



Ecstasy/MDMA Perceived Risk by Late Adolescents and Early Adults

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Abstract

Ecstasy/MDMA is usually lumped with “club drugs” which is where ecstasy is more likely to be prevalent since it comes in hand with EDM (Electronic Dance Music) and other club music and is advertised as “Molly” to be a pure form of ecstasy which is very hard to know if it contains any MDMA at all. According to a study conducted by Johnston et al., the individual’s perceived risk and harmfulness of the drug determine usage. Risk was observed during a period of time and it can be alarming when perceived risk drops because it can have unpredictable effects on new population using ecstasy/MDMA. One of the highest predictors found if a young adult would participate in the use of ecstasy is the association with other ecstasy users and the types of events attended.

Popularity of ecstasy/MDMA does not have a consistent measure of popularity since it is often changing and each risk perceived is effective to drops in popularity as well as when the risk is not seen as a big issue. During a longitudinal study Johnston et al. was able to see that while one year of high school students could have negative perceptions of a drug others could be exempt and would affect just those years of students.

One popular predictor found by Smirnov et al. was that much ecstasy use occurred under a specific type of music culture which was mainly electronic music and dance music in clubs as opposed to a diminished amount in places where there was live music. This shows that the social environment has a deep influence on the frequency that the drug is offered on individuals. This is because the basic perception of the drug is associated to be part of the electronic music scene.

Keywords: Ecstasy; MDMA; Methamphetamine; Ketamine; Mephedrone

Young Adult and Adolescent Ecstasy Use

Ecstasy/MDMA is more common among young adults and adolescents and begins to diminish in popularity over time according to various longitudinal surveys by Johnston et al. as well as young adult surveys by Smirnov et al. Beginning 2006 there was a slow increase all the way until 2013 seen in a National survey [1].

Ecstasy use in Australia is the highest in the world so it provides an easier way to monitor studies over periods of time. Smirnov et al. collected a sample of 320 ecstasy naive students from the electoral roll data for Brisbane and the Gold Coast (Queensland, Australia). It is compulsory for Australians to be registered to vote. Out of all the subjects 199 completed an internet survey and six months later completed another internet survey and that provided complete data for that group. At the beginning of the study none of the 199 participants had previously used ecstasy, by the end 22 had used ecstasy or 13.1%. Smirnov et al. uncovered that most of the prevalence among the Australian young adults was that they were in direct contact with ecstasy users and ecstasy related events instead of psychological issues or marijuana/cannabis exposure.

Ecstasy Combinations and Effects on the Liver

Reported drug abuse incidents have shown that ecstasy is commonly abused with other substances. Ecstasy is hardly just MDMA and this brings to inadvertent consumption of other multiple substances especially when the drug is purchased from different individuals, it’s virtually impossible to know the source and contents of the pills/capsules. Some chemicals that are commonly found in ecstasy include lysergic acid diethylamide (LSD), dextroamphetamine (d-AMP) or just known as AMP, Methamphetamine (METH), Ketamine (Special K), Mephedrone, cocaine and 4-methylthioamphetamine (4-MTA), which is toxic and has been linked to several deaths [2].

Poly-drug use is perhaps the factor that increasingly creates a

destructive combination that can widen or worsen toxicity of many compounds. Unfortunately, not many studies have been conducted to understand MDMA interactions with other drugs and therefore it is tough to predict how different drugs contribute to different amphetamine interactions. The purpose of the study by Dias da Silva et al. was to test two different models concentration addition (CA) for similar amphetamines and independent action (IA) for other non-amphetamine drugs. MDMA, d-AMP, METH, and 4-MTA were tested in the procedure. What was found was that when each drug was alone in the control had little effect on liver cells when used at appropriate doses. Although, when MDMA was mixed with the other amphetamines the effect multiplied exponentially and became extremely potent with other additives. The liver cells used were immortalized hepatoma Hep G2 cells which are weaker than normal human liver cells but can still show great insight on the effects on normal liver tissue [2]. Liver damage or liver disease was reported in 16% of 199 cases reported in the United States from the mid 1990s to 2001 which made it the third most common adverse effect from ecstasy; acute liver failure or hepatitis has been reported even after the use of a single tablet.

Ecstasy Effects on the Central Neural System and Other Organ Systems

Ecstasy use has been recorded since the early 1960s and continued to various studies in the 1970s and 1990s on effects on how it could aid with psychotherapy. Dr. Charles Grob, MD, and others have been in the forefront of treating PTSD (Post Traumatic Stress Disorder) with MDMA. It is shown that the intake of MDMA reduces anxiety and nervousness and creates a feeling of “dreaminess” or relaxation that can assist PTSD subjects with psychotherapy in explaining events. While MDMA may be getting application in psychotherapy it is more commonly used for non-medical reasons in high risk doses and mixtures and creating effects that are not easily predicted [2].

