Published in final edited form as:

J Psychoactive Drugs. 2010 March ; 42(1): 63–71.

Young Adult Ecstasy Users Who Forego Necessary Medical Care: A Fairly Common Occurrence with Important Health Implications

Kirk W. Elifson, Ph.D.,

Rollins School of Public, Health Emory University

Hugh Klein, Ph.D., and

Rollins School of Public Health, Emory University, and, Center for the Study and Prevention of Drug Use, Morgan State University

Claire E. Sterk, Ph.D.

Rollins School of Public Health, Emory University

Abstract

In this paper, we examine the practice of foregoing necessary medical care in a population of young adult Ecstasy users. The objectives of the paper are to (1) investigate how the failure to receive needed medical care is related to drug-related outcomes, and (2) identify factors that are associated with receiving versus foregoing needed medical care. Face-to-face, computer-assisted, structured interviews were conducted with 283 active young adult Ecstasy users in Atlanta, Georgia between August 2002 and October 2007. Study participants were recruited using a targeted sampling approach.

Results indicated that almost one-third of the young adult Ecstasy users interviewed did not receive the medical care that they needed during the preceding year. Foregoing such care was associated with a variety of adverse drug-related outcomes, including experiencing a greater number of negative effects from using Ecstasy, experiencing a larger number of drug dependency symptoms, a greater likelihood of ever having binged on Ecstasy, and a greater likelihood of being classified as a “high end” polydrug abuser. Several factors were found to be associated with a greater tendency not to receive the medical care they needed, including race (not being African American), educational attainment (having completed at least high school), self-identification as belonging to the lowest socioeconomic status grouping, low self-esteem, and having experienced sexual abuse during one’s formative years.

Keywords

Ecstasy use; young adults; medical care; health care; drug use

Seeking and receiving appropriate, effective, and prompt medical care/attention when one becomes ill is one of the most important ways of maintaining good health and preventing acute health problems from worsening and developing into chronic conditions. For a variety of reasons, however, many persons fail to seek and/or receive the medical care that they need when it is most urgent for them. For example, financial constraints preclude many persons from getting the medical attention they need, because they cannot afford (or think

that they cannot afford) the costs associated with a physician's visit, medical treatment, follow-up care, prescribed medications, and so forth (Chevarley, Thierry, Gill, Ryerson, & Nosek, 2006; Fletcher, Higginbotham, & Dobson, 2002). Fear of what a doctor may discover upon examination and the performance of routine medical tests also play a role in many persons' decisions to forego necessary medical care (Forrester-Anderson, 2005; Schein, Bernard, Spitz, & Muskin, 2003). Other studies have cited embarrassment over one's health behaviors and/or one's appearance as key factors in the decision to not seek medical care when required (Consedine, Krivoshekova, & Harris, 2007; De Nooijer, Lechner, & De Vries, 2001). Moreover, when people perceive the chances to be great that they will be discriminated against by members of the medical establishment, they are less likely to seek care during times of need (O'Brien, Kosoko-Lasaki, Cook, Kissell, Peak, & Williams, 2006; Van Houtven, Voils, Oddone, Weinfurt, Friedman, Schulman, & Bosworth, 2005). Whatever the reason(s) underlying the decision not to receive needed medical attention, this inaction is one that is likely to have serious consequences for many people.

Drug users may not seek necessary medical care because they fear being identified as drug abusers (Kidder, Elifson, & Sterk, 2001; Wilkinson, Zhao, Arnsten, Knowlton, Mizuno, Shade, Gourevitch, Santibanez, & Metsch, 2007). The failure to seek care may be especially problematic among drug users because many of these individuals already have diminished health as a result of their substance use/abuse (Adrian, Van Truong, & Osazuwa, 2007; Falck, Wang, & Carlson, 2007). Regarding MDMA (or Ecstasy) use, which is the focus of the present research, a variety of adverse health consequences have been linked with recurrent use of the drug. Included among these are sleep disorders (Montoya, Sorrentino, Lukas, & Price, 2002), mood disorders (Montoya *et al.*, 2002; Verheyden, Henry, & Curran, 2003), dermatologic problems (Wollina, Kammler, Hesselbarth, Mock, & Bosseckert, 1998), memory problems (Daumann, Fischermann, Heekeren, Henke, Thron, & Gouzoulis-Mayfrank, 2005), and brain deficits and neuronal damage (Reneman, Booij, Majoie, Van Den Brink, & Den Heeten, 2001). Ecstasy users' failure to receive necessary medical care represents a major concern.

The purpose of the present paper is to learn more about the process of foregoing medical attention in a community-recruited population of young adult Ecstasy users. We begin by addressing the issue of how common it is for these individuals not to receive needed medical care. Next, we explore how failing to seek/get necessary medical care relates to MDMA users' drug use behaviors and drug-related problems. We hypothesized that failure to receive necessary medical care would be linked with greater drug use and with experiencing more drug-related problems. We conclude the paper by investigating the factors that are associated with not seeking needed medical attention. This latter topic is important to study because it helps illuminate the prevention and intervention needs of young adults who use Ecstasy when it comes to their physical health and medical needs. Our hypothesis here was that failure to receive necessary medical attention would differ on the basis of certain demographic characteristics (e.g., Males would be less likely to get needed health care than females. People who were lower in income and/or education would be more likely to forego medical care than their peers.), background variables (e.g., Those who were uninsured would be more likely than persons with health insurance to forego needed medical care.), psychosocial functioning measures (e.g., Greater depression would be associated with a greater tendency to forego necessary treatment.), and childhood maltreatment experiences (e.g., Failure to receive needed medical care would be greatest among persons with sexual abuse, physical abuse, emotional abuse, and/or neglect in their backgrounds).

