

## Loneliness and Suicidal Ideation in Drug-Using College Students

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The college years are marked by social changes and behavioral experimentation which may increase risk of suicidal ideation. We propose a novel pathway for the development of suicidal thoughts between two established suicide risk factors, loneliness and drug use, which have not been examined in a nonclinical sample. Data were collected from 207 undergraduate drug-using students at a large southeastern university. As hypothesized, suicidal ideation was positively correlated with both loneliness ( $r = .40$ ) and drug use ( $r = .29$ ). After controlling for several demographic variables, social desirability, and anxiety sensitivity, drug use was tested as a potential mediator in the loneliness–suicidal ideation link using a single-mediator model. Results indicated a significant indirect (mediated) effect of loneliness on suicidal ideation via drug use ( $ab = 0.09$ , 95% CI: 0.02–0.18), suggesting that loneliness may contribute to suicidal ideation through increased drug use among college students. Identification of and intervention with students reporting loneliness and drug use may be a promising suicide prevention strategy on college campuses.

As suicide is the third leading cause of death among individuals aged 15 to 24 years (Centers for Disease Control & Prevention, 2010), college students may be at particular risk for suicidal thoughts and behavior. Estimated rates of suicidal ideation on college campuses range from 6% to 12%, whether current (10%, Farabaugh et al., 2012; 11%, Garlow et al., 2008; 6%, Arria et al., 2009), during the past year (9.5%, Kisch, Leino, & Silverman, 2005; 10%, Brenner, Hassan, &

Barrios, 1999), or during all of college (12%, Wilcox et al., 2010). Suicidal ideation is associated with substantial comorbidity in college students, including violence and substance use (Barrios, Everett, Simon, & Brenner, 2000), and is a strong predictor of suicide attempts and death (Bebbington et al., 2010). The developmental period coinciding with college attendance is associated with the emergence of psychiatric disorders (see Kessler et al., 2007, for a review), which may also increase risk for suicidal thoughts. For these reasons, a better understanding of factors that increase suicidal ideation among college students is necessary both to treat at-risk students and to inform prevention efforts on college campuses.

Loneliness and drug use, both suicide risk factors, have particular salience during the transition to college. As the structure provided by parental monitoring and high school recedes, students are tasked with increasing responsibilities amid fewer

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supports and controls (Arnett, 2000). College may be a notably vulnerable time for loneliness, as students leave family and friends, form new social networks, and struggle with new responsibilities (Berman & Sperling, 1991). Research has also indicated that new technologies often used by college students (e.g., Facebook, smartphones) decrease overall psychological well-being, which can include increases in loneliness and depression (see Huang, 2010, for meta-analysis). This construct of loneliness encompasses a stable experience of pain related to a sense of emptiness and helplessness (Cacioppo & Patrick, 2008) and is hypothesized to result from the felt difference between desired and actual levels of social involvement (Perlman & Peplau, 1984). Loneliness has been associated with depressive symptoms (Cacioppo, Hawkley, & Thisted, 2010), substance misuse (Rokach, 2002), and suicidal ideation and behavior (Lasgaard, Goossens, & Elkitt, 2011; Schinka, van Dulmen, Mata, Bossarte, & Swahn, 2013). Furthermore, loneliness is related to the idea of belongingness, which has been theoretically (interpersonal-psychological theory of suicide, Joiner, 2005; and cubic model of suicide, Shneidman, 1987) and empirically (Van Orden et al., 2010) linked to suicide. As a malleable affective and cognitive factor, loneliness is a potentially important target for further research and incorporation into collegiate suicide prevention and intervention programs.

