Sense of Purpose in Life and Likelihood of Future Illicit Drug Use or Prescription Medication Misuse

Eric S. Kim, PhD, Carol Ryff, PhD, Afton Hassett, PsyD, Chad Brummett, MD, Charlotte Yeh, MD, and Victor Strecher, PhD

ABSTRACT

Objective: In the United States, 28.6 million people used illicit drugs or misused prescription drugs in the last 30 days. Thus, identifying factors linked with lower likelihood of future drug misuse is an important target for research and practice. Sense of purpose in life has been linked with better behavioral and physical health outcomes. Furthermore, a higher sense of purpose may reduce the likelihood of drug misuse because it has been linked with several protective factors including enhanced ability to handle stress, higher pain tolerance, and lower impulsivity. However, the association between sense of purpose and drug misuse has been understudied. Thus, we tested whether people with a higher sense of purpose at baseline had a lower likelihood of future drug misuse 9 to 10 years later.

Methods: This study included 3535 middle-aged adults from the Midlife in the United States Study who were not misusing drugs at baseline. Using multiple logistic regression models, we assessed whether baseline purpose in life was associated with risk of misusing drugs 9 to 10 years later.

Results: Among respondents not misusing drugs at baseline, people in the highest quartile of purpose (versus lowest quartile) had a substantially lower likelihood of future drug misuse in a model adjusting for demographic variables (odds ratio = 0.50, 95% confidence interval = 0.31–0.83). Associations remained evident after additionally adjusting for psychological distress, baseline health, and health behaviors.

Conclusions: A growing knowledge base suggests that a sense of purpose can be increased. Additional research is needed to evaluate sense of purpose as a novel target in the prevention and reduction of drug misuse.

Key words: purpose in life, drug misuse, psychological well-being, substance abuse.

INTRODUCTION

In the United States, an estimated 28.6 million people used illicit drugs or misused prescription drugs in the last 30 days (1). This growing drug epidemic negatively impacts society through many pathways, including diminished mental, behavioral, and physical health as well higher health care costs, motor vehicle accidents, child abuse/neglect, and violence/crime (2). Currently, US life expectancy ranks 27th of the 36 Organization for Economic Cooperation and Development countries. According to a recent Surgeon General report, a substantial portion of this low ranking is attributable to substance misuse and the array of problems that it unleashes (2). Thus, a central challenge is to identify potentially modifiable factors that may reduce the likelihood of drug misuse, of whatever type, and among diverse age cohorts of adults—a need particularly critical in the current climate. In addition, the number of middle-aged adults and older adults experiencing problems with substance misuse is growing rapidly and thus is an age group that needs particular attention (3).

A growing body of research shows that psychological well-being is independently associated with a wide range of enhanced health outcomes and behaviors (4–6). In particular, purpose in life—the extent to which individuals see their lives as having meaning, a sense of direction, and broader goals to live for (4,7–11)—has been associated with lower risk of chronic conditions (e.g., cognitive impairment, stroke, and cardiovascular events) (12–19), higher likelihood of engaging in healthier behaviors (e.g., higher: physical activity, use preventive health screenings, and medication adherence) (20–22), better biologic function (e.g., lower allostatic load and enhanced glucoregulation) (23–25), and lower risk of mortality (16). Past research also finds that a higher sense of purpose is associated with protective factors that reduce the likelihood of drug misuse, including higher ability to handle stress, higher pain tolerance, lower impulsivity, and lower risk of depression and

HRS = Health and Retirement Study, **MIDUS** = Midlife in the United States Study, **MIDUS R** = Midlife in the United States Study Refresher, **SD** = standard deviation

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From the Department of Psychology (Kim), University of British Columbia, Vancouver, Canada; Department of Social and Behavioral Sciences (Kim) and Lee Kum Sheung Center for Health and Happiness (Kim), Harvard T.H. Chan School of Public Health, Boston; Program on Integrative Knowledge and Human Flourishing (Kim), Institute for Quantitative Social Science, Harvard University, Cambridge, Massachusetts; Department of Psychology (Ryff) and Institute on Aging (Ryff), University of Wisconsin, Madison, Wisconsin; Department of Anesthesiology (Hassett, Brummett), Michigan Medicine, University of Michigan, Ann Arbor, Michigan; AARP Service, Inc (Yeh), Washington, DC; and Department of Health Behavior and Health Education (Stretcher), University of Michigan School of Public Health, Ann Arbor, Michigan.

