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Non-Medical Prescription and Other Drug Use, Mental Health, and Religion: A College Student Study

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ABSTRACT

Non-medical prescription drug (NMPD) use is a significant public health issue, with increasing use among university students. Previous literature has focused on mental health and NMPD use; however, few studies have assessed the roles of well-being and world beliefs, and few have included drugs outside of stimulants, sedatives, and opioids. This study examines the relationships between NMPD, cannabis, and hallucinogen (NMPDCH) use and mental health, well-being, and world beliefs among young adults (N=513). Participants completed online questionnaires assessing demographics, depression, coping, religiosity, and NMPDCH use. Many reported using cannabis (48.5%), while less reported using stimulants (26.7%), sedatives (17.3%), opioids (10.8%), and hallucinogens (14.4%). Five logistic regressions assessed the relationships between mental health, well-being, religious practices and NMPDCH use. Demographic factors were controlled in analyses.
Higher depression levels were associated with increased NMPD and cannabis use. Higher spirituality was associated with increased nonmedical stimulant, cannabis, and hallucinogen use, while increased religiosity was associated with reduced use for all substances except opioids. Attendance of worship services was associated with decreased cannabis and hallucinogen use. This study is one of the first to document the association between NMPDCH use and mental health, well-being, and religious practices among young adults. Results suggest that depression and spirituality were differentially predictive of NMPDCH use, while religiosity and attendance of worship services were protective factors against NMPDCH use (except opioids). This study supports future substance use prevention efforts focusing on mental health treatment and the role of religion and community in preventing substance use among young adults.

Introduction

Background

The use of non-medical prescription drugs (NMPD) is on the rise for college students in the USA, indicating a growing public health problem. In 2013, it was reported that one in three university students used drugs without a doctor's prescription; today that number has skyrocketed (Butler et al., 2021). NMPD use is commonly referred to as using prescription drugs obtained without a doctor's prescription. College student overdoses related to non-medical prescription opioid use reached a total of 16,706 in 2021 alone (National Institute on Drug Abuse, 2022). Increased NMPD use can lead to higher crime rates and reduced access to effective medical care (Government of Canada, 2021). Prior work has documented increased levels of NMPD use for at-risk groups, including young people (United Nations, 2011).

Demographic Differences

Abuse of NMPDs is highest among young adults aged 18 to 25, with 5.9% reporting NMPD use in the past month (Volkow, 2011). Among youth aged 12 to 17, 3% have reported past-month NMPD use (Volkow, 2011), and females have been shown to have a disproportionately higher rate of NMPD use (Government of Canada, 2021). Compared with White participants, Black, Hispanic, and Asian participants are significantly less likely to misuse prescription drugs (Lee et al., 2023). Other races have been found to have significantly higher odds of using NMPDs compared with White participants (Lee et al., 2023). Alongside this, sexual minorities have reported higher odds of non-medical prescription stimulant use than heterosexuals (Philbin et al., 2020). Some studies have shown an association between socioeconomic status (SES) and NMPD use; however, evidence of this direction remains mixed (Ehntholt et al., 2021).

Mental Health and Well-Being

Stress is a well-known risk factor in the development of NMPD use and in NMPD relapse vulnerability (Sinha, 2008). Stress exposure enhances NMPD self-administration, with NMPDs use being a widely used coping strategy for many (Sinha, 2008). When taking substances, dopamine levels are increased which allows the body to relax; this process fades away stress and worries and is an incentive for many people to turn to NMPD as a coping strategy (Baker, 2022). Self-esteem is a protective factor for NMPD use in college students, with its relationship being mediated by coping strategies (Tam et al., 2020).

World Beliefs

Spiritual support and involvement often play integral roles in dealing with NMPD use—within the areas of prevention and recovery (Grim & Grim, 2019). Prior research states that people who have little to no ties to religiosity and spirituality are more likely to use NMPDs (Grim & Grim, 2019). Religiosity plays a hand in NMPD use, as religious teachings provide a sense of meaning and purpose in life (Brainly, 2023). Through offering alternate ways to find fulfillment and meaning, individuals' desires for escapism or seeking happiness through substances can be reduced (Brainly, 2023).

Study Purpose

As NMPD use is of increasing public health concern, additional research is required to shed light on the risk and protective factors for NMPD use. Further, prior work evaluating risk and protective factors for the use of drugs outside of stimulants, sedatives, and opioids is sparse. The present study evaluates the differential risk and protective roles mental health and well-being and religious practices play in the non-medical use of stimulants, sedatives, opioids, as well as the use of cannabis and hallucinogens.

