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What's in a Name? Correlates of Ecstasy Users Knowing or Agreeing that Molly is Ecstasy/MDMA

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ABSTRACT

Ecstasy (MDMA) has regained popularity in powder and crystalline form, known as Molly. However, it is unknown whether all Molly users are aware that Molly is ecstasy. A total of 1045 nightclub/festival-attending adults in New York City were surveyed about ecstasy/MDMA/Molly use in 2016. Users were asked if they agreed that "Molly is (or is supposed to be) ecstasy/MDMA." Of the 43.5% reporting lifetime use, 84.6% agreed that Molly is ecstasy, 9.5% disagreed, and 5.9% reported not knowing that Molly is ecstasy. Prevalence of use of other drugs (e.g., ketamine, opioids, methamphetamine, NBOMe, 2C series) was lowest among those not knowing that Molly is ecstasy, and highest among those not agreeing that Molly is ecstasy. Those not knowing that Molly is ecstasy were less likely to have used powder or crystal MDMA and less likely to have used in the past 12 months or to report intention to use again. Those disagreeing or not knowing that Molly is ecstasy were at over six times the odds of obtaining ecstasy from an unknown dealer, and those disagreeing were at four times higher odds of having suspected or found out that their ecstasy was adulterated. Results suggest that knowing or agreeing that Molly is ecstasy/MDMA can help indicate ecstasy-related risk.

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Ecstasy has been a popular drug in the nightlife scene for decades. Ecstasy is the traditional street name for MDMA (3,4-methylenedioxymethamphetamine), which for decades most commonly came in pill form. However, in response to low potency and adulterated ecstasy pills, powder and crystalline MDMA eventually gained popularity and became marketed as Molly, which was supposed to represent pure MDMA (Palamar 2017). Molly, short for "molecule" or "molecular," has been a street name for powder MDMA since the early 2000s (Duterte et al. 2009), and this name has been popular in the mainstream for about a decade (Aleksander 2013).

Many drug surveys, however, do not list Molly as a street name for ecstasy, and the national surveys Monitoring the Future (MTF) and the National Survey on Drug Use and Health did not add Molly to their definition of ecstasy until 2014 and 2015, respectively (Center for Behavioral Health Statistics and Quality 2016; Johnston et al. 2017). A recent analysis of MTF, a nationally representative sample of high school seniors, found differences regarding self-reported lifetime prevalence of ecstasy use, depending on whether Molly was included in the definition. Specifically, 8% reported ecstasy use when Molly was included in the definition and only 5.5% reported use when Molly was not included in the definition (Palamar, Keyes, and Cleland 2016b). Thus, underreporting may occur when Molly is not included in the definition of ecstasy and proper estimates of use are important to inform prevention.

Further research is needed to determine whether ecstasy use is being underreported due to individuals not being aware that Molly is, or is supposed to be, MDMA/ecstasy. The media, for example, sometimes refers to Molly and MDMA (or ecstasy) as separate drugs (e.g., Carey 2013; Rayne 2016), so it is unclear whether individuals at risk for use are aware that both ecstasy and Molly are (supposed to be) MDMA.

While more research is needed on prevalence of ecstasy use according to how ecstasy is defined, research is also needed to determine whether knowledge of or agreement with particular terminology is associated with ecstasy-related risk factors. For example, research is needed to determine if knowing or agreeing that Molly is ecstasy is related to severity of use (e.g., recency and frequency of use), attitudes towards use (e.g., disapproval towards use), perceived availability, perceived or learned adulteration of ecstasy used, use of other drugs, and risky purchasing practices

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(e.g., purchasing from unknown or "untrustworthy" dealers). While the Health Belief Model, for example, posits that knowledge about a risk behavior influences perceived severity and susceptibility regarding outcomes associated with that behavior (Rosenstock 1974), it is unknown whether basic drug information (e.g., knowing drug terminology) is protective against use of drugs such as ecstasy. Differences in self-reported prevalence on national surveys (Palamar et al. 2016b) suggest that some users may think Molly is a new drug that is not ecstasy, so this knowledge may protect some individuals against use or more severe use. Conversely, knowing that Molly is ecstasy may also indicate knowledge about the drug as a function of experience with that drug.

