https://doi.org/10.62370/hbds.v26i1.278416

Human Behavior, Development and Society
E-ISSN 2651-1762, Vol 26 No 1, April 2025

Examining Biopsychosocial Factors Influencing Drug Use Among Incarcerated Individuals and the Voluntarily Surrendered: Implications for Drug Treatment Programs in the Philippines

Jason O. Manaois[1]*, Mindanao State University - Iligan Institute of Technology [1], Philippines
*Corresponding Author: jason.manaois@g.msuiit.edu.ph

Date Received: 7 January 2025 Revised: 22 February 2025 Accepted: 7 March 2025

Paper Type: Original Research

Abstract

Aim/Purpose: This study aimed to identify multifaceted factors contributing to drug use and dependence. It sought to delineate characteristics of two distinct groups of drug users: those incarcerated with pending drug-related court cases, and those who have voluntarily surrendered to participate in community-based interventions. By examining the interplay between biological, psychological, and social factors, this research provides a wide-ranging understanding of the underlying mechanisms driving substance use behaviors. Furthermore, the study explored how these biopsychosocial dimensions influence the progression and persistence of substance use disorders. Through rigorous analysis, it aimed to uncover specific patterns and correlations that can inform targeted intervention strategies. Ultimately, this research aspires to enhance the effectiveness of community-based interventions and contribute valuable insights to the broader substance use disorder treatment field.

Introduction/Background: The global crisis of illegal drug use remains a significant threat to public safety and health, affecting millions of adults worldwide. In the Philippines, the government's "Oplan Tokhang" initiative, launched in 2016, led to more than 1.26 million people surrendering to authorities. Although some research exists on the nature of drug use in the Philippines, there is a significant gap in the literature regarding the characteristics of individuals impacted by the Philippine government's anti-illegal drug campaign. Drug use can be explained in various ways, but health behaviors are complex and influenced by multiple contextual factors, making a single explanation insufficient. This study employed a biopsychosocial framework to analyze a multifactorial profile of drug users. By examining biological, psychological, and social dimensions, the research sought to elucidate the intricate interactions contributing to substance use disorders. Research supports that these interconnected factors contribute to the development of substance use disorders.

Methodology: This study employed a cross-sectional design, involving 564 respondents from Metro Manila, Philippines divided into two groups: 340 voluntary surrenderers and 224 incarcerated plea bargainers. Purposive sampling was employed to select participants, ensuring the inclusion of individuals actively engaged in intervention programs. The study meticulously followed ethical research standards to ensure the accuracy and integrity of the collected data. This approach provided a relevant and focused sample for examining the factors influencing drug use and dependence. Anchored in a biopsychosocial framework, the survey assessed factors related to drug use across three domains: Biological (Substance use disorder, Age of first drug use, Number of drugs used), Psychological (Coping skills, Life skills, Psychological well-being), and Social (Family support, Quality of family life, Perceived community safety). Data analysis was conducted using hierarchical multiple regression and independent-samples *t*-tests to examine the interaction of research variables and differences between the groups.

Findings: The results revealed that the majority of recovering users were predominantly male, had low educational attainment, and primarily used “shabu” (a methamphetamine). Incarcerated plea bargainers reported higher scores on substance use disorder symptoms and were more likely to be

poly-drug users compared to voluntary surrenderers. In contrast, voluntary surrenderers exhibited greater life skills and psychological well-being than incarcerated individuals. Life skills emerged as a significant predictor of substance use disorder symptoms for both groups, suggesting that the inability to cope with life demands increases the risk of substance use. Additionally, perceived community safety was a significant predictor of substance use disorder symptoms among voluntary surrenderers, underscoring the importance of supply reduction efforts. These results highlight the necessity to differentiate drug treatment approaches based on the profile of users.

Contribution/Impact on Society: The findings of this study underscored the critical importance of adopting a biopsychosocial approach to address the complex issue of drug use. By considering the interplay between biological, psychological, and social factors, a more comprehensive understanding of drug use and dependence can be achieved. These results may be used to advocate for the design and implementation of comprehensive community intervention programs tailored to facilitate the recovery of drug users, thereby promoting public health and safety.

Recommendations: To further elucidate the relationships among the various factors influencing drug use and dependence, advanced multivariate analytical techniques should be employed. These techniques would enable a more nuanced examination of the interactions between different variables. Additionally, the proposed model should be tested using more rigorous research designs, such as randomized controlled trials, to establish causality and enhance the robustness of the findings.

Research Limitations: The study was limited by its reliance on self-report scales, which may be subject to social desirability bias. Furthermore, the differing circumstances under which each group of respondents completed the scales could have influenced their responses. These limitations should be considered when interpreting the results and designing future research studies.

Future Research: Given that a significant portion of the participants were unemployed, further research should be conducted to examine the relationship between unemployment and drug use. Additionally, it is crucial to investigate the biopsychosocial traits of populations residing in more rural areas compared to individuals in Metro Manila, as these groups may exhibit distinct characteristics. Moreover, additional variables within the biopsychosocial framework that were not addressed in the current research need to be examined. For instance, factors such as childhood aggression and life stress warrant further investigation, as they may significantly contribute to the development of substance use disorders. Understanding the interplay of these additional variables may provide a more comprehensive understanding of drug use and inform more effective intervention programs.

Keywords: *Substance abuse, biopsychosocial factors, life skills, well-being*

Introduction

The global crisis of illegal drug use remains one of the most significant threats to public safety and health in many nations, with at least 5% of adults worldwide having used drugs at least once. According to the 2020 World Drug Report, approximately 269 million people worldwide used drugs in 2018, representing a 30% increase from 2009. Additionally, over 35 million people suffer from drug use disorders globally (UNODC, 2020). The 2024 World Drug Report further highlighted the continued expansion of drug use and markets, with 292 million people using drugs in 2022 (UNODC, 2024).

