

RESEARCH ARTICLE

Purpose and mastery as predictors of perceived health and substance use problems

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Abstract

We explored whether purpose in life and mastery predicted perceived physical health and problematic substance use among a sample of emerging adults who reported ever using alcohol or drugs. We examined perceived stress and coping as potential mediators of these associations and explored whether parental support moderated any of these associations. In a sample of emerging adults from across the United States ($N = 2,564$; $M_{\text{age}} = 20.87$, standard deviation = 1.75; 49.6% male), purpose in life and mastery were associated with better-perceived health and fewer negative consequences of drug use via lower perceived stress and coping. In addition, parental support modified the relationship between purpose in life and stress and coping. The findings suggest potential health benefits associated with a greater purpose in life and mastery and indicate that parental support may enhance these associations.

KEYWORDS

coping, mastery, parental support, perceived health, problematic substance use, purpose in life, stress

1 | INTRODUCTION

Young adulthood can be a time of personal growth, self-focus, and revision of priorities and goals. Yet, it may also be a time of increased stress as youth transition into new adult roles and responsibilities (Arnett, 2007). Previous research and theory strongly support the link between stress and physical health complaints and risk behavior, including substance use (Dawson, Grant, & Ruan, 2005; Farmer & Ferraro, 1997; Sinha, 2001; Weiss, Duke, & Sullivan, 2014). Yet, individual assets, including a sense of purpose in life and mastery over the environment, may diminish stress and boost coping resources, thereby improving well-being outcomes (e.g., Zilioli, Slatcler, Ong, &

Gruenewald, 2015). The present study sought to explore this potential association in a sample of late adolescents transitioning into young adulthood (i.e., young adults, ages 18–24) who reported ever using alcohol or drugs. Specifically, we investigated whether purpose in life and mastery were associated with lower stress and higher adaptive coping, which in turn were related to perceived health and self-reported problematic substance use. Furthermore, strong family relationships may be imperative to the effectiveness of purpose in life and mastery in reducing stress and increasing coping (e.g., Moran, Bundick, Malin, & Reilly, 2013). Thus, we also explored the potential for perceived parental support to moderate these relationships.

2 | SUBSTANCE USE PROBLEMS AND PERCEIVED PHYSICAL HEALTH

Emerging adulthood is generally a period of good physical health; however, it is also a time in which patterns of behavior are established that contribute to current and future physical health and risk for chronic disease (Lawrence, Gootman, & Sim, 2009). Of particular concern is the peak in substance use during this developmental period (Park, Scott, Adams, Brindis, & Irwin, 2014). Substance use is common during young adulthood (Center for Behavioral Health Statistics & Quality [CBHSQ], 2015). For example, in a 2014 national survey, 59.6% of adults aged 18–25 reported past month alcohol use and 22% reported past month illicit drug use (CBHSQ, 2015). Importantly, normative or experimental substance use often escalates to problem use. In 2014, 5.7 million individuals aged 18–25 had a substance use disorder in the past year (CBHSQ, 2015). Indeed, this figure, representing 16.3% of young adults in the United States, is the highest afflicted age group.

Substance use disorders often co-occur with other mental health disorders (CBHSQ, 2015), but problematic substance use can also co-occur with poor physical health. Yet, less attention has been given to the link between problematic substance use and physical health during emerging adulthood. Researchers have reported that problematic substance use and perceived health are associated (Borders et al., 2009; Falck, Wang, Carlson, & Siegal, 2000; Paljärvi, Suominen, Car, Mäkelä, & Koskenvuo, 2011). For example, Falck et al. (2000) found that more frequent crack-cocaine and alcohol use were associated with poorer perceived health status in a sample of adult crack-cocaine users. Together, problematic substance use and poor physical health can be detrimental to an individual's quality of life and lead to further declines in overall health (e.g., Farmer & Ferraro, 1997). Examining physical health during this development period, in conjunction with behavioral concerns that are peaking at this stage (i.e., substance use), may contribute to our understanding of the course of future disease risk. The present study assessed perceived physical health as an indicator of actual health, which may be more inclusive of the various factors affecting health than objective measures alone and has been shown to predict mortality (Idler & Benyamini, 1997).