Address correspondence to Eric S. Kim, PhD, Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health, 677 Huntington Ave, Boston, MA 02215. E-mail: eskim@hsph.harvard.edu

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chronic conditions (26–30). Together, these studies suggest that having a higher sense of purpose in life influences key protective factors likely to reduce drug misuse. Although purpose in life is shaped by social structural factors and changing life circumstances, several studies suggest that purpose can potentially be modified using methods that range from volunteeringo group programs organized around cognitive behavioral therapy–based modules (4,31–35). Thus, it might be a novel and promising target for prevention and intervention efforts aimed at reducing drug misuse.

A small number of pioneering studies have contributed substantially to this literature by demonstrating links between a higher sense of purpose and lower risk of drug misuse (36–42); although findings are suggestive, they are limited in a number of ways. First, all studies used data from specific subpopulations (e.g., high school or college students and people from drug recovery programs), and we do not know if those results generalize to healthy populations, or adults beyond their early 20s. Second, all studies had cross-sectional designs except for two—one among cocaine users in a residential treatment program and the other among people in their early 20s. Third, most studies had smaller sample sizes. Fourth, many studies did not adequately account for potential confounders (e.g., demographics, psychological distress, and baseline health). Fifth, some studies used measures of purpose in life that have not been psychometrically evaluated. Thus, additional work is needed, in larger, representative, and prospective studies, with more control for potential confounders, and the use of validated purpose in life measures.

We built upon these important studies and used data from the Midlife in the United States Study (MIDUS) to test whether a higher sense of purpose in life was associated with lower drug misuse over time. We also used data from the Health and Retirement Study (HRS) to test a complementary hypothesis that would provide potential insight into a mechanism, whether a higher sense of purpose in life was associated with lower likelihood of drug misuse to cope with stress.

METHODS

Study Sample

Midlife in the United States Study

Data were from the MIDUS, an ongoing nationally representative study of US adults begun in 1995 with the aim of investigating biopsychosocial processes of aging. At baseline (MIDUS 1), 7108 noninstitutionalized adults (ranging in age from 25 to 74 years) were surveyed via a telephone interview and self-administered questionnaire. Two follow-up interviews (each approximately 9–10 years later) were completed to create MIDUS 2 and 3. After adjusting for mortality, longitudinal retention rates for both follow-up waves were 75%. Because data on drug misuse and the full purpose in life measure were first assessed in MIDUS 2, this study focuses on data from MIDUS 2 (baseline for this study) and the MIDUS 3 follow-up interview. In addition, in 2012, a new national sample of 3577 US adults (also aged 25–74 years) was recruited (the MIDUS Refresher (MIDUS R). Data from MIDUS R are included here to assess the consistency of findings obtained from the main analyses. The final analytic samples were $n = 3535$ (for MIDUS 2/MIDUS 3) and $n = 2591$ (for MIDUS R); Figures S1 and S2 http://links.lww.com/PSYMED/A650 describe inclusion criteria for each sample in detail.

Health and Retirement Study

Data were also from the HRS, an ongoing nationally representative panel study of US adults older than 50 years that began in 1992 and reinterviews people every 2 years. Starting in 2006, a random 50% of the HRS longitudinal panel was selected for an enhanced face-to-face interview (and the other half was interviewed in 2008) (43). After the interview, respondents were given a self-report psychosocial questionnaire that they completed and returned by mail. Information about drug misuse as a method of coping was only asked in an experimental module in 2008; these modules were administered to random subsets of HRS members at each wave. Our analyses were restricted to those who completed this module and the psychosocial questionnaire. The final analytic sample was 511; Figures S4 http://links.lww.com/PSYMED/A650 describes inclusion criteria.