Methods

A brief online survey was administered to students enrolled in psychology classes at a large public university in the Mid-Atlantic region of the USA. All surveys were completed anonymously online via a password-protected secure survey system. Participants received course credit for participation. The system was set up to award credit automatically while masking participant identities from the researchers. A total of 532 participants completed the survey. Data from 19 participants (3.5%) were eliminated for random or problematic responses (e.g., inconsistent or mathematically impossible responses); this left 513 survey participants. There were no

special criteria for survey participation. Participants were told that the survey contained personal questions about their use of prescription drugs, coping mechanisms, anxiety, and stress. All consent procedures were conducted online. All study methods and materials were approved by the Virginia Commonwealth University institutional review board.

Measures

After providing consent, Participants completed the self-administered, anonymous survey, which included questions assessing demographic characteristics, mindfulness, mental health status, coping self-efficacy, spirituality, religiosity, and religious service attendance.

Demographics

Participants were asked to report their age, gender, race/ethnicity, sexual orientation, and religious affiliation.

Mental Health & Well-Being

Depression

Participants' depression levels were measured using the 9-item Patient Health Questionnaire scale (PHQ-9; Spitzer, Kroenke, Williams, & Lowe, 2001). The PHQ-9 identifies and diagnoses depression, using 9 items, such as (a) 'little interest or pleasure in doing things,' (b) 'feeling down, depressed, or hopeless,' (c) 'feeling bad about yourself–or that you are a failure or have let yourself or your family down,' and (d) 'thoughts that you would be better off dead, or of hurting yourself'. The scale uses a 4-point Likert scale (ranging from 0 = 'not at all' to 3 = 'nearly every day'), with higher scores indicating higher rates of depression. The scale performed well in the present sample ($\alpha = 0.901$) and indicated excellent reliability. Possible scores on the PHQ-9 range from 0 to 27. In the current study, participants' scores ranged from 0 to 27 as well, with a mean score of 8.18.

Coping Self-Efficacy

Coping was measured using the Coping Self-Efficacy Scale (CSE; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). The Coping Scale assesses the participants' confidence in their ability to cope with life challenges using 13 items, including (a) 'break an upsetting problem down into smaller parts,' (b) 'make a plan of action and follow it when confronted with a problem,' and (c) 'find solutions to your most difficult problems'. This scale uses an 11-point Likert scale (ranging from 0 = 'I cannot do this at all' to 10 = 'I'm certain I can do this'), where higher scores indicate higher rates of coping skills. The scale showed excellent reliability for this sample ($\alpha = 0.933$). Possible scores on the Coping Scale range from 0 to 130, and in the current study, participants had a mean score of 76.37.

Religious Practices

Spirituality

Spirituality was measured using an abbreviated version of the Daily Spiritual Experience Scale (DSES; Underwood & Teresi, 2002). The shortened DSES assesses "ordinary experiences of spirituality such as awe, joy that lifts one out of the mundane, and a sense of deep inner peace" using 6 items, including (a) 'I experience a connection to all life,' (b) 'I feel inner peace or harmony,' and (c) 'I find comfort in my spirituality.' The scale

employs a 6-point Likert scale (ranging from 0 = 'never or almost never' to 5 = 'everyday'), where higher scores indicate higher levels of religiosity. The reliability for this scale in the current sample was excellent ($\alpha = 0.940$). Possible scores on the Religiosity Scale range from 0 to 50. In the current study, participants' scores ranged from 5 to 30, with a mean score of 15.77.

Religiosity

Religiosity was measured using the 10-item Religious Commitment Inventory (Worthington et al., 2003). The Religiosity Scale employs 10 items, including (a) 'my religious beliefs lie behind my whole approach to life,' (b) 'it is important to me to spend periods of time in private religious thought and reflection,' and (c) 'religious beliefs influence all my dealings in life.' The inventory uses a 6-point Likert scale (ranging from 0 = 'not at all true of me' to 5 = 'totally true of me'), where higher scores indicate higher levels of religiosity. The reliability for this scale in the current sample was excellent ($\alpha = 0.968$). Possible scores on the Religiosity Scale range from 0 to 50. In the current study, participants' scores ranged from 0 to 40, with a mean score of 10.60.

Religious Practices

Religious service attendance was measured using a single item taken from the Ritualistic, Theistic, and Existential (RiTE) Model of Spirituality (Webb, Toussaint, & Dula, 2013). The item assesses if the participant attends worship services regularly or not, the statement, 'I regularly attend organized worship services'. The item uses a 6-point Likert scale (ranging from 0 = 'strongly disagree' to 5 = 'strongly agree'), where higher scores indicate that the participant regularly attends organized worship services. Possible scores range from 0 to 5. In the current study, the average for participants' scores was 1.32.

