Alcohol use patterns before and after September 11th

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There is universal agreement that life has changed in the U.S. since September 11, 2001. As health professionals pay increased attention to signs and symptoms of stress, anxiety, and depression among our citizens, it is important that one of the most common concomitants of such stress-related symptoms—increased alcohol use and abuse—be monitored. This must be done to determine whether rates of alcohol use increase as individuals attempt to cope with the stress and anxiety brought on by this national tragedy.

No significant differences in alcohol use were found in any of the cities when comparing clients who entered treatment before versus after 9/11.

To determine the impact of the terrorist attacks on alcohol use rates, the present study analyzed data from the Drug Evaluation Network System (DENS) pilot project, a national substance abuse data monitoring system. Because data from the DENS project included information from patients entering substance abuse treatment in cities at varying distances from New York City and Washington, DC—the two cities most directly affected by the terror attacks—the present analyses also explored location differences in alcohol use rates among individuals entering treatment. This is important to examine because the type and extent of the effects of the attacks may vary depending on an individual's proximity to the attacks. Accordingly, the present analyses compared the alcohol use rates and levels of psychological disturbance of clients entering treatment in the three months before 9/11 and the three months following 9/11 in five different U.S. cities.

Study design

Participants included 3616 adult clients (2399 males and 1217 females) enrolled in substance abuse clinics in New York City, Philadelphia, Miami, Chicago, and Los Angeles in the three months before and the three months after September 11, 2001. At admission, an Addiction Severity Index (ASI)[1] was administered to each client. Responses to the ASI provided information on alcohol and drug use in the past 30 days and levels of psychological disturbance, including anxiety and depression. The data were then sent via modem to the Treatment Research Institute at the University of Pennsylvania (Philadelphia, PA) and entered into the DENS data file for analysis. DENS was designed to assess substance-abusing clients at treatment admission in real time in order to monitor national drug use trends and treatment utilization patterns. The system is currently operating in drug and alcohol treatment programs in New York City, San Francisco, Chicago, Philadelphia, Miami, and Los Angeles. Clients from San Francisco were not included in the present analyses because the participants were all involved in mandated drug court treatment and were not voluntarily enrolled in substance abuse treatment.

Admission data from clients entering the DENS system in the three months before the attacks were compared with data from clients entering in the three months after the attacks. Multivariate analyses used time of treatment enrollment and gender as independent variables and alcohol use, anxiety, and depressive symptoms as dependent variables. Alcohol use was measured by the number of days the client used alcohol in the past 30 days, the number of days the client used alcohol to intoxication in the past 30 days, and the ASI alcohol composite scores. For each city, a series of *t*-tests was conducted comparing pre- and post-9/11 results, controlling for the number of comparisons.

Immediate effects of the September 11th attacks on alcohol use, anxiety, and depression

Contrary to predictions, findings presented in *Table 1* reveal no significant differences in the alcohol use rates of clients entering treatment in the three months before or after 9/11. However, differences were observed in the levels of anxiety experienced in the past

Table 1
Overall comparison of pre- and post-9/11 alcohol use, depression, and anxiety

	After 9/11	Before 9/11	*p*-value
No. of days used alcohol past 30 days	6.5 ± 9.7	6.4 ± 9.7	NS*
No. of days intoxicated past 30 days	4.5± 8.6	4.8 ± 8.9	NS
ASI alcohol composite score	0.24 ± 0.31	0.25 ± 0.31	NS
Serious depression past 30 days	0.30 ± 0.46	0.28 ± 0.45	NS
Serious anxiety past 30 days	0.23 ± 0.42	0.25 ± 0.44	<0.05

*NS = not significant.

30 days pre- and post-9/11. Interestingly, clients admitted to addiction treatment after 9/11 actually reported significantly less anxiety than those entering before 9/11 (0.23 versus 0.25 in the ASI composite score, $p < 0.05$, respectively). Overall, females in this sample reported more elevated symptoms of depression (0.39 versus 0.24, $p < 0.01$) and anxiety (0.29 versus 0.21, $p < 0.1$) than males. However, while males entering treatment reported more depression after 9/11, females entering treatment reported more depression before 9/11.[2]

Pre- and post-9/11 comparisons by city revealed that clients who entered treatment in New York City during the three months after the attacks actually reported less anxiety in the past three months than clients in New York City who entered in the three months before the attacks (mean = 0.26 pre-9/11 and mean = 0.16 post-9/11, $t = 3.44$, $p < 0.01$). Clients in Chicago who entered treatment after the attacks reported less depression than those who entered before the attacks (mean = 0.17 pre=9/11 and mean = 0.14 post-9/11, $t = 2.09$, $p < 0.05$). In contrast, clients in Los Angeles who entered treatment after 9/11 reported more depression than clients who entered in the three months before the event (mean = 0.22 pre-9/11 and mean = 0.37 post-9/11, $t = 2.86$, $p < 0.01$). No significant differences in psychological disturbance between pre- and post-9/11 clients were found in Philadelphia or Miami. No significant differences in alcohol use were found in any of the cities when comparing clients who entered treatment before versus after 9/11.[3]

Conclusion

Contrary to predictions, the overall pattern of results suggests that the September 11th attacks did not have an immediate effect on the alcohol use patterns of clients entering substance abuse treatment in a number of large cities in the U.S. This finding is in line with recently reported results.[4] Furthermore, in some cities, including New York City, clients entering treatment in the period after the attacks reported lower levels of psychological disturbance compared to those entering before the attacks.

It is important to remember, however, that these results cannot inform the possible effects of the 9/11 tragedy on the alcohol use and psychological disturbance patterns of the general population. In fact, results recently reported in a study conducted at the New York Academy of Medicine (New York, NY) found a sharp increase in alcohol use and psychological distress in New York City residents in the weeks following 9/11.[5] In contrast to these findings, the present study indicates an overall decline in levels of psychological disturbance among clients entering treatment in New York City and Chicago after the attacks. It is possible that potential clients who were experiencing higher levels of anxiety or depression after 9/11 were unable or unwilling to involve themselves in substance abuse treatment immediately following the attacks.

The city-specific findings did not support predictions regarding the effects of 9/11 on clients living in a city proximal versus distal to Ground Zero. According to the DENS data, the attacks did not have a greater or more immediate effect on the alcohol use patterns or levels of psychological disturbance of clients entering treatment in cities more proximal to the attacks, such as New York City and Philadelphia. The lower anxiety in clients from New York City and the lower depression in clients from Chicago may indicate that only those clients with relatively less psychological disturbance were able to bring themselves to enter treatment in the period immediately following the attacks. However, this was not the case among clients in Los Angeles who appeared to be somewhat more depressed after the attacks. It is also possible that potential clients in the cities proximal to the attacks interpreted their increased anxiety, depression, or alcohol use as normal, given the stress of the situation, and did not interpret their feelings or behaviors as being "abnormal" enough to warrant treatment.

As the DENS system continues to expand and becomes nationally representative, it should supply researchers and policy makers with essential information regarding patterns of use and abuse in the general population before and after significantly stressful events such as the tragedy of September 11th.

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