Similar issues exist in the Philippines, where according to data from the Dangerous Drugs Board (DDB), around 1.8 million people were drug users (Gavilan, 2016). To encourage suspected drug offenders to voluntarily surrender and receive treatment, the government started "Oplan Tokhang," a demand reduction initiative in 2016 (Gonowon, 2022). Since then, more than 1.26 million people have surrendered to law enforcement authorities (Felipe, 2017).

Data obtained by the Philippine News Agency from the National Prosecution Service reported an all-time high at that point of 70,706 drug cases filed in courts (Caliwan, 2018). According to a report from the Commission on Audit, the Bureau of Jail Management and Penology saw a jump of 612% in

various jails' congestion rates. To decongest its prisons, the Philippine Supreme Court established a framework for plea bargaining, which permits individuals with minor drug offenses to enter into plea agreements that reduce jail time and grant conditional release after completing a drug treatment program (DOJ, 2018).

In effect, two distinct groups have emerged as a result of the government's war on illegal drugs. A growing number of those who voluntarily surrendered and those incarcerated under plea bargains have enlisted in drug treatment programs. Voluntary surrenderers are community members who turned themselves in to the "Oplan Tokhang" initiative and enlisted in a community-based drug rehabilitation program. Plea bargainers, on the other hand, are incarcerated participants who entered into plea agreements with the court that require completion of a drug treatment program (DOJ, 2018).

Understanding the variables that affect drug use is the first step in treating it. Different theories have sought to explain drug use and dependence, one of the most dominant ones being the biopsychosocial model of health (Engel, 1978). This theory posits that drug use is a product of complex interactions of different factors. These factors include biological factors such as exposure and genetics; psychological factors such as attitudes, emotions, and cognitions; and social factors such as family dynamics and community conditions (Skewes & Gonzalez, 2013). Recent studies continue to support the biopsychosocial model's relevance in understanding substance use disorders. For instance, a comprehensive multivariate model of biopsychosocial factors associated with opioid misuse highlighted the significant role of socioecological and health indicators in predicting substance use disorders (Montiel Ishino et al., 2020). Additionally, a multi-level analysis of biological, social, and psychological determinants of substance use disorder emphasized the intricate interplay of these factors in addiction vulnerability (Belfiore et al., 2024).

Although some research has been done on the nature of drug use in the Philippines, there is a dearth of knowledge describing the characteristics of individuals affected by the government's campaign against illegal drugs. Thus, this study aimed to shed light on the biopsychosocial factors that contribute to drug use and dependence among two distinct groups: voluntary surrenderers and incarcerated plea bargainers. By highlighting their similarities and differences, this research sought to provide insights into the potential implications for treatment interventions.

Related Literature

Drug use has been explained in several ways: as a disease, as a social problem, and as deviant behavior. However, Griffiths (2005) contended that health behaviors have multifaceted components and are strongly influenced by contextual factors, and thus, cannot be sufficiently explained by any single factor. The biopsychosocial framework takes a systems approach to understanding the complexity of health problems, including substance use disorders. According to this viewpoint, a person's biological and/or genetic predisposition, psychological traits, social environment, and the types of activity in which they engage are all interconnected and contribute to health issues. According to research, these factors interact to cause substance use disorders (Skewes & Gonzalez, 2013).

Biological Factors

Several studies have indicated that genetics play a significant role in drug use risk. The National Institute on Drug Abuse (NIDA) found shared genetic markers underlying substance use disorders, suggesting genetic predisposition (NIDA, 2023). Additionally, Latvala et al. (2020) reported that parental substance misuse is robustly associated with offspring substance misuse, highlighting direct genetic risk.

Research has indicated that individuals who abuse one substance are more prone to abuse others. Watts et al. (2024) found that adolescents influenced by peers' substance use behaviors were likely to engage in multiple substance use. Early onset of illicit drug use increases the risk of dependence, with Trujillo et al. (2019) emphasizing early initiation as a predictor of substance use disorders later in adulthood.

Wang et al. (2023) linked early-onset substance use to increased risk of hypertension and other health issues. Substance use alters brain tissue and structure, affecting decision-making and impulsivity. Hamidullah et al. (2020) highlighted neurobiological divergences associated with adolescent substance use, impacting cognitive and behavioral outcomes.

In this study, an individual's first and last drug use, along with the number of drugs used, were classified as biological factors that interact with an individual's biological makeup and physiological responses. Early drug use can significantly impact brain development and increase the likelihood of dependency (Squeglia et al., 2009). The most recent drug use influences current biological and physiological states, such as tolerance and withdrawal symptoms (Koob & Le Moal, 2001). The diversity of substances used affects the cumulative biological burden on the body, leading to varying physiological and neurological outcomes (Volkow et al., 2012). These factors are closely tied to biological responses, influencing the development and progression of substance use disorders.

Psychological Factors

Recent studies have shown a significant relationship between psychological characteristics and drug use, with traits such as impulsivity, anxiety, and irritability playing a crucial role. Shahrabadi et al. (2020) emphasized that psychological functioning significantly influences drug use behaviors. Bahji (2024) highlighted the co-occurrence of substance use disorders with psychiatric conditions like depression, anxiety, and impulse control disorders.

Stress is a critical risk factor for drug use, as early life or chronic stress lead to neuroendocrine changes affecting brain systems involved in motivation and adaptive behaviors. Sinha (2024) discussed how disrupted stress responses impact substance use disorders. Bahji (2024) also underscored the link between emotional distress and substance use in adolescents.

Social Factors

Substance use is closely linked to social factors such as socioeconomic status, culture, and religion. Socioeconomic disparities shape substance use patterns, with individuals from lower socioeconomic backgrounds more likely to engage in substance use due to increased stress and limited access to healthcare (Estrellado, 2025). Cultural and religious contexts also influence substance use behaviors, with religiosity often acting as a protective factor (Palamar et al., 2014).