NMPDCH Use

NMPDCH use was measured using a modified version of the Quick Screen tool developed by the National Institute on Drug Abuse (NIDA, 2012). Participants were asked to respond to the question "In your ***LIFETIME***, which of the following substances have you ever used" (emphasis theirs), with a note stating that participants were to "report nonmedical use only" when reporting their lifetime use of prescription medications. Non-medical use was defined as "using a substance that was either (1) not prescribed to you, or (2) was used in ways or amounts that were not prescribed by your doctor." Participants were asked to report lifetime use of stimulants, sedatives, opioids, cannabis, and/or hallucinogens using these criteria. Response options of "No" and "Yes" were provided for questions assessing participant use of each of the five classes of substances.

Data Quality Assurances and Statistical Analyses

All records were examined for inconsistencies, invalid responses, and missing data, and records with poor data quality were excluded from analyses. Chi square analyses were used to evaluate differences between participants based on categorical demographic characteristics. Independent t-tests were used to assess differences in levels of depression, coping self-efficacy, spirituality, religiosity, and attendance of worship services between NMPDCH users and non-users. Because numerous factors influence NMPDCH use among young adults, five multivariable analyses were performed to determine the independent relationships between factors related to mental health, well-being, and religious practices; the non-medical use of stimulants, sedatives, and opioids; and the use of cannabis and hallucinogens after controlling for demographic factors (gender, age, race/ethnicity, sexual orientation, and religion). Two-tailed significance levels were used for all tests.

Results

Sample Characteristics

As shown in Table 1, the average age of the sample was 20, though the full range was 18–45 years old. The majority of the sample fell into self-identified female, non-white, straight/ heterosexual, and Christian categories. Of the sample of 513 participants, 26.5%, 17.0%, and 10.5% reported non-medical use of stimulants, sedatives, and opioids, respectively; 48.1% reported the use of cannabis; and 13.8% reported the use of hallucinogens.

NMPDCH Use and Demographic Characteristics

Demographic Characteristics

As shown in Table 2, chi square analysis showed that rates of NMPDCH use were similar for males and females across all substance categories (all ps > 0.05). There were also no significant differences between straight/heterosexual respondents and LGBQ+ respondents regarding the use of stimulants and hallucinogens, although LGBQ+ participants were more likely to report non-medical use of sedatives and opioids, as well as cannabis use. There were significant differences in NMPDCH use based on race for all substance types, with White participants being more likely to report the use of stimulants, sedatives, opioids, cannabis, and hallucinogens.

Religious Affiliation

Religion was differentially related to the likelihood of NMPDU use. Religion was not significantly related to opioid use. However, identifying as “none, atheist, or agnostic” was associated with a significantly increased likelihood of sedative and cannabis use compared to those identifying as Christians or with a religion outside of Christianity, while those identifying as “none, atheist, or agnostic” or with a religion other than Christianity were more likely to report hallucinogen use over Christians. Further, those identifying as “none, atheist, or agnostic” had a significantly increased likelihood of stimulant use compared to Christians, although those of other religions did not significantly differ from either group.

NMPDCH Use and Mental Health and Well-Being

Depression

Those not reporting non-medical stimulant, sedative, or opioid use had significantly lower depression levels than those reporting use. There were no significant differences in depression levels for cannabis or hallucinogen use.

Coping Self-Efficacy

Significantly higher levels of coping self-efficacy were found among those not reporting non-medical opioid use (M=90.11) compared to those reporting non-medical opioid use (M=83.13). There were no significant differences in coping self-efficacy scores for non-medical stimulant, sedative, cannabis, or hallucinogen use.

NMPDCH Use and Religious Practices

Religiosity

As shown in Table 3, those who reported no non-medical stimulant or sedative use, cannabis use, or hallucinogen use reported significantly higher levels of religiosity and religious service attendance than those who reported non-medical use of these substances. There were no significant differences in levels of religiosity or religious service attendance for non-medical opioid use. There were no significant differences in spirituality based on NMPDCH use versus non-use.

Multivariate Analyses–NMPDCH use, Mental Health and Well-Being, and Religious Practices

Demographic Characteristics

Among our sample, increased age was associated with increased likelihood of stimulant and opioid use.

Racial identity was also influential. Adjusted odds ratios (AORs) revealed that for each 1 point increase in age, the odds of stimulant use increased by 14.8% and the odds of opioid use increased by 12.0%. Identifying as non-white was associated with a reduction of 46%, 57.5%, 44.7%, and 67.2% in the odds of using stimulants, sedatives, cannabis, and hallucinogens, respectively, while odds of opioid use did not differ significantly based on race. AORs ranging from 0.401 to 0.617 revealed reduced but still substantial influence of race on the use of products within these 4 categories (i.e., 41.3%, 54.6%, 38.3%, and 59.9% reduction in odds of use for stimulants, sedatives, cannabis, and hallucinogens, respectively.

