THE HEALTH AND SOCIAL CONSEQUENCES OF METHAMPHETAMINE USE AMONG YOUNG ADULTS

Ira Sommers, California State University, Los Angeles
Deborah Baskin, California State University, Los Angeles

ABSTRACT

The current research analyzed the relationship between methamphetamine use and health and social outcomes. Interviews were conducted with a sample of 106 respondents. Virtually all of the respondents experienced negative consequences of methamphetamine use. The most serious, but least prevalent, methamphetamine-related health problems were seizures and convulsions. The most prevalent health effect was weight loss. A substantial number of respondents experienced severe psychological symptoms: depression, hallucinations, and paranoia. Of the 106 respondents, 34.9 percent had committed violence while under the influence of methamphetamine. The data suggest that methamphetamine-based violence was more likely to occur within private domestic contexts, both family and acquaintance relationships.

It is apparent from the findings that methamphetamine use heightens the risk for negative health, psychological, and social outcomes. Having said this, it is crucial to acknowledge that there was no evidence of a single, uniform career path that all chronic methamphetamine users follow. Furthermore, a significant number of sample members experienced limited or no serious social, psychological, or physical dysfunction as a result of their methamphetamine use.

The use of a variety of drugs by adolescents and young adults continues to be an important public health problem. Drug use may have important implications for the future health and well-being of many adolescents and young adults as they negotiate the transition to adulthood. Adolescents and young adults who use drugs may have especially high risks of developing mental or physical problems that interfere with educational and occupational pursuits, and which undermine long-term life chances.

Although the use of certain types of drugs has decreased recently (National Institute on Drug Abuse [NIDA] & University of Michigan 2005), there is evidence that methamphetamine use is becoming more prevalent. According to the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration [SAMSHA] 2005), 4.9 percent (over 12 million people) of the U.S. population reported trying methamphetamine at least once in their lifetime. The highest rate of methamphetamine use was among the 26 to 34 age group, with 6.7 percent reporting lifetime methamphetamine use during 2002. The second highest group was young adults (18-25), with 5.7 percent reporting lifetime methamphetamine use during 2002. According to the 2004 Monitoring the Future Study (NIDA & Univeristy of Michigan 2005), 6.7 percent of high school seniors reported using methamphetamine within their lifetime. Lifetime use among 8th and 10th graders was 3.5 percent and 6.1 percent, respectively. Also during 2004, 6.2 percent of high school seniors reported using methamphetamine within their lifetime. During 2002, 11.9 percent of college students and 14.8 percent of young adults (ages 19-28) reported using methamphetamine at least once during their lifetimes.

Despite these reports indicating a greater availability and consumption of methamphetamine, little is known about the association of its use and health over time, particularly during the formative stages of adolescence and young adulthood. The present research examined the inter-relationships among methamphetamine use, physical symptoms, and psychological and social well-being in a community sample of young adults living in Los Angeles.

POTENTIAL CONSEQUENCES OF METHAMPHETAMINE USE

Methamphetamine is a powerfully addictive stimulant that dramatically affects the central nervous system. The drug is made easily in clandestine laboratories with relatively inexpensive over-the-counter ingredients. These factors combine to make methamphetamine a drug with high potential for widespread abuse. The effects of methamphetamine use can include addiction, psychotic behavior, and brain damage. Methamphetamine is highly addictive and users trying to abstain from use may suffer withdrawal symptoms that include depression, anxiety, fatigue, paranoia, aggression, and intense

cravings for the drug (Katsumata, Sato, & Kashiwade 1993). Chronic methamphetamine use can cause violent behavior, anxiety, confusion, and insomnia. Users can also exhibit psychotic behavior including auditory hallucinations, mood disturbances, delusions, and paranoia, possibly resulting in homicidal or suicidal thoughts (Albertson, Walby, & Derlet 1995).

According to the Drug Abuse Warning Network (DAWN) 2002 mortality data, areas with the highest number of methamphetamine mentions in drug-related deaths were those in the Midwest and Western areas. Methamphetamine emergency department (ED) mentions have fluctuated since 1995, when there were 15,933 mentions. Methamphetamine ED mentions declined to 10,447 during 1999. This number has since increased to 17,696 in 2002.

Methamphetamine users in treatment have reported physical symptoms associated with the use of methamphetamine including weight loss, tachycardia (abnormal rapidity of heart action), tachypnea (abnormal rapidity of respiration), hyperthermia (unusually high fever), insomnia, and muscular tremors. The behavioral and psychiatric symptoms reported most often include violent behavior, repetitive activity, memory loss, paranoia, delusions of reference, auditory hallucinations, and confusion or fright. Empirical studies, however, concerning the health and social consequences of methamphetamine use are sparse.