Extensive documentation about the protocol, instrumentation, and sampling strategy exist for both MIDUS (http://www.midus.wisc.edu/) and HRS (http://hrsonline.isr.umich.edu/). Because the study used deidentified, publicly available data, the Harvard T.H. Chan School of Public Health Institutional Review Board exempted it from review.

Measures

Purpose in Life

Purpose in life was assessed in MIDUS 2, in the MIDUS R, and in the 2008 wave of HRS using the seven-item purpose in life subscale from the Ryff Psychological Well-Being Scales, previously validated in a nationally representative sample of adults (44). On a 7-point Likert scale (in MIDUS) and 6-point Likert scale (in HRS), respondents rated the degree to which they endorsed seven items (e.g., "I have a sense of direction and purpose in my life"). The sum of all seven items was taken to create a scale where higher scores reflected higher levels of purpose (Cronbach $\alpha = .72$ in MIDUS; Cronbach $\alpha = .74$ in HRS). To facilitate comparison of effect size across studies, we standardized scores derived for the current study (mean [standard deviation, or SD] = 1 [0]). Furthermore, to examine the possibility of threshold effects, we created quartiles based on the baseline distribution of purpose scores in the sample.

Drug Misuse

Drug misuse was assessed in MIDUS 2, MIDUS 3, and MIDUS R, using questions developed by the Substance Abuse and Mental Health Services Administration for use in its annual nationwide survey on drug misuse: the National Survey on Drug Use and Health (formerly known as the National Household Survey on Drug Abuse) (45). The survey asked participants (yes/no) if they used any of the following 10 categories of substances in the past 12 months: without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed: a) sedatives, b) tranquilizers, c) amphetamines, d) painkillers, e) antidepressants, f) inhalants, g) marijuana, h) cocaine, i) hallucinogens, and j) heroin. Participants were considered drug misusers if they reported using any of these substances. See Methods and Results in the Supplemental Digital Content http://links.lww.com/PSYMED/A650 for further details about this assessment.

Misuse of Drugs to Cope

Misuse of drugs to cope was assessed during the 2008 wave of HRS in an experimental module using a question adapted from the National Survey of Black Americans (46). Study participants were given the following prompt: "Because of all the demands of work, home, family or friends, we all feel stressed at times. The following questions ask about things you are most likely to do after having what you think is a stressful event or day," then HRS participants were asked the degree to which they endorsed using "prescription or other drugs to help make it [stress] easier to bear," on a 5-point Likert scale ranging from "never" (=1) to "very often" (=5). Because of the low number of people in each Likert-scale category, the cell sizes were not large enough for analyses; thus, we recategorized the outcome into a yes/no binary—anyone outside the "never" category was considered to be misusing drugs to cope.

Potential Confounders

Potential confounders included demographic variables, psychological distress, baseline health factors, and health behaviors. All covariates were assessed by self-report in MIDUS 2, MIDUS R, and HRS (in 2008); unless otherwise noted, they were coded in the same way. Please see Methods and Results in the Supplemental Digital Content http://links.lww.com/PSYMED/A650 for more detailed information about several of the variables. Demographic factors included the following: age (continuous), sex (male/female), race/ethnicity (White, African American, other), marital status (married/not married), educational attainment (<high school, General Educational Development or high school diploma, ≥college degree), total income (in MIDUS) or total wealth (in HRS; both based on quintiles of the score distribution), health insurance (yes/no), and employment status (yes/no). Psychological distress included the following: depression (in MIDUS: the Composite International Diagnostic Interview Short Form Scale (47); in HRS: the Center for Epidemiologic Studies Depression Scale) (48), anxiety (in MIDUS: generalized anxiety disorder was assessed using the Composite International Diagnostic Interview Short Form Scale (47,49); in HRS: elevated anxiety was assessed in the Beck Anxiety Inventory) (50,51), and lifetime stressors. We included a wide range of baseline health factors as they are risk factors for increased risk of drug misuse and potential confounders. Baseline health factors included the following: number of nights the participant was a patient in a hospital overnight (MIDUS asked about the past 1 year, HRS asked about the past 2 years), chronic pain, and chronic conditions (defined as having ≥1 [yes/no] of the following conditions [see Methods and Results in the Supplemental Digital Content http://links.lww.com/PSYMED/A650 for full list]) and assessed via participant reports of a doctor's diagnosis, number of nights participant was a patient in a hospital overnight (MIDUS asked about the past 1 year, HRS asked about the past 2 years), and chronic pain. Health behaviors included current (yes/no) self-reported drinking or smoking.