Methods

Procedures

The data presented in this paper are part of a cross-sectional study, Project X, on Ecstasy use among young adults. The principal goals of this study were to examine life issues and challenges, substance use and abuse, psychological and psychosocial functioning, and a variety of HIV-related risk behaviors among young adult Ecstasy users. Between August 2002 and October 2007, 283 young adults who actively used Ecstasy were interviewed in Atlanta, Georgia.

To be eligible for participation in Project X, study participants had to be between 18 and 25 years of age and they had to be an active Ecstasy user, which was defined as having used Ecstasy on at least three different days during the 90 days prior to their interview. Exclusion criteria included being in drug treatment or any other institutional setting, being unable to conduct the interview in English, and being intoxicated at the time of the interview.

The initial recruitment was based on information from our own previous research, information obtained from other local drug researchers, and information from local social and health service providers. Using ethnographic mapping, we identified additional locations for recruitment (Boeri, Sterk, & Elifson, 2004). We employed targeted sampling (Watters & Biernacki, 1989) to identify public and private locations from which to recruit potential study participants. Passive recruitment, involving the posting of flyers in local music venues and areas with greater concentrations of young adults, was also utilized. Individuals who called the project phone line listed on the flyers were screened over the phone using the same short form that recruiters presented. A team of ethnographers and interviewers, including five females (three Caucasian, one African American, and one Asian American) and three males (two African American and one Latino), conducted the recruitment and interviewing.

Once a potential respondent was identified as meeting the study's eligibility criteria, interviews were scheduled with interested individuals. The interviews were held at mutually-agreed-upon central locations and included such venues as the project offices, the participant's home, a local restaurant or cafeteria, coffee shops, community centers, and the interviewer's car. Interviewers' assessments of participants' openness or other measures of data quality did not differ based on the location of the interviews. The informed consent procedures, which had been approved by both Georgia State University's and Emory University's Institutional Review Boards, were reviewed and signed prior to the collection of any data. The average length of time to complete an interview was 90 minutes. The face-to-face interviews were conducted using a computer-assisted interview (i.e., CASI). Study participants received \$25 compensation for their time.

Measures

Data were collected using an instrument developed specifically for this study, based on formative research among Ecstasy users. Additional items used in the assessment were derived from instruments that have been shown to produce both valid and reliable results from drug users. These included items from the *Risk Behavior Assessment (RBA)* as developed by the Cooperative Agreement sites and the National Institute on Drug Abuse (Needle, Fisher, Weatherby, Chitwood, Brown, *et al.*, 1995), the *Addiction Severity Index (ASI)* (McLellan, Luborsky, Cacciola, Griffin, Evans, *et al.*, 1985), and the *Global Appraisal of Individual Needs (GAIN)* (Dennis, Rourke, Lucas, Zien, Clayton, *et al.*, 1995).

The main initial independent variable of interest in these analyses is foregoing medical care, a dichotomous variable (yes/no) asking study participants if for any reason(s), during the

preceding year, they had not received health or medical care that they needed. People who said “yes” were then asked several follow-up questions to learn about their reasons for foregoing needed medical care.

Demographic characteristics included in these analyses were gender (male versus female), age (continuous measure), race/ethnicity (dichotomous measure comparing African Americans and members of other races), educational attainment (less than high school education versus more education than that), self-assessed socioeconomic status (categorical measure), and income (continuous measure).

Several substance use/abuse items were also used in these analyses, including a number of items specific to the Ecstasy use experience. These measures were: the age of first alcohol use (continuous measure), the age of first use of an illegal drug (continuous measure), the number of alcohol problems experienced during the previous 30 days (continuous measure), the number of different types of drugs used during the past 30 days (continuous measure based on 13 illegal drug types), whether or not the person was a “high end” polydrug abuser (defined as having used five or more illegal drugs during the preceding 30 days), the total amount of drug use reported during the previous 30 days (continuous measure), the number of recently-experienced positive effects resulting from Ecstasy use (continuous scale measure, Cronbach’s alpha = 0.80), the number of recently-experienced negative effects resulting from Ecstasy use (continuous scale measure, Cronbach’s alpha = 0.73), perceived risk associated with the use of Ecstasy (continuous scale measure, Cronbach’s alpha = 0.79), the number of things that people did to enhance their Ecstasy-related high (continuous scale measure, Cronbach’s alpha = 0.77), the number of Ecstasy-related drug dependency symptoms experienced during the previous 30 days (continuous scale measure, Cronbach’s alpha = 0.63), and whether or not the person had ever binged on Ecstasy (dichotomous measure).

Background variables related to seeking or foregoing medical care were also examined, and were derived from the literature (Halpern, Ward, Pavluck, Schrag, Bian, & Chen, 2008; Kopelman, Moel, Mertens, Stuart, Arndt, & O’Hara, 2008; Sisk, Horowitz, Wang, McLaughlin, Hebert, & Tuzzio, 2008). These included health insurance status (has medical coverage versus does not have medical coverage) and having a diagnosed mental health problem (yes/no).

Four measures of psychological/psychosocial functioning were examined, again because previous studies have shown an association between psychological/psychosocial functioning and a variety of health-related behaviors and outcomes (Croghan, Bronars, Patten, Schroeder, *et al.*, 2006; Cuomo, Sarchiapone, Giannantonio, Mancini, & Roy, 2008; Klein, Elifson, & Sterk, 2008). Here, we looked at impulsivity (continuous scale measure, Cronbach’s alpha = 0.78), self-esteem (continuous scale measure, Cronbach’s alpha = 0.88), depression (continuous scale measure, Cronbach’s alpha = 0.87), and post-traumatic stress disorder symptoms (continuous scale measure, Cronbach’s alpha = 0.94).

Finally, since previous research has identified childhood maltreatment as a risk factor for adverse health practices and outcomes in adulthood (Farley, Golding, & Minkoff, 2002; Klein, Elifson, & Sterk, 2007; Roberts, Fuemmeler, McClernon, & Beckham, 2008), we included dichotomous measures of past year and lifetime sexual abuse, physical abuse, emotional abuse, and neglect in these analyses. These items were derived from Bernstein and Fink’s (1998) *Childhood Trauma Questionnaire*.