Stress can contribute to problematic substance use and poor perceived health (Dawson et al., 2005; Debnam, Milam, Furr-Holden, & Bradshaw, 2016; Farmer & Ferraro, 1997; Low et al., 2012; San Jose, van Oers, van de Mheen, Garretsen, & Mackenbach, 2000; for a review, see Sinha, 2001). For example, researchers have found that common stressors (e.g., romantic breakup) are associated with binge drinking, marijuana use and cigarette smoking among adolescents (Low et al., 2012). Similarly, San Jose et al. (2000) found that numerous stressful life events (e.g., divorce) and chronic stressors (e.g., unemployment) were associated with heavy drinking, particularly for men. Related to perceived health, Farmer and Ferraro (1997) found that distress was associated with poorer concurrent perceptions of health; poor perceived health, in turn, contributed to greater distress longitudinally. Researchers also report strong support for the association between stress and dysregulation of physiological mediators of the stress response, which may lead to poor subjective and objective health when chronically burdened (Cohen, Tyrrell, & Smith, 1991; Glaser et al., 1987; McEwen, 2006).

On the contrary, adaptive coping may be associated with lower problematic substance use and, in addition, better-perceived health (Lowe, Norman, & Bennett, 2000; Sinha, 2001; Weiss et al., 2014). Lazarus and Folkman (1984) have noted that adaptive coping is critical for positive adjustment to stressful situations. Individuals with

poor coping resources may utilize substances to decrease distress or to enhance mood (Sinha, 2001), but this reliance may be alleviated if an individual can engage in adaptive coping strategies. Weiss et al. (2014) found that female victims of intimate partner violence who reported moderate levels of avoidance coping reported the lowest levels of drug use problems, suggesting that such coping strategies may be adaptive in this context. Similarly, Lowe et al. (2000) found that problem-focused coping (i.e., direct action to alter one's situation) was adaptive for patients following myocardial infarction. Specifically, individuals who engaged in problem-focused coping reported 2 months after a myocardial infarction expressed fewer health complaints 4 months later. In the present study, we focused on the sense that one's coping strategies are sufficient to adapt to stress; thus, we were interested in the adaptive nature of participants' coping rather than specific forms of coping per se.

Given the established link between stress and coping and problematic substance use and perceived health, it is important to understand what factors may alleviate stress and bolster coping efforts. Stress-related factors may mediate the association between individual vulnerabilities (e.g., personality traits) and substance use behavior (Sinha, 2001). Indeed, drawing upon this hypothesis, individual strengths and assets may effect problematic substance use and perceived health as mediated through their ameliorating effects on stress and bolstering effect on coping skills.

3 | PSYCHOLOGICAL WELL-BEING, STRESS, AND COPING

Purpose in life is a component of positive psychological well-being and constitutes having "goals, intentions, and a sense of direction, all of which contribute to a feeling that life is meaningful" (Ryff, 1989, p. 1071). Purpose in life can provide a framework for individuals' goals and actions and allows individuals to adapt to challenging circumstances by organizing resource allocation toward the area of greatest need, thus bolstering the ability to cope with stressors, maintain psychological health, and avoid health-risk behavior (McKnight & Kashdan, 2009). Purpose in life provides a reason to perform daily tasks and to look forward to the future. On the contrary, daily activities may seem fruitless and insignificant without a sense of direction and overarching purpose in life. Furthermore, a sense of purpose in life can provide individuals with an impetus to persist through current impositions or trials (Frankl, 1984). Purpose in life is an understudied psychological asset even though researchers have reported an association between purpose in life and health (Bronk, Hill, Lapsley, Talib, & Finch, 2009; Bundick, 2011; Hill, Burrow, Brandenberger, Lapsley, & Quaranto, 2010; Lyon & Younger, 2001). Researchers have found, for example, that purpose in life is associated with less substance use behavior among both adolescents and young adults (Harlow, Newcomb, & Bentler, 1986; Minehan, Newcomb, & Galaif, 2000) and lower incidence of health problems in older adults (i.e., myocardial infarction; Kim, Sun, Park, Kubzansky, & Peterson, 2013). Thus, theory and research to date support purpose in life as a health promotive factor.

Environmental mastery (hereafter, mastery) is another component of psychological well-being (Ryff, 1989). Mastery encompasses an "individual's ability to choose or create environments suitable to his or her psychic conditions" (Ryff, 1989, p. 1071). Thus, an individual who scores high in mastery would express an ability to control one's environment and activities, as well as command over matching the environment with one's needs (Ryff, 1989). Previous research suggests that mastery is associated with higher levels of happiness, higher life satisfaction, and lower depression (Ryff & Keyes, 1995). Mastery may promote optimal well-being by providing individuals with a general sense of control over external adversities. Extending this prediction, mastery may also be associated with lower substance use problems and better-perceived health. Indeed, previous research suggests that mastery is associated with higher drug addiction resistance in adults (i.e., lower substance use disorder symptoms given the level of consumption; Kendler & Myers, 2015), and categorization into substance use consumption groups (i.e., higher mastery associated with classification as a nondrinker/nondrug-consumer; López et al., 2001), as well as better perceived health among older patients (over age 45) with multiple sclerosis (Krokvacova et al., 2008).