Statistical Analysis

In MIDUS, we used logistic regression to evaluate the likelihood of future drug misuse (yes/no) at follow-up among participants who did not report drug misuse at baseline. We evaluated four models for all our analyses. Model 1 adjusted for age. Model 2, the demographic model, included age, sex, race/ethnicity, marital status, educational attainment, income/total wealth, health insurance, and employment status. We then considered the outcome of sequentially adding other potential confounders, including baseline health (chronic conditions, chronic pain, number of nights hospitalized) and psychological distress (depression, anxiety, lifetime stressors; model 3). The last model additionally adjusted for health behaviors (current drinker, current smoker; model 4). In all analyses, purpose in life was first considered as a continuous and then as a categorical variable (quartiles). Analyses were conducted in Stata version 15.0.

Additional Analyses

We ran four additional analyses. First, we evaluated if a similar association between purpose and drug misuse would be observed in the MIDUS R cohort, a new cohort created to augment the existing MIDUS study with a new national sample recruited ~18 years after the initial baseline sample (MIDUS 1). MIDUS R did not have follow-up data; thus, analyses were cross-sectional. Second, we also evaluated the cross-sectional association between purpose and drug misuse in MIDUS 2. Third, In HRS, we used logistic regression to evaluate the likelihood of drug misuse to cope with stress. Fourth, to evaluate the potential presence of effect modification by age, we included an interaction term for age by purpose in life.

Missing Data

In MIDUS, we imputed missing data on all covariates and outcomes using an imputation by chained equations multiple imputation procedure (and generated five datasets), as this method provides a more accurate estimate of association than other methods of handling missing data such as complete

TABLE 1. Characteristics of Study Participants at Baseline (MIDUS 2, $n = 3535$; MIDUS Refresher, $n = 2591$; HRS Coping, $n = 511$)

Characteristic	Data Set: MIDUS 2 ($n = 3535$)[a]	MIDUS Refresher Sample ($n = 2591$)[b]	HRS Coping Module ($n = 511$)[c]
Demographic factors			
Age, mean (SD), y	57.1 (13.4)	52.8 (14.6)	71.1 (8.9)
Female, %	55.5	54.2	60.5
Race/ethnicity, %			
White	90.5	81.8	75.5
African American	4.5	7.5	13.5
Other	5.0	10.7	11.0
Married, %	69.4	64.8	59.9
Education, %			
<High school	8.2	5.7	20.9
High school	29.0	20.8	53.6
≥College	62.7	73.4	25.4
Income (MIDUS) or total wealth (HRS), %			
1st quintile	22.0	20.5	20.4
2nd quintile	18.4	20.0	19.8
3rd quintile	19.8	20.3	20.2
4th quintile	20.8	20.2	19.8
5th quintile	19.0	19.1	20.0
Health insurance, %	91.9	91.6	91.2
Employment status, %	60.3	60.1	31.1
Psychological distress			
Depression, %	10.7	11.6	13.3
Anxiety, %	1.9	2.9	14.1
Lifetime stressors, mean SD)	3.4 (2.6)	3.0 (2.5)	2.0 (1.7)
Baseline health			
Chronic condition(s), %	77.6	76.8	53.2
Mean no. of nights Hospitalized (SD)	1.0 (5.4)	0.7 (4.7)	2.9 (14.1)
Chronic pain, %	38.2	33.4	33.7
Health behaviors			
Current drinker, %	57.3	60.9	49.7
Current smoker, %	15.7	11.1	11.6

MIDUS = Midlife in the United States Study; HRS = Health and Retirement Study; SD = standard deviation.

