

Journal Pre-proof

Prevalence and Contributing Factors of Illicit Drug Use Among Youth Aged 18-24 in South Korea

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PII: S1976-1317(25)00089-1

DOI: <https://doi.org/10.1016/j.anr.2025.07.003>

Reference: ANR 618

To appear in: *Asian Nursing Research*

Received Date: 7 November 2024

Revised Date: 5 June 2025

Accepted Date: 9 July 2025

Please cite this article as: Kim C., Han K., Kim J., Trinkoff A.M., Park S. & Kim H., Prevalence and Contributing Factors of Illicit Drug Use Among Youth Aged 18-24 in South Korea, *Asian Nursing Research*, <https://doi.org/10.1016/j.anr.2025.07.003>.

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i. **Title:** Prevalence and Contributing Factors of Illicit Drug Use Among Youth Aged 18-24 in South Korea

ii. **A short running title:** Illicit Drug Use Among Korean Youth

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iv. **Conflict of Interest Statement:**

The authors declare that there is no conflict of interests.

v. Funding:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

vi. Ethical considerations:

The Institutional Review Board of Chung-Ang University reviewed and approved this study (IRB No. 1041078-20240219-HR-029).

vii. Acknowledgements:

None.

Prevalence and Contributing Factors of Illicit Drug Use Among Youths Aged 18–24 in South Korea

Abstract

Purpose: South Korea—despite its “drug-free” reputation—exhibits an increasing incidence of drug use, particularly among youths. In this age group, both environmental and individual factors influence illegal drug use. This study aimed to explore the prevalence of illicit drug use and examine the association between individual and environmental factors and drug use among Korean youths.

Methods: We administered a cross-sectional survey among South Koreans aged 18–24 years through an online panel; the survey assessed participants’ characteristics and drug use, as well as relevant individual and environmental factors. The synthetic minority oversampling technique addressed variable imbalance. Logistic regression models analyzed associations between factors and drug use, while Shapley values determined these factors’ relative importance.

Results: The lifetime prevalence of drug use among the participating youths was 3.9%, with prescription drugs and inhalants being the most prevalent. Negative attitudes toward drugs, a high awareness of South Korea’s drug problem, and knowledge of drug use’s consequences were associated with lower drug use. High peer pressure, perceived peer drug use, and drug availability were associated with elevated drug use, as were younger age, sexual minority status, living abroad, poor health, and high stress.

Conclusion: The high prevalence of prescription drug and inhalant use among South Korean youths suggests that the perception that the country is drug-free is inaccurate and emphasizes the need for targeted intervention strategies. Effective prevention measures

25 should include community education regarding drug risks, early detection of at-risk
26 individuals, and enhanced access to tailored treatment alternatives.

27 **Keywords:** illicit drugs, controlled substances, young adults, Republic of Korea

INTRODUCTION

Illicit drug use poses significant challenges during early adulthood, a period characterized by heightened susceptibility to experimentation and risk-taking behavior [1]. Individuals aged 18–24 years must navigate newfound independence amid ongoing developmental changes [2]. Drug use—defined as the use of substances that are illegal or not prescribed by a healthcare professional, such as cannabis, methamphetamine, ecstasy, LSD, and illegally distributed prescription medications (e.g., zolpidem and fentanyl) [3]—frequently begins during youth; it exhibits a higher prevalence during emerging adulthood, particularly between ages 18 and 24 [4]. However, youths who use drugs exhibit a high likelihood of developing cognitive or psychiatric disorders, chronic illnesses, and mental health problems [5,6]. Beyond its impact on individual health, the increase in drug use presents broader societal challenges, including heightened crime rates, social instability, financial burdens on the healthcare system, and rehabilitation and reintegration difficulties [7]. These consequences emphasize the urgent need for a comprehensive understanding of drug use behaviors among youths.

Research in Western countries has extensively investigated drug use among youths. A 2019 study in the United States (U.S.) found that over half of individuals aged 18–25 had used illicit drugs, with 39% reporting past-year use [8]. Among lifetime users, marijuana was the most prevalent drug (56%), followed by hallucinogens (17%), cocaine (11%), and heroin (~1%) [8]. Likewise, self-reported data from the United Kingdom indicated that young adults aged 18–24 exhibited three–seven times higher rates of cocaine and ecstasy use than those aged 45 or older [9]. Reportedly, from an individual perspective, characteristics such as gender, age, and sexual orientation are associated with drug use [9,10]. Specifically, men,

adolescents and young adults, and sexual minorities exhibit a high drug use prevalence [9,10].