Importantly, the effect of purpose in life and mastery on substance use problems and perceived health may be mediated by their effect on stress and coping. Indeed, previous research suggests that individuals with individual protective factors are less negatively affected by transitional stressors and, consequently, less likely to display consequences like substance use (White et al., 2006; Zilioli et al. (2015)). found that purpose in life was inversely associated with allostatic load indicators 10 years later in a national sample of adults. Thus, purpose in life may be associated with lower perceived stress and, relatedly, physiological mediators of the stress response (Ishida & Okada, 2006). Although these studies support the protective effect of purpose on perceived stress, other researchers suggest the opposite (e.g., see Lazarus & DeLongis, 1983; Zika & Chamberlain, 1992). Lazarus and DeLongis (1983) posit that an individual's personality characteristics (i.e., personal beliefs, values) shape their appraisal and response to stressors, but suggest that having a purpose in life means that an individual has invested in and cares deeply about something, and when that is under attack, stress increases. Previous research suggests that those who report high purpose in life also report lower emotion-focused coping, which may be maladaptive (Stevens, Pfost, & Wessels, 1987). Furthermore, Miao, Zheng, and Gan (2016) found that rate of change in meaning in life, which is a closely related concept to purpose in life, was associated with changes in proactive coping through its positive influence on effect.

Roepke and Grant (2011) equated mastery to a coping resource, which is described as a "social or personality resource that people use to help manage stressors and might also attenuate the physiological effect of such stressors" (p. 615). Thus, possessing a firm sense of mastery may lead to a sense that one's coping skills are adequate for the challenges that are experienced and, in tandem, may reduce the effect of psychological stressors (Roepke & Grant, 2011). For example, in a sample of married adult chronic pain patients, those reporting high mastery also reported lower total marital strain and stress compared to limited or moderate mastery groups (Elliot, Trief, & Stein, 1986). In addition, respondents who were high in mastery reported using negotiation more than limited and moderate mastery groups, and selective ignoring and stress management coping strategies less than the other groups (Elliot, Trief, & Stein, 1986). This suggests that a sense of mastery can also direct whether adaptive coping strategies are utilized and how stress is perceived.

4 | PERCEIVED PARENTAL SUPPORT AND THE EFFECTS OF PSYCHOLOGICAL WELL-BEING

Although previous research suggests that parental support may be integral to developing purpose in life and mastery during childhood and adolescence (e.g., Bronk, 2014; Surjadi, Lorenz, Wickrama, & Conger, 2011), we explore how perceived parental support may instead provide a nourishing context in which to pursue purpose in life and exercise mastery in early adulthood. For example, although young adults may have a sense of purpose in life, they may be reluctant or uncertain as to how to pursue that purpose unless they have supportive and encouraging social relationships (Moran et al., 2013). In turn, the perceived ability to pursue this purpose in life may be critical to its stress-reducing and enhanced coping effects. Furthermore, it is unclear if perceived parental support is important for the association between mastery and stress and coping. Thus, this possibility was explored in the current study.

5 | THE PRESENT STUDY

The goal of the current study was to test the direct and indirect effects of purpose in life and mastery on problematic substance use and perceived health in a sample of young adult substance users. These relationships were expected to be mediated by perceived stress and coping. We hypothesized that purpose in life and mastery would be associated with lower perceived stress and higher coping. In turn, we hypothesized that stress would be

associated with more substance use problems and lower perceived health; more adaptive coping was expected to be associated with fewer negative consequences due to substance use and better-perceived health. We further hypothesized indirect effects of purpose in life and mastery on substance use problems and perceived health through stress and coping. Finally, we explored the potential moderation of the relationship between purpose in life and mastery with stress and coping by perceived parental support.