Drug use is another relatively common (Caldeira, Arria, O'Grady, Vincent, & Wish, 2008; Dennhardt & Murphy, 2013; Rimsza & Moses, 2005) and concerning suicide risk factor among college students. Although most studies of substance misuse among college students focus on alcohol use, prevalence rates for collegiate drug use from the *Monitoring the Future* study suggest that 37% of college students have used a drug besides alcohol (Johnston, O'Malley, Bachman, & Schulenberg, 2012). College students who use drugs are at risk for a number of negative outcomes, including discontinuous enrollment (Arria et al., 2013),

poor academic performance (Johnston et al., 2012), and interpersonal conflicts (Palmer, McMahon, Moreggi, Rounsaville, & Ball, 2012). Although the suicide research literature has primarily focused on the relationship between alcohol and suicide, there is a comparatively smaller, but compelling, literature on drug use and suicide (Wilcox & Anthony, 2004; Zullig & Divin, 2012). Marijuana use and abuse has been associated with later death by suicide in longitudinal studies (Pedersen, 2008); likewise, heroin (Wong, Zhou, Goebert, & Hishinuma, 2013) and cocaine (Britton & Conner, 2010) use may also confer particular risk. As with much of the extant literature, efforts to relate substance use and suicidal ideation theoretically have focused largely on alcohol use; however, these models conceptually apply to other drugs as well. In the theoretical framework proposed by Lamis and Malone (2012), predisposing factors (e.g., impulsivity/aggression, lack of social support) and precipitating factors (e.g., life strains, depressive symptoms) are hypothesized to moderate and mediate, respectively, the association between alcohol and suicidal behavior. This framework, like other attempts to explain conceptually the link between substance use and suicidal behavior (e.g., Esposito-Smythers & Spirito, 2004), relies heavily on the association between substance use as an indicator, predictor, and outcome of stress and psychopathology, such as depression. Compared with alcohol, drug use as a suicide risk factor has not been as extensively evaluated (Wilcox & Anthony, 2004), although initiation of drug use often occurs in college (Arria et al., 2008). Thus, considering the link between drug use and suicidal ideation is particularly relevant and may inform prevention efforts on college campuses.

#### LONELINESS, DRUG USE, AND SUICIDAL IDEATION

There is a demonstrated relationship between drug use and loneliness. Drugs have

been shown to facilitate social interaction by lowering inhibitions or anxiety and enhancing interpersonal communication (e.g., Thombs, 1999). As a negative consequence, however, drug use is more often associated with increased social isolation and an inability to engage in meaningful interpersonal relationships (e.g., Chou, Liang, & Sareen, 2011). Orzeck and Rokach (2004) found that individuals in treatment for drug dependence endorsed higher levels of loneliness when compared with the general population.

This study seeks to fill critical gaps in the literature by evaluating the role of drug use in the relationship between loneliness and suicidal ideation among college students. Few studies have evaluated loneliness in relation to substance use and suicide and, to our knowledge, none have examined this relationship in a nonclinical sample of college students. In clinical samples, self-perceived chronic loneliness has been shown to contribute to adolescent drug use and subsequent suicide attempts among drug users (Berman & Schwartz, 1990). Similarly, low levels of belongingness were associated with lifetime suicide attempts among opiate dependent adults (Conner, Britton, Sworts, & Joiner, 2007) and with suicidal ideation among substance users in residential treatment (You, Van Orden, & Conner, 2011). Exploring this relationship in a nonclinical sample will allow for an investigation of the full range of drug use behaviors in a college population, rather than focusing on individuals who have already developed a more severe substance use disorder. Such a perspective may also highlight prevention approaches for college campuses by identifying a potential malleable risk factor for suicidal thoughts and have important implications for how colleges respond to students with suicidal ideation and prevent suicide on campuses.

As a result, the current analysis aims to explore the associations among loneliness, drug use, and suicidal ideation in a college student sample. On the basis of existing literature and consistent with theory, we hypothesized that after controlling for a host of covariates (1) reports of loneli-

ness would be significantly and positively associated with drug use and suicidal ideation; (2) drug use would be significantly and positively related to suicidal ideation; and (3) drug use would mediate the relation between loneliness and suicidal ideation among drug-using college students. The use of college-aged individuals is ideal, as this developmental period is marked by changes in social relationships as well as a tendency to experiment with drug use. Over time, college students who use drugs following struggles with navigating new social demands or separation from friends and family at home may have suicidal ideation, suggesting that further exploration of these treatable risk factors to identify students most at risk for suicidal ideation is critical. Such an analysis will have implications for both suicide prevention on college campuses as well as potential targets for treatments for students reporting both substance use and suicidal ideation.