Examining drug-related attitudes, knowledge, and perceptions potentially affecting drug use is essential [11]. Positive attitudes toward drugs and perceptions of drug use as less risky and even beneficial have been associated with increased drug use behaviors [12,13]. Knowledge concerning drug use significantly influences behavior through cognitive and informational mechanisms.

Moreover, environmental factors—including peer norms, drug availability, and pressure from friends or family—significantly influence drug use behaviors among youths [14-16]. Environments with higher drug availability contribute to heightened drug use rates [17]. Additionally, living with friends may elevate drug use risk among young people, while family proximity may exert a protective effect [18].

South Korea—despite its reputation as a “drug-free country” [19,20]—has exhibited a recent increase in drug use [21]. Understanding the factors influencing drug use in non-Western contexts, wherein research has been limited owing to cultural sensitivities, is important. However, per recent statistics released by the Supreme Prosecutors’ Office of the Republic of Korea, the number of drug-related offenders reached approximately 27,000 in 2023—a 2.5-fold increase compared to 2018 [22]. Notably, the number of offenders in their twenties surged by 144% compared to the previous year, reflecting an alarming upward trend and raising serious social concerns [22]. This study sought to bridge the research gap regarding drug use among 18–24-year-olds in South Korea. It aimed to examine the drug use prevalence and examine the association between drug use and

individual (e.g., attitudes, knowledge, and perceptions) and environmental (e.g., prevalence estimates of peer use, peer pressure, and drug availability) factors. This study's findings can contribute to informing the development of targeted prevention and intervention strategies tailored to the South Korean context. By identifying the key individual and environmental factors associated with drug use, this study provides empirical evidence that can support national efforts to address substance use among youths through education, regulation, and early intervention policies.

MATERIALS AND METHODS

Study Design

This study employed a cross-sectional descriptive survey design.

Data Collection and Sample

From November 1 to 30, 2023, we collected data from volunteers recruited from Macromill-Embrain, Inc. (<https://embrain.com/>), which has approximately 1.7 million registered members. This company—widely recognized for its reliability and compliance with the European Society for Opinion and Marketing Research standards—has been frequently utilized in academic and governmental research [23]. The inclusion criteria were as follows: individuals 1) aged 18–24 years and 2) who understand Korean. Panel registrants who fulfilled the inclusion criteria were sent an invitation email to request their participation in an online survey.

Sample Size Estimation

As prevalence data for South Korea are scarce, we referred to international research, including an Irish study comprising 1,000 participants [24] and a U.S. study comprising

1,000–4,000 college students [17,25-27]. A power analysis using G*Power 3.1.9.7 established that 591 participants were needed for logistic regression analysis. Our sample size of 2,000 exceeded this threshold, potentially enhancing our findings' accuracy and reliability.

Measures

The survey questionnaires covered individual (attitudes, knowledge, and perceptions) and environmental (peer drug use, peer influence, and drug availability) factors. Instruments (pertaining to drug knowledge, attitudes regarding drugs, and drug-related perceptions) were translated and validated for cultural appropriateness (e.g., “confused” in the drug use prototype responses modified into “distracted”) following a standardized multi-step process involving forward translation, expert validation, and pilot testing (Supplementary Figure 1). A pilot test including 20 college students ensured clarity and cultural relevance [28]. The pilot test's participants were recruited using convenience sampling through the university bulletin boards and student email lists. This study examined seven types of drugs widely used worldwide—namely, marijuana, hallucinogens/club drugs, heroin, inhalants, stimulants, prescription medications, and other unspecified illegal drugs [29].

Drug use

We employed the following question to assess lifetime drug use: “Have you ever used any of the following drugs for non-therapeutic purposes?” Participants responded “yes” or “no” for the aforementioned seven types of illegal drugs. We employed the following question to assess participants' past-year usage: “Have you ever used any of the following drugs without therapeutic intent in the past year?”