[a] MIDUS 2 participants who did not misuse drugs at baseline (longitudinal analyses).

[b] MIDUS Refresher participants (cross-sectional analyses).

[c] HRS coping module participants (cross-sectional analyses).

[d] Generalized anxiety disorder was assessed in MIDUS using the Composite International Diagnostic Interview Short Form Scale and defined as a score of ≥3 (47,49). Elevated anxiety was assessed in HRS using the Beck Anxiety Inventory and defined as a score of ≥12 (50,51). There is no established cutoff score for anxiety disorder in HRS; thus, elevated anxiety was used, which does have a previously tested cutoff score in this cohort (50). The difference in assessed level of anxiety (e.g., anxiety disorder versus elevated anxiety) and cut points helps explain the higher rate of anxiety in HRS participants when compared with MIDUS participants. As a sensitivity analysis, we also created a new HRS anxiety disorder cutoff score that matched MIDUS anxiety disorder prevalence rates (2%–2.5%). When using this new cutoff score, in lieu of the originally constructed elevated anxiety score, results were nearly identical. Thus, we continued using the validated anxiety cutoff score in our main analyses.

case analyses (52–55). In HRS, we did not use multiple imputation because <5% of study respondents were dropped in complete case analyses.

RESULTS

Descriptive Statistics

Among nondrugs users at baseline in MIDUS 2, the average (SD) age of respondents was 57 (13.4) years, and they were primarily women (55%) and college educated or more (63%). Furthermore, 8.8% reported misusing drugs at follow-up 9 to 10 years later. In HRS, the average (SD) age of respondents at study baseline was 71 (9.0) years, and they were primarily women (60%) and high school educated (54%). In addition, 14.5% reported misusing drugs to cope with stress. Table 1 provides further descriptive statistics. Table S1 http://links.lww.com/PSYMED/A650 provides further information about how much each substance was misused, and Table 2 provides information on the percentage of respondents who misused multiple substances.

Purpose in Life and Future Drug Misuse

Among MIDUS 2 respondents who were not misusing drugs at baseline, each SD increase in purpose in life was associated with 22% lower odds (95% confidence interval [CI] = 0.65–0.92; Table 2) of future drug misuse 9 to 10 years later (in MIDUS 3), after adjusting for demographic factors. When considering quartiles of purpose in life, we observed a graded relationship between increasing quartiles of purpose and decreasing likelihood of future drug misuse in all models. For example, in the demographic factors model, compared with adults in the lowest purpose in life quartile, those in the middle-high purpose quartile had 35% lower odds (95% CI = 0.39–1.08) of future drug misuse, whereas those in the highest quartile had 50% lower odds (95% CI = 0.31–0.83). When purpose was considered as a continuous variable or in quartiles, associations between purpose in life and future drug misuse were consistent and persisted across all four covariate models. See Methods and Results in the Supplemental Digital Content http://links.lww.com/PSYMED/A650 for results from the cross-sectional analyses in the MIDUS R sample (Tables S2, S3 http://links.lww.com/PSYMED/A650). The pattern of results for both sets of cross-sectional results was largely similar to the longitudinal results, but slightly stronger in magnitude.

In addition, there was no interaction between purpose and age (p for interaction = .87).

Purpose in Life and Misuse of Drugs to Cope With Stress

In HRS, each SD increase in purpose in life was associated with 39% lower odds (95% CI = 0.47–0.80; Table 3) of misusing drugs to cope with stress in the demographic factors model. When considering quartiles of purpose in life, we again observed a graded relationship. When purpose was considered as a continuous variable or in quartiles, the main association of interest was consistent and persisted across all four models.