6 | METHODS

6.1 | Participants

Data were collected as part of the *Virtual Networks Study*, a cross-sectional observational study examining young adults' interpersonal relationships online. Eligible participants were between the ages of 18 and 24, lived in the United States, and had access to the internet. We used an adapted web version of respondent-driven sampling webRDS to recruit participants. We recruited 22 participants (i.e., seeds) from across the United States, with a diverse racial and regional composition to ensure that initial network seeds were diverse and that we would not bias our sampling strategy by concentrating recruitment in a single region in the United States. Seeds were recruited through an online Facebook advertisement and linked to the study's eligibility screener, where they could find information about the study and provide contact information so that our research team could contact them over the phone. A member of our research team called eligible participants and, if they filled a vacancy in our race/region matrix, provided them with a link and password to the web questionnaire. The remainder of our sample ($N = 3,426$) was recruited through referral chains from the original 22 seeds. The total sample included 3,448 participants ($M_{\text{age}} = 20.78$, standard deviation [SD] = 1.76; 47.85% female; 70.31% White). Our sample reported substance use rates comparable to those found among young adults in other national studies (Bauermeister et al., 2012). See Bauermeister and colleagues (2012) for additional information on the sampling procedures and additional characteristics of the sample.

The sample for the present study included only those participants who reported the use of at least one substance in their lifetime ($N = 2,564$; $M_{\text{age}} = 20.87$, $SD = 1.75$; 50.39% female; 73.48% White; see Table 1 for a complete demographic description of study participants). Participants were asked to indicate whether they had ever used any of these in their lifetime? cigarettes; alcohol; marijuana (pot, grass, weed, herb); cocaine (not crack); ecstasy/MDMA; crystal meth/amphetamines/methamphetamines/speed/crank; ketamine/special K; GHB (gamma hydroxybutyrate); viagra, cialis, or levitra; nonprescription steroids; poppers/amyl nitrate/butyl nitrate; crack; heroin; any other pharmaceutical drug not prescribed to you by a physician; hallucinogens/LSD/mushrooms; other (please specify). Participants were able to check all that applied. An affirmative response to any of these substances resulted in inclusion in the study sample. Participants who had never used any type of substance in their life ($n = 809$) were dropped from the study given that emerging adults who have never used substances have been shown to be meaningfully different from their peers with a history of any use (Vaughn et al., 2011), and we were interested in determining whether our variables of interest may be of consequence for problematic substance use among those who reported any (even minimal) substance use in the past.

6.2 | Procedure

Each prospective participant logged into the survey portal using their unique identifying number, and subsequently created an account using a personal e-mail address. Prospective participants completed a short demographic eligibility screener. Eligible participants read and consented to the study, then completed a survey assessing their internet use, AOD use, and AOD correlates (e.g., mental health). Participants received a US\$20 monetary incentive for completing the survey and were offered US\$10 for every additional young adult (up to 5) who were referred into the study and completed the survey (see Bauermeister et al, 2012, for full study procedures). Study procedures

TABLE 1 Descriptive statistics ($n = 2564$)

Variable	M (SD)	% (n)
Age	20.87 (1.75)	
Less than 20 years		56.44 (1,447)
21+ years		43.21 (1,108)
School status		
Nonstudent		21.14 (542)
Student		78.86 (2,022)
Gender		
Male		49.61 (1,272)
Female		50.39 (1,292)
Race		
Asian or Pacific Islander		10.90 (270)
Black or African American		4.25 (109)
Hispanic/Latino		6.67 (171)
Native American		.90 (23)
Multiracial		2.42 (62)
White or European American		73.48 (1,884)
Other		1.40 (36)
Missing		.35 (9)
Lifetime substance use		
Cigarettes		53.08 (1,361)
Alcohol		96.80 (2,482)
Marijuana		54.72 (1403)
Cocaine		6.79 (174)
Ecstasy/MDMA		6.83 (175)
Crystal meth/amphetamines/methamphetamines/speed/ crank		1.68 (43)
Ketamine/special K		1.33 (34)
GHB (gamma hydroxybutyrate)		.66 (17)
Viagra, cialis, or levitra		1.01 (26)
Nonprescription steroids		.66 (17)
Poppers/amyl nitrate/butyl nitrate		1.48 (38)
Crack		1.01 (26)
Heroin		1.29 (33)
Any other pharmaceutical drug not prescribed to you by a physician		14.43 (370)
Hallucinogens/LSD/mushrooms		9.95 (255)

Abbreviations: SD: standard deviation.

Frequencies represent the sample included in the analyses.

were reviewed and approved by the University of Michigan Institutional Review Board. Study data are protected by a Certificate of Confidentiality.

7 | MEASURES

7.1 | Purpose in life

Purpose in life was assessed with seven items (e.g., *I am an active person in carrying out the plans I set for myself*; Psychological Wellbeing Scale—Purpose in Life subscale; Ryff & Keyes, 1995). Response options ranged from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Items were averaged; higher scores indicated a higher purpose in life (Cronbach's $\alpha = 0.76$).