One significant finding common to the few ethnographic studies on methamphetamine use is its relationship to violent behavior. Morgan's (1997) study of methamphetamine use in San Francisco, Honolulu and San Diego indicates a significant relationship between methamphetamine use and violence for both males and females. For example, 53 percent and 44 percent of males and females, respectively, in the Honolulu sample reported engaging in violent acts due to methamphetamine use. Furthermore, a majority of respondents across all sites reported experiencing major psychological problems. Overall, 58 percent of the males and 52 percent of the females reported paranoia due to their methamphetamine use.

Similarly, an ethnographic study in Arizona (Castro 1997) suggests that methamphetamine users burn out even faster and often develop higher levels of paranoia than they experience with cocaine. Recently Perdue and colleagues (2003) studied the associations between being high on methamphetamine and engaging in risky sexual practices. Their findings indicate that individuals high on methamphetamine were significantly more likely to have unprotected sex and to have multiple sex partners than their counterparts not high on methamphetamine.

RESEARCH METHODS

The current research analyzed the health and social consequences of methamphetamine use among a sample of young adults. Interviews were conducted with a targeted sample of 106 respondents. This section outlines sampling and data collection procedures, as well as measures of variables used in the analysis.

The Sample

Location and Recruitment Methods

The research was based primarily on in depth, life-history interviews with 106 individuals who used methamphetamine for a minimum of three months and who resided in Los Angeles County. The respondents were recruited from two social settings: 1) methamphetamine users participating in ADAPT, a drug treatment program for methamphetamine users and 2) methamphetamine users at liberty in the community and having little or no contact with treatment or criminal justice institutions.

The data collection process began with the recruitment of a sample of methamphetamine users from a drug treatment program. Arrangements for respondent recruitment were made with the ADAPT program, a drug treatment program for methamphetamine users in Los Angeles County. Meetings were held between the senior research staff and the treatment program Director and program participants. The research study was explained in detail and contact letters were left with the program participants. Potential respondents were instructed to call for appointments, at which time they were screened for eligibility (i.e., used methamphetamine for at least 3 months, age 18-26) and arrangements were made for the interview. Once the initial pool of respondents were identified, they were asked to nominate or refer "someone like them" who also has been involved in methamphetamine use. Thus, the initial sample was comprised of treatment pro-

Table 1: Sample Characteristics (N=106)

Sex (%)		
Male	59.40	
Female	40.60	
Age (mean)	21.58	
(median)	22.00	
Race (%)		
white	30.20	
black	7.50	
hispanic	62.30	
Education (mean years completed)	11.88	
School dropout (%)	17.00	
Marital status at interview (%)		
married/living together	26.40	
never married	69.80	
other	3.80	
Children		
have children (%)	34.00	
number (mean)	2.10	
Employment history (%)		
never worked	17.00	
sales/cashier/foodworker	24.50	
clerical	9.40	
non-skilled	21.70	
skilled	10.40	
semi professional/professional	17.00	
Problems while in school	Prevalence (%)	Age at initiation (mean)
fighting	72.60	11.64
weapons possession	27.40	13.34
alcohol use	45.30	13.69
drug use	78.40	13.86
Intact Family (%)	82.10	
Family problems (%)		
someone arrested	48.10	
substance abuse	53.70	
family mental health	11.30	
famiy violence while using drugs/alcohol	26.40	

gram participants and "chain referrals" from these treatment respondents.

A broader community sample was recruited through advertising in local university (California State University, Los Angeles, University of Southern California) newspapers. This tactic helped expand our sample to unknown members of the population who have no contact with formal treatment or criminal justice institutions. Chain referral or "snowball" sampling techniques also was used with this sample.

The sample contains 55 respondents (51.9%) in drug treatment and 51 (48.1%) active community methamphetamine users. The majority of respondents were male (59.4%), Hispanic (62.3%), high school graduates (83.0%), in their twenties (86.2%), possessing, on average, 25 months of work experience (see Table 1). The youngest respondent was 18 years old and the oldest 25; the median age was 22 years.

Most of the respondents worked in a legitimate job (83%). Approximately three in five respondents (66%) worked in unskilled and semi-skilled occupations (e.g., clerical, sales and factory jobs). However, approximately 20% of the sample worked in semi-professional and professional jobs (e.g., counselor, teacher, accountant).