This study examines whether a high-risk population agrees with this terminology, and delineates characteristics of individuals based on whether they agree with this terminology. Findings may help researchers and prevention specialists further understand which individuals are at risk for ecstasy use.

Methods

A total of 1,045 individuals were surveyed entering electronic dance music (EDM) parties in New York City throughout the summer of 2016 using time-space sampling (MacKellar et al. 2007; Palamar et al. 2016a). Individuals were eligible if they identified as ages 18–40 and were about to enter the randomly selected party. Specifically, each week, a list of planned EDM parties was created. The sample space included venues (e.g., nightclubs) that hold EDM parties on consistent nights each week and it also included parties that were (1) recommended by key informants and/or (2) listed on a popular EDM ticket-purchasing website as having ≥15 tickets purchased in advance. "Secret location" warehouse parties and dance festivals were included in the sample space. Recruiters ensured that potential participants were not visibly intoxicated (e.g., impaired speech or gait) and such subjective identification of inebriation has been shown to be relatively reliable in nightlife scenes (Perham et al. 2007). Participants completed the survey on tablets after providing informed consent. The response rate for those approached who were believed to be eligible was 77%. This study was approved by the New York University Langone Medical Center Institutional Review Board.

Participants were asked their age, sex, race/ethnicity, educational attainment, average weekly income, and sexual orientation. They were asked about use of "ecstasy/MDMA/Molly," and those reporting lifetime use were asked, "Do you know that Molly is (or is supposed to be) ecstasy/MDMA?" Answer options were "no," "yes," and "I disagree that Molly is supposed to be ecstasy/MDMA." Lifetime users were asked to check off which type(s) of ecstasy they had ever used (i.e., pills, powder, crystals), frequency of past-12 month ecstasy use (recoded into 0–9 vs. 10+ times), and they were asked if they suspected or found out their ecstasy ever contained adulterant drugs. Users were asked how often they obtain ecstasy from a dealer they do not know well or trust, and they were asked if they intend to use ecstasy again in the next 12 months. Users also answered two questions derived from MTF which assessed whether they disapproved of adults using ecstasy and how easy ecstasy is to obtain (Miech et al. 2016).

Participants were also asked about lifetime use of other drugs, including powder cocaine, mushrooms, LSD, ketamine, methamphetamine; and nonmedical use of amphetamine, benzodiazepines, and opioids. Nonmedical use was defined as use to get high and/or use without a prescription (Substance Abuse and Mental Health Services Administration 2014). Participants were also asked about some new psychoactive substances (NPS), including synthetic cannabinoids, new dissociatives (e.g., methoxetamine [MXE]), 2C series drugs (e.g., 2C-E, 2C-I), and NBOMe (pronounced "N-bomb"; e.g., 25i-NBOMe).

Analysis

Analyses focused on participants reporting lifetime ecstasy use, as these were the individuals in the overall sample queried about knowledge/agreement about Molly being the same drug as ecstasy. Chi-squares were conducted to examine potential differences between each covariate and the trichotomous variable indicating whether participants know or agree that Molly is ecstasy. A multinomial multivariable logistic regression was then computed to examine associations with all else being equal. Only demographic and ecstasy-specific characteristics with significance of $p<.10$ in bivariable models were entered into the model. Reported use of other drugs could not be fit into the model due to multicollinearity. Since time-space sampling was utilized, analyses were weighted to account for a higher probability of more frequent attendees being surveyed (Jenness et al. 2011; MacKellar et al. 2007). Since data weights were utilized, analyses used Taylor series estimation methods to obtain accurate standard errors (Heeringa, West, and Berglund 2010). All statistics were computed using Stata SE 13 (StataCorp, College Station, TX,).

