sadness.¹⁴ In contrast to the increases in substance use observed in the telephone survey,¹⁵ reports of lowered drug use were as commonly observed as reports of increased use among those interviewed by Dr. Weiss and her colleagues.¹⁶ This suggests that the effects of the attacks may have been more varied with regard to individual substance use behavior.

This variability is also highlighted in studies where pre- and post-9/11 retrospective data was available.¹⁷ For example, another qualitative investigation interviewed street-recruited samples of heroin and cocaine users between July and November of 2001.¹⁸ Comparisons of the data taken pre- and post-9/11 in the Bronx and Harlem revealed no differences in the average number of days per month

9. *Id.* at 1508.

10. *Id.* at 1511.

11. David Vlahov et al., *Increased Use of Cigarettes, Alcohol, and Marijuana Among Manhattan, New York, Residents After the September 11th Terrorist Attacks*, 155 J. EPIDEMIOLOGY 988, 988 (2002).

12. *Id.*

13. *Id.*

14. Weiss et al., *supra* note 1, at 392.

15. Vlahov et al., *supra* note 11, at 991.

16. Weiss et al., *supra* note 1, at 392.

17. See Factor et al., *supra* note 5, at 404 (“Recently, rates of cigarette, alcohol, and marijuana use increased among the general population of Manhattan after the events of September 11, 2001.”).

18. *Id.*

that respondents sniffed cocaine, snorted heroin, or smoked crack or marijuana.¹⁹ Similarly, no differences were observed in the proportions of daily users of drugs in the groups interviewed before and after 9/11.²⁰

Another approach to investigating the mental health and substance abuse consequences of the 9/11 terrorist attacks was to compare clients entering substance abuse treatment facilities in the six months before and the six months following these events.²¹ This investigation was based on data from the Drug Evaluation Network System (“DENS”), a real-time data collection system designed to assess substance-abusing clients at treatment admission in order to monitor national drug use trends and treatment utilization patterns.²² The system is currently operating in drug and alcohol treatment programs around the country.²³ This analysis examined data collected in New York, Chicago, Philadelphia, and Miami.²⁴

Overall comparisons of alcohol use (frequency of use and frequency of intoxication in the past thirty days) did not reveal any differences between clients entering treatment in the three months before 9/11, and those entering in the three months following 9/11.²⁵ Psychiatric symptoms were also assessed and revealed that clients who entered substance abuse treatment in the three-month period following the events of 9/11 generally reported being less anxious than those who entered before that date.²⁶ To determine whether increases in alcohol use might be found in New York City because of its proximity to the attacks, comparisons were made within each city of those entering treatment in the three months before and after the attacks.²⁷ Once again, regardless of the city involved, no differences were observed in alcohol use rates between those entering treatment prior to 9/11 and those entering afterward.²⁸

Results from the DENS study presented at the College for the Prevention of Drug Dependence meeting also failed to find significant differences in the clients’ overall drug use profiles.²⁹ Results

19. *Id.*

20. *Id.*

21. Carise et al., *supra* note 6.

22. *Id.*

23. *Id.*

24. Kendig et al., *supra* note 2.

25. Perrine et al., *supra* note 5.

26. *Id.*

27. Johnson et al., *supra* note 7, at 26.

28. *Id.* at 25.

29. Factor et al., *supra* note 5, at 407; Carise et al., *supra* note 6.

indicated, however, that among those presented for admission after 9/11, there appeared to be an increased proportion of individuals who had been drug-free for a relatively short time.³⁰ This suggests that among abstinent drug users, the attacks may have precipitated relapses among those most recently free of drugs.³¹ At the same time, overall psychiatric composite scores were lower among those clients entering treatment after 9/11 than those entering before this time.³² Finally, most counselors at substance abuse treatment facilities who were questioned about the substance use patterns of clients before and after 9/11 reported an increase in alcohol and drug use after September 11.³³ These reports occurred, of course, despite the fact that actual client intake profiles in the DENS system demonstrated little change in the drug use profiles of clients entering the treatment facilities before 9/11 and those entering after 9/11.³⁴

Research by Dr. Perrine and his associates also found no statistically significant increase in substance use after September 11, 2001.³⁵ The results of this research are particularly compelling because they are based on responses of the same individuals who reported on their own daily alcohol use as part of a two-year investigation.³⁶ In this study, 120 respondents who lived approximately 300 miles north of Ground Zero in Vermont reported each day on their mood, stress levels, and the number of alcoholic drinks consumed between May 23, 2001 and December 30, 2001.³⁷

Data collected from eighty-six respondents who drank alcohol revealed that anger, stress, and sadness ratings all increased dramatically on September 11.³⁸ At the same time, “[n]o significant elevation of alcohol consumption was observed on either September 11, or on the days following the attack.”³⁹ Results also revealed that anger ratings remained elevated for females for fourteen days and for males for forty-one days following the at-

30. Weiss et al., *supra* note 1, at 401.

31. *See id.* (noting that the evidence of relapse among former users was restricted to those who had most recently stopped using).