Analysis

In the first part of the analysis, where foregoing medical care was the independent variable, most of the drug-related outcome measures were continuous in nature. Therefore, Student's *t* tests were performed. When the outcome measure in question was dichotomous (e.g., whether or not a person was a high-end polydrug abuser), chi-square tests were performed, with the results converted to odds ratio computations for simplicity in facilitating intergroup comparisons.

In the second part of the analysis, where foregoing needed medical care was the dependent variable, initially, separate bivariate analyses were conducted to determine whether the aforementioned independent variables were associated with whether or not people received the medical care they needed. For testing the bivariate relationships, whenever the predictor variable was dichotomous (e.g., gender), chi-square tests were used. Whenever the independent variable was continuous in nature (e.g., age of first drug use, level of self-esteem), logistic regression was used. Analytically, the next step was for items to be entered into a multivariate logistic regression model. Both forward selection and backward elimination approaches were used, to make sure that the order of entry or removal from the equation did not affect the outcome of the analysis. Only statistically-significant contributors were retained in the final equation, and the Hosmer-Lemeshow goodness-of-fit statistic was used to evaluate the suitability of the final multivariate model. With this particular test statistic, a statistically *non*significant chi-square value is considered to indicate a good fit with the data. Throughout these analyses, results are reported as statistically significant whenever $p < .05$ and as marginally significant whenever $.10 > p > .05$.

Results

Nearly one-third of the Ecstasy users in this study (29.3%) reported having foregone medical care during the past year. Their self-reported reasons for not receiving the care that they needed were quite varied. Among the most popular of these reasons were procrastination (51.8%), costliness of care (45.8%), not having health/medical insurance (39.8%), fear of learning what their medical problem(s) was/were (19.3%), inconvenient health care provider hours (15.7%), fear of the treatment/cure hurting too much (14.5%), and embarrassment about the problem(s) being experienced (10.8%).

As one might expect, not receiving necessary medical attention (as an independent variable) was associated with a variety of adverse outcomes (see Table 1). For example, people who forewent needed medical care reported using one-third more types of illegal drugs than their counterparts who received the medical care that they needed ($t = 4.67, p < .001$). Indeed, the former were more than four times as likely as the latter to be classified as "high end" polydrug abusers—that is, persons who had used five or more types of illegal drugs during the recent past ($OR = 4.59, CI_{95} = 2.20-9.71, p < .001$). People who had foregone needed medical treatment reported experiencing significantly more negative consequences as a result of their Ecstasy use than their counterparts who received the medical care that they needed ($t = 3.16, p < .01$). Moreover, Ecstasy users who did not receive necessary medical care engaged in about 25% more high-enhancing behaviors than did persons who got the care they needed ($t = 3.21, p < .01$). This is particularly problematic because, as the present authors discussed in another paper (Klein, Elifson, & Sterk, under review), this practice is associated with a variety of adverse drug-related outcomes. Also worth noting, people who forewent needed medical care reported approximately one-quarter more Ecstasy-related drug dependency symptoms than their counterparts who received whatever medical attention they required ($t = 2.33, p < .05$). Although total illegal drug use during the past 30 days was not quite related to whether or not people had foregone needed medical care ($t = 1.90, p = .058$), the use of certain specific types of illegal drugs did differ on this basis. For the illicit use of

oxycontin ($t = 2.73$, $p < .01$), nonprescription use of otherwise-prescribed pills ($t = 2.99$, $p < .01$), amphetamines ($t = 2.39$, $p < .05$), and hallucinogens ($t = 2.90$, $p < .01$), foregoing medical care was associated with greater drug use. Statistically-significant differences between care-received and care-foregone individuals were not found for the number of alcohol problems experienced, the number of positive effects experienced as a result of recent Ecstasy use, or the level of harm perceived to result from using Ecstasy.

Having established that foregoing necessary medical care was related to drug abuse outcomes, the next part of the analysis entailed identifying the factors associated with foregoing necessary medical care (examined in this part of the analysis as a dependent variable). In the bivariate analyses, four of the demographic variables studied were found to be related to whether or not people got the health care that they required. First, African Americans were much less likely than members of other racial groups to forego the medical care they needed ($OR = 0.33$, $CI_{95} = 0.18-0.60$, $p < .001$). Whereas this occurred among 37.1% of the nonblack study participants, it occurred among 16.2% of those who were African American. Second, people who had less than a high school education were somewhat less likely than their better-educated peers to forego needed medical care ($OR = 0.55$, $CI_{95} = 0.29-1.06$, $p = .069$). At some point during the previous year, 20.6% of the former versus 32.1% of the latter had not received the health care that they felt they needed. Third, people who self-identified as being lower than the middle class in socioeconomic terms were substantially more likely to fail to receive necessary medical care than those who considered themselves to be in or above the middle class ($OR = 1.92$, $CI_{95} = 1.13-3.28$, $p < .05$). In the past year, 38.9% of the Ecstasy users who said that they were below the middle class had not received medical treatment that they needed, compared to 24.9% of those who said that they considered themselves to be at least middle class. Fourth, heterosexuals were somewhat less likely to forego necessary medical care than their gay, lesbian, and bisexual counterparts were ($OR = 0.60$, $CI_{95} = 0.33-1.07$, $p = .081$). Whereas this occurred among 26.7% of the heterosexuals studied, it was reported by 37.9% of the gay, lesbian, and bisexual persons in the sample.