Drug knowledge

We measured participants' knowledge regarding drugs using 14 items [30] covering two areas—namely, knowledge regarding drug use's consequences (four items; e.g., “Tolerance/withdrawal indicates psychological, not physical, dependence.”) and knowledge of the drug (10 items; e.g., “Opium comes from the poppy plant.”). Participants responded with either “true” or “false.” We obtained the total score for each domain by assigning one and zero points for a correct and an incorrect answer, respectively. Possible scores ranged from 0 to 4 and 0 to 10 for knowledge regarding consequences and drug-related knowledge, respectively, with higher scores indicating greater knowledge. Internal consistency for the two binary-scored knowledge subscales was assessed using KR-20. The 4-item subscale assessing knowledge of consequences yielded a KR-20 of 0.166, while the 10-item general drug knowledge subscale showed a KR-20 of 0.384. Item-total correlations ranged from 0.10 to 0.42, indicating that while some items showed weak associations with the total score, a portion of the items demonstrated acceptable contribution to their respective subscales.

Attitudes regarding drugs

We assessed drug-related attitudes using 25 items rated on a five-point Likert scale (ranging from one to five) [24,31]. The items were derived from two existing sources [24,31], and their content was harmonized through expert review to ensure conceptual consistency. We conducted an exploratory factor analysis using principal components analysis with varimax rotation to address several issues as follows: 1) attitude-related items from two different sources, 2) numerous similar items, and 3) the unclear directional orientation of certain items. We applied varimax rotation and eigenvalues greater than one to determine

the number of factors [32]. The analysis revealed the following four components: 1) a negative attitude toward drug users/people with addiction, 2) a negative attitude toward drug use, 3) a favorable attitude toward drug enjoyment, and 4) a favorable attitude toward drug treatment (Supplementary Table 1). Factor loadings of the 25 items ranged from 0.401 to 0.811, explaining 55.4% of the variance across the four components. We calculated the component scores using the regression method. The full scale's internal consistency (Cronbach's α) was .81, indicating satisfactory reliability.

Drug-related perceptions

We assessed drug-related perceptions as 1) the perceived extent of the drug problem in South Korea, 2) perceived drug use among young people, 3) drug user prototypes, and 4) perceived risks of drug use.

Regarding the **perceived extent of the drug problem in South Korea**, five items with response alternatives ranging from one to five (one = strongly disagree, three = neutral, and five = strongly agree) [24] were employed; a sample item is as follows: "The drug problem in South Korea is out of control." We summed the responses, with higher scores indicating a higher level of awareness regarding the current extent of the drug problem in South Korea (Cronbach's α = .64).

We utilized four questions to explore **perceived drug use among young people** [24]. We assessed participants' perceptions using items (e.g., "The availability of illegal drugs poses a significant threat to young people," and "It is not normal that young people will try drugs at least once.") rated on a five-point scale (one = strongly disagree, three = neutral, and five = strongly agree). We summed the total ratings, with higher scores indicating an enhanced

level of awareness or recognition regarding perceived drug use among young adults
(Cronbach's $\alpha = .71$).

We measured **drug use prototypes** to assess the participants' perceptions or subjective representations of the typical drug user [30]. Participants rated their perceptions of six characteristics (e.g., cool, smart, and immature), with responses rated on a six-point Likert scale (ranging from "zero = not at all" to "six = extremely"). We reverse-scored positive alternatives (e.g., smart, cool, and self-confident) and averaged the total scores, with higher scores indicating negative perceptions (Cronbach's $\alpha = .79$). Moreover, participants rated how similar they are to the drug user prototype, with responses ranging from zero (not at all similar) to six (highly similar).

We assessed **the perceived risk of drug use** by asking participants to rate the likelihood of risky situations attributable to drug use, such as getting into a car accident or being arrested [30]. This assessment included eight items with seven response alternatives (zero = not at all likely and six = definitely). The scale score was computed using the mean of the item scores, with higher scores indicating greater perceived risk (Cronbach's $\alpha = .96$).

Prevalence estimates of peer drug use

We asked participants to estimate the perceived prevalence (i.e., percentage, range: 0–100) of their peers using illicit drugs [30].