32. Carise et al., *supra* note 6.

33. *Id.*

34. Kendig et al., *supra* note 2.

35. Perrine et al., *supra* note 5.

36. *Id.*

37. *Id.*

38. *Id.*

39. *Id.*

tacks, while sadness ratings remained elevated for thirty-seven days for males and for sixty-three days for females.⁴⁰

In preparing this Essay, the DENS data system was used to analyze the composite drug use scores of clients entering substance abuse treatment in New York City, Chicago, and Los Angeles. These three cities were chosen for three reasons. First, they represent the three largest cities in the nation. Second, each represents a distinct geographic area of the country, the Northeast, Midwest, and West. Third, each represents a different distance from the events of 9/11. While New York City was directly and dramatically affected by the attacks, Chicago and Los Angeles, because of their distance from these events, were less directly affected.

In these analyses, the Authors compared the drug and alcohol use and psychological profiles of clients entering treatment in four, three-month time periods: March 11-June 10, 2001 ("T1"), June 11-September 10, 2001 ("T2"), September 11, 2001-December 10, 2001 ("T3"), and December 11, 2001-March 10, 2002 ("T4"). Drug and alcohol use and levels of psychological disturbance were assessed with composite scores derived from the Addiction Severity Index, the most frequently used admission assessment tool currently in use.⁴¹ Composite scores are derived from client responses to a series of individual items.⁴² Scores range from 0, indicating no problems, to 1, indicating the highest problem level.⁴³

The first analysis was a regression in which the impacts of city, time period, and their interaction were used to predict individual client drug use scores. The findings revealed a significant interaction between city and time period ($b=-.21$, $t=-4.05$, $p<.001$). To illuminate its meaning, a series of one-way analyses of variance ("ANOVAs") were conducted in which time periods were used to predict drug use scores in each city. Figure 1 presents the pattern of results by city. For New York, the analysis revealed that there was a significant increase in drug use scores between T1 and T3. For Chicago, the analysis revealed a significant reduction in composite drug use scores between T1, T2, T3, and T4. For Los Angeles, results revealed a significant reduction between T1 and T4.

40. *Id.*

41. A. Thomas McLellan et al., *An Improved Diagnostic Evaluation Instrument for Substance Abuse Patients: The Addiction Severity Index*, 168 J. NERVOUS & MENTAL DISEASE 26, 26 (1980).

42. *Id.* at 27.

43. *See id.* at 28.

Taken together, these findings suggest that while clients entering substance abuse treatment in New York City in the three-month period following 9/11 appeared with elevated drug use profiles, this was not true of clients entering in Chicago or Los Angeles. Moreover, while there was a general trend in Chicago and Los Angeles for clients entering treatment in the fourth time period, between December 10, 2001 and March 10, 2002, to possess less elevated drug composite profiles, a similar reduction was not observed among clients entering treatment in New York City.

Analyses of the alcohol use composite scores, in contrast, revealed no combined effect (interaction) of city and time period. Instead, independent effects of city and time period were observed. Results indicated that clients entering treatment in New York City possessed higher alcohol composite scores (Mean=.32) than clients entering in Chicago (Mean=.29) or Los Angeles (Mean=.24). The scores of Chicago clients were significantly higher than those of Los Angeles clients. In addition, clients entering treatment during T4 (December 11, 2001 to March 10, 2002) possessed significantly lower scores than clients entering during T2 or T3.

Analyses of psychological disturbance scores revealed no significant interaction of city together with time period, but only an impact of time period. Figure 2 provides a graph of this effect. Subsequent analysis of this effect revealed a general downward trend in psychological disturbance. The only significant difference between time periods in psychological disturbance was observed between T1 and T4.

It should be clear from the above presentation that, with respect to the impact of the 9/11 events on substance abuse and psychological functioning, the findings are far from clear and consistent. Rather it would seem that while studies generally indicate increases in psychological distress following the attacks, their impact on alcohol and drug use was more variable. Of course, it is possible that substance-abusing individuals who were extremely distressed were unable to take upon themselves the emotionally difficult task of seeking substance abuse treatment, producing a potential selection bias in the DENS sample.