Table 2 shows self-reported lifetime prevalence of drug use, drug selling, and nonviolent and violent crimes. Respondents reported that they were engaged in a wide range of criminal and deviant activities. Nearly all said they were experienced drug users.

Table 2: Crime, Drug Use and Drug Selling History (N=106)

	Prevalence (%)	Age at Initiation
Non-Violent Crimes		
Auto theft	42.5	14.36
Shoplifting	68.9	12.62
Forgery	8.5	19.67
Prostitution	0.9	19.00
Burglary	13.2	15.79
Violent Crimes		
Assault	36.7	15.71
Robbery	16.0	15.59
Weapons possession	54.3	15.34
Attempted murder	16.0	16.18
Murder	6.6	15.86
Drug Used		
Alcohol	100.0	13.59
Marijuana	96.2	13.95
Inhalants	28.3	14.87
Hallucinogens	55.2	15.74
PCP	29.3	15.77
Methamphetamine	100.0	16.80
Depressants	17.9	16.05
Cocaine	76.2	16.92
Crack	50.9	16.95
Heroin	2.8	20.00
Drug Sold		
Methamphetamine	60.9	
Cocaine	16.9	
Crack	14.6	
Marijuana	32.0	

This is not surprising since the criterion for inclusion in this study was methamphetamine use. Seventy-six percent used cocaine, 51 percent used crack, 5 percent used hallucinogens, and 96 percent used marijuana. Of the 106 people interviewed, 67.9 percent (N=72) had committed at least one violent crime. Sixteen percent reported involvement in robbery, 16 percent reported involvement in attempted murder, 6 percent in murder, 37 percent had committed assault, and 54 percent had carried weapons. However, only twenty-three percent (N=24) of the sample were ever arrested for a violent crime. Eighty-three percent (N=88) of the respondents were involved in nonviolent crime.

Table 2 also shows lifetime participation rates in drug selling by drug type. Sixty-one percent had sold methamphetamine. Thirty-two percent of the respondents had sold marijuana and 15 percent and 17 percent sold crack and cocaine, respectively. The mean age of initiation into dealing was before 17 years of age.

Interview Protocol

The primary goal of this research was to capture thick descriptions of the relationship between methamphetamine use, health, and high-risk behaviors. Depth interviewing was used to record information about specific events and allowed respondents to reflect on those events. Structured, but open-ended interview guides were used. The open-ended technique created a context in which respondents were able to speak freely and in their own words. Furthermore, it facilitated the pursuit of issues that were raised by the respondents during the interview but are not recognized beforehand by the researchers.

The interviews included items on personal demographics, family background, detailed life history information about prior involvement in drug use, questions about lifestyle, health and psychological problems, and items on violence toward others. Participants who reported health, psychological, and social problems were asked to provide a description of the problem event/act (the

Table 3: Characteristics of Methamphetamine Use

	N	Percent
Frequency of Use		
Weekends	20	18.9
3-6 days/week	13	12.2
Daily	73	68.9
Weekly Cost		
Range	$0-800	
Mean	$136	
Median	$60	
Prmiary Method of Use		
Snort	82	77.4
Smoke	20	18.9
Inject	4	3.7
Binge		
Never	3	2.8
2-5 days	78	73.5
6-10 days	25	23.7
range	2-21 days	
mean	4.18 days	
median	3.00 days	

most recent one for multiple episodes) and its consequences. A narrative account of how these drugs and drug states were related to the event also were obtained.

Sample members were asked if they had experienced any of 13 drug-related problems while using methamphetamine. The 13 problems covered a wide range of intrapsychic, personal and interpersonal difficulties. Factor analysis with varimax rotation and a Kaiser criterion was used to create indices of drug problems. For example, intrapsychic problems related to methamphetamine use included depression, paranoia, hallucinations, anxiety/irritability, and sleeplessness. A second factor involved difficulties in social functioning and in fulfilling role obligations, including trouble at school, trouble at work, family problems, and financial problems.

In addition, respondents were asked to describe the relationship, if any, between the problems and methamphetamine use, including amounts of specific substances ingested prior to the time of the incident by the respondent, the state of intoxication or other drug states (e.g., 'crashing') manifested by the respondent prior to the reported behavior.

Interview Procedures

Interviews were conducted in a neutral location such as a library, park, or a private office in a university. In order to convey the neutrality and anonymity of the study, we avoided offices of either criminal justice agencies or clinical settings. The participants were given a travel allowance ($5), regardless of the length or duration of their trip. A stipend of $25 for the interview was paid at the conclusion of the interview, although it was not contingent on completion of the interview.