Adolescents not pursuing higher education are at higher risk of substance abuse, with peer influence significantly affecting adolescent substance use behaviors (Watts et al., 2024). Peer victimization in early adolescence, mediated by sleep problems, is linked to subsequent substance use (Kaynak et al., 2021).

The aforementioned research studies have demonstrated that drug use is influenced by biological, psychological, and social aspects. Consequently, drug use is associated with health, psychological, and social antecedents and consequences. A clear understanding of their interplay is essential, particularly when addressing the unique circumstances and needs of specific drug user groups.

Philippine Studies on Drug Use

A Dangerous Drugs Board (2017) study found that Filipino mono-drug users primarily used methamphetamine, marijuana, and solvents, with most users being from urban areas, particularly the national capital region (43.31%). More than half (53.52%) were single, with a 10:1 male-to-female ratio, 45.96% were unemployed, and only 27.32% had a high school education or beyond. The mean age was 31, with an average of 6 years of drug use. The increase in admission rates may be due to intensified anti-drug campaigns, family support, and improved treatment programs.

A study of male drug users in the Philippines (Tuliao & Liwag, 2011) highlighted that psychological variables like motivation, effect, self-efficacy, coping, and cravings predicted recurrence. Non-relapse cases had more coping mechanisms, lower levels of desire and negative affect, and greater motivation to improve; functional social support did not significantly differ between relapse and non-relapse

groups. Furthermore, Caday (2017) highlighted the role of social factors in drug abuse among Filipino college students, citing negative peer influence and poor family dynamics as key factors.

Family, friends, and community have played crucial roles in the recovery of Filipino drug users (Manaois et al., 2022). Structural changes in social networks has resulted in a significant decrease in negative influences and increased recovery capital over time (Ader et al., 2024).

This study aimed to fill the gap in the existing literature by comparing the characteristics of voluntary surrenderers and incarcerated plea bargainers by using the biopsychosocial theory, and building on existing literature regarding Filipino drug users. Particularly, it aimed to shed light on incarcerated drug users with pending criminal cases, as there is currently little data on this group. Hence, this study attempted to compare group characteristics of voluntary surrenderers and incarcerated plea bargainers, using the biopsychosocial theory as a lens.

Research Questions

1. How do voluntary surrenderers and incarcerated drug users differ in terms of the following factors: (a) substance use disorder symptoms, (b) first drug use, (c) last drug use, (d) number of drugs used, (e) Use of life skills, (f) psychological well-being, (g) family support, (h) quality of family life, and (i) perceived community safety?

2. Between the two groups of drug users, what differences exist among the predictors of substance use disorder?

Methodology

Participants

Participants were recruited through purposive sampling. Five hundred and seventy-four persons of legal age who used drugs (PWUDs) and were attending intervention programs across various sites in Metro Manila were invited to participate in the study. These individuals received an orientation about the study, which included detailed information about its objectives, procedures, and ethical considerations. Of those invited, a total of 564 participants volunteered to participate in the research and gave their informed consent. The participants were categorized into two groups based on their program status: 340 voluntary surrenderers and 224 incarcerated plea-bargainers. These individuals enlisted in a community-based drug rehabilitation program for different reasons. Voluntary surrenderers enrolled in the program of their own accord, seeking to overcome drug dependence and reintegrate into society. By contrast, the incarcerated individuals participated in the program as a court-mandated requirement, as part of their plea-bargaining agreement as PWUDs. This purposive sampling method ensured that the study consisted of individuals actively engaged in intervention programs, thereby providing a relevant and focused sample for examining the factors influencing drug use and dependence.

Measures

Respondent-completed questionnaires were used to obtain data related to participants' socio-demographics, exposure to types of drugs and frequency of use (biological), psychological well-being and life skills (psychological), and family environment and community (social).

Substance Use Disorder. This pertained to a psychiatric condition described by impaired control of substance use, impaired functioning, increased dosage, and continued use despite significant problems caused by substance use (American Psychiatric Association, 2013). This was measured using the International Statistical Classification of Diseases and Related Health Problems 10th Revision (WHO, 2010). The reliability of this measurement tool is confirmed with an acceptable Cronbach's alpha score of .853, indicating robust internal consistency.

Age of First Drug Use. This variable referred to the age at which respondents first reported using drugs.

Time Since Last Drug Use. This variable indicated the duration since the participant last reported using drugs. It was measured as the number of months between the reported last drug use and completion of the questionnaire.

Number of Drugs Used. This variable represented the total number of different substances that the participant reported having used. It was calculated as the sum of all types of drugs that participants admitted to using.

Coping Skills. These pertained to efforts or strategies to resolve stressful life situations. Selected items from the Coping Behaviors Inventory (Myers & Brown, 1996) that measure behaviors and thoughts of individuals to prevent, avoid, or control substance use were adapted to measure coping skills. The reliability of this measurement was supported by a Cronbach's alpha score of .927, indicating high internal consistency.

Life Skills. These pertained to psychosocial skills essential in dealing with everyday life's demands and challenges. It covered five basic areas: (a) decision-making and problem-solving, (b) creative thinking and critical thinking, (c) communication and interpersonal skills, (d) self-awareness and empathy, and (e) coping with emotions and stress. Selected items from Sharma's Life Skills questionnaire (Sharma, 2003) were adapted and used to measure life skills. The reliability of this scale was confirmed with a Cronbach's alpha score of .899, indicating strong internal consistency.

Psychological Well-Being. This entailed self-assessment of an individual's physical and psychological health status that was manifested in the absence of perceived physical discomfort. It was measured using the World Health Organization Well-Being Index-5 (Topp et al., 2015), which demonstrated strong internal consistency with a Cronbach's alpha score of .858.

Family Support. This consisted of behaviors that foster a sense of comfort and belonging, and that an individual feels accepted and approved by their parents and family members. This was measured using four items in the family subscale of the Multidimensional Scale of Perceived Social Support developed by Zimet et al. (1988). The reliability of this measure was confirmed with a Cronbach's alpha score of .879.