7.2 | Mastery

A sense of mastery was assessed with seven items (e.g., *What happens to me in the future mostly depends on me*; Pearlin Mastery Scale; Pearlin & Schooler, 1978). Response options ranged from 1 (*Not true*) to 5 (*Very true*). Items were averaged; higher scores indicated a higher sense of mastery (Cronbach's $\alpha = 0.84$).

7.3 | Perceived stress

Perceived stress, or the degree to which one perceives aspects of one's life as causing unpredictable and overloading, was assessed with five items modified from Cohen, Kamarck, and Mermelstein, (2015); (e.g., *In the past month, how often have you been upset because of something that happened that you didn't expect?*; Cronbach's $\alpha = 0.87$). Response options ranged from 1 (*Never*) to 5 (*Very often*). Items were averaged; higher scores indicated higher perceived stress.

7.4 | Perceived coping

Perceived coping, or the degree to which one perceives aspects of one's life as controllable, was assessed with six items modified from Cohen et al. (1983; e.g., *In the past month, how often have you felt able to handle your personal problems?*; Cronbach's $\alpha = 0.90$). Response options ranged from 1 (*Never*) to 5 (*Very often*). Items were averaged; higher scores indicated higher perceived coping.

7.5 | Perceived health

Perceived health was assessed with a single item (*In general, how is your health?*). Response options ranged from 1 (*Poor*) to 5 (*Excellent*). Higher scores indicated better-perceived health.

7.6 | Negative consequences of drug use

Problematic substance use was operationalized as the negative consequences of drug use. Participants were asked: *In your lifetime, has your use of drugs negatively influenced your... physical health; mental health; social relationships; work or school; and finances*. Participants indicated yes or no to each item. The number of yes responses were summed. Higher scores indicated more negative consequences associated with substance use.

7.7 | Perceived parental support

Maternal and paternal support were assessed with five items each (e.g., *My mother or female person who raised me [My father or male person who raised me] enjoys hearing about what I think*; Prociano & Heller, 1983). Response options ranged from 1 (*Not true*) to 5 (*Very true*). Higher scores indicated higher maternal/paternal support (maternal support: Cronbach's $\alpha = 0.95$; paternal support: Cronbach's $\alpha = 0.96$). These two scales were averaged to obtain a measure of perceived parental support. The scores were dichotomized (1 = *high parental support*; 0 = *low parental support*) according to the median of the study subsample and used in our multigroup analysis to test for moderation.

7.8 | Covariates

Participants' age at the time of survey administration was calculated from their date of birth. Participants also provided information regarding their gender, race, and their highest level of education completed. Race (0 = nonWhite; 1 = White) and education (0 = less than some college; 1 = at least some college) were dichotomized for analyses.

7.9 | Analysis plan

Descriptive analyses were explored using IBM SPSS 24. The mean substitution was used on continuous missing variables as the percentage of missing data was less than 5% (Tabachnick & Fidell, 2007). We tested our hypothesized model using path analyses in Mplus 7.0 (Muthén & Muthén, 2012). All variables were reasonably normally distributed; thus, we utilized full information maximum likelihood estimation. Cases with missing data on categorical exogenous covariates (i.e., gender, race, and education) were excluded from analyses ($n = 179$). Paths from covariates to the variables of interest were modeled if bivariate correlations were significant at $p < .05$. We evaluated model fit based on the χ^2 goodness of fit statistic, comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Path coefficients were evaluated to determine direct and indirect effects. We also obtained 95% bias-corrected bootstrapped confidence intervals (CI) with 5,000 draws to determine the significance of indirect effects (Hayes, 2009).

We conducted multigroup analyses to determine if there were differences based on perceived parental support in the effect of purpose in life and mastery on perceived stress and coping. Paths of interest were allowed to differ between groups while holding all other paths constrained. Again, we utilized the ML estimation. We used χ^2 difference tests to determine if there was a significant difference in the fit of the constrained and partially unconstrained models (Anderson & Gerbing, 1988). Parameter estimates of the unconstrained paths were evaluated to determine the source of significant differences.

8 | RESULTS

8.1 | Descriptive data and bivariate correlations

Descriptive data and bivariate correlations are presented in Table 2. Variables under study were significantly associated in the expected directions.