Getting Into Methamphetamine

Although no one process of initiation was uniformly experienced by all our sample members, some themes were common to most accounts. First, the vast majority of the respondents were seasoned drug users, first alcohol and marijuana and later cocaine. "Getting high" was part of their life experiences, so it was not a giant step for them to indulge their curiosity about a new high. Second, a high percentage of individuals sought out methamphetamine on their own the first time. Although initiation was often self-motivated, it nearly always was part of some social situation with friends and/or acquaintances. It was a rare case in which one's first use of methamphetamine was occasioned by a stranger. Typically, methamphetamine was first tried at the respondent's or friend's house; a safe, private, comfortable location.

An overwhelming number of respondents increased their use of methamphetamine within days of their initial experience. This pattern of rapid escalation not only can be attributed to the physical and psychological effects of the drug but also with the general availability of methamphetamine.

A key factor often cited as contributing to escalating use was the seductive nature of the drug itself. The word often used to describe methamphetamine by the respondents was "seductive." Most stated that methamphetamine effects offered not only increased energy, but a sense of well-being and a feeling of mastery and power that was so reinforcing it often led them to use more frequently than they expected. Casual weekend use often led to greater use during the week. Even those who initially limited their use to specific situations—parties, sexual activities, work—gradually found themselves using methamphetamine in a variety of activities. People who went on periodic binges sometimes found their binges stretching over longer periods at higher dosages. All

this helps to explain why many users escalated their use over time. It is important to note, however, that such escalation was not inevitable; approximately 20 percent of the respondents maintained stable use patterns over many years without increasing doses (Table 3).

The binge is the continuation of the methamphetamine high. The user maintains the high by using more methamphetamine. After each use of the drug, a smaller euphoric rush than the initial rush is experienced until, finally, there is no rush and no high. During the binge, the user becomes hyperactive both mentally and physically. Matt, a 25 year old construction worker described a typical binge episode:

> I would go on meth spree for about a week and couldn't control my usage. It was like I had to constantly have to be snorting or smoking the meth. In my mind it tells me to do some more to function a lot better and faster. I believe that meth is one of the most psychologically addictive drugs around. Whenever I get tired or wish I had more energy, I always think how nice it would be to have some speed. In that respect, I am addicted, because it is definitely a part of my thought pattern. Meth is very seductive. It makes you feel energized and powerful. Once you take it a few times, you will continue to think about it after you stop.

Many users emphasized its energizing effects, some its euphoria, and others its sexual effects. Unlike alcohol, marijuana, and hallucinogens, methamphetamine did not diminish a person's basic competence in daily life-functions unless and until it was used in excess. The sample members spoke of methamphetamine as a general pick-me-up in a variety of circumstances: cleaning one's house, studying, keeping up with the kids, enhancing a marijuana high, etc. The repsondents reported at least seven uses for methamphetamine.

-To party in varying public and private settings
-To enhance sex
-To work
-To diet
-To get high
-To sustain themselves for laborious tasks, such as studying, writing, child care, long car trips
-To socialize with friends

Many of the sample members felt energized by methamphetamine and reported a heightened sense of accomplishment while using the drug. Joe, a 25 year old mechanic:

> Methamphetamine kept me awake for a long time. It allowed me to do things when I didn't want to. Like other drugs would relax me, give me a weird feeling, make me lazy or sleep a lot. Meth gave me a feeling like my body was constantly charged no matter what I did for a long period of time.

Val, a 30 year old employment agency supervisor:

> Methamphetamine made me fell like I was finally capable of doing a lot of things all in one day. Especially since I have to deal with a lot of people and paperwork.

Terri, a 31 year old child care supervisor:

> It keeps me going. Lets me feel like I'm always energized. It allows me to finish all my chores after coming home from work and able to play with my kids at all times.

For Jill, a 20 year old sales clerk, methamphetamine use was simply a method to loose weight. Within three months, she was using $100 a day.

> Meth made me loose my appetite. I felt I could quit as soon as I got down to the weight that I was satisfied with. But then I couldn't stop. I had to have it daily.

Still for others, methamphetamine use was a way to achieve a satisfying high. Martha, a 23 year old office worker:

> At first, I liked the way methamphetamine tasted with marijuana. Then I began smoking meth by itself, with my boyfriend and I liked the way it got me energized daily. I liked the way it energized during sex. Also, I was able to do plenty of errands.