AORs also showed that, while sexual orientation was only significantly associated with the use of sedatives, identifying as LGBQ+ was associated with a 115% increase in odds of use.

While identifying as Christian was associated with significantly lower odds of stimulant, cannabis, and hallucinogen use in the unadjusted model, Christian identity was only associated with lower odds of hallucinogen use in the AOR model, which revealed a 57.7% reduction in the odds of use.

Mental Health and Well-Being

After adjusting for demographic characteristics, AORs ranging from 1.046 to 1.086 indicated increases in the likelihood of using cannabis, opioids, sedatives, and stimulants by 4.6%–8.6% with each 1-point increase in depression scores (i.e., worsening depression levels), while depression scores were not significantly associated with the use of hallucinogens. Coping scores (i.e., the ability to cope) were not associated with odds of use for any of the 5 product categories.

Religious Practices

Spirituality was associated with 7.4%, 9.9%, and 10.8% increases in the likelihood of cannabis, hallucinogen, and stimulant use, while religiosity was associated with reduced odds of cannabis, hallucinogen, stimulant, and sedative use ranging from 4.2%–5.0%. Religious service attendance was associated with a 20.6% reduction in the likelihood of cannabis use and a 33.0% reduction in the likelihood of hallucinogen use.

Table 1. Sample demographic characteristics.

Characteristic	Mean (SD)/ Percentages (n)
Age (Years)	Mean= 20.2 (SD=3.0)
Sex	
Male	27.5% (141)

Female	70.4% (361)
Race	
White	48.0% (246)
Non-White	51.1% (262)
Sexual Orientation	
Straight	87.5% (449)
LGBTQ2S+	11.9% (61)
Religious Affiliation	
None, atheist, agnostic	26.1% (134)
Christian	52.8% (271)
Other Religion	17.9% (92)

N = 513
SD = Standard Deviation

Table 2. NMPDCH use and demographic characteristics.

	Stimulants			**Sedatives**			**Opioids**			**Cannabis**			**Hallucinogens**		
	Yes % (n)	**No % (n)**	**(df) X^2**	**Yes % (n)**	**No % (n)**	**(df) X^2**	**Yes % (n)**	**No % (n)**	**(df) X^2**	**Yes % (n)**	**No % (n)**	**(df) X^2**	**Yes % (n)**	**No % (n)**	**(df) X^2**
Sex															
Male	24.8% (35)	75.2 % (106)	(1) 0.351 *(ns)*	13.5 % (19)	86.5% (122)	(1) 1.494 *(ns)*	11.4 % (16)	88.6% (124)	(1) 0.221 *(ns)*	51.8% (73)	48.2% (68)	(1) 1.235 *(ns)*	14.2 % (20)	85.8 % (121)	(1) 0.000 *(ns)*
Female	27.4% (99)	72.6 % (262)		18.0 % (65)	82.0% (296)		10.0 % (36)	90.0% (324)		46.3% (167)	53.7% (194)		14.1 % (51)	85.9 % (310)	
Race															
White	33.3%[a] (82)	66.7 %[a] (164)	**(1) 10.475****	23.6 %[a] (58)	76.4%[a] (188)	**(1) 13.987****	13.9 %[a] (34)	86.1%[a] (210)	**(1) 5.261***	45.7%[a] (141)	42.7%[a] (105)	**(1) 15.100****	21.1 %[a] (52)	78.9 %[a] (194)	**(1) 17.756****
Non-white	20.6%[b] (54)	79.4 %[b] (208)		11.1 %[b] (29)	88.9%[b] (233)		7.6%[b] (20)	92.4%[b] (242)		40.1%[b] (105)	59.9%[b] (157)		8.0%[b] (51)	92.0 %[b] (241)	
Sexual Orientation															
Heterosexual	26.7% (120)	73.3 % (329)	(1) 0.036 *(ns)*	14.7 %[a] (66)	85.3%[a] (383)	**(1) 14.771****	9.6%[a] (43)	90.4%[a] (404)	**(1) 3.999***	46.3%[a] (208)	53.7%[a] (241)	**(1) 6.668***	13.4 % (60)	86.6 % (389)	(1) 2.766 *(ns)*
LGBQ+	27.9% (17)	72.1 % (44)		34.4 %[b] (21)	65.6%[b] (40)		18.0 %[b] (11)	82.0%[b] (50)		63.9%[b] (39)	36.1%[b] (22)		21.3 % (13)	78.7 % (48)	
Religion															
None, Atheist, Agnostic	37.3%[a] (50)	62.7 %[a] (84)	**(2) 10.425****	25.4 %[a] (34)	74.6%[a] (100)	**(2) 10.131****	14.9 % (20)	85.1% (114)	(2) 3.445 *(ns)*	62.7%[a] (84)	37.3%[a] (50)	**(2) 14.805****	26.9 %[a] (36)	73.1 %[a] (98)	**(2) 29.755****