## METHODS

### *Participants*

Data were collected from 1,200 undergraduate psychology students at a large southeastern university. We limited the sample to students who had recently used drugs in order to eliminate potential differences between individuals who completely abstain from and those who use substances, who may differ in initiation patterns and exposure opportunities (Arria et al., 2008). For the purposes of the current study, only the 207 participants who reported that they use drugs (i.e., marijuana, amphetamines, cocaine, heroin, hallucinogens, or prescriptions pills without a prescription) at least two times a month, as assessed by the Drug Use Disorders Identification Test (DUDIT; Berman, Bergman, Palmstierna, & Schlyter, 2005), were included. This cutoff was chosen to capture recent, recurrent drug use. Specifically, participants were asked "How often do you use drugs other than alcohol?"

with response options being: *never, once a month or less often, 2–4 times a month, 2–3 times a week and four times a week or more often*. We only included students who endorsed using drugs two times a month or more in order to examine the contributory roles of feelings of loneliness and drug use behaviors in suicidal ideation among students who were currently using drugs, which could be concluded by the response options of *2–4 times a month, 2–3 times a week and four times a week or more often* on the DUDIT.

Participants were between the ages of 18 and 26 years ( $M$  age = 19.84,  $SD$  = 1.49), and 66.7% ( $n$  = 138) were female. The majority described their race/ethnicity as Caucasian ( $n$  = 169, 81.6%), followed by African American ( $n$  = 20, 9.7%), Asian American ( $n$  = 5, 2.4%), Hispanic/Latino ( $n$  = 4, 1.9%), Native American ( $n$  = 1, 0.5%), and an additional 3.9% ( $n$  = 8) of the sample indicated “other” for race/ethnicity. The sample consisted of approximately equal numbers of freshmen ( $n$  = 66, 31.9%), sophomores ( $n$  = 48, 23.2%), juniors ( $n$  = 46, 22.2%), and seniors ( $n$  = 47, 22.7%). One hundred and twenty-seven (61.4%) of the students reported they were not in a relationship, and 58.9% ( $n$  = 122) reported living off campus. Of the students who participated in the study, 29.0% ( $n$  = 60) indicated that they were a fraternity or sorority member.

### Measures

**Covariates.** In addition to age, gender, race, class in school, sorority/fraternity affiliation (no/yes), relationship status (not in a relationship vs. in a relationship), and residency status (on campus vs. off campus), a measure of anxiety sensitivity was included as a covariate in all analyses given its associations with loneliness and drug use (Arria et al., 2009; Berman et al., 2005; Capron et al., 2012; Lester, 2011; O'Malley & Johnston, 2002). Our criteria for determining covariates included a probable relation to loneliness and suicidal ideation (based on theory and literature), and a judgment that the potential confound could not plausibly

be caused by loneliness (MacKinnon, Krull, & Lockwood, 2000). Moreover, given that social desirability has been found to significantly influence college students' reports of drug use (e.g., Zaldívar, Molina, López Ríos, & García Montes, 2009) and suicidal ideation (Miotto & Preti, 2008), social desirability was also included as a covariate.