Bob, a 29 year old architect:

> I smoke cocaine but I stopped liking it. So I went to meth in order to get a good high. I

Table 4: Methamphetamine-Related Problems (N=106)

Health Problems	**Percent**
Seizures/convulsions	3.8
Dehydration	8.5
Sleep	93.4
Weight	55.7
Depression	36.8
Paranoia	62.3
Hallucinations	37.7
Irritability	79.3
Social Problems	
Family	49.1
School	15.1
Work	7.6
Financial	23.6
Psychological Problem Index (Sleep, depression, paranoia, hallucinations, irritability)	
# of Problems	
1	11.8
2	19.4
3	23.7
4	24.7
5	20.4
Social Problem Index (Family, school, work, financial)	
# of Problems	
0	19.4
1	31.2
2	35.5
3	9.7
4	4.3

> liked it because a small amount would get me high. What caught me about meth is the feeling of invulnerability. I got from meth what most cocaine users get from coke. The feeling of being on top of the world.

Consequences of Methamphetamine Use

Perhaps the most important theme in their description of the methamphetamine high was the "intensity" of the euphoria. The positive characteristics of methamphetamine use —the euphoria, energy, empowerment—, however, were often overshadowed by the negative effects of long-term use. Sample members were asked to report on side effects during their heaviest period of methamphetamine use. Respondents varied in their length of use (the average length of use was 3.8 years). Ninety-seven percent of the sample reported that they engaged in binge behavior. Approximately four days was the average reported binge duration. In light of this level of use, it is not surprising that the respondents reported a wide range of side effects from methamphetamine use. Their experiences are summarized in Table 4.

Virtually all the repsondents experienced negative consequences of methamphetamine use. The most serious, but least prevalent, methamphetamine-related health problem was seizures and convulsions. Four respondents reported that they had suffered from some form of convulsion or seizure as a consequence of methamphetamine use. Nine respondents reported fairly serious episodes of dehydration. The most prevalent health effect was weight loss. Fifty-six percent of the respondents reported weight loss.

With long-term use the psychological effects of methamphetamine can be severe. Psychological symptoms specific to methamphetamine can include suspicion, anxiety and hallucinations. Much more acute symptoms can be changes in lifestyle and eventually in personality. Insomnia was the most frequent mental health problem reported by the sample members. This finding is not surprising since methamphetamine is a central nervous system stimulant that is valued precisely for its energizing effects. Irritability was reported by 70 percent of the sample. Irritability was described as feeling "moody," having a "short fuse," and being argumentative.

A substantial number of respondents experienced severe psychological symptoms: depression, hallucinations, and paranoia. The most frequently mentioned form of paranoia was fear of others; feeling that people wished harm to or threatened the respondent. This type of psychotic symptom has particular relevance to violent behavior. Previous research suggests that when a person fears personal harm or feels threatened by others, interpersonal violence becomes more likely (Link & Stueve 1998). In addition, violence is more likely when internal controls that might otherwise block the expression of violence break down.

Approximately 38 percent of the respondents reported experiencing some form of hallucination. Hallucinations usually took the form of hearing voices familiar to the respondent that make insulting remarks or command the respondent to do certain things. Depressed users often had hallucinations with themes of guilt and personal

Table 5: Mean Scores of Males and Females on Frequency of Methamphetamine Use and Drug Problem Indices

	Psychological Problem Index		Social Problem Index	
Frequency of Use	**Male**	**Female**	**Male**	**Female**
Weekends	2.00	2.50	0.93	0.00
3-6 days / week	2.96	3.80	1.00	1.00
Daily	3.29	3.90	1.91	1.52

inadequacy, such a hearing voices berating them for their shortcomings.

Despite the high level of addiction among sample members, the social effects of methamphetamine use were surprising small. Nineteen percent of the sample reported no social effects and approximately 31 percent reported experiencing only one social problem related to methamphetamine use. Methamphetamine use seemed to have the least impact on school, work and finances. Methamphetamine-related problems with spouses, lovers, or friends were more apparent. One in two respondents reported that methamphetamine use had negative effects on their interpersonal relationships.

Overall, the sample members that reported the greatest number of psychological and social problems are the respondents that reported the greatest methamphetamine use (see Table 5). Regardless of sex, the mean scores for psychological and social problems increase as the level of methamphetamine use increases.

While the psychological effects of methamphetamine use are quite similar to those of crack cocaine, the social consequences seem to be quite different. Regardless of how crack use was initiated, the vast majority of crack users ended up in the same role—as street addicts. The crack user became increasingly immersed in their addiction at the exclusion of almost all else. Economic problems and the culture of addiction justified the use of virtually any means to get money in order to support crack habits. For many, the problem of maintaining an addiction took precedence over all other interests and over participation in other social worlds. Crack users often became enmeshed in deviance and further alienated, both socially and psychologically, from conventional life.