In addition to the preceding, the bivariate analyses revealed that four of the psychosocial measures were associated with foregoing necessary medical care. The first of these was self-esteem. Persons with higher self-esteem levels were less likely to forego needed medical care than were those whose self-esteem levels were lower ($OR = 0.94$, $CI_{95} = 0.90-0.98$, $p < .01$). The second psychosocial measure found to be related to not receiving health care was depression, with greater depression levels being associated with a greater risk of not receiving needed care ($OR = 1.02$, $CI_{95} = 1.01-1.03$, $p < .01$). Third, the bivariate analysis identified post-traumatic stress disorder as being linked with failure to get required medical attention. The more PTSD symptoms people experienced, the greater the likelihood that they had foregone necessary medical care during the previous year ($OR = 1.09$, $CI_{95} = 1.03-1.14$, $p < .001$). Finally, analysis revealed that the higher people scored on the impulsiveness scale measure, the more likely they tended to be to have foregone required health care ($OR = 1.04$, $CI_{95} = 1.00-1.08$, $p = .073$).

Finally, a number of the measures of childhood maltreatment and recent abuse were found to be related to whether or not people had foregone required health care during the preceding 12 months. In all instances for which statistically-significant or marginally-significant differences were obtained, they indicated a greater likelihood of not receiving care among persons who had been maltreated. This was true for the amount of emotional abuse experienced during one's lifetime ($p = .100$), the amount of emotional abuse experienced during the past year ($p < .05$), the amount of physical abuse experienced during the past year ($p = .075$), and whether or not they had ever been abused sexually during childhood or adolescence ($p < .001$).

The final step in the analysis was to enter the preceding measures into a multivariate logistic regression equation, to determine which ones contributed uniquely and significantly to the prediction of whether or not people had foregone needed medical treatment. Five statistically-significant items were retained in the final equation, which accounted for 20.0% of the total variance. The items retained in the final model were (1) race (i.e., not being African American) ($\beta = 0.31, p < .001$), (2) educational attainment (i.e., not having completed less than a high school education) ($\beta = 0.19, p < .05$), (3) self-identified socioeconomic status (i.e., considering oneself to be a member of the lower class socioeconomically) ($\beta = 0.17, p < .05$), (4) having low self-esteem ($\beta = 0.18, p < .05$), and (5) having been sexually abused during childhood ($\beta = 0.24, p < .01$). The Hosmer-Lemeshow chi-square statistic for this model was nonsignificant ($\chi^2_{[8df]} = 6.76, p = .563$), indicating that this equation is a very good fit for the data.

Discussion

Before discussing our main conclusions, we would like to acknowledge three potential limitations of this research. First, the data collected as part of this study of young adult Ecstasy users were all based on uncorroborated self-reports. Therefore, the extent to which respondents underreported or overreported their involvement in risky behaviors is unknown. In all likelihood, the self-reported data can be trusted, as numerous authors have noted that persons in their research studies (which, like the present study, have included fairly large numbers of substance abusers) have provided accurate information about their behaviors (Anglin, Hser, & Chou, 1993; Higgins *et al.*, 1995; Jackson *et al.*, 2004; Yacoubian & Wish, 2006).

A second possible limitation pertains to recall bias. Respondents were asked to report about their beliefs, attitudes, and behaviors during the past 30 days, the past 90 days, and the past year, depending upon the measure in question. These time frames were chosen specifically (1) to incorporate a large enough amount of time in the risk behavior questions' time frames so as to facilitate meaningful variability from person to person, and (2) to minimize recall bias. The exact extent to which recall bias affected the data cannot be assessed although other researchers collecting data similar to that captured in this study have reported that recall bias is sufficiently minimal that its impact upon study findings is likely to be small (Jaccard & Wan, 1995).

A third possible limitation of these data comes from the sampling strategy used. All interviews were conducted in the Atlanta, Georgia metropolitan area. There may very well be local or regional influences or subcultural differences between these persons and those residing elsewhere that could affect the generalizability of the data. Additionally, the sampling approach used to identify study participants is not a random sampling strategy, and there may be inherent biases in who was/not identified as potential study participants in this research.

Despite these possible—and, we contend, minimal—limitations, we believe that many interesting and important findings came about in the present study. First, this research found that failure to receive necessary medical care was a fairly common occurrence among young adult Ecstasy users, occurring in nearly one-third of those surveyed. There are two important negative ramifications of this finding. First, it means that many members of this population experience health problems requiring some type of treatment, but which do not get treated in a timely fashion (if, indeed, at all). This will cause many of these problems to linger or worsen, setting up a scenario of ever-declining health among members of a population group that is already risking damage to its health by virtue of its drug-use behaviors. A number of studies have documented a variety of adverse health consequences associated with Ecstasy

use, including among others, alterations in serotonin production (Buchert, Thomasius, Wilke, Petersen, Nebeling, Obrocki, Schulze, Schmidt, & Clausen, 2004), sleep disorders (Montoya, Sorrentino, Lukas, & Price, 2002), mood disorders (Montoya *et al.*, 2002; Verheyden, Henry, & Curran, 2003), dermatologic problems (Wollina, Kammler, Hesselbarth, Mock, & Bosseckert, 1998), memory problems (Daumann, Fischermann, Heekeren, Henke, Thron, & Gouzoulis-Mayfrank, 2005), and brain deficits and neuronal damage (Reneman, Booij, Majoie, Van Den Brink, & Den Heeten, 2001). By not receiving timely care for the medical problems that they experience, Ecstasy users increase the chances that acute health problems will become chronic.

The second ramification of this finding is that doctors and other health care professionals are prevented from identifying an individual's drug (ab)use behaviors and intervening to prevent the escalation of drug (ab)use when they do not have periodic contact with would-be patients. If they are well-trained about how to recognize the physical manifestations of recurrent Ecstasy use, medical professionals are in an ideal position to intervene in young adult Ecstasy users' health-related problems, and to be able to do so before the users' health issues become unmanageable. When Ecstasy users fail to seek needed medical treatment, however, the health professionals are unable to treat existing conditions, intervene in people's drug use, or prevent the advancement of their drug-related problems. Koesters, Rogers, and Rajasingham (2002) addressed the importance of this issue, and our findings support the contention that professionals in the health care field need to provide targeted outreach, especially at the community level, to young adults who use Ecstasy. Early intervention is crucial if the long-term health consequences of Ecstasy use are to be averted.