Christian	22.9%[b] (62)	77.1 %[b] (209)		14.0 %[b] (38)	86.0%[b] (233)		9.3% (25)	90.7% (244)		43.2%[b] (117)	56.8%[b] (154)		7.0%[b] (19)	93.0 %[b] (252)	
Agnostic	22.8%[a,b] (21)	77.2 %[a,b] (71)		12.0 %[b] (11)	88.0%[b] (81)		8.7% (8)	91.3% (84)		43.5%[b] (40)	56.5%[b] (152)		17.4 %[a] (16)	82.6 %[a] (76)	

* p<0.05, ** p<0.01, *** p<0.001, *(ns)* = not significant

Table 3. NMPDCH use, mental health and well-being, and religious practices.

	Stimulants			**Sedatives**			**Opioids**			**Cannabis**			**Hallucinogens**		
	Yes N=136 M (SD)	**No (N=372) M (SD)**	***(df) t value***	**Yes N=87) M (SD)**	**No (N=421) M (SD)**	***(df) t value***	**Yes (N=54) M (SD)**	**No (N=454) M (SD)**	***(df) t value***	**Yes (N=247) M (SD)**	**No (N=263) M (SD)**	***(df) t value***	**Yes (N=71) M (SD)**	**No (N=431) M (SD)**	***(df) t value***
Mental Health and Well-Being															
Depression Score	**19.02 (6.41)**	**16.46 (16.04)**	**(510) -4.158*** **	**19.48 (6.76)**	**16.65 (6.02)**	**(510) -3.919*** **	**19.58 (6.41)**	**16.88 (6.15)**	**(508) -3.064*** **	17.66 (6.25)	16.65 (6.20)	(510) -1.840 *(ns)*	17.43 (5.45)	17.09 (6.36)	(510) -.438*(ns)*
Coping Self-Efficacy	87.56 (23.46)	89.97 (25.35)	(511) 0.971*(ns)*	86.22 (24.56)	89.97 (24.90)	(510) 1.291*(ns)*	**83.13 (23.99)**	**90.11 (24.66)**	**(508) 1.989***	90.24 (24.86)	88.46 (24.87)	(510) -.810 *(ns)*	92.99 (23.34)	88.71 (25.08)	(510) -1.371*(ns)*
Religious Practices															
Religiosity	**17.88 (10.25)**	**21.56 (11.36)**	**(507) 3.317*** **	**16.49 (8.50)**	**21.44 (11.50)**	**(507) 3.823*** **	18.00 (10.15)	20.91 (11.29)	(505) 1.810*(ns)*	**18.24 (9.95)**	**22.78 (11.84)**	**(507) 4.660*** **	**15.28 (8.15)**	**21.48 (11.39)**	**(507) 4.488*** **
Spirituality	16.01 (7.06)	15.68 (7.04)	(507)	14.82	15.97 (7.07)	(507) 1.394*(ns)*	14.80	15.90 (7.09)	(505) 1.090*(ns)*	15.63 (6.71)	15.90 (7.34)	(507) 0.439*(ns)*	15.662 (7.52)	15.786 (6.96)	(507) 0.140*(ns)*

			-0.477*(ns)*	(6.82)			(6.53)								
Religious Service Attendance	**1.85 (1.23)**	**2.37 (1.36)**	**(508) 3.882*** **	**1.82 (1.19)**	**2.31 (1.36)**	**(508) 3.183****	1.96 (1.21)	2.25 (1.35)	(506) 1.509*(ns)*	**1.92 (1.19)**	**2.52 (1.41)**	**(508) 5.175 *****	**1.49 (0.99)**	**2.35 (1.35)**	**(508) 5.193*** **

* p<0.05, ** p<0.01, *** p<0.001, *(ns)* = not significant

Table 4. Logistic regressions with mental health and well-being and religious practice factors predicting the use of each substance after adjusting for demographic characteristics.