Prevalence of Methamphetamine-related Violence

Of the 106 respondents, 37 (34.9%) had committed violence while under the influence of methamphetamine. Males comprised two-thirds of the 37 respondents (N=24). Of the total sample, 38 percent of males and 30 percent of females committed methamphetamine-related violence, respectively. Seventeen of the 37 respondents who committed methamphetamine-related violence (45.9%) reported that they had never committed a violent crime prior to the methamphetamine-based events. However, 12 (70.5%) of these respondents had committed aggressive acts while under the influence of other drugs. Overall, the 37 respondents reported 54 separate violent events while using methamphetamine. Of these 54 events, 33 (61.1%) acts of violence involved domestic relationships, 9 (16.7%) of the violent events were drug related, 7 (13%) were gang related, and 5 (9.3%) involved random acts of violence (e.g., road rage, stranger assault).

It has been suggested that in contrast to crack, methamphetamine produces a longer lasting high. As a result, methamphetamine users are able to remain away from the market environment longer as they are not constantly "chasing the pipe". Consequently, methamphetamine users are more likely to return to work, school, or home settings while high. Thus, in contrast to their crack using counterparts, they are less likely to be entrenched in street networks yet more likely to engage in violent behavior at home, in the workplace, or within other more mainstream social settings. Study data suggest that methamphetamine-based violence may indeed be more likely to occur within private domestic contexts, both family and acquaintance relationships. Thirty-eight (70.4%) of the 54 violent events occurred in private homes, seven (14.3%) at parties, one (1.9%) at work, and eight (14,8%) in public settings (e.g., parks, street, roadways).

The Social Context of Methamphetamine-Related Violence

Methamphetamine affects were evident in decision making, cognition, intensified emo-

tional states, exaggerated affect, and diminished capacity for self-regulation. For example, respondents indicated that language when intoxicated was more provocative, and language often "amped up" otherwise minor disputes into violent encounters.

Phillip, a 30 year old restaurant worker, used methamphetamine for two years.

> I was tired and exhausted from working, so I went out with a few co-workers for some drinks. I did a few lines of meth and had a few beers. I got home late. I got undressed and my wife asked me where I was and don't you know how to call. I told her to shut up and I will do as I please. We began arguing back and forth and she called me a drunk and druggie. I lost control. I slapped her and kicked her in the stomach. I threw her down, then I left the room.

Methamphetamine use often increased the stakes in everyday interactions, transforming them from non-challenging verbal interactions into the types of "character contests" whose resolution often involved violence. Methamphetamine exaggerated the sense of outrage over perceived transgressions of personal codes (respect, space, verbal challenges), resulting in violence to exert social control or retribution.

In the following account, the social identity of Larry, a 21 year old real estate assistant, was challenged by his girlfriend.

> Me and my girlfriend were coming home from the doctor's from getting her pregnancy test. We were talking about how she was pregnant and how she needed to stay focused in school and with her health. Then she said and "your ass better be able to be a responsible father and keep your ass out of trouble." I simply slapped her in her face. I couldn't deal with the insult.

Some people simply made bad decisions while high, leading to fights that might have been avoided in other circumstances. Martha, a 23 year old student:

> I was inside my room, getting ready to take a shower. I was making plans for the evening, when my sister said that "I couldn't leave. Mom said you can't go anywhere." My mom walked in and said "where do you think you're going?" I said out with some friends. My mom said "you're not going out until you run some errands for me. You haven't done anything, so you will do this for me." I just snapped and called my mom a fuckin' asshole and pushed her into my dresser. I never did anything like this before. I hadn't slept for a couple of days, doing meth continuously.

A fairly common effect of methamphetamine was paranoia. Paranoia contributed to hostile attributions that created an air of danger and threat, leading to defensive or pre-emptive violence. Veronica, a 20 year old receptionist, high on three lines of methamphetamine and three beers was relaxing outside her house:

> I was relaxing at home when a girl passed by. I thought she gave me a dirty look. She continued looking at me as she passed by. I can't stand it when individuals give me dirty looks when I don't know them. I shouted what are you looking at you dumb bitch and socked her in her face. I pushed her around and she went running away.

Similarly, Bernard, a 28 year old lab technician, imagined that people were evil.