8.2 | Full sample model

The hypothesized model fit the data well, $\chi^2(15) = 73.02$, $p < .001$, RMSEA = .04 (90% CI [.03, .05]), CFI = .98, SRMR = .02. Unstandardized coefficients for the full hypothesized model are presented in Table 3. As seen in Figure

TABLE 2 Descriptive statistics and bivariate correlations of study variables ($n = 2564$)

Variable	M (SD)	% (n)	1	2	3	4	5	6
<i>Primary study variables</i>								
1. Purpose in life	3.65 (.69)		-					
2. Mastery	3.97 (.78)		.51**	-				
3. Perceived stress	2.92 (.81)		-.22**	-.44**	-			
4. Coping	3.43 (.74)		.43**	.48**	-.23**	-		
5. Perceived health	4.06 (.78)		.19**	.18**	-.21**	.20**	-	
6. Drug use problems	.74 (1.34)		-.15**	-.10**	.10	-.10**	-.18**	-
<i>Demographic covariates included in model</i>								
7. Age	20.87 (1.75)		0.01	-.01	-.08**	-.01	-.01	.05*
8. At least some college		71.4 (1830)	.08**	.04*	.01	.07**	.01	.00
9. Male		49.6 (1272)	-.09**	.02	-.23**	-.004	.10**	.07**
10. White		77.3 (1982)	.06**	.08**	-.01	.10**	.05*	.04
<i>Moderator</i>								
11. Parental support	3.63 (1.03)	48.9 (1253) ^a	.27**	.20**	-.04	.27**	.18**	-.06**

^aLow parental support includes 3.70 and below.

* $p < .05$.

** $p < .01$.

1, purpose in life was significantly associated with higher coping. The relationship between purpose in life and perceived stress was nonsignificant. Mastery was significantly associated with lower perceived stress and higher coping. Perceived stress was significantly associated with poorer perceived health and more drug use-related problems. On the contrary, coping was significantly associated with better-perceived health and fewer drug use-related problems.

As seen in Table 4, the indirect effects suggest that purpose in life was associated with both better-perceived health and fewer negative consequences of drug use. This effect was transmitted primarily through its effect on coping. Mastery was indirectly associated with better-perceived health and fewer negative consequences of drug use, and this relationship was transmitted through both perceived stress and coping.

8.3 | Moderation by perceived parental support

Moderation by perceived parental support of the association between purpose in life and mastery on perceived stress and coping was then evaluated. Four partially unconstrained models were evaluated against the fully constrained model. For each partially unconstrained model, a single path of interest was allowed to differ between groups. Results of the χ^2 difference tests are presented in Table 5. Freeing the effect of purpose in life on perceived stress significantly improved model fit. Individuals who self-reported low perceived parental support exhibited a nonsignificant association between purpose in life and perceived stress ($b = .021$, $p = .510$); however, individuals who reported high perceived parental support showed a significant negative association between purpose in life and perceived stress ($b = -.114$, $p < .001$). Freeing the association between purpose in life and coping also significantly improved model fit. Although this association was significant for both groups, individuals who reported low perceived parental support exhibited a stronger relationship between purpose in life and coping ($b = .298$, $p < .001$) compared to those who reported high perceived parental support ($b = .193$, $p < .001$). Freeing the associations between mastery and perceived stress and coping did not improve model fit; thus, moderation by perceived parental support for these pathways was not supported.

TABLE 3 Unstandardized coefficients of direct effects

Path	Unstandardized coefficient	SE
<i>Path coefficients of primary study variables</i>		
Purpose in life → perceived stress	-.03	.02
Purpose in life → coping	.27***	.02
Mastery → perceived stress	-.44***	.02
Mastery → coping	.33***	.02
Perceived stress → perceived health	-.15***	.02
Perceived stress → drug problems	.18***	.03
Coping → perceived health	.17***	.02
Coping → drug problems	-.13***	.04
<i>Path coefficients of demographic covariates</i>		
Age → perceived stress	-.04***	.01
Age → drug problems	.04**	.02
At least some college → purpose in life	.11***	.03
At least some college → mastery	.06	.03
At least some college → coping	.07*	.03
Male → purpose in life	-.14***	.02
Male → perceived stress	-.37***	.03
Male → perceived health	.10***	.03
Male → drug problems	.26***	.05
White → purpose in life	.10**	.03
White → mastery	.15***	.04
White → coping	.09**	.03
White → perceived health	.06	.04
<i>Variable correlations</i>		
Purpose in life ↔ mastery	.27***	.01
Perceived stress ↔ coping	-.01	.01
Perceived health ↔ drug problems	-.10***	.02

* $p < .05$.** $p < .01$.*** $p < .001$.