Results

Of the 43.5% (n = 640) of the full sample reporting lifetime use, 84.6% (n = 519) agreed that Molly is ecstasy, 9.5% (n = 62) disagreed, and 5.9% (n = 49) reported not knowing that Molly is ecstasy. Table 1 presents all bivariable comparisons. There were no significant differences with regard to demographic characteristics.

With regard to ecstasy-specific questions, compared to those agreeing and not agreeing that Molly is ecstasy, those not knowing that Molly is ecstasy were less likely to have used ecstasy in the past 12 months, less likely to have used in powder or crystalline form, and less likely to report having suspected or found out that their ecstasy was adulterated with other drugs. This group was also less likely to report that ecstasy is easy to obtain, less likely to report that they intend to use in the next 12 months, and more likely to disapprove of ecstasy use. Those agreeing that Molly is ecstasy were less likely than those who do not know or do not agree that Molly is ecstasy to report having obtained ecstasy from a dealer they do not know well or trust.

Compared to those agreeing that Molly is ecstasy, reported lifetime prevalence of use of powder cocaine,

Table 1. Comparison of characteristics of ecstasy users according to agreement with ecstasy terminology.

	Full sample % (n = 640)	Don't know that Molly is ecstasy, % (n = 49)	Agree that Molly is ecstasy, % (n = 519)	Don't agree that Molly is ecstasy, % (n = 62)	p
Demographic characteristics					
Age					.097
18–24	51.4	40.1	51.3	71.1	
25–40	48.6	59.9	48.7	28.9	
Sex					.312
Male	56.5	65.7	56.7	39.5	
Female	43.5	34.4	43.3	60.5	
Race/ethnicity					.274
White	68.2	68.0	67.3	80.9	
Black	5.1	8.6	4.8	3.7	
Hispanic	9.6	1.1	10.6	9.3	
Asian	10.1	13.5	10.3	2.2	
Other	7.0	8.9	7.1	4.0	
Education					.631
Less than college degree	40.4	35.0	40.4	49.8	
College degree or higher	59.6	65.0	59.6	50.2	
Weekly income					.631
$0–199	22.8	35.1	22.1	21.1	
$200–500	31.5	34.1	30.9	36.0	
≥$500	45.7	30.8	47.0	42.9	
Sexual orientation					.643
Heterosexual	72.9	81.7	72.8	68.5	
Gay/lesbian/bisexual/other	27.1	18.3	27.2	31.5	
Ecstasy use characteristics					
Recency of ecstasy use					<.001
Lifetime, but not past 12 months	42.4	72.9	39.2	39.8	
Past 12 months	57.6	27.1	60.8	60.2	
Type(s) of ecstasy ever used					
Pills	71.6	70.7	72.0	66.1	.881
Powder	65.2	38.1	67.7	72.2	.007
Crystals	57.7	26.4	60.7	65.7	<.001
Used pills 10+ times in past year	7.4	3.0	8.1	4.2	.155
Suspected or found out adulterated	33.0	7.0	34.1	59.6	.001
Sometimes/always obtain from a dealer not know well or trust	7.5	20.7	5.2	19.7	.005
Disapprove of ecstasy use	28.3	46.6	27.7	6.9	.001
Fairly or very easy to get ecstasy	65.1	43.4	67.3	68.1	.050
Intend to use again in next 12 months	35.4	5.9	38.4	39.3	<.001
Lifetime use of other drugs					
Powder cocaine	47.3	15.8	50.9	46.4	.001
Mushrooms	35.3	2.3	37.8	52.8	<.001
LSD	31.8	2.0	34.8	37.1	<.001
Amphetamine (nonmedical)	30.4	12.2	30.9	51.9	.040
Ketamine	22.5	2.6	25.0	19.1	<.001
Synthetic cannabinoids	22.4	19.2	21.0	47.8	.061
Benzodiazepines (nonmedical)	19.5	1.5	20.5	34.4	<.001
Opioids (nonmedical)	18.8	4.6	19.9	25.3	.023
Methamphetamine	11.0	1.1	11.3	22.2	.008
New dissociatives	12.6	2.1	13.5	17.5	.030
2C Series	8.2	2.3	8.1	19.8	.015
NBOMe	5.3	0.9	6.0	3.0	.027