> I was on vacation in Rosarito, Mexico. I began doing meth on Friday night and now it was Sunday afternoon. I also drank a few beers. I was paranoid the whole day. I thought others were up to something. I was watching everybody, thinking and looking to see if anyone was doing something bad. I had evil thoughts. I was thinking evil and thought others were doing something wrong. So I got bottles and started breaking them over people's heads.

Several sample members reported that their decision making within violent events was comprised. Perhaps the most common language respondents used to describe their behavior was "loss of control." The respondents spoke in terms of "being out of control," "blowing up," or having an "outburst of rage." Alicia, a 24 year old clerical assistant, used methamphetamine for four years. She described a minor dispute with her boyfriend that erupted into violence. Both had snorted methamphetamine for two hours.

> Me and boyfriend were having some finan-

> cial problems and we were discussing the money I spent. We were talking about the money that I spent on clothes on a weekly basis. My boyfriend said it was unnecessary. I yelled at him and he got upset and pushed me. Then I punched him and he hit me and threw me to the ground. We continued to fight for a few minutes.

While cognitive impairment was evident for many, others noted that their decisions to use violence reflected the normative process of gang conflicts. Gangs provide a social context in which the potential for violence results from any number of concerns including: territorial battles, initiation and detachment rituals, attaining status and social identity, material gain, expressions of grievances, retribution, reinforcement of collective identity, etc.

For Javier, a 26 year old mechanic, drug use and violence was part of the normative gang process:

> Me and my homeboys were kicking back at a park doing some methamphetamine, smoking weed, and drinking beer. We were all shit-faced and bullshiting. And then we decided to go on a drive-by that night. We were talking about a homeboy that had just recently passed away and how we should go and get those guys back. We went to our houses, got our weapons and cars, then met up at the park. We had about three to four full car loads... We shot at about 10 guys and hit a couple.

In this case, aggression was perceived as a form of retaliation for a previous wrongdoing. By retaliating, the gang members "saved face" were able to nullify the image of being weak and ineffectual.

The relationship between drug use and violence has been observed in literally hundreds of empirical studies. People who use and sell drugs are more likely to engage in violence than non-drug involved individuals. Accordingly, although individuals generally have low base rates of violence (Sommers & Baskin 1992), their entry into drug use or selling increases the risks of violence.

In some cases, interpersonal violence occurred within the system of drug use. Frank, a 25 year old cook, talked about one incident:

> I was relaxing at my house with a few friends. We were drinking some beer and doing a few lines of meth. I was chopping up some lines for me and my friends. We were just getting ready to do the lines when my friend noticed that mine was the biggest of all. He got upset because they got little lines and I got a fatter one. He said that it wasn't fair. We argued and then started punching and fighting. Things got out of control.

Joey, a 12th grade student, described a similar conflict over methamphetamine use.

> It was during lunch at school. I was relaxing with my girlfriend and friends at the table. We were talking and I wanted to do some more meth. I was asking my friend to kick me down with a little bit of his stuff and I would get him back when I got my sack. My friend refused to give me any. I got upset and began to lose my patience. I told him he should give me some. He said, "no and what are you going to do if I don't." I said, "I will kick your ass." He said, "well then come on." So I punched him first and we began fighting.

Finally, in only two cases, violence was used as means to obtain money for methamphetamine. Mario, a 25 year old sales clerk, described such an incident:

> I was on my way to a friends house, walking down the street, when I noticed some guy that looked like he had money. I was thinking about how I could but more meth. So I decided to steal this guy's wallet. I put a gun to his to face and told him to give me everything or else I would shoot him.

Allen, a 26 year old furniture mover, had similar motivations:

> I was coming down from meth and had no money. Had no sleep, no meth, I needed more. So I went to a local drug spot with two friends. I pretended I was going to buy some meth. After discussing the price, the dealer gave me the drugs and then I pulled out my 9mm. I hit him with it in the face and jumped in my friends car.

The above accounts indicate that methamphetamine use provided several mecha-

nisms for motivating violence. Cognitive effects included: inhibition of cues that normally control behavior, increased arousability, interference with communication and interpersonal interactions, and intensification of emotions. The findings suggest that a methamphetamine-related violent event results from the interaction of the individual, the substance, and the situation.

In the present study, methamphetamine was more often present in violent events that occurred in peoples' homes and between known individuals. Similar to previous research on assaultive behavior, the picture that emerges from these analyses is not one of blind irrational behavior. Rather, the rational character of these events is evidenced in a person's image maintenance in the face of challenge. It is clear from the accounts that interactions between victim and offender played a fundamental role in violent incidents. To a large extent, these sample members were not roaming willy-nilly through the streets engaging in "unprovoked" violence.