9 | DISCUSSION

Our findings support the proposition that purpose in life and mastery may help improve perceived health and reduce the negative consequences related to substance use. These effects appear to be transmitted at least partially through lower stress and higher perceptions of adaptive coping. As hypothesized, mastery was associated with lower perceived stress and higher perceptions of adaptive coping. Researchers have found that the belief that one can influence external stressors in a way that benefits oneself (i.e., mastery) can alleviate stress and improve one's coping abilities (Roepke & Grant, 2011). Purpose in life was associated with perceptions that one's coping abilities were adaptive and effective; however, it was not associated with lower stress as hypothesized. Consistent with McKnight and Kashdan (2009), goal pursuit through a purpose in life provides self-directed meaning and promotes better psychological well-being, while

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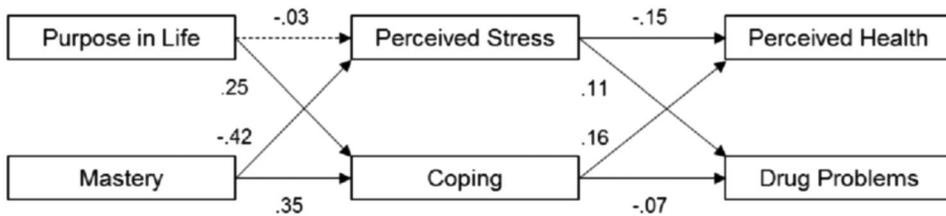


FIGURE 1 The effect of purpose in life and mastery on perceived health and drug problems mediated through perceived stress and coping. Standardized are reported. Dotted lines indicate nonsignificant paths. Covariates were included in the estimation, but are not shown. Model fit ($\chi^2 [15, N = 2564] = 73.02, p < 0.001$; RMSEA = 0.04 [90% CI: 0.03, 0.05]; CFI = 0.98; SRMR = 0.02). CFI: comparative fit index; RMSEA: root mean square error of approximation; SRMR: standardized root mean square residual

individuals who do not have a purpose in life may experience depression, apathy, or even despair (Frankl, 1984). Indeed, researchers suggest that purpose in life is associated with better physical health and lower substance use behavior (Harlow et al., 1986; Kim et al., 2013; Minehan et al., 2000), and this relationship may be mediated by its effect on stress and coping mechanisms (Ishida & Okada, 2006; Miao et al., 2016; Stevens et al., 1987; Zilioli et al., 2015). Yet, this

TABLE 4 Unstandardized estimates and bias-corrected bootstrapped confidence intervals of indirect effects

Indirect effect path	Estimate	SE	BC 95% CI	
			LL	UL
<i>Total indirect effect</i>				
Purpose in life → perceived health	.05***	.01	.04	.07
<i>Specific indirect effects</i>				
via Stress	.01	.004	.00	.01
via Coping	.05***	.01	.03	.06
<i>Total indirect effect</i>				
Purpose in life → drug problems	-.04***	.01	-.06	-.02
<i>Specific indirect effects</i>				
via Stress	-.01	.01	-.02	.003
via Coping	-.04**	.01	-.06	-.01
<i>Total indirect effect</i>				
Mastery → perceived health	.12***	.01	.10	.14
<i>Specific indirect effects</i>				
via Stress	.06***	.01	.05	.08
via Coping	.06***	.01	.04	.07
<i>Total indirect effect</i>				
Mastery → drug problems	-.12***	.02	-.16	-.09
<i>Specific indirect effects</i>				
via Stress	-.08***	.02	-.11	-.05
via Coping	-.04***	.01	-.07	-.02

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 5 Comparisons of constrained and partially unconstrained models based on high and low parental support

Unconstrained path	Constrained		Unconstrained χ^2		$\Delta \chi^2$
	χ^2	DF	χ^2	DF	
Purpose in life → perceived stress	139.52	54	128.76	53	10.76*
Purpose in life → coping	139.52	54	131.22	53	8.30*
Mastery → perceived stress	139.52	54	139.09	53	.43
Mastery → coping	139.52	54	136.70	53	2.82

Note. DF indicates degree of freedom.

* $p \leq .05$.

overarching relationship may be driven by its bolstering effect on coping efforts. Unlike mastery, which may change an individual's perception of the controllability of stressors in the environment, purpose in life may affect whether an individual believes they can effectively manage the stress rather than affect whether an individual experiences events as stress. Alternatively, and consistent with the propositions of Lazarus and DeLongis (1983), an individual with a strong sense of purpose may experience increased stress in the face of attack to their long-standing endeavor or priority. During emerging adulthood, this may occur as the young person seeks to establish their identity within relationships, work, and society.