MDMA is known to cause reduced activity in the serotonin and gamma-aminobutyric acid (GABA) systems in humans. Prolonged use of ecstasy can lead to permanent changes in serotonin levels in brain systems. While there has been little evidence of chronic or severe effects

of ecstasy it has shown that it can lead to certain deficits. Magnetic Resonance Imaging (MRI) has been a tool often used to analyze brain activity to understand the effects of ecstasy and has been able to analyze differences of ecstasy abstinent individuals against those of users [3]. Those under the influence of ecstasy/MDMA show increased cognition in the senses with more of a desire to be touched and to have closeness but adverse effects can be psychiatric problems like extreme dysphoria, panic and anxiety attacks which is the most common in the 22.1% of the 199 cases reported from the mid 1990s to 2001 making it the most common adverse effect of ecstasy/MDMA [4].

Ecstasy/MDMA has shown that it does affect visual and auditory sense, particularly visual sense on the intensity of colors and on recalling the placement of objects. However, visual tracking speed was increased under the influence of MDMA without affecting other impulses. Due to lower serotonin release individuals showed cautious driving responses while being under the influence of MDMA in a study by MAPS (Multidisciplinary Association of Psychedelic studies) but had issues with objects who were concealed behind other objects. It was also found that in long term users of ecstasy/MDMA heavy users but not moderate had issues with recalling verbal memory and impaired Serotonin transporter sites [4].

Other adverse effects which lead to fatalities are occurring most in men and due to the rarity is difficult to find a lethal dose for ecstasy. Ecstasy/MDMA has been recorded to affect most major body systems including CNS, Cardiovascular system, endocrine, and digestive system which shows the various adverse effects found in cases reported [4]. Specifically, a case was reported by an individual who took ecstasy for 16 years between the ages of 17 to 33 years old where valvular heart disease was developed.

To understand the effects of MDMA/ecstasy on healthy individual's trials have been formulated to understand direct responses to the drug. In these controlled situations the drug has been at higher quality than normally obtained to better observe isolated effects as by Dias da Silva et al. similar quality procedures have been followed in studies by MAPS. The most common adverse effects found in these studies were anxiety, higher blood pressure and increased heart rates. Women were more commonly found to experience these effects except for sweating and nausea among healthy volunteers [4].

Predictors of Ecstasy Use Among Late Adolescents/Young Adults

As found by Johnston et al. [1], Becoña et al. [5] has also made the connection that if adolescents perceive a drug to have higher risks then lower the usage and vice versa. Another predictor is the perceived availability. Johnston et al. [1] has observed in past observations that the more available a drug is the higher chance there is for individuals to

cross social boundaries and perceived risk to use the drug. While being in environments where it is often easy to be offered and association with dealers and ecstasy users this may cause usage to increase regardless of perceived risk [2]. In the early ages sensation-seeking and the need to satisfy it can lead to drug usage in young people. The constant social pressure and need to socialize can further increase the need to experience more sensations. Poly-drug usage is a term that is now easily characterized as most drug usage begins with alcohol and tobacco the true gateway drugs [5].

However, Smirnov et al. [2] found that gender and age hardly had influence as much as social recreational environments for beginning of ecstasy use. Although, alcohol, tobacco, and cannabis usage did correlate as a poly-drug influence on the beginning of ecstasy usage, EDM was seen in one of the models in the study by Smirnov et al. [2] and was attributed to one of the predictors of ecstasy usage. Attributing the need for social inclusiveness the sensationalism of the drug also affected those who suffered from depression and anxiety to become more social. Ecstasy/MDMA has a strong correlation with socialization and EDM events showing that environmental factors contribute greatly to ecstasy/MDMA usage.

Conclusion

Ecstasy/MDMA has been in existence since the early 1960s and predictors of usage have hardly been a mystery to researchers. It is greatly influenced by social environments and also the need for adolescents and young adults to participate in sensation seeking [5]. However, it is not lacking in serious risk affecting most major organ systems such as the CNS, cardiovascular, endocrine and respiratory systems [4]. Many of those who begin ecstasy use are unaware of the possible risk and therefore cause a great risk to many users involved and programs that inform and educate adolescents and young adults need to be formulated to show the possible risks of ecstasy/MDMA [2].

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