Compounding the preceding problems, our analyses also showed that not receiving the medical care that one needs is linked with a variety of adverse drug-related outcomes, such as being a high-end polydrug abuser, experiencing a greater number of negative consequences as a result of one's Ecstasy use, binging on Ecstasy, and experiencing a greater number of Ecstasy-related drug dependency symptoms. It seems likely to us that the relationships observed here are reflective of the same phenomenon—namely, a developing problem with the drug Ecstasy or an existing problem/dependency upon this particular substance. That is, as their Ecstasy use continues and psychological and/or physiological dependency on the drug grows, many young adults focus more on getting their drug supply and on their use of the drug while simultaneously concerning themselves less with the routine aspects of maintaining their health. The principal implication of this finding is that, to a large extent, the people who require medical attention that they are not receiving are the same people who also require drug abuse intervention and/or drug treatment that they are not receiving. Developing effective programs to identify and reach these individuals, and subsequently convince them to get the help that they need, would be a worthwhile effort for future research endeavors and community-based intervention programs targeting young adult Ecstasy users to pursue. This is something that two of the present authors have addressed elsewhere (Bahora, Sterk, & Elifson, 2009), and something that other scholars have written about also (Kelly, Parsons, & Wells, 2006; Yacoubian, Miller, Pianim, Kunz, Orrick, Link, Palacios, & Peters, 2004).

Finally, we turn our attention to the part of our analysis that focused on the factors associated with whether or not people had foregone necessary medical care during the previous year. Most of the available data in the healthcare field suggests that racial minority group members, particularly African Americans, and persons lacking in education are apt to have low access when it comes to receiving health-related information or required medical care/services (Ferraro, Thorpe, McCabe, Kelley-Moore, & Jiang, 2006; Honda, 2004; Probst, Laditka, Wang, & Johnson, 2007). Contrary to our expectations, however, in the present study, African Americans were *more* likely than members of other racial/ethnic

groups to receive the medical care they needed. The same type of counterintuitive finding was obtained for low-educated persons when compared to their better-educated counterparts. Although findings such as ours are certainly not without precedent in the published literature (see, for example, Middleton, Hing, & Xu, 2007; O'Toole, Pollini, Gray, Jones, Bigelow, & Ford, 2007), they do require replication in future studies if we are to have confidence in their validity. If, indeed, these findings are "real" and replicable in other research, they would highlight the importance of providing targeted intervention efforts for Ecstasy users who are better-educated and those who are not African American (which, in the context of our study, generally meant Caucasian persons). It may be that these persons (well-educated, Caucasian) perceive themselves to be at low risk for incurring long-term health problems, and as a result, are less likely than other persons (e.g., less well-educated, African American) to make a point of getting medical attention when they require it.

Coinciding with this, our research revealed that persons who considered themselves to be below the middle class socioeconomically were more likely to forego necessary medical care than were those who self-identified as middle class or above. Interestingly, though, this appears to be strictly a matter of perception rather than of actual monetary means, as our analysis revealed no relationship between actual income earned and whether or not people forewent necessary medical care ($p=.34$, finding not previously reported). This suggests that young adult Ecstasy users who *think of* themselves as lacking in income and means are more apt to spend their money in ways other than medical care, particularly when compared to their peers who *think of* themselves as living a middle-class or a better-than-middle-class lifestyle. Programs targeting individuals who are not receiving the medical attention they need might benefit by concentrating some of their resources in drug-ridden communities where upper lower-income and lower middle-income persons reside. Our findings suggest that these individuals may very well be the ones who are the most likely to forego necessary medical care because of perceived cost-related factors that, in reality, ought not be barriers to receiving the care they need. Providing free (or alternatively, low-cost) health care and medical screenings in the communities where these persons live might be an effective way of encouraging some of these individuals to seek medical attention. A few authors have written about such approaches to providing health care to otherwise-underserved communities (McCary, Schainker, & Liu, 1999; McKeever, Koroloff, & Faddis, 2006), and the results of their efforts are encouraging despite implementation-related challenges that have had to be overcome in order to get such programs instituted in the community. Two particular challenges are likely to be faced by such programs wishing to improve this situation for young adult Ecstasy users: (1) identifying the appropriate area(s) in which to conduct health fairs and community health screenings, and (2) determining how to encourage members of this particular population to participate.

In the present study, we also identified low self-esteem as being related to an increased likelihood of not receiving necessary medical care. This finding has been reported in other research as well (Wilson, Silberberg, Brown, & Yaggy, 2007). It is likely that low self-esteem causes people to feel depressed and worthless (Aluja, Rolland, Garcia, & Rossier, 2007; Knowles, Tai, Jones, Highfield, Morriss, & Bentall, 2007), and that in turn leads many of them not to seek the healthcare they need. Failure to take proper care of oneself and to attend to one's physical and emotional needs during bouts of depression are among the tell-tale symptoms of depression (Roness, Mykletun, & Dahl, 2005; Sherwood, Salkovskis, & Rimes, 2007). From a healthcare perspective, what is needed is a way to work with young adult Ecstasy users to improve their levels of self-esteem since this, in turn, is likely to result in an increase in their willingness to seek medical care when they need it. In a separate article (Klein, Elifson, & Sterk, in preparation), the present authors address the factors that underlie low self-esteem in young adult Ecstasy users (namely, low educational attainment, less-congenial relationships with the members of their family-of-origin, the number of

positive and negative consequences experienced as a result of Ecstasy use, a greater number of alcohol-related problems, and a greater number of PTSD symptoms people experience) and discuss the intervention-related implications of those findings. Readers interested in this subject are encouraged to consult that work and/or to contact the lead author for further information.