DISCUSSION

We observed a strong relationship between increasing levels of baseline purpose in life (MIDUS 2) and decreasing likelihood of future drug misuse at 9- to 10-year follow-up (MIDUS 3). In a second cohort (MIDUS R), we observed the same pattern. In a third cohort (HRS), we observed a strong relationship between increasing levels of purpose in life and decreasing likelihood of misusing drugs to cope with stress—providing complementary evidence to our main findings. Future research should further evaluate this latter finding as a potential mechanism using longitudinal data and formal mediation methods. All three sets of findings were maintained after close control for potential confounding factors, including demographic variables, and still evident (although attenuated) even after further adjustment for psychological distress, baseline health, and health behaviors. Our findings are consistent with results from two bodies of research that have evaluated the association between higher purpose and: a) lower risk of drug misuse

TABLE 2. Odds Ratios for the Longitudinal Association Between Baseline Purpose in Life and Future Drug Misuse 9 to 10 Years Later (MIDUS 2 and MIDUS 3; n = 3535)

	Purpose in Life				
Models	Continuous Purpose Score[a]	Quartile 1 (n = 873; n = 90 Misusers)	Quartile 2 (n = 874; n = 89 Misusers)	Quartile 3 (n = 960; n = 78 Misusers)	Quartile 4 (n = 828; n = 52 Misusers)
Age adjusted	0.76 (0.64–0.90)	Reference	0.87 (0.61–1.24)	0.61 (0.38–0.98)	0.48 (0.29–0.79)
Demographics[b]	0.78 (0.65–0.92)	Reference	0.92 (0.64–1.34)	0.65 (0.39–1.08)	0.50 (0.31–0.83)
Demographics[b], psychological distress[c], baseline health[d]	0.82 (0.70–0.98)	Reference	1.00 (0.68–1.47)	0.73 (0.44–1.22)	0.58 (0.35–0.95)
Demographics[b], psychological distress[c], baseline health[d], health behaviors[e]	0.81 (0.68–0.97)	Reference	0.98 (0.66–1.45)	0.71 (0.42–1.19)	0.56 (0.34–0.93)

MIDUS = Midlife in the United States Study.

[a] Per 1-standard deviation increase in purpose in life score.

[b] Demographic factors included age, sex, race/ethnicity, marital status, education, income, health insurance, and employment status.

[c] Psychological distress factors included depression, anxiety, and life stressors.

[d] Baseline health factors included chronic conditions, chronic pain, and number of nights hospitalized.

[e] Health behaviors included current drinker and current smoker.

TABLE 3. Odds Ratios for the Cross-Sectional Association Between Purpose in Life and Likelihood of Misusing Drugs to Cope With Stress (in HRS Coping Module; $n = 511$)

	Purpose in Life				
Models	Continuous Purpose Score[a]	Quartile 1 ($n = 148$; $n = 35$ Misusers)	Quartile 2 ($n = 136$; $n = 21$ Misusers)	Quartile 3 ($n = 103$; $n = 10$ Misusers)	Quartile 4 ($n = 124$; $n = 8$ Misusers)
Age adjusted	0.59 (0.46–0.76)	Reference	0.60 (0.33–1.10)	0.35 (0.16–0.75)	0.22 (0.10–0.52)
Demographics[b]	0.61 (0.47–0.80)	Reference	0.60 (0.32–1.13)	0.37 (0.17–0.82)	0.24 (0.10–0.57)
Demographics[b], psychological distress[c], baseline health[d]	0.73 (0.54–0.99)	Reference	0.72 (0.36–1.47)	0.58 (0.24–1.39)	0.35 (0.13–0.90)
Demographics[b], psychological distress[c], baseline health[d], health behaviors[e]	0.72 (0.53–0.97)	Reference	0.70 (0.34–1.43)	0.53 (0.22–1.30)	0.34 (0.13–0.89)

HRS = Health and Retirement Study.

[a] Per 1-standard deviation increase in purpose in life score.