CONCLUSIONS

Study findings suggest that methamphetamine use has serious negative consequences for health and psychological functioning. It is also apparent from our findings that methamphetamine use heightens the risk for violence. Everyone we interviewed agreed that methamphetamine has clear abuse and violence potential. Almost all of our respondents knew people who had gone "too far" with methamphetamine even if they themselves had not. Having said this, it is crucial to reiterate that we could find no evidence of a single, uniform career path that all chronic methamphetamine users follow. Progression from controlled use to addiction is not inexorable. Furthermore, a significant number of sample members experienced limited or no serious social, psychological, or physical dysfunction as a result of their methamphetamine use. Most germane to this study, we found that violence is not an inevitable outcome of even chronic methamphetamine use.

Our findings suggest clearly that pharmacology is not destiny. As Fagan (1993) and Zinberg (1984) have shown, the interaction between the pharmacological properties of a substance and the physiological characteristics of a user accounts for only part of a drug's effects. Drug effects and outcomes are mediated by users' norms, values, practices, and circumstances. No matter how seductive methamphetamine is, it is always used in social contexts that shape how it is used and what its effects are taken to mean by users.

The variation in intoxicated behaviors within social contexts suggests that the context itself exerts a powerful influence on the violence outcomes of methamphetamine situations. This study has shown that the importance of social context for methamphetamine-related violence lies in the mediating processes that shape behaviors as well as in the specific interactions leading to violence between offenders and victims. Violent behavior resulted from a complex interaction among a variety of social, personality, environmental, and clinical factors whose relative importance varied across situations and time.

Furthermore, research on intoxication often has overlooked the distinction between acute and chronic intoxication and their differential effects on affective or personality states. The most significant pharmacologic determinants of the methamphetamine-violence link are the dose and the chronicity of exposure to the drug. At acute low doses, methamphetamine produced cognitive and mood alterations but tended not to increase offensive-aggressive behavior. With increasing dose and long-term use, methamphetamine users tended to display psychological and physical deterioration, as well as changes in their social behavior. Correspondingly, chronic use tended to reduce impulse control and produce exaggerated defensive postures that deviated from a respondent's expected behavioral repertoire. It is important to note that sample members also reported that high acute methamphetamine doses and binging often induced paranoia that was directly linked to aggressive and violent behavior.

REFERENCES

Albertson T, W Walby & R Derlet. 1995. Stimulant-induced pulmonary toxicity. *Chest* 108 1140-9.

Castro F. 1997. Methamphetamine trends in five western states and Hawaii. *National Trends in Drug Abuse*. Office of National Drug Control Policy Pulse Check Washington, DC: ONDCP.

Drug Abuse Warning Network (DAWN). 2002. Emergency department visits involving methamphetamine. SAMHSA.

Fagan J. 1993. Set and setting revisited: influ-

ences of alcohol and illicit drugs on the social context of violent events. In *Alcohol and Interpersonal Violence: Fostering Multidisciplinary Perspectives*. S. Martin, ed. Rockville, MD: US Department of Health and Human Services.

Katsumata S, K Sato, & H Kashiwade. 1993. Sudden death due presumably to internal use of methamphetamine. *Forensic Sci* 62 209-15.

Link B & A Stueve. 1998. Psychotic symptoms and the violent/illegal behavior of mental patients compared to community controls. In *Violence and Mental Disorder*. J Monahan & H Steadman, eds. Chicago: U Chicago Press.

Morgan S. 1997. Methamphetamine trends in five western states and Hawaii. *National Trends in Drug Abuse*. Office of National Drug Control Policy Pulse Check Washington, DC: ONDCP.

National Institute on Drug Abuse & University of Michigan. 2005. *Monitoring the Future National Survey Results on Drug Use, 1975-2002, Volume II: College Students & Young Adults Ages 19-40*. NIDA.

Perdue T, H Hagan, H Thiede & L Valleroy. 2003. Depression and HIV risk behavior among Seattle-area injection drug users and young men who have sex with men. *AIDS Education Prevention* 15 1 81-92.

Sommers I & D Baskin. 1992. Sex, race, age and violent offending. *Violence & Victims* 7 191-202.

Substance Abuse and Mental Health Services Administration. 2005. *Results From the 2004 National Survey on Drug Use and Health: National Findings*. Rockville, MD: Office of Applied Studies.

Zinberg N. 1984. *Drug, Set and Setting: The Basis for Controlled Intoxicant Use*. New Haven: Yale U Press.