Finally, we wish to discuss our finding with respect to sexual abuse experiences during childhood and adolescence. In the present research, Ecstasy users who had been sexually abused earlier in life were more than twice as likely ($OR = 2.42$) to forego necessary medical care as adults when compared to their peers who had not been sexually abused. Numerous studies have reported an association between early-life sexual abuse and a variety of subsequent problems such as substance use/abuse (Bartholomew, Rowan-Szal, Chatham, Nucatola, & Simpson, 2002; Swanston, Plunkett, O'Toole, Shrimpton, Parkinson, & Oates, 2003), involvement in HIV risk practices (Plotzker, Metzger, & Holmes, 2007; Rodriguez-Srednicki, 2001), and poor mental health functioning (Andover, Zlotnick, & Miller, 2007; Fogarty, Fredman, Heeren, & Liebschutz, 2008), among others. Our finding contributes to the published literature by documenting yet another way in which childhood/adolescent sexual abuse leads to problems in adulthood—namely, by leading people who need medical care to be less willing to seek out such care. The general mechanism underlying this finding is probably very similar to that discussed above regarding self-esteem (i.e., sexually-abused persons suffer from self-esteem deficits, greater risk for depression, and long-lasting feelings of low self-efficacy as a result of having been abused) (see, for example, Dominquez, Nelke, & Perry, 2002; Martens, 2007). It highlights the importance of helping persons who have been victimized by childhood maltreatment to get the psychological attention that they need in order to address unresolved issues that they may have regarding their abuse experiences. This, we would expect, would lead them to feel better about themselves and their lives, and that, in turn, would translate to a greater general willingness to seek out other types of medical services that they need. The inherent difficulty faced here, however, is that the people who are in greatest need of these types of services are the same ones who are also experiencing the greatest need for the other ... and also the same ones who are the least likely to receive either of them. Young adult Ecstasy users who were sexually abused during their formative years therefore constitute an at-risk group in need of targeted intervention if they are to have an increased chance of seeking out the medical care that they need. Community-based intervention programs working with young adult Ecstasy users could incorporate screening tools into their efforts to identify such at-risk individuals quite easily, especially when one considers that most standard scales assessing childhood sexual abuse include fewer than 10 items that can be asked in a matter of 2–3 minutes.

In conclusion, this study found that, during the preceding year, a substantial proportion of the young adult Ecstasy users interviewed did not receive medical care/attention that they felt they needed. Failure to get needed medical care was associated with a variety of adverse drug-related outcomes, including binging on Ecstasy and experiencing a greater number of Ecstasy dependency symptoms. Several variables, each with its own prevention- and/or intervention-related implications, were found to be linked with whether or not people had foregone necessary medical care. Included among these were race/ethnicity, self-identified socioeconomic classification, educational attainment, self-esteem, and sexual abuse during the formative years.

Acknowledgments

This research was supported by a grant from the National Institute on Drug Abuse (R01-DA014232). draft date: 17Apr09

References

- Adrian M, VanTruong M, Osazuwa T. Measuring levels of comorbidity in drug user emergency patients treated in Ontario hospitals. *Substance Use and Misuse*. 2007; 42:199–224. [PubMed: 17558927]
- Aluja A, Rolland JP, Garcia LF, Rossier J. Dimensionality of the Rosenberg Self-Esteem Scale and its relationship with the three- and five-factor personality models. *Journal of Personality Assessment*. 2007; 88:246–249. [PubMed: 17437388]
- Andover MS, Zlotnick C, Miller IW. Childhood physical and sexual abuse in depressed patients with single and multiple suicide attempts. *Suicide and Life-Threatening Behaviors*. 2007; 37:467–474.
- Anglin MD, Hser Y, Chou C. Reliability and validity of retrospective behavioral self-report by narcotics addicts. *Evaluation Review*. 1993; 17:91–103.
- Bahora M, Sterk CE, Elifson KW. Understanding recreational Ecstasy use in the United States: A qualitative inquiry. *International Journal of Drug Policy*. 2009; 20:62–69. [PubMed: 18068967]
- Bartholomew NG, Rowan-Szal GA, Chatham LR, Nucatola DC, Simpson DD. Sexual abuse among women entering methadone treatment. *Journal of Psychoactive Drugs*. 2002; 34:347–354. [PubMed: 12562102]
- Buchert R, Thomasius R, Wilke F, Petersen K, Nebeling B, Obrocki J, Schulze O, Schmidt U, Clausen M. A voxel-based PET investigation of the long-term effects of “Ecstasy” consumption on brain serotonin transporters. *American Journal of Psychiatry*. 2004; 161:1181–1189. [PubMed: 15229049]
- Chevarley FM, Thierry JA, Gill CJ, Ryerson AB, Nosek MA. Health, preventive health care, and health care access among women with disabilities in the 1994–1995 National Health Interview Survey, supplement on disability. *Women’s Health Issues*. 2006; 16:297–312. [PubMed: 17188213]
- Consedine NS, Krivoshekova YS, Harris CR. Bodily embarrassment and judgment concern as separable factors in the measurement of medical embarrassment: Psychometric development and links to treatment-seeking outcomes. *British Journal of Health Psychology*. 2007; 12:439–462. [PubMed: 17640455]
- Croghan IT, Bronars C, Patten CA, Schroeder DR, Nirelli LM, Thomas JL, Clark MM, Vickers KS, Foraker R, Lane K, Houlihan D, Offord KP, Hurt RD. Is smoking related to body image satisfaction, stress, and self-esteem in young adults? *American Journal of Health Behavior*. 2006; 30:322–333. [PubMed: 16712446]
- Cuomo C, Sarchiapone M, Giannantonio MD, Mancini M, Roy A. Aggression, impulsivity, personality traits, and childhood trauma of prisoners with substance abuse and addiction. *American Journal of Drug and Alcohol Abuse*. 2008; 34:339–345. [PubMed: 18428076]
- Daumann J, Fischermann T, Heekeren K, Thron A, Gouzoulis-Mayfrank E. Memory-related hippocampal dysfunction in poly-drug Ecstasy (3,4-methylenedioxymethamphetamine) users. *Psychopharmacology*. 2005; 180:607–611.
- DeNooijer J, Lechner L, DeVries H. A qualitative study on detecting cancer symptoms and seeking medical help: An application of Andersen’s model of total patient delay. *Patient Education and Counseling*. 2001; 42:145–157. [PubMed: 11118780]
- Dominquez, RZ.; Nelke, CF.; Perry, BD. Child sexual abuse. In: Levinson, D., editor. *Encyclopedia of Crime and Punishment*. Sage Publications; Thousand Oaks, CA: 2002. p. 202-207.
- Falck RS, Wang J, Carlson RG. Health status of illicit stimulant drug users in rural Ohio. *Journal of Psychoactive Drugs*. 2007; 4(supplement):401–405. [PubMed: 18284105]
- Farley M, Golding JM, Minkoff JR. Is a history of trauma associated with a reduced likelihood of cervical cancer in screening? *Journal of Family Practice*. 2002; 51:827–831. [PubMed: 12401150]
- Ferraro KF, Thorpe RJ Jr, McCabe GP, Kelley-Moore JA, Jiang Z. The color of hospitalization over the adult life course: Cumulative disadvantage in black and white? *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*. 2006; 61:s299–s306.
- Fletcher RJ, Higginbotham N, Dobson A. Men’s perceived health needs. *Journal of Health Psychology*. 2002; 7:233–241. [PubMed: 22114247]