mushrooms, LSD, amphetamine, benzodiazepines, methamphetamine, opioids, 2C drugs, and new dissociatives was lowest among those not knowing that Molly is ecstasy, and highest among those not agreeing that Molly is ecstasy. However, reported powder cocaine, ketamine, and NBOMe use were higher among those knowing that Molly is ecstasy.

While controlling for all covariates in the multivariable model (Table 2), compared to those who agree that Molly is ecstasy, those who do not know that Molly is ecstasy were at about two-thirds lower odds of using ecstasy in the past 12 months, and at lower odds of ever using powder or crystalline ecstasy, intending to use again in the next 12 months, and having suspected or found out that their ecstasy has been adulterated. Users in this group, however, were at seven times (AOR = 7.08, $p<.001$) higher odds of reporting that they have obtained ecstasy from an unknown or untrustworthy dealer. Compared to those who agree that Molly is ecstasy, those disagreeing that Molly is ecstasy were at lower odds of being older (age 25–40) and of disapproving of ecstasy use. These users were more than four times the odds (AOR = 4.12, $p = .001$) of suspecting or finding out that their ecstasy has been adulterated and more than six times the odds (AOR = 6.31, $p = .013$) of reporting that they have obtained ecstasy from an unknown or untrustworthy dealer.

Discussion

The majority (84.6%) of this lifetime ecstasy-using sample of nightlife attendees agreed that Molly is ecstasy/MDMA. However, about one in 10 disagreed that Molly is ecstasy and 5.9% reported not knowing that these are the same drug. This has important implications for survey research, as a substantial portion of ecstasy users appear to consider these different drugs and thus may be more likely to deny ecstasy use—particularly powder or crystalline use—if Molly is not provided in the definition of ecstasy. More importantly, this may suggest that a portion of ecstasy users may be using this drug without knowing that the drug they are using is, in fact, ecstasy. Common prevention and harm-reduction information about ecstasy use may be ignored if an individual believes he or she is using a new drug, and this may place these users at higher risk for experiencing adverse outcomes.

Those reporting that they did not know Molly is ecstasy were less likely to report having used ecstasy in the past 12 months and less likely to report having ever used powder or crystalline ecstasy, which is commonly referred to as Molly in the US. Therefore, it appears that many of these users may have used traditional ecstasy pills, and may not, in fact, have been using Molly (MDMA powder or crystals). Users not knowing that Molly is ecstasy were also found to be somewhat low-risk users compared to many other ecstasy users, as they were less likely to have ever used various other drugs, and they were less likely to intend to use ecstasy in the next year. This group was also more likely to disapprove of use, which has been found to be a protective factor against drug use (Keyes et al. 2012). However, compared to users who agree that Molly is ecstasy, users not knowing that Molly is ecstasy were more likely to report obtaining their ecstasy from dealers who were not known well or not trustworthy. Users not knowing that Molly is ecstasy may be at increased risk of obtaining ecstasy adulterated with more dangerous drugs. The fact of these users resorting to unknown or "less trustworthy" dealers is related to the finding that these users also are more likely to find ecstasy more difficult to obtain. In fact, all 27 users in this subgroup who reported that ecstasy is easy to obtain reported not obtaining their ecstasy from an unknown or untrustworthy dealer ($p = .0005$). Therefore, in this respect, users who do not know that

Table 2. Multinomial multivariable logistic regression model examining correlates of agreement with ecstasy terminology.