Peer pressure

We measured peer pressure by asking participants how much pressure they felt from their friends and schoolmates to use the seven types of illicit drugs [31,33]. The responses

ranged from none (one) to a great deal (four). We averaged the total scores, with higher scores indicating higher peer pressure levels (Cronbach's $\alpha = .99$).

Drug availability

We assessed drug availability using the following question: "How easy would it be to obtain the seven types of illicit drugs?" [33]. Responses ranged from extremely difficult (one) to extremely easy (four). We averaged the ratings, with higher scores indicating greater availability (Cronbach's $\alpha = .65$).

Participant characteristics

We measured the participants' sociodemographic characteristics by including information regarding age, gender, overseas experience [yes/no], sexual orientation, educational level, and subjective health status. We assessed mental health status using the short Korean version of the Depression Anxiety Stress Scale (DASS) [34, 35] comprising three subscales—namely, depression, anxiety, and stress. Each subscale comprises seven items, totaling 21 questions. Responses were rated on a scale ranging from 0 to 3. Subscale scores were computed by summing the item scores (range: 0–21), with higher scores indicating a higher level for each scale.

Data Analysis

We employed SPSS Statistics for Windows version 29.0 (IBM Corp., Armonk, NY, USA) to compute the means and standard deviations for continuous variables and frequencies and percentages for categorical variables.

Before conducting the logistic regression, we addressed the highly imbalanced distribution of our target variable—namely, lifetime drug use (yes = 3.9% versus no = 96.1%)—using the synthetic minority over-sampling technique (SMOTE) [36] to oversample the minority class. We divided the dataset into training and testing sets (8:2 ratio); thereafter, we generated synthetic samples from the minority class to augment the training dataset. These synthetic samples—designed to resemble the existing minority class samples—helped mitigate the distortion precipitated by the imbalanced distribution. We implemented SMOTE using the R packages (version 4.3.1, R Foundation for Statistical Computing, Vienna, Austria) *smotefamily* and *caret*.

Subsequently, we conducted a logistic regression analysis to investigate the associations among individual and environmental factors and drug use, adjusting for potential confounders (i.e., participant characteristics) using the SPSS program. We calculated Shapley values using *fastshap* and *ranger* packages in R to quantitatively assess the relative importance of explanatory variables for drug use. These values measure each variable's contribution to the model's predictions and elucidate how each factor influences the outcome. The Shapley values importance plot visually represents the significance of the predictive model's variables, with longer bars indicating higher average values and a greater relative importance and interaction effect. This analysis highlighted the most influential factors influencing drug use among the participants.

Ethical Considerations

This study's protocol was approved by the Institutional Review Board of Chung-Ang University (IRB No. 1041078-20230830-HR-237) on October 22, 2023. We obtained informed consent from all participants. They were informed that they could withdraw from

251 the survey at any time without penalty. We anonymized and stored the collected data on an
252 encrypted computer.

RESULTS

Individual Characteristics of Drug Users and Non-Users in the Original and SMOTE-Sampled Populations

The prevalence of at least one type of drug user in the original sample (i.e., before the implementation of SMOTE sampling) was 3.9% (Table 1). No discernible variations were noted in prevalence according to gender and age (range: 18–24). Compared to non-users, drug users were less likely to be heterosexual individuals (76.9% versus 83.0%, $\chi^2 = 8.94$, $p = .030$), more likely to have studied abroad (25.6% for users versus 15.5% for non-users, $\chi^2 = 6.53$, $p = .010$), reported a lower subjective health status (mean score of 3.28 for users versus 3.63 for non-users, $t = 3.50$, $p = .030$), exhibited lower educational levels (33.3% high school graduates for users versus 20.0% for non-users, $\chi^2 = 8.20$, $p < .001$), and demonstrated worse mental health outcomes (depression level [range: 0–21] of 14.90 for users versus 9.35 for non-users, $t = -6.35$, $p < .001$; anxiety level [range: 0–21] of 13.23 for users versus 6.97 for non-users, $t = -6.73$, $p < .001$; stress level [range: 0–21] of 17.08 for users versus 10.46 for non-users, $t = -5.21$, $p < .001$).