[b] Demographic factors included age, sex, race/ethnicity, marital status, education, income, health insurance, and employment status.

[c] Psychological distress factors included depression, anxiety, and life stressors.

[d] Baseline health factors included chronic conditions, chronic pain, and number of nights hospitalized.

[e] Health behaviors included current drinker and current smoker.

(36–42) as well as b) higher likelihood of recovery from drug misuse or alcohol dependence (56–58).

Although the mechanisms underlying these findings are unclear, mounting research finds that people with a higher sense of purpose differ on numerous processes known to predict drug misuse, including higher ability to handle stress, higher pain tolerance, lower impulsivity, and lower risk of depression and chronic conditions. Evidence suggests that a higher sense of purpose in life buffers against stress through enhanced emotion regulation. For example, people with higher purpose have a slower eye-blink startle reflex in response to negative picture stimuli and faster recovery to prestress cortisol levels after exposure to acute social laboratory stressors (26,27). Moreover, a recent daily diary study observed that on days when people faced higher amounts of daily stressors, those with higher purpose displayed less pronounced spikes in negative affect and physical symptoms (30). Thus, having a higher sense of purpose may reduce the likelihood of drug misuse owing to an enhanced ability to cope with and/or recover from daily stressors. Additional research shows that people with a higher sense of purpose display an enhanced ability to habituate to pain (28), which may in turn decrease the need for analgesics. People with high purpose also display a heightened ability to curb impulsivity (29), which may in turn help reduce the likelihood of drug misuse. Higher purpose has also been associated with lower risk of depression and several chronic conditions (e.g., cardiovascular events and Alzheimer's disease) (15,16) that are additional risk factors for future drug misuse. Although the temporal ordering of our data did not allow us to accurately test potential mechanisms, future research with appropriate data should.

Our study has several limitations. Confounding by unmeasured variables is a limitation in observational research; however, findings were maintained after careful control for multiple demographic factors, psychological distress, baseline health, and health behaviors. Biased estimates due to attrition may be a problem because people who start misusing drugs are more likely to drop out; however, we used a multiple imputation method that helps alleviate this concern (52–55). Our drug misuse assessment asked about misuse only in the past 12 months. Although we tried limiting potential confounding introduced by prior drug misuse, we were unable to exclude people who misused drugs >12 months ago because of the wording of the drug misuse assessment. Furthermore, because of the nature of the drug misuse assessment, we were unable to differentiate between important nuances including: a) initiation, b) maintenance, c) cessation, and d) relapse to drug misuse; each of these behavioral processes might be influenced by different dynamics, and future research should evaluate these nuances. The range of misused drugs examined in MIDUS is broad, but because of power issues, we were unable to evaluate specific drug categories; future research should evaluate this question as some of the drugs evaluated are riskier than others and have more adverse effects. Moreover, intensity or frequency of drug misuse was assessed and should be investigated in future work. Future research should also evaluate potential mechanisms underlying the purpose in life and drug misuse association. Finally, these cohorts are representative of middle- and older-aged adults, and results may not generalize to younger populations.

This study also has considerable strengths. Data were from large, prospective, diverse, and national samples of US adults. Furthermore, MIDUS is one of the few studies with detailed information about purpose in life, a broad set of relevant risk factors, and measures of drug misuse over time. In addition, both the primary exposure and outcome were assessed with validated and widely used measures. The prospective nature of our data reduces potential concerns that the associations reported in this study are attributable to reverse causation or retrospective reporting bias. Evidence of a purpose–drug misuse association in a completely independent sample (MIDUS R) is another strength, as is complementary evidence from a third data set (HRS).

Health care professionals are struggling to contain the growing drug epidemic in the United States, and a comprehensive and multidisciplinary effort is needed. Although much more research is required, emerging research suggests that a sense of purpose in life

might serve as a novel target for prevention (e.g., screener may help identify those vulnerable to future drug misuse) and multilevel intervention efforts aimed at stemming the tide of our nation's growing drug epidemic.

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