- Fogarty CT, Fredman L, Heeren TC, Liebschutz J. Synergistic effects of child abuse and intimate partner violence on depressive symptoms in women. *Preventive Medicine*. 2008; 46:463–469. [PubMed: 18207563]
- Forrester-Anderson IT. Prostate cancer screening perceptions, knowledge, and behaviors among African American men: Focus group findings. *Journal of Health Care for the Poor and Underserved*. 2005; 16:22–30. [PubMed: 16327094]
- Halpern MT, Ward EM, Pavluck AL, Schrag NM, Bian J, Chen AY. Association of insurance status and ethnicity with cancer stage at diagnosis for 12 cancer sites: A retrospective analysis. *Lancet Oncology*. 2008; 9:222–231. [PubMed: 18282806]
- Higgins ST, Budney AJ, Bickel WK, Badger GJ, Foerg FE, et al. Outpatient behavioral treatment for cocaine dependence: One-year outcome. *Experimental and Clinical Psychopharmacology*. 1995; 3:205–212.
- Honda K. Factors underlying variation in receipt of physician advice on diet and exercise: Applications of the behavioral model of health care utilization. *American Journal of Health Promotion*. 2004; 18:370–377. [PubMed: 15163138]
- Jaccard J, Wan CK. A paradigm for studying the accuracy of self-reports of risk behavior relevant to AIDS: Empirical perspectives on stability, recall bias, and transitory influences. *Journal of Applied Social Psychology*. 1995; 25:1831–1858.
- Jackson CT, Covell NH, Frisman LK, Essock SM. Validity of self-reported drug use among people with co-occurring mental health and substance use disorders. *Journal of Dual Diagnosis*. 2004; 1:49–63.
- Kelly BC, Parsons JT, Wells BE. Prevalence and predictors of club drug use among club-going young adults in New York City. *Journal of Urban Health*. 2006; 83:884–895. [PubMed: 16937088]
- Kidder DP, Elifson KW, Sterk CE. Health care utilization in female African- American crack cocaine users. *Women and Health*. 2001; 34:79–97.
- Klein H, Elifson KW, Sterk CE. Childhood neglect and adulthood involvement in sexual and HIV-related risk behaviors. *Child Abuse and Neglect*. 2007; 31:39–53. [PubMed: 17207853]
- Klein H, Elifson KW, Sterk CE. Depression and HIV risk behavior practices among “at risk” women. *Women and Health*. 2008; 48:167–188.
- Klein H, Elifson KW, Sterk CE. Self-esteem and HIV risk practices among young adult Ecstasy users. in preparation.
- Knowles R, Tai S, Jones SH, Highfield J, Morriss R, Bentall RP. Stability of self-esteem in bipolar disorder: Comparisons among remitted bipolar patients, remitted unipolar patients, and healthy controls. *Bipolar Disorders*. 2007; 9:490–495. [PubMed: 17680919]
- Koesters SC, Rogers PD, Rajasingham CR. MDMA (‘Ecstasy’) and other ‘club drugs’: The new epidemic. *Pediatric Clinics of North America*. 2002; 49:415–433. [PubMed: 11993291]
- Kopelman RC, Moel J, Mertens C, Stuart S, Arndt S, O’Hara MW. Barriers to care for antenatal depression. *Psychiatric Services*. 2008; 59:429–432. [PubMed: 18378843]
- Martens WHJ. Optimism therapy: An adapted psychotherapeutic strategy for adult female survivors of childhood sexual abuse. *Annals of the American Psychotherapy Association*. 2007; 10:31–37.
- McCary J, Schainker E, Liu P. A community care initiative: Maryland and Hopkins students take to the streets in Baltimore City. *Maryland Medical Journal*. 1999; 48:26–32. [PubMed: 10048282]
- McKeever C, Koroloff N, Faddis C. The African American Wellness Village in Portland, Ore. *Preventing Chronic Disease*. 2006; 3:A104. [PubMed: 16776865]
- Middleton K, Hing E, Xu J. National Hospital Ambulatory Medical Care Survey: 2005 outpatient department summary. *Advance Data*. 2007; 29:1–34. [PubMed: 17784724]
- Montoya AG, Sorrentino R, Lukas SE, Price BH. Long-term neuropsychiatric consequences of “Ecstasy” (MDMA): A review. *Harvard Review of Psychiatry*. 2002; 10:212–220. [PubMed: 12119307]
- O’Brien RL, Kosoko-Lasaki O, Cook CT, Kissell J, Peak F, Williams EH. Self-assessment of cultural attitudes and competence of clinical investigators to enhance recruitment and participation of minority populations in research. *Journal of the National Medical Association*. 2006; 98:674–682. [PubMed: 16749640]