In the SMOTE-sampled population, characteristics other than age and gender were similar to those in the original sample. Drug users were slightly younger than non-users (mean age of 21.30 for users versus 21.56 for non-users, $t = 3.91$, $p < .001$), and the proportion of drug users was higher among men than among women (62.3% men versus 37.7% women, $\chi^2 = 52.51$, $p < .001$).

Prevalence of Drug Use According to Drug Type

The overall lifetime prevalence for drug use was 3.9%, with most drugs exhibiting a prevalence rate under 0.7% (Table 2). By comparison, prescription medications and

inhalants exhibited higher lifetime usage rates at 2.0% and 1.5%, respectively. Moreover, these substances exhibited higher past-year use rates, with 1.2% and 0.6% for prescription medications and inhalants, respectively. The prevalence of lifetime and past-year use for other illegal drugs—including unspecified illegal substances—was 1.2% and 0.7%, respectively.

Relationships Among Individual and Environmental Factors and Drug Use

Participants with more negative attitudes toward drug use were less likely to use drugs (OR = 0.82, 95% CI = 0.74, 0.92), while more favorable attitudes toward drug enjoyment were associated with a higher likelihood of drug use (OR = 1.19, 95% CI = 1.07, 1.32; Table 3). Higher levels of perception regarding South Korea's drug problem (OR = 0.90, 95% CI = 0.86, 0.93) and the more significant threat of drug use among young people (OR = 0.95, 95% CI = 0.92, 0.99) were associated with a lower likelihood of drug use. Further, a more negative perception of drug users (OR = 0.79, 95% CI = 0.71, 0.89) and a higher level of perceived risk of drug use (OR = 0.87, 95% CI = 0.82, 0.93) were associated with less drug use. Those with greater knowledge regarding drug use's consequences were less likely to report drug use (OR = 0.89, 95% CI = 0.79, 0.99), while higher knowledge levels regarding drugs were associated with a higher likelihood of drug use (OR = 1.17, 95% CI = 1.09, 1.25). Concerning environmental factors, individuals who faced more significant peer pressure and believed their peers engaged in drug use were more likely to use drugs (OR = 1.86, 95% CI = 1.50, 2.30 and OR = 1.04, 95% CI = 1.03, 1.05, respectively), as were those who perceived that acquiring drugs was easy (OR = 1.08, 95% CI = 1.06, 1.10). Among sociodemographic variables, older age was associated with lower drug use (OR = 0.92, 95% CI = 0.87, 0.97). However, homosexuality was associated with nearly eight times higher odds of drug use than heterosexuality (OR = 7.98, 95% CI = 5.13, 12.43).

Individuals who had studied abroad exhibited 34% higher odds of drug use than those who did not (OR = 1.34, 95% CI = 1.06, 1.73). Elevated stress levels were associated with drug use (OR = 1.12, 95% CI = 1.08, 1.16), while higher depression levels were associated with a decrease in drug use (OR = 0.94, 95% CI = 0.90, 0.98). Individuals who perceived themselves as healthy were less likely to engage in drug use than those who did not (OR = 0.66, 95% CI = 0.58, 0.74).

We compared all predictors' odds ratios, confidence intervals, and p-values between the original and SMOTE-applied datasets (Supplementary Table 2). Although some predictors were significant only in the SMOTE-applied model, most variables' direction and effect sizes remained consistent across models, suggesting that the original dataset may have lacked sufficient statistical power because of the extreme class imbalance. The SMOTE method effectively improved the model's sensitivity to the minority class, thus allowing meaningful relationships to be more clearly detected—particularly for individual and environmental factors. Therefore, the consistency in direction and improved significance in the SMOTE model collectively supported the findings' robustness.

Relative Importance of Significant Factors Regarding Illicit Drug Use

We ranked the variables in descending order of impact (Figure 1). Peer pressure was the most significant factor, indicating that social dynamics and peer influences crucially contributed to determining drug use among young people. Other major factors included stress levels and perceived drug availability. An attitude toward drug use—along with the perceived drug use among young individuals—was highly influential.

DISCUSSION

This study is among the few to investigate drug use among South Korean youths and demonstrate an association between drug use and associated factors. The overall lifetime prevalence of drug use was 3.9%—considerably lower than the 35% observed among U.S. college students [