	Stimulant Use (n=128)	**Sedative Use (n=80)**	**Opioid Use (n=51)**	**Cannabis Use (n=232)**	**Hallucinogen Use (n=69)**
Unadjusted Model	OR (95% CI)				
Age	**1.127****	1.061*(ns)*	**1.103***	1.033*(ns)*	1.023*(ns)*
Sex					
Male	.	.	.	.	.
Female	1.201*(ns)*	1.513*(ns)*	0.854*(ns)*	0.855	1.076*(ns)*
Race					
White	.	.	.	.	.
Non-White	**0.540****	**0.425****	0.576*(ns)*	**0.553****	**0.328*****
Sexual Orientation					
Heterosexual	.	.	.	.	.
LGBQ+	0.675*(ns)*	**2.571****	1.733*(ns)*	1.633*(ns)*	1.114*(ns)*
Religion					
None, atheist, agnostic	.	.	.	.	.
Christian	**0.535***	0.648*(ns)*	0.890*(ns)*	**0.609***	**0.253*****
Other Religion	0.540*(ns)*	0.530*(ns)*	.781*(ns)*	0.609*(ns)*	0.817*(ns)*
(df) F	*(6) 31.999****	*(6) 32.345****	*(6) 12.356(ns)*	*(6) 26.297****	*(6) 42.679****
R^2	*.094*	*.110*	*.052*	*.072*	*.151*
AOR Model	AOR (95% CI)				
Age	**1.148*****	1.066*(ns)*	**1.120****	1.027*(ns)*	1.012*(ns)*
Sex					
Male	.	.	.	.	.
Female	*0.979(ns)*	1.319*(ns)*	0.737*(ns)*	0.770*(ns)*	0.992*(ns)*
Race					
White	.	.	.	.	.
Non-White	**0.587***	**0.454****	0.577*(ns)*	**0.617***	**0.401****
Sexual Orientation					
Heterosexual	.	.	.	.	.
LGBQ+	0.533*(ns)*	**2.152***	1.406*(ns)*	1.422*(ns)*	1.130*(ns)*
Religion					
None, atheist, agnostic	.	.	.	.	.
Christian	0.869*(ns)*	1.024*(ns)*	1.091*(ns)*	0.928*(ns)*	**0.423***
Other Religion	0.690*(ns)*	0.712*(ns)*	0.911*(ns)*	0.773*(ns)*	1.028*(ns)*
Mental Health and Well-Being					
Depression	**1.086*****	**1.073****	**1.065***	**1.046***	1.019*(ns)*
Coping	0.998*(ns)*	1.002*(ns)*	0.993*(ns)*	*1.007(ns)*	1.009*(ns)*
Religious Practices					
Spirituality	**1.108*****	1.042*(ns)*	1.022*(ns)*	**1.074*****	**1.099*****
Religiosity	**0.951****	**0.953***	0.978*(ns)*	**0.958****	**0.950***
Service Attendance	0.776*(ns)*	0.951*(ns)*	1.054*(ns)*	**0.794***	**0.670***

(df) F	*(11) 75.427****	*(11) 49.001****	*(11) 22.799**	*(11) 58.988****	*(11) 67.780****
R^2	*.212*	*.163*	*.094*	*.154*	*.234*

* p<0.05, ** p<0.01, *** p<0.001, *(ns)* = not significant

Discussion

This study is one of the first to explore the correlations among mental health, well-being, religious practices, and NMPDCH use in young adults. Its aim is to highlight potential areas for intervention, including enhanced access to mental health assessment and treatment, as well as examining the impact of religion and communal support in deterring drug misuse among this demographic.

NMPDCH Use

Significant proportions of our sample of 513 participants reported NMPDCH use, with 26.5%, 17.0%, and 10.5% reporting non-medical use of stimulants, sedatives, and opioids, respectively; 48.1% reporting the use of cannabis; and 13.8% reporting the use of hallucinogens. These use rates were higher than those seen in other studies of college students for non-medical use of stimulants and sedatives, as well as cannabis and hallucinogen use (Appleby, 2022; Butler et al., 2021), and rates were lower than those reported by other studies for non-medical use of opioids (Tapscott & Schepis, 2013).

Demographic and Religious Similarities

The results of the present study share some similarities to existing literature on college student NMPDCH use. The present findings highlight significant demographic differences in substance use patterns. White respondents were found to be more inclined to use all substances except opioids. LGBQ+ individuals showed a higher likelihood of using sedatives, which is somewhat in line with previous studies in that previous work has shown rates of non-medical stimulant use among LGBQ+ individuals; however, the present results are at odds with previous work showing LGBQ+ college students are more likely to report non-medical use of any prescription drug (Dagirmanjian, McDaniel, & Shadick, 2017). Conversely, Christians were notably less likely to engage in the non-medical consumption of stimulants, cannabis use, and hallucinogen use, which is in line with previous work showing religion as a protective factor against various types of substance use (Snipes et al., 2015; Wolff & Boama, 2018). These distinctions showcase the complex correlations between cultural, social, and individual factors in shaping substance use behaviors.

Mental Health

In addition to demographic disparities, mental health correlates were identified in relation to substance users after adjusting for demographic characteristics. The present results indicated that higher levels of depression predicted higher likelihoods of NMPD and cannabis use, which is in line with previous findings among groups of young adults (Carra, Bartoli, Galanter, & Crocamo, 2018) and older adults (Choi, DiNitto, Marti, & Choi, 2016). Although opioid use was significantly associated with having lower levels of coping self-efficacy in univariate analyses, coping self-efficacy did not emerge as a significant predictive or protective factor in multivariate analyses.

Religious Practices

Moreover, religious practices emerged as factors associated with substance use behaviors. When considering non-medical stimulant use, cannabis use, and hallucinogen use, results showed that higher levels of spirituality were predictive of substance use, while higher levels of religiosity were protective against use. Additionally, although religious service attendance was not associated with NMPD use, it was protective against cannabis and hallucinogen use. This finding suggests a potential protective effect of religious involvement against certain forms of substance use, reflecting the role of religious community in shaping health behaviors and choices (Grim & Grim, 2019). Overall, these findings show the nature of substance use behaviors, influenced by demographic characteristics, mental health correlations, and religious practices. Understanding this is crucial for developing targeted support strategies aimed at promoting healthier behaviors and reducing substance-related harms within diverse populations. Further research is warranted to explore how these associations work and to inform evidence-based approaches to substance use.

Limitations & Future Research

The data for this study were collected from a convenience sample of college students in the mid-Atlantic region of the USA; therefore, it is difficult to generalize the results to other age ranges and geographic populations. As well, not enough data was collected to make findings generalizable and strong enough to be able to apply results to other people, as the sample size is not as large as it could be. Participants were asked to self-report data, which could result in inaccuracies in the behaviors reported and the under-reporting of certain behaviors. Future research should look at removing the self-report element and using assessment strategies designed specifically to determine a participant's NMPDCH use in relation to mental health, well-being, and religious practices. Because the present study was cross-sectional, temporal precedence could not be established and causal interpretations about the relationships between mental health, well-being, and religious practices could not be drawn.

Conclusion

Despite the limitations, this study is one of the first to evaluate the relationship between NMPDCH use and mental health, well-being, and religious practices. This study documented the increased likelihood of White participants reporting the use of stimulants, sedatives, opioids, cannabis, and hallucinogens, whereas Christian participants and those who regularly visited worship services had a decreased likelihood of reporting uses. This study lays the foundations for future areas of focus, such as increased access to mental health diagnosis and treatment. In addition, it explores the roles of religion and shared community in the prevention of drug use among young adults.

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References

Appleby, C. (2022, December 12). *Student drug use and misuse in college.* Best Colleges. Retrieved from: https://www.bestcolleges.com/research/student-drug-use-and-misuse-in-college/

Backus Dagirmanjian, F. R., McDaniel, A. E., Shadick, R. (2017). Sexual orientation and college students' reasons
for nonmedical use of prescription drugs. *Substance use & Misuse,* 52(4), 1–8.
https://doi.org/10.1080/10826084.2016.1268631

Baker, S. (2022, November 5). *Are you using alcohol and drugs as a coping mechanism?* English Mountain Recovery.https://englishmountain.com/blog/alcohol-and-drugs-as-a-coping-mechanism/#:~:text=You%20could%20
be%20dealing%20with

Brainly. (2023, October 25). *Analyse how following religious teachings could help the youth avoid trying drugs*.
https://brainly.com/question/40698767

Butler, S., Faraone, S., Rostain, A., Newcorn, J., Antshel, K., Robbins, R., & Green, J. (2021). Non-medical use of
prescription stimulants among college students: non-oral routes of administration, Risk Factors, Motivations, and
Pathways. *Frontiers in Psychiatry*, 12. Frontiers. https://doi.org/10.3389/fpsyt.2021.667118

Carra, G., Bartoli, F., Galanter, M., & Crocamo, C. (2018). Untreated depression and non-medical use of prescription pain relievers: findings from the National Survey on Drug Use and Health 2008-2014. *Postgraduate
Medicine, 131*(1). https://doi.org/10.1080/00325481.2019.1546533

Chesney MA, Neilands TB, Chambers DB, Taylor JM, Folkman S. A validity and reliability study of the coping self-efficacy scale. Br J Health Psychol 2006 Sep; 11(3): 421-37.
http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1602207.

Choi, N. G., DiNitto, D. M., Marti, C. N., & Choi, B. Y. (2016). Relationship between marijuana and other illicit
drug use and depression/suicidal thoughts among late middle-aged and older adults. *International Psychogeriatrics,
28*(4), 577-589. https://doi.org/10.1017/S1041610215001738

Department of Justice Government of Canada. (2021, December 14). *An overview of non-medical use of prescription drugs and criminal justice issues in Canada.* https://www.justice.gc.ca/eng/rp-pr/cj-jp/victim/rr13_16/p1.html

Ehntholt, A., Pabayo, R., Berkman, L., & Kawachi, I. (2021). Race, adolescent socioeconomic status, and lifetime
non-medical use of prescription painkillers: evidence from the national longitudinal study of adolescent to adult
health. *International Journal of Environmental Research and Public Health, 18*(23). 12289.
https://doi.org/10.3390/ijerph182312289

Grim, B. J., & Grim, M. E. (2019). Belief, behavior, and belonging: how faith is indispensable in preventing and
recovering from substance abuse. *Journal of Religion and Health*, *58*(5), 1713–
1750.https://doi.org/10.1007/s10943-019-00876-w

Kroenke, K. Spitzer, R.L. & Williams, J.B.W. (2001). Validity of a brief depression severity measure. Journal of
General Internal Medicine, 16, 606-613.

Lee, Y.-H., Woods, C., Shelley, M., Arndt, S., Liu, C.-T., & Chang, Y.-C. (2023). Racial and ethnic disparities and
prevalence in prescription drug misuse, illicit drug use, and combination of both behaviors in the United States.
National Library of Medicine. https://doi.org/10.1007/s11469-023-01084-0

National Institute on Drug Abuse (NIDA). (2012). NIDA Quick Screen.
https://nida.nih.gov/sites/default/files/pdf/nmassist.pdf

National Institute on Drug Abuse. (2022, January 20). Overdose death rates.
https://nida.nih.gov/research-topics/trends-statistics/overdose-death-
rates#:~:text=Drug%20overdose%20deaths%20
involving%20prescription

Philbin, M., Greene, E., Martins, S., LaBossier, N., & Mauro, P. (2020). Medical, nonmedical, and illegal stimulant
use by sexual identity and gender. *American Journal of Preventive Medicine,* 59(5), P686-696.
https://doi.org/10.1016/j.amepre.2020.05.025

Sinha, R. (2008). Chronic stress, drug use, and vulnerability to addiction. *Annals of the New York Academy of Sciences*, *1141*(1), 105–130. https://doi.org/10.1196/annals.1441.030

Snipes, D. J., Jeffers, A. J., Benotsch, E. G., McCauley, J., Bannerman, D., Granger, C., & Martin, A. M. (2015).
Religiosity in the non-medical use of prescription medication in college students. *American Journal of Drug and*
Alcohol Abuse, 41(1), 93-99. https://doi.org/10.3109/00952990.2014.939755.

Tam, C. C., Benotsch, E. G., & Li, X. (2020). Self-esteem and non-medical use of prescription drugs among college
students: coping as a mediator. *Substance Use & Misuse*, 1–11.
https://doi.org/10.1080/10826084.2020.1735441

Tapscott, B. E. & Schepis, T. S. (2013). Nonmedical use of prescription medications in young adults. *Adolescent*
Medicine: State of the Art Reviews, 24(3), 597-610.

Underwood, L. G., & Teresi, J. A. (2002). The Daily Spiritual Experience Scale: Development, theoretical

description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data.
Annals of Behavioral Medicine, 24(1), 22–33. https://doi.org/10.1207/S15324796ABM2401_04

United Nations. (2011, September). The non-medical use of prescription drugs: policy direction issues. *United Nations Office on Drugs and Crime, Vienna, Austria.* 1–96. https://www.unodc.org/documents/drug-prevention-and-treatment/nonmedical-use-prescription-drugs.pdf

Volkow, N. (2011, October). What is prescription drug abuse? *Research Report Series, National Institute on Drug*
Abuse, National Institutes of Health. https://nida.nih.gov/sites/default/files/rxreportfinalprint.pdf

Webb, J. R., Toussaint, L., Dula, C. S. (2013). Ritualistic, Theistic, and Existential Spirituality: Initial Psychometric
Qualities of the RiTE Measure of Spirituality. *Journal of Religion and Health, 53,* 972-985. https://doi.org/10.1007/s10943-013-9697-y

Wolff, W., & Boama, S. A. (2018, September 6). Religious faith, academic stress, and instrumental drug use in a
sample of Western-African University students. Sciencedirect.com; Science Direct. https://doi.org/10.1016/j.peh.2018.07.001

Worthington, E., Wade, N., Hight, T., Ripley, J., McCullough, M., Berry, J., Bursley, K., & O'Connor, L. (2003). The Religious Commitment Inventory10: Development, refinement, and validation of a brief scale for research and counseling. Journal of Counseling Psychology, 50 (1), 84-96.