The Anxiety Sensitivity Index (ASI; Reiss, Peterson, Gursky, & McNally, 1986) is a 16-item self-report instrument designed to measure the degree to which individuals are concerned about the potential negative effects of experiencing anxiety symptoms. Sample items include “Unusual body sensations scare me” and “It scares me when I feel faint.” Respondents are asked to indicate the degree to which each item applies to them using a 5-point Likert scale ranging from 0 (*very little*) to 4 (*very much*). The ASI has three lower-order factors (physical, cognitive, social concerns) that have been shown to load on a single global anxiety sensitivity higher-order factor (Zinbarg, Barlow, & Brown, 1997). In the current study, the global anxiety sensitivity construct was used in the analyses. The ASI has demonstrated good internal consistency across diverse populations (Reiss et al., 1986), including college students (Schmidt, Buckner, & Keough, 2007). In the current sample, the coefficient alpha was 0.86 for global anxiety sensitivity.

The Marlowe-Crowne Social Desirability Scale-Form B (MCSD-B; Reynolds, 1982) is an instrument used to measure the response tendency of making socially desirable self-presentations. The scale consists of 12 true-false items and was developed from the original Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Sample items include “No matter who I'm talking to, I'm always a good listener,” and “I have never deliberately said something that hurt someone's feelings.” Psychometric properties regarding the MCSD-B indicate that it has an adequate internal consistency and validity (Loo & Thorpe, 2000). The internal consistency estimate in the current sample was 0.67.

### *Independent Variable*

The University of California–Los Angeles (UCLA) Loneliness scale - Version 3 (UCLA-3; Russell, 1996) is a 20-item single-dimension measure designed to assess interpersonal loneliness. Participants indicated how often they experienced each item on the scale ranging from 0 (*never*) to 4 (*always*). Scores were summed across all items to create an overall index of loneliness ranging from 0 to 80, with higher scores indicating a greater degree of loneliness. Sample items include “How often do you feel you lack companionship?” and “How often do you feel there are people who really understand you?” (reverse scored). The UCLA Loneliness scale is the most widely used scale for assessing loneliness, has established psychometric properties, and has been shown to be distinct from similar constructs of social support and depression (e.g., Russell, 1996). In the current study, the internal consistency reliability estimate was .90.

### *Potential Mediator*

The DUDIT (Berman et al., 2005) is an 11-item self-report questionnaire that assesses the level of drug intake and fulfillment of selected criteria for substance abuse/harmful use and dependence according to the *DSM-IV* diagnostic systems. The DUDIT was developed as an analogous instrument to the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) to provide detailed information about respondents' substance use, excluding alcohol, including the patients' perceptions about use. Items include: “Do you use more than one type of drug on the same occasion?” and “How many times do you take drugs on a typical day when you use drugs?” The first nine questions are scored on 5-point scales ranging from 0 to 4, and the last two are scored on 3-point scales with values of 0, 2, and 4. Thus, total scores range from 0 to 44, with higher

scores suggestive of a more severe drug problem. Previous studies (Voluse et al., 2012) have demonstrated the DUDIT to have strong validity and reliability as a unidimensional construct. The total score on the DUDIT was positively skewed (1.40) and leptokurtic (1.63); therefore, we conducted a natural log transformation (plus one), which resulted in the skewness (0.28) and kurtosis (0.64) being acceptable. In the current sample, the internal consistency reliability estimate was 0.85.

### *Dependent Variable*

The Beck Scale for Suicide Ideation (BSS; Beck & Steer, 1991) is a 21-item self-report questionnaire measuring an individual's thoughts, attitudes, and intentions regarding suicide over the past week, including attitudes toward living and dying, expected reactions to these thoughts, and frequency of past suicidal behavior. The first 19 items consist of three options graded according to the intensity of the suicidal thoughts and are summed to yield a total score, which ranges from 0 to 38. The items provide participants with three response options (e.g., “I have no wish to die,” “I have a weak wish to die,” or “I have a moderate to strong wish to die”) and are rated on a scale from 0 to 2, based on intensity. Scores are summed to provide a total score indicative of suicide risk (Brown, 2000). The BSS is a valid and reliable measure in various populations (Miller, Segal, & Coolidge, 2001), demonstrating good internal consistency reliability at validation (Beck & Steer, 1991) and excellent internal consistency reliability in recent studies of college students (Cukrowicz et al., 2011). In addition, the BSS demonstrates good convergent validity, with high correlations with other assessments of suicidal ideation (Healy, Barry, Blow, Welsh, & Milner, 2006). The total score on the BSS was positively skewed (2.55) and leptokurtic (7.42), so we conducted a natural log transform of the score (plus one) to address normality issues with resulting skewness being acceptable



(0.49) and slightly negative kurtosis (−0.52). In the current study, the internal consistency reliability estimate was .87.