Quality of Family Life. This reflected families' perceived satisfaction regarding their living conditions, interactions and functioning, and general well-being. Seven items from the Beach Center Family Quality of Life Scale developed by Summers et al. (2005) were utilized to measure the quality of family life. The reliability of this scale was indicated by a Cronbach's alpha score of .911.

Perceived Community Safety. This entailed personal or subjective judgment of an individual's sense of safety (i.e., home, street, work) while going through daily activities without fear of crime or disorder (Crawford & Evans, 2016). This variable was measured using a scale with a reliability score indicated by a Cronbach's alpha of .513.

Procedures

Ethical clearance was acquired from the Ateneo de Manila University Research Ethics Office. Informed consent was obtained before the survey was administered. Participants were not given any monetary incentives. During the research orientation, they were thoroughly informed that their involvement in the study was entirely voluntary and that they retained the right to withdraw from participation at any point during the study. To ensure privacy, the survey data was kept confidential and anonymized. No identifiers or personal information of participants were included in the dataset. It was encoded in a password-protected data file and will be deleted upon completion of this research. A statistical software package was used to analyze descriptive and inferential statistical approaches. The data was analyzed using hierarchical multiple regression and an independent-samples *t*-test. Statistical significance was set at a p-value < .05.

Results

Participants' Demographic Profile

Table 1 provides descriptive information about the participants. Out of a total of 564 participants, 60.28% were voluntary surrenderers, while 39.72% were incarcerated plea-bargainers. Voluntary

surrenderers had a slightly higher mean age of 41.72 years compared to 36.45 years for plea-bargainers. In terms of gender, the majority in both groups were male, accounting for approximately 78–79%. Employment status data revealed that a substantial proportion were unemployed, with 31.76% of voluntary surrenderers and 45.09% of plea-bargainers reporting no employment prior to their incarceration. Educational attainment varied, with most having completed at least high school. Among voluntary surrenderers, 55.88% had a high school education, while 62.50% of plea-bargainers had achieved this level of education. Regarding drug use, shabu (methamphetamine) and marijuana were the most commonly abused substances. Among voluntary surrenderers, 90.59% reported using shabu, and 16.18% reported using marijuana. Similarly, 88.39% of plea-bargainers reported using shabu, while 10.27% reported using marijuana.

Table 1 *Descriptive Statistics of Participants*

		Voluntary Surrendered (*n* = 340)				Incarcerated Plea Bargainers (*n* = 224)			
Variables		**F**	**%**	***M***	***SD***	**F**	**%**	***M***	***SD***
Age				41.72	10.65			36.45	9.56
Sex	Male	268	78.82			177	79.02		
	Female	72	21.18			47	20.98		
Civil Status	Single	115	33.82			82	36.61		
	Married	165	48.53			108	48.21		
	Widowed/Separated	60	17.65			34	15.18		
Employment	Regular	103	30.29			55	24.55		
Status	Contractual	126	37.06			66	29.46		
	Unemployed	108	31.76			101	45.09		
	Self-employed	3	0.88			2	0.89		
Educational	Grade School	62	18.24			55	24.55		
Attainment	High School	190	55.88			140	62.50		
	Vocational	36	10.59			10	4.46		
	College	52	15.29			19	8.48		
Type of Drugs	Marijuana	55	16.18			23	10.27		
Used	Shabu	308	90.59			198	88.39		
	Rugby	2	0.59			1	0.45		
	Cocaine	1	0.29			0	-		
	Others	0	-			1	0.45		

Group Differences in Biopsychosocial Factors

Table 2 shows the results of an independent-samples *t*-test comparing the differences between voluntarily surrendered participants and incarcerated plea bargainers. In terms of participants' biological variables, the *t*-test revealed a significant difference in substance use disorder scores between voluntary (M = .494, SD = .891) and incarcerated (M = .845, SD = 1.516) groups; t (324.853) = -3.035, $p < .05$, with higher scores for incarcerated participants. On the other hand, no significant differences were found between the ages at which participants first used drugs and their last reported drug use. Results revealed that plea-bargainers had used more types of drugs (M =2.357, SD = 1.426) than the voluntary participants (M = 1.365, SD = 1.313), t (562) = -3.035, $p < .05$.

Group differences were also found among scores for psychological factors. Coping skills [t (562.000) = 8.155, $p < .05$], life skills [t (522.726) = 3.611, $p < .05$], and psychological well-being [t (402.356) = 7.086, $p < .05$] were significantly higher among voluntary surrenderers compared to plea bargainers. This would suggest that those who voluntarily surrendered have a more positive view of their circumstances and can better demonstrate the life skills needed to cope with life's challenges.

Conversely, no differences were found in social factors such as family support [t (563) = 1.182, $p > .05$] and perceived community safety [t (416.342) = 1,192, $p > .05$] between voluntary surrenderers and plea bargainers. The social factor quality of family life revealed that those who were incarcerated

had higher scores (*M* =3.326, *SD* = 0.486) than the voluntary participants (*M* = 3.021, *SD* = 0.553), *t* (562) = -6.710, *p* < .05.

Table 2 *Means, Standard Deviation, and Test of Difference Between Groups*

	Voluntary Surrendered (*n* = 340)		Incarcerated Plea Bargainers (*n* = 224)		*t*	*df*	Mean Difference
Factors	***M***	***SD***	***M***	***SD***			
Substance Use Disorder	0.494	0.891	0.835	1.516	-3.035**	324.853	-.341
First Drug Use	25.711	9.426	24.381	8.877	1.677	562.000	1.329
Last Drug Use	26.865	41.005	23.255	38.997	1.043	562.000	3.610
Number of Drugs Used	1.365	1.313	2.357	1.426	-8.485*	562.000	-.992
Coping Skills	2.192	0.735	1.670	0.755	8.155*	562.000	.522
Life Skills	4.286	0.496	4.144	0.428	3.611*	522.726	.142
Psychological Wellbeing	4.269	1.051	3.526	1.318	7.086*	402.356	.743
Family Support	6.297	0.959	6.201	0.916	1.182	562.000	.096
Quality of Family Life	3.021	0.553	3.326	0.486	-6.710*	562.000	-.305
Community Safety	3.183	0.528	3.122	0.634	1.192	416.342	.061

Note. N = 564, *p < .001, **p < .05.

Predictors of Substance Use Disorder

Table 3 shows a three-stage hierarchical multiple regression of the voluntary surrenderers, with substance use disorder as the outcome variable. At each stage, predictor variables were entered following the biopsychosocial model of drug use.

Table 3 *Hierarchical Regression Analysis of Predictors of Substance Use Disorder (Voluntary Surrendered)*

Predictor	**Variable**	**Model 1 B**	**Model 2 β**	**Model 3 β**	**95% CI (Model 3)**
Biological Factors:	First Drug Use	-.002	-.012	.002	[-.010, .010]
	Last Drug Use	-.146*	-.137*	-.125**	[-.005, .000]
	Number of Drugs Used	.007	-.013	-.010	[-.079, .065]
Psychological Factors:	Coping Skills		-.029	-.026	[-.159, .095]
	Life Skills		-.145*	-.139**	[-.470, -.029]
	Psychological Wellbeing		-.075	-.037	[-.130, .067]
Social Factors:	Family Support			-.076	[-.188, .046]
	Quality of Family Life			.087	[-.061, .341]
	Community Safety			-.153**	[-.441, -.077]
	R^2	.021	.057	.086	
	Adj. R^2	.013	.040	.061	
	ΔR^2	.021	.036	.029	
	F	2.431	3.355**	3.462*	

Note. n = 340, *p < .001, **p < .05

The regression analysis revealed that when biological conditions were entered at Stage One, a non-significant regression equation was found [*F* (3,336) = 2.431, *p* = .065]. However, the last reported drug use as a predictor variable had a significant influence that accounted for a 2% unique contribution of the variation in substance use disorder. Introducing the psychological variables in Stage Two explained an additional 3.5% of the variation in substance use disorder; this change in *R* squared was

significant [*F* (6,333) = 3.355, *p* = .003]. Life skills were a significant predictor of substance use disorder that accounted for a 1.9% unique contribution. The last addition of social variables to the regression model explained an additional 2.9% of the variation in substance use disorder, and this change in *R* squared was also significant [*F* (9,330) = 3.462, *p* < .001].

Having all eight predictor variables entered in the regression model at Stage Three, the significant predictors of substance use disorder were last reported drug use, life skills, and community safety with unique variance explained values of 1.5%, 1.4%, and 2.2%, respectively. The regression model with eight biopsychosocial predictors explained 8.6% of substance use disorders among voluntarily surrendered drug users.

Table 4 shows the regression model for the plea bargainer group, with substance use disorder as the outcome variable. The regression analysis shows that at Stage One, biological factors were not significant predictors of substance use disorder [*F* (3,220) = 2.584, *p* = .054]. Introducing the psychological variables in Stage Two explained an additional 8.7% of the variation in substance use disorder; this change in *R* squared was significant [*F* (6,217) = 5.029, *p* < .001]. Life skills and psychological well-being were significant predictors of substance use disorder that accounted for 4.2% and 1.6% of unique contributions. The addition of social variables to the regression model explained an additional 2.1% of the variation in substance use disorder, and this change in *R* squared was also significant [*F* (9,214) = 3.958, *p* < .001].

Table 4 *Hierarchical Regression Analysis of Predictors of Substance Use Disorder (Plea Bargainers)*

Predictor	Variable	Model 1 B	Model 2 β	Model 3 β	95% CI (Model 3)
Biological Factors:	First Drug Use	-.129	-.126	-.131**	[-.044, -.001]
	Last Drug Use	-.059	-.034	-.028	[-.006, .004]
	Number of Drugs Used	-.127	-.141*	-.137**	[-.282, -.011]
Psychological Factors:	Coping Skills		-.030	-.011	[-.279, .236]
	Life Skills		-.218*	-.178**	[-1.161, -.099]
	Psychological Wellbeing		-.136	-.103	[-.282, .044]
Social Factors:	Family Support			-.132	[-.491, .055]
	Quality of Family Life			.010	[-.527, .589]
	Community Safety			-.086	[-.513, -.099]
	R^2	.034	.122	.143	
	Adj. R^2	.021	.098	.107	
	ΔR^2	.034	.088	.021	
	F	2.584	5.029*	3.958*	

Note. *n* = 224, *p < .001, **p < .05.

Having all eight predictor variables entered in the regression model at Stage Three, the significant predictors of substance use disorder were the first reported drug use, number of drugs used, and life skills with unique variance explained values of 1.7%, 1.8%, and 2.19% respectively. The regression model of having eight biopsychosocial predictors explained 14.3% of substance use disorders among plea-bargainer drug users.

Discussion

The findings showed that there are group differences among Filipino drug users who opted for community-based drug treatment programs. Particularly, substance use disorder and the number of drugs used were significantly higher among incarcerated individuals. Frequent use of illicit drugs has been found to contribute to psychological problems and an increased risk of developing substance use disorder (Harris & Weitzman, 2024; Hechanova et al., 2023; Liu et al., 2025).

It is noteworthy that participants' initial drug use experiences occurred throughout their adolescence. Research suggests that individuals who start using drugs early in life are more likely to

experience drug-related issues later in life (Woodward et al., 2023). The first experience of drug use was a significant predictor of substance use disorder among incarcerated plea bargainers who reported earlier onset of drug use, indicating greater vulnerability compared to the voluntary surrenderers group.

Incarcerated participants reported a lower perception of well-being, which may be influenced by the physical effects of drug use and their current imprisonment. This group also reported a significantly higher number of drugs used, suggesting increased frequency of use to satisfy cravings (drug dependency). Their perceived well-being and the number of drugs used were significant predictors of substance use disorder. These results corroborated literature indicating that well-being is negatively associated with incidents of illicit drug use, and the degree of association is strongest towards dangerous drugs (Volkow & Blanco, 2023). Improving psychological well-being may be crucial to enhancing positive health outcomes, fostering a life full of purpose and meaning, promoting continued personal growth, and nurturing quality relationships with others (Ryff & Singer, 2008). Addressing these factors through targeted interventions could reduce the risk of substance use disorder, and improve the overall quality of life for individuals undergoing drug treatment programs.

Incarcerated participants also reported lower life skills, indicating inadequacy in problem-solving, managing negative emotions, and lower self-efficacy. A previous study showed that psychological factors, such as self-efficacy, negative affect, and inadequate coping were predictors of drug-related disorders (Tuliao & Liwag, 2011). This is vital since results have indicated that psychological factors are predictors of substance use disorder for both groups, suggesting the need for treatment programs to address these areas. Drug users need to be provided with necessary life skills to avoid drug use and relapse, and further enhance their well-being through wellness activities such as mindfulness. Mindfulness activities have been found to increase positive psychosocial outcomes and decrease substance use-related problems (Bowen et al., 2006).

The social factor of perceived community safety may not be significant to incarcerated participants, since they are in prison. However, after their release, they may face similar challenges as voluntarily surrendered participants regarding community safety. This social factor is vital for recovering drug users where community security is elusive. Reintegration into their communities remains a challenge as they are faced with the longstanding reality of sustained availability of illegal drugs, existing and rampant drug use, and the presence of drug pushers in their communities. These findings have significant implications for designing intervention programs that involve preparing a safe community environment where individuals can recover and reintegrate effectively.

Implications for Practice

The study's findings support the position of the Psychological Association of the Philippines (2019) in promoting a scientific and humane approach to addressing community health problems, such as addiction and substance use. The need for descriptive studies to profile current drug users is fundamental to developing appropriate intervention programs. Moreover, drug recovery programs must account for evidence-informed drug interventions that are tailored to local cultural values and economic conditions. Thus, funding both wider implementation of programs like the *Katatagan Kontra Droga sa Komunidad*, a psycho-educational, community-based drug intervention program (Hechanova et al., 2018), and gathering more evidence of such programs' benefits are vital in ensuring a scientific and humane approach to addressing drug use and dependence in the community.

Furthermore, findings can lead to discussions about policy-making, such as prioritizing poverty alleviation and generating job opportunities to deter drug use. There must be efforts towards addressing social issues (e.g., resource allocation, social service delivery, poverty, unemployment, education, etc.) that perpetuate drug use (Barnett, 2009). There is also a need to reinforce laws, particularly in urban poor areas where the proliferation of drugs and their use is evident. Schools and communities have big roles in promoting drug prevention programs, as schools can teach life skills and coping strategies that can be used to manage life circumstances correlated with drug use. They can also enhance parenting skills that hone similar coping and life skills among the young. Drug

prevention-oriented parenting programs that entail coaching parents to deal with their children effectively and identify early signs of substance abuse may likewise be developed. Communities can be empowered to self-organize and develop mechanisms to promote peace and order within their barangays. It would also be beneficial if communities would institutionalize involvement programs that engage youth to become productive members of society.

Limitations and Future Research Direction

This study examined various factors influencing drug use among Filipinos. However, interpretations are limited to participants in community-based treatment programs with low to mild risks, and its results were based on self-reported scales. Sociodemographic characteristics, including education, marital status, and employment, may act as potential confounders, necessitating control in future analyses for an accurate understanding of the relationships between the variables and drug use. This approach would allow for the isolation of specific effects of biopsychosocial factors on substance use disorder symptoms, thereby enhancing the robustness and validity of findings.

Recommendations for further studies include examining the extent of unemployment's impact on drug use, testing populations outside of Metro Manila, and exploring variables like childhood aggression and life stress using the biopsychosocial paradigm. Investigating drug use patterns among women and primary sources of family income, as well as employing multivariate techniques to understand interrelationships among variables, is also suggested.

Conclusion

This study highlighted the multifactorial nature of drug use, emphasizing the interplay of biological, psychological, and social factors. A key finding was the identification of life skills as a significant psychological indicator influencing substance use disorder, and underscoring the need for intervention programs that enhance life skills. Additionally, perceived community safety emerged as critical in designing drug treatment programs, suggesting that efforts to improve community safety can support recovery and prevent relapse.

Viewing drug use through the biopsychosocial model is crucial for developing comprehensive interventions that address the biopsychosocial needs of drug users. This study's findings were aligned with biopsychosocial theory, emphasizing the importance of addressing multiple dimensions to achieve effective outcomes. Future research should explore the intricate relationships between biopsychosocial factors and substance use, focusing on evidence-based interventions tailored to different cultural and socioeconomic contexts. By adopting a comprehensive and humane approach, better support for individuals affected by drug use may be given, contributing to healthier and safer communities.

References

Ader, M. A. P., Cruz, J. M. F. D., Paudac, M. A. M., Ramos, J. M. M., Manaois, J. O., Filipinas, T. I., Tomawis, M. C., & Barros, M. L. R. (2024). Examining the relationship between authoritative parenting style and drug dependence among PWUDs: The mediating role of self-efficacy. *International Journal of Research and Scientific Innovation, 11*(1), 44–53. https://doi.org/10.51244/IJRSI.2024.1101004

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). American Psychiatric Publishing.

Bahji, A. (2024). Navigating the complex intersection of substance use and psychiatric disorders: A comprehensive review. *Journal of Clinical Medicine, 13*(4), 999. https://doi.org/10.3390/jcm13040999

Barnett, R. E. (2009). The harmful side effects of drug prohibition. *Georgetown Law Faculty Publications and Other Works, 817,* 11–34. https://scholarship.law.georgetown.edu/facpub/817

Belfiore, C. I., Galofaro, V., Cotroneo, D., Lopis, A., Tringali, I., Denaro, V., & Casu, M. (2024). A multi-level analysis of biological, social, and psychological determinants of substance use disorder and co-occurring mental health outcomes. *Psychoactives*, *3*(2), 194-214. https://doi.org/10.3390/psychoactives3020013

Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D., Larimer, M. E., Blume, A. W., Parks, G. A., & Marlatt, G. A. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychology of Addictive Behaviors, 20*(3), 343–347. https://doi.org/10.1001/10.1037/0893-164X.20.3.343

Caday, F. B. (2017). Causes of drug abuse among college students: The Philippine experience. *The International Journal of Social Sciences and Humanities Invention, 4*(4), 3430–3434. https://doi.org/10.18535/ijsshi/v4i4.05

Caliwan, C. L. (2018, July 31). *Close to 153K drug cases filed 2 years into Duterte's drug war*. http://www.pna.gov.ph/articles/1043196

Crawford, T. A. M., & Evans, K. (2016). Crime prevention and community safety. In A. Leibling, S. Maruna, & L., McAra. (Eds.), *Oxford handbook of criminology* (6th ed.). Oxford University Press.

Dangerous Drugs Board. (2017). *2017 statistics profile of drug abusers*. https://www.ddb.gov.ph/component/content/category/45-research-and-statistics

Department of Justice (DOJ). (2018, June 26). *Amended guidelines on plea bargaining*. Department circular no. 027. https://www.doj.gov.ph/files/2018/DC/DC027-2018JUN%20Amended%20Guidelines%20for%20Plea%20Bargaining%20dtd%2026%20Jun%202018(1).pdf

Engel, G. L. (1978). The biopsychosocial model and the education of health professionals. *Annals of the New York Academy of Sciences, 310*(1), 169–181. https://doi.org/10.1111/j.1749-6632.1978.tb22070.x

Estrellado, N. (2025). *Impact of socioeconomic status on addiction rates: Statistics.* https://www.addictiongroup.org/resources/socioecomic-impact-statistics/

Felipe, C. S. (2017, December 2017). *1.37 M drug personalities surrendered nationwide - PNP.* https://www.philstar.com/nation/2017/12/17/1769333/137-m-drug-personalities-surrendered-nationwide-pnp

Gavilan, J. (2016, September 19). *DDB: Philippines has 1.8 million current drug users*. Rappler. https://www.rappler.com/nation/146654-drug-use-survey-results-dangerous-drugs-board-philippines-2015

Gonowon, M. L (2022). The implementation of Oplan Tokhang in Iriga City. *International Journal of Innovative Science and Research Technology, 7*(5), 434–440. https://doi.org/10.5281/zenodo.6609379

Griffiths, M. (2005). A "components" model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10*(4), 191–197. https://doi.org/10.1080/14659890500114359

Hamidullah, S., Thorpe, H. H. A., Frie, J. A., McCurdy, R. D., & Khokhar, J. Y. (2020). Adolescent substance use and the brain: Behavioral, cognitive and neuroimaging correlates. *Frontiers in Human Neurosciences, 14*, 298. https://doi.org/10.3389/fnhum.2020.00298

Harris, N. A., & Weitzman, E. R. (2024). Intensifying substance use trends among youth: A narrative review of recent trends and implications. *Current Psychiatry Reports, 26*, 822–831. https://doi.org/10.1007/s11920-024-01554-9

Hechanova, M. R., Alianan, A. S., Calleja, M. T., Melgar, I. E., Acosta, A., Villasanta, A., Bunagan, K., Yusay, C., Ang, A., Flores, J., Canoy, N., Espina, E., Gomez, G., Hinckley, E. S., Tuliao, A. P., & Cue, M. P. (2018). The development of a community-based drug intervention for Filipino drug users. *Journal of Pacific Rim Psychology, 12*(12), 1–10. https://archium.ateneo.edu/psychology-faculty-pubs/38/

Hechanova, M. R., Manaois, J. O., Co, T. A., & Escartin, I. (2023). Biopsychosocial predictors of drug dependence among Filipino drug users in community-based drug rehabilitation. *Journal of Ethnicity in Substance Abuse*, 1–23. https://doi.org/10.1080/15332640.2023.2217417

Kaynak, Ö., Whipple, C. R., Kliewer, W. L., & Lepore, S. J. (2021). Peer victimization exposure and subsequent substance use in early adolescence: The role of sleep problems. *Journal of Youth and Adolescence, 50*, 1254–1267. https://doi.org/10.1007/s10964-021-01410-6

Koob, G. F., & Le Moal, M. (2001). Drug addiction, dysregulation of reward, and allostasis. *Neuropsychopharmacology*, *24*(2), 97–129. https://doi: 10.1016/S0893-133X(00)00195-0.

Latvala, A., Kuja-Halkola, R., D'Onofrio, B. M., Jayaram-Lindström, N., Larsson, H., & Lichtenstein, P. (2020). Association of parental substance misuse with offspring substance misuse and criminality: A genetically informed register-based study. *Psychological Medicine,* 1–10. https://doi.org/10.1017/S0033291720002135

Liu, L., Zhang, C., & Nahata, M. C. (2025). Trends in treatment need and receipt for substance use disorders in the US. *JAMA Network Open, 8*(1), e2453317. https://doi.org/10.1001/jamanetworkopen.2024.53317

Manaois, J. O., Hechanova, M. R. M., & Estuar, J. E. (2022). Mapping social network influences of recovering Filipino drug users in community-based drug rehabilitation. *Social Transformations: Journal of the Global South, 10*(1), 49–77. https://doi:10.13185/STJGS2022.10104

Montiel Ishino, F. A., McNab, P. R., Gilreath, T., Salmeron, B., & Williams, F. (2020). A comprehensive multivariate model of biopsychosocial factors associated with opioid misuse and use disorder in a 2017–2018 United States national survey. *BMC Public Health, 20*, 1740. https://doi.org/10.1186/s12889-020-09856-2

Myers, M. G., & Brown, S. A. (1996). The adolescent relapse coping questionnaire: Psychometric validation. *Journal of Studies on Alcohol, 57*(1), 40–46. https://doi.org/10.15288/jsa.1996.57.40

National Institute on Drug Abuse (NIDA). (2023). *New NIH study reveals shared genetic markers underlying substance use disorders.* https://nida.nih.gov/news-events/news-releases/2023/03/new-nih-study-reveals-shared-genetic-markers-underlying-substance-use-disorders

Palamar, J. J., Kiang, M. V., & Halkitis, P. N. (2014). Religiosity and exposure to users in explaining illicit drug use among emerging adults. *Journal of Religion and Health, 53*, 658–674. https://doi.org/10.1007/s10943-012-9660-3

Psychological Association of the Philippines (PAP). (2019, January 7). *A statement on promoting a scientific and humane approach to addiction and substance use.* https://www.pap.org.ph/position-paper/statement-promoting-scientific-and-humane-approach-addiction-and-substance-use

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies, 9*(1), 13–39. https://doi.org/10.1007/s10902-006-9019-0

Shahrabadi, S., Jalali, A., Jalali, R., & Gholami, A. (2020). Psychological, social, and motivational factors in persons who use drugs. *Substance Abuse Treatment, Prevention, and Policy, 15*, 32. https://doi.org/10.1186/s13011-020-00273-7

Sharma, S. (2003). Measuring life skills of adolescents in a secondary school of Kathmandu: An experience. *Kathmandu University Medical Journal, 1*(3), 170–176. https://pubmed.ncbi.nlm.nih.gov/16388225/

Sinha, R. (2024). Stress and substance use disorders: risk, relapse, and treatment outcomes. *Journal of Clinical Investigation, 134*(16), e172883. https://doi.org/10.1172/JCI172883

Skewes, M. C., & Gonzalez, V. M. (2013). The biopsychosocial model of addiction. *Principles of Addiction, 1*, 61–70. https://doi.org/10.1016/B978-0-12-398336-7.00006-1

Squeglia, L. M., Jacobus, J., & Tapert, S. F. (2009). The influence of substance use on adolescent brain development. *Clinical EEG and Neuroscience*, *40*(1), 31–38. https://doi: 10.1177/155005940904000110

Summers, J. A., Poston, D. J., Turnbull, A. P., Marquis, J., Hoffman, L., Mannan, H., & Wang, M. (2005). Conceptualizing and measuring family quality of life. *Journal of Intellectual Disability Research, 49*(10), 777–783. https://doi.org/10.1111/j.1365-2788.2005.00751.x

Topp C. W., Østergaard S. D., Søndergaard S., & Bech P. (2015). The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics, 84*(3), 167–176. https://doi.org/10.1159/000376585

Trujillo, C. A., Obando, D., & Trujillo, A. (2019). An examination of the association between early initiation of substance use and interrelated multilevel risk and protective factors among adolescents. *PLoS ONE, 14*(12), e0225384. https://doi.org/10.1371/journal.pone.0225384

Tuliao, A. P., & Liwag, M. E. C. D. (2011). Predictors of relapse in Filipino male methamphetamine users: A mixed methods approach. *Journal of Ethnicity in Substance Abuse, 10*(2), 162–179. https://doi.org/10.1080/15332640.2011.573319

United Nations Office on Drug and Crime (UNODC) (2020). *UNODC world drug report 2020: Global drug use rising; while COVID-19 has far reaching impact on global drug markets.* https://www.unodc.org/unodc/press/releases/2020/June/media-advisory---global-launch-of-the-2020-world-drug-report.html

United Nations Office on Drug and Crime (UNODC). (2024, June 26). *UNODC world drug report 2024: Harms of world drug problem continue to mount amid expansions in drug use and markets.* https://www.unodc.org/unodc/en/press/releases/2024/June/unodc-world-drug-report-2024_-harms-of-world-drug-problem-continue-to-mount-amid-expansions-in-drug-use-and-markets.html

Volkow, N. D., & Blanco, C. (2023). Substance use disorders: A comprehensive update of classification, epidemiology, neurobiology, clinical aspects, treatment and prevention. *World Psychiatry, 22*(2), 203–229. https://doi.org/10.1002/wps.21073

Volkow, N. D., Wang, G. J., Fowler, J. S., & Tomasi, D. (2012). Addiction circuitry in the human brain. *Annual Review of Pharmacology and Toxicology*, 52, 321-336. https://doi: 10.1146/annurev-pharmtox-010611-134625

Wang, K., Shafique, S., Wang, N., Walter, S.M., Xie, X., Piamjariyakul, U., & Winstanly, E. L. (2023). Early-onset alcohol, tobacco, and illicit drug use with age at onset of hypertension: A survival analysis. *Social Psychiatry and Psychiatric Epidemiology*, *59*, 1129–1141. https://doi.org/10.1007/s00127-023-02596-9

Watts, L. L., Hamza, E. A., Bedewy, D. A., & Moustafa, A. A. (2024). A meta-analysis study on peer influence and adolescent substance use. *Current Psychology*, *43*, 3866–3881. https://doi.org/10.1007/s12144-023-04944-z

Woodward, D., Wilens, T. E., Glantz, M., Rao, V., Burke, C., & Yule, A. M. (2023). A systematic review of substance use screening in outpatient behavioral health settings. *Addiction Science & Clinical Practice, 18*, 18. https://doi.org/10.1186/s13722-023-00376-z

World Health Organization (WHO). (2010). *International statistical classification of diseases and related health problems 10th revision* (ICD-10). https://icd.who.int/browse10/Content/statichtml/ICD10Volume2_en_2010.pdf

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*(1), 30–41. https://doi.org/10.1207/s15327752jpa5201_2