	Don't know that Molly is ecstasy		Don't agree that Molly is ecstasy	
	AOR	95% CI	AOR	95% CI
Age 25–40	1.93	(0.85, 4.37)	0.23***	(0.11, 0.48)
Have used ecstasy in past 12 months	0.32***	(0.19, 0.55)	0.65	(0.26, 1.66)
Have used ecstasy powder in lifetime	0.33*	(0.13, 0.81)	1.13	(0.39, 3.32)
Have used ecstasy crystals in lifetime	0.28**	(0.14, 0.55)	1.12	(0.46, 2.72)
Suspected or found out adulterated	0.15*	(0.03, 0.70)	4.12**	(1.85, 9.15)
Sometimes/always obtain from a dealer not know well or trust	7.08***	(2.77, 18.10)	6.31*	(1.52, 26.18)
Disapprove of ecstasy use	1.99	(0.88, 4.53)	0.11**	(0.03, 0.37)
Fairly or very easy to get ecstasy	0.56	(0.24, 1.28)	1.07	(0.39, 2.91)
Intend to use again in next 12 months	0.34*	(0.13, 0.93)	0.68	(0.35, 1.32)

Note. The comparison group is those agreeing that Molly is ecstasy. The comparison group for age 25–40 is age 18–24. AOR = adjusted odds ratio, CI = confidence interval. *$p<.05$, **$p<.01$, ***$p<.001$

Molly is ecstasy and find ecstasy difficult to obtain may be at high risk for resorting to unknown dealers, as they may not be aware where to purchase ecstasy/Molly if they decide to use again.

Those indicating disagreement that Molly is ecstasy were at highest risk for reporting lifetime use of various drugs compared to those who agree and to those who do not know that Molly is ecstasy. Disagreeing and not knowing were programmed as separate answer options on this survey because some users may feel that Molly has become so adulterated in recent years that they now view Molly as more of a mystery powder rather than (pure) MDMA. It is unknown whether any participants simply disagreed because the definition did not contain the word "pure" or because the definition did not specify that Molly is a *form* of MDMA rather than saying they are the same substance. However, those who did not agree that Molly is ecstasy were much more likely to report use of some NPS such as 2C series drugs and/or new dissociatives such as MXE. These NPS—particularly 2C-B—have been a common adulterant in ecstasy for some time (Giné, Espinosa, and Vilamala 2014; Vidal Giné et al. 2016; Vogels et al. 2009), so these users appear more likely to engage in both intentional and unintentional use (via adulterants) of 2C series drugs. They were also more likely to report having suspected or found out that their ecstasy has been adulterated with other drugs. A possible explanation for these findings is that users who are more experienced with newer and rarer drugs may have more knowledge regarding what they are using and may have responded that they disagree that Molly is ecstasy/MDMA because they may be aware of high levels of adulteration of Molly in recent years.

A limitation of this study was that only lifetime ecstasy users were asked if they know or agree that Molly is ecstasy. Having this information for non-users would be helpful in determining who may be at high risk for initiation of use. This is a nightclub/festival-attending sample so generalizability of results may be limited. As this study was cross-sectional, temporal associations could not be delineated, and it is unknown whether individuals knew or agreed that Molly is ecstasy before initiating use.

The majority (85%) of ecstasy users in this sample agreed that Molly is ecstasy; thus, it appears that most of these individuals are at least aware that Molly and ecstasy are the same drug. However, better drug education may inform the smaller portion of individuals who are unaware that Molly and ecstasy are the same drug. It is possible that some of these individuals were unaware that Molly is ecstasy and might not have used if they had this knowledge. It is important for individuals at risk for use to know that Molly is not a new drug, but it is essentially just a form of ecstasy/MDMA. Thus, researchers and prevention experts need to consider that not all ecstasy users know or agree that Molly is ecstasy/MDMA.

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