#### *Procedure*

Data collection was conducted through an online survey over the course of three semesters, with approximately equal numbers of participants completing the study during each of the semesters. The students' scores on the variables of interest did not significantly differ by semester of data collection. College students voluntarily completed the survey outside of class time in return for extra credit in their psychology course. Participants were informed of the study in regularly scheduled classes and through a posting on the online participant pool site. Participants completed a demographic survey and the study measures, which were presented in a randomized order. Prior to data collection, the university's institutional review board approved the study, and electronic informed consent was obtained from all participants.

#### **RESULTS**

Descriptive statistics and two-tailed correlations among the primary study variables (loneliness, drug use, and suicidal ideation) are presented in Table 1. All bivariate and partial correlations were significant at  $p < .01$  in the expected direction. Although these results support hypotheses 1 and 2, we further tested the predictive relations among study constructs in the context of the mediational model adjusting for sociodemographic covariates, which were modeled as exogenous predictors of the study variables. The model is diagrammed in Figure 1, with standardized coefficients shown. In the mediational model and consistent with our hypotheses, the path coefficient between loneliness and suicidal ideation was significant ( $b = 0.03$ , 95% CI: 0.02, 0.04); the path coefficient between loneliness and drug use was also significant ( $b = 2.85$ , 95%

**TABLE 1**  
*Correlation Matrix, Means, and Standard Deviations of Study Measures*

Variable	1	2	3
1. Loneliness	—	.23**	.40**
2. Drug use (log-transformed)	.20**	—	.29**
3. Suicidal ideation (log-transformed)	.36**	.26**	—
Mean	42.02	10.32 <sup>a</sup>	2.87 <sup>a</sup>
SD	9.60	7.30 <sup>a</sup>	4.15 <sup>a</sup>
Range	22–74	0–37	0–29

Note.  $N = 207$ . Tabled values are zero-order correlations (above diagonal) and partial correlations (below diagonal) after covarying out age, gender, ethnicity, living situation, social club membership, relationship status, year in school, social desirability, and anxiety sensitivity.

<sup>a</sup>Nontransformed.

\* $p < .05$ ; \*\* $p < .01$ .

CI: 0.58, 5.08); and the path coefficient between drug use and suicidal ideation was significant ( $b = 0.28$ , 95% CI: 0.09, .48).

The primary hypothesis (Hypothesis 3) focused on the mediation of the link from loneliness to suicidal ideation by drug use. Mediated paths and total effects were tested as the product of coefficients in separate saturated path models estimated in Mplus v.7.0 (Muthén & Muthén, 1998–2012), using the software's facility for maximum likelihood estimation in the context of missing data. The model was a conventional three-variable mediation system, as described in any standard treatment of indirect effects (MacKinnon, 2008; MacKinnon & Tofighi, 2013), with the addition of the suite of covariates. The null hypothesis is that the sum of the two indirect paths—from the predictor (loneliness) to the mediator (drug use) and from the mediator to the outcome (suicidal ideation)—is equal to zero, indicating no indirect effect. We tested for the significance of indirect (mediated) effects using the percentile bootstrap with 3,000 draws to generate empirical confidence intervals for the products of the coefficients composing the mediated paths,