- O'Toole TP, Pollini R, Gray P, Jones T, Bigelow G, Ford DE. Factors identifying high-frequency and low-frequency health service utilization among substance-using adults. *Journal of Substance Abuse Treatment*. 2007; 33:51–59. [PubMed: 17588489]
- Plotzker RE, Metzger DS, Holmes WC. Childhood sexual and physical abuse histories, PTSD, depression, and HIV risk outcomes in women injection drug users: A potential mediating pathway. *American Journal on Addictions*. 2007; 16:431–438. [PubMed: 18058406]
- Probst JC, Laditka SB, Wang JY, Johnson AO. Effects of residence and race on burden of travel for care: Cross sectional analysis of the 2001 U.S. National Household Travel Survey. *BMC Health Services Research*. 2007 Mar;9:7–40.
- Reneman L, Booij J, Majoie CB, Van Den Brink W, Den Heeten GJ. Investigating the potential neurotoxicity of Ecstasy (MDMA): An imaging approach. *Human Psychopharmacology*. 2001; 16:579–588. [PubMed: 12404537]
- Roberts ME, Fuemmeler BF, McClernon FJ, Beckham JC. Association between trauma exposure and smoking in a population-based sample of young adults. *Journal of Adolescent Health*. 2008; 42:266–274. [PubMed: 18295135]
- Rodriguez-Srednicki O. Childhood sexual abuse, dissociation, and adult self-destructive behavior. *Journal of Child Sexual Abuse*. 2001; 10:75–90. [PubMed: 17522001]
- Roness A, Mykletun A, Dahl AA. Help-seeking behaviour in patients with anxiety disorder and depression. *Acta Psychiatrica Scandinavica*. 2005; 111:51–58.
- Schein, LA.; Bernard, HS.; Spitz, HI.; Muskin, PR., editors. *Psychosocial treatment for medical conditions: Principles and techniques*. Brunner-Routledge; New York: 2003.
- Sherwood C, Salkovskis PM, Rimes KA. Help-seeking for depression: The role of beliefs, attitudes, and mood. *Behavioural and Cognitive Psychotherapy*. 2007; 35:541–554.
- Sisk JE, Horowitz CR, Wang JJ, McLaughlin MA, Hebert PL, Tuzzio L. The success of recruiting minorities, women, and elderly into a randomized controlled effectiveness trial. *Mt Sinai Journal of Medicine*. 2008; 75:37–43.
- Swanston HY, Plunkett AM, O'Toole BI, Shrimpton S, Parkinson PN, Oates RK. Nine years after child sexual abuse. *Child Abuse and Neglect*. 2003; 27:967–984. [PubMed: 12951144]
- VanHoutven CH, Voils CI, Oddone EZ, Weinfurt KP, Friedman JY, Schulman KA, Bosworth HB. Perceived discrimination and reported delay of pharmacy prescriptions and medical tests. *Journal of General Internal Medicine*. 2005; 20:578–583. [PubMed: 16050850]
- Verheyden SL, Henry JA, Curran HV. Acute, sub-acute, and long-term subjective consequences of 'Ecstasy' (MDMA) consumption in 430 regular users. *Human Psychopharmacology*. 2003; 18:507–517. [PubMed: 14533132]
- Wilkinson JD, Zhao W, Arnsten JH, Knowlton AR, Mizuno Y, Shade SB, Gourevitch MN, Santibanez S, Metsch LR. Longitudinal correlates of health care-seeking behaviors among HIV-seropositive injection drug users: How can we intervene to improve health care utilization? *Journal of Acquired Immune Deficiency Syndromes*. 2007; 46:s120–s126. [PubMed: 18089981]
- Wilson KS, Silberberg MR, Brown AJ, Yaggy SD. Health needs and barriers to healthcare of women who have experienced intimate partner violence. *Journal of Women's Health*. 2007; 16:1485–1498.
- Wollina U, Kammler HJ, Hesselbarth N, Mock B, Bosseckert H. Ecstasy pimples: A new facial dermatosis. *Dermatology*. 1998; 197:171–173. [PubMed: 9732169]
- Yacoubian GS Jr, Miller S, Panim S, Kunz M, Orrick E, Link T, Palacios WR, Peters RJ. Toward an Ecstasy and other club drug (EOCD) prevention intervention for rave attendees. *Journal of Drug Education*. 2004; 34:41–59. [PubMed: 15468747]
- Yacoubian GS Jr, Wish ED. Exploring the validity of self-reported Ecstasy use among club rave attendees. *Journal of Psychoactive Drugs*. 2006; 38:31–34. [PubMed: 16681173]

Table 1

Foregoing Needed Medical Care and Drug-Related Outcomes

	Did Not Forego Medical Care	Did Forego Medical Care	Statistical Significance
Number of Alcohol Problems	8.2	8.9	n.s.
Number of Different Drugs Used	3.6	4.8	$p<.001$
High-End Polydrug Abuser (%)	42.2	77.1	$p<.001$
Total Amount of Drug Use	88.2	101.1	$p<.10$
Recently-Experienced Positive Effects of Ecstasy Use	6.8	6.4	n.s.
Recently-Experienced Negative Effects of Ecstasy Use	9.2	10.4	$p<.01$
Perceived Level of Risk from Using Ecstasy	10.4	10.7	n.s.
Number of Behaviors Practiced to Bolster an Ecstasy High	4.7	5.9	$p<.01$
Number of Ecstasy-Related Drug Dependency Symptoms	2.7	3.3	$p<.05$
Ever Binged on Ecstasy (%)	32.1	48.8	$p<.01$