Nevertheless, while the results of some studies suggested that the attacks were associated with increases in substance use and psychological disturbance, others suggested little or no impact. This does not indicate that the attacks had little impact, but rather that there were individuals who coped differently with the emotional distress caused by these events. The variability of these findings strongly

suggests that people responded in distinct and sometimes idiosyncratic ways. While it might seem self-evident, in light of cultural biases or preconceptions, that individuals would turn to alcohol and drugs to medicate their feelings of distress and discomfort, there are many possible responses. Some may have increased the frequency of their drinking or prescription drug use in the days following the events of 9/11. Others, however, may have stopped drinking, begun attending religious services more regularly, or decided to volunteer to assist others in coping with the aftermath.

Finally, the variability in the findings may also have been due, in part, to the different data collection methods employed, the different time periods during which data were collected, or the different samples from which data were collected. On the one hand, the findings of Dr. Perrine and his colleagues, which indicated no increase in alcohol use post-9/11, were part of a larger, ongoing investigation in which people responded about their alcohol use and emotional states on a daily basis.⁴⁴ His data indicated sharp increases in anger and depression, but no change in alcohol consumption.⁴⁵ On the other hand, the findings of Dr. Vlahov and Dr. Schuster and their colleagues were based on single time responses to telephone surveys conducted shortly after the attacks.⁴⁶ In these surveys, it was probably clear to many respondents that they were being questioned about the impact of 9/11 on their lives. Accordingly, some may have responded in a way that indicated that their lives had been affected and they overestimated changes in their alcohol use. It is possible that the apparent increase in drug use may reflect the respondents' attempts to validate their distress and solidarity with the victims and their families rather than a statement of fact.

The findings of Dr. Kendig and her colleagues provide some support for this position.⁴⁷ While counselors in substance abuse treatment facilities found that people who entered treatment after 9/11 were drinking and using drugs more than those who entered treatment before 9/11, the actual client profiles did not generally support this contention.⁴⁸ The counselors' perceptions were apparently not based on reality. They may have been based on

44. See Perrine et al., *supra* note 5 (conducting a two year longitudinal study of 120 subjects who live 300 or more miles north of Ground Zero on daily alcohol consumption and mood between May 23, 2001 and December 30, 2001).

45. *Id.*

46. Vlahov et al., *supra* note 11, at 988-89.

47. Kendig et al., *supra* note 2.

48. *Id.*

perceptions that were influenced by the distress they felt during this time and the general belief that people were more likely to drink and consume drugs during this period.

In any event, it is important to understand that crisis produces many responses. Even if humans are cut from the same cloth, that cloth has been tailored to suit different cultural fashions. This appears to have been true in society's responses to what is arguably the most devastating single-day crisis in the history of this nation. Some individuals collapsed momentarily, while others made courageous decisions and responded heroically. Most people just coped in their individual ways. Others, however, experience personal, but often distinctly different, short- and long-term consequences. These unique and varied responses show the individuality as well as the multiplicity of society.

FIGURE 1
DRUG USE COMPOSITE SCORE BY CITY AND TIME
PERIOD RELATIVE TO 9/11

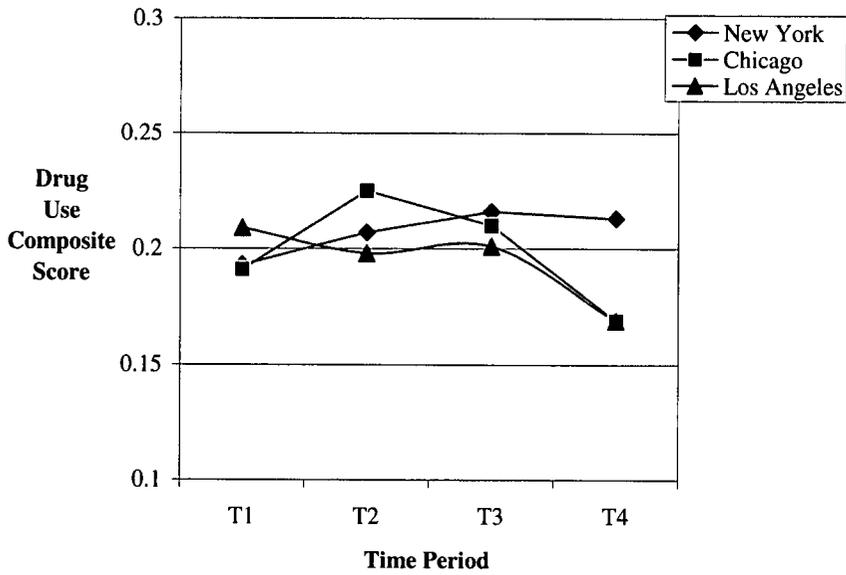


FIGURE 2
PSYCHOLOGICAL DISTURBANCE COMPOSITE SCORE BY
TIME PERIOD RELATIVE TO 9/11