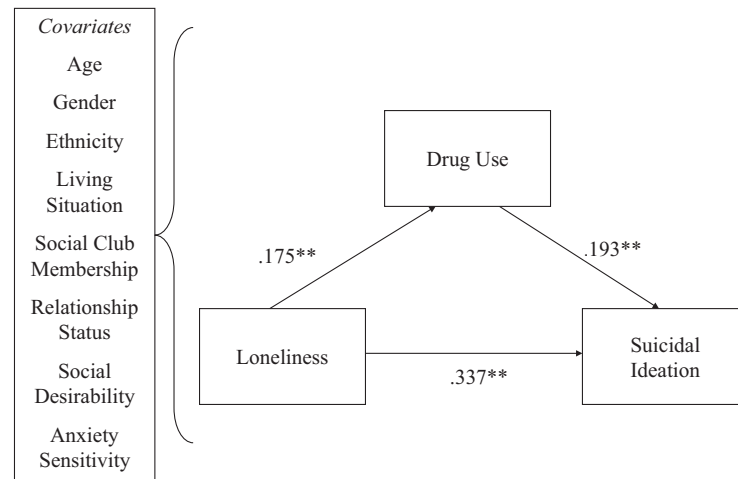


Figure 1. Model with standardized regression coefficients depicting drug use as a mediator in the relation between loneliness and suicidal ideation.  $N = 207$ .  $*p < .05$ ;  $**p < .01$ .

one of the methods recommended for specific indirect effects.

In the model examining drug use as a potential mediator of the relation between loneliness and suicidal ideation among drug-using college students, the total effect of loneliness on suicidal ideation was positive and significant, with a point estimate of 0.36, 95% CI: 0.17–0.57, standardized estimate of 0.25. Consistent with Hypothesis 3, this effect was significantly mediated by drug use,  $ab = 0.09$ , 95% CI: 0.02–0.18, and revealed a medium effect size for the indirect effect (Fritz, Taylor, & MacKinnon, 2012; Preacher & Hayes, 2011). The confidence interval excluded zero, indicating a significant indirect effect of loneliness on suicidal ideation via drug use, supporting the mediation hypothesis. Furthermore, the standardized effect size for the indirect effect was 0.06, indicating that suicidal ideation increases by 0.06 standard deviations for every 1-standard deviation increase in loneliness indirectly via drug use, after accounting for several important covariates. In order to further substantiate our decision to examine drug use as a mediating variable in the loneliness–suicidal ideation link as opposed to testing a model investigating loneliness as a mediator in the relation between drug use

and suicidal ideation, we tested this competing model. Results indicated that loneliness was not a significant mediator in the association between drug use and suicidal ideation ( $ab = 0.003$ , 95% CI:  $-0.001$ ,  $0.008$ ), as evidenced by the confidence interval including zero.

## DISCUSSION

The results of this study highlight the importance of drug use as a possible pathway for explaining, in part, the association between loneliness and suicidal ideation. In our sample of drug-using college students and after accounting for anxiety sensitivity, social desirability, and demographic variables, drug use was found to partially mediate the pathway from loneliness to suicidal ideation. Consistent with the existing literature and theory, loneliness was significantly and positively associated with increased drug use (Rokach, 2002) and suicidal ideation (Joiner, 2005; Schinka et al., 2013), and drug use was significantly and positively related to suicidal ideation (Britton & Conner, 2010; Wong et al., 2013). Additionally, as hypothesized, drug use mediated the association between lone-

liness and suicidal ideation, suggesting that assessment of each variable is important in identifying and preventing suicidal ideation within a collegiate population.

Although it is well established that both loneliness and drug use are risk factors for suicidal ideation (Caldeira et al., 2008; Lasgaard et al., 2011; Rimsza & Moses, 2005), these results extend the current literature by examining loneliness and drug use as predictors of suicidal ideation in combination and identifying one possible pathway from loneliness to suicidal ideation through drug use. As loneliness and drug use may have a reciprocal relationship, identifying drug use as a possible underlying mechanism explaining the association between loneliness and suicidal ideation provides important information about proximal targets for intervention and contributing factors for drug use among students with suicidal ideation. For lonely college students who are already familiar with drug use, increased drug use may mask negative emotions, serving as a coping mechanism and mood enhancer. Alternatively, drug use may allow students to affiliate with specific social groups, decrease social inhibitions when interacting with peers, and provide shared activities as a source of conversation. Indeed, from reports examining polysubstance-using young adults, the most common reasons for use were related to mood- and social-enhancing properties, including relaxation, continuing with a social activity, enhancing a social activity, and alleviating depressed mood (Boys, Marsden, & Strang, 2001).

As described previously, drug use is associated with social isolation, family conflicts, poor academic performance, legal problems, and decreased physical and mental health (Arria et al., 2013; Johnston et al., 2012; Palmer et al., 2012). Over time, students may enter a negative cycle in which this short-term coping strategy interferes with their ability to manage larger social and emotional difficulties, resulting in a greater propensity for psychopathology and, ultimately, suicidal ideation. Beliefs about perceived function of substance abuse have

been associated with severity of use; specifically, using substances to alleviate a negative mood state is associated with increased intensity of drug use (Boys & Marsden, 2003). Longitudinal study of motives for drug use and associated consequences among students endorsing loneliness may further elucidate this pathway to suicidal ideation.

Strengths of this study include its focus on drug use as an intermediate step between loneliness and suicidal ideation. This focus extends empirical findings related to current theories of suicide (e.g., interpersonal-psychological theory of suicide; Joiner, 2005) in that it provides a possible explanation for the pathway from loneliness to suicidal ideation among drug-using young adults. As many studies of substance use and suicidal thoughts among college students focus on alcohol use exclusively, the current study is also unique in its contribution to the small literature evaluating other drugs. The sample of college students from which the subsample of drug users was selected was large, and the prevalence of endorsed drug use was similar to prevalence rates found in larger epidemiological studies (e.g., *Monitoring the Future*; Johnston et al., 2012), thereby increasing generalizability. Finally, we controlled for known demographic and psychological risk factors for suicidal ideation, lending support that the mediational effect found was not spurious.

A primary limitation of this study is that the cross-sectional design did not allow for a test of temporal precedence to support that loneliness precedes increased drug use, which subsequently leads to suicidal ideation. A second limitation is that the exclusive use of self-report measures did not allow for the assessment of possible psychiatric diagnoses and therefore prohibiting their inclusion in the tested mediational model. As disorders such as depression have been linked to loneliness, drug use, and suicidal ideation (Conner et al., 2007), assessment of psychiatric diagnoses may have been an intermediary variable in the tested model.



Furthermore, the measures used in the study did not allow for examination of the role of specific drugs in contributing to suicidal ideation; thus, it is not possible from these results to identify the subpopulations of drug-using college students at greatest risk. Future studies examining loneliness, drug use, and suicidal ideation should consider measurement of specific drugs, as well as motivations to use, to determine whether each contribute distinct risk for suicidal ideation. Another interesting line of inquiry would be for researchers to discern between the mediating pathways of illicit drugs versus alcohol in the loneliness–suicidal ideation link. Moreover, future researchers should investigate loneliness and drug use as risk factors for not only suicidal ideation, but also suicide attempts and deaths.

Included in the U.S. Department of Health & Human Services' 2012 *National Strategy for Suicide Prevention* is advocacy for better identification and treatment of at-risk

college students as well as larger prevention programs on college campuses. The current results have implications for how colleges can improve their strategies in each of these critical areas for suicide prevention (Suicide Prevention Resource Center, 2004). For better identification of at-risk students, staff and clinicians can seek out those students who socially isolate, engage in regular drug use, or both. Residential advisors and peers may be particularly helpful in alerting staff about students who appear particularly lonely and are using substances. For clinicians treating suicidal college students, further assessment and intervention in the areas of loneliness and drug use may be indicated. Lastly, colleges are well equipped to promote opportunities to increase social connection and thereby combat loneliness through outreach, peer support, and social activities. Such upstream prevention programs could have a significant impact on the prevention of severe drug use as well as suicidal thoughts.

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