As expected, perceived stress was associated with poorer perceived health and more negative consequences related to drug use in this sample of substance-using young adults. On the contrary, coping was associated with better-perceived health and fewer substance use problems. These findings coincide with previous research, which suggests that stress and coping are associated with substance use and perceived health (Dawson et al., 2005; Debnam et al., 2016; Farmer & Ferraro, 1997; Low et al., 2012; Lowe et al., 2000; San Jose et al., 2000; Weiss et al., 2014). Individuals experiencing psychological distress may attempt to cope with their problems by using substances (Bolton, Robinson, & Sareen, 2009; Cooper, Frone, Russell, & Mudar, 1995). Substance use in response to stress may escalate and lead to problems with health, social relationships, and obligations. Furthermore, numerous researchers have found that stress and coping efforts can lead to physical health decrements, particularly through their effect on physiological mediators (e.g., McEwen, 2006).

Interestingly, our findings also suggest that perceived parental support remained an important factor in young adulthood for the health-promoting effects of purpose in life. For individuals reporting low perceived parental support, purpose in life did not alleviate stress; however, purpose in life did reduce stress for those reporting high perceived parental support. High perceived parental support may provide a safe and supportive environment in which to enact one's purpose in life, which may be particularly important (Moran et al., 2013). This may contribute to young adults' perceptions of stressful situations. In addition, although purpose in life was associated with coping for both high and low perceived parental support groups, the relationship between purpose in life and coping was stronger for those reporting low perceived parental support. For those lacking solid, supportive social relationships, reliance on oneself and one's goals may become a primary source of adaptation to stress. Those with high perceived parental support, however, may have a wider range of resources on which to rely when attempting to handle stressful situations; thus, a sense of purpose in life is one of many potential coping resources. On the contrary, the association between mastery and stress and coping was not modified by perceived parental support. Although perceived parental support may be associated with the development of mastery during childhood and adolescence (Surjadi et al., 2011), it may not be particularly important for conferring its effects during young adulthood. Instead, mastery may exert powerful effects on stress and coping regardless of the social context in which the individual is embedded.

Several limitations should be noted. First, because the study is cross-sectional, we cannot assume causality. In addition, our negative consequences of drug use measure assessed consequences occurring within the participants' lifetime. Future studies employing a longitudinal design are needed to examine the relationships between purpose

in life, mastery, perceived stress, coping, perceived health and the negative consequences of drug use to better clarify the causal sequence. For example, it would be helpful if future research focused on the onset of substance use, and whether purpose in life and mastery delay the onset of substance use or the negative consequences that can be associated with substance use. Second, all of our measures were self-report; thus, the significant relationships identified in this study may be partially due to shared method variance. In addition, our negative consequences of drug use measure are self-reported and not verified by an independent source. Given that many users of drugs (including alcohol) may be in denial about the consequences of their use, our measure may have underestimated the number of participants who are indeed experiencing negative consequences due to their alcohol and drug use. In addition, participants were included based on self-report of ever using a substance during their lifetime. We did not differentiate between the type of substance used or other aspects of substance use such as timing. Due to this sampling, our analyses are likely conservative and may underestimate the true extent of harm. Yet, our significant findings suggest a meaningful association among these variables. Future research using more sensitive measures to demonstrate the true magnitude of the effect is warranted. Finally, while we have a large national sample of emerging adults, our sample was predominately college-educated and White, which limits the generalizability of our findings. Future research should more fully explore these issues in other samples of young adults, particularly minority and lower SES young adults, to maximize their generalizability and inform culturally-appropriate areas fostering positive youth development.

These limitations notwithstanding, this study contributes to our understanding of how the individual assets of purpose in life and mastery may affect well-being outcomes by ameliorating stress and bolstering coping in young adulthood. Our findings that the effects of purpose in life and mastery were mediated by their effect on stress and coping suggests a mechanism by which these variables operate that informs useful directions for future longitudinal research. The fact that perceived parental support modified the relationship between purpose in life and stress and coping is also informative for future research because it suggests that social relationships help to potentiate the positive effects of sense of purpose and mastery. Our findings highlight the importance of bolstering individual assets such as purpose in life and mastery. Programs on college campuses or in training programs for emerging adults entering the workforce should support purpose and mastery in their curriculums. For example, providing emerging adults the opportunity to reflect and discuss their purpose in life, life goals, and current or future plans to pursue these goals is beneficial for goal-directedness and later life satisfaction (Bundick, 2011). In addition, parental support continues to play an important role during this developmental period and parent should continue to be supportive in ways that are developmentally appropriate and respectful of the emerging adults need for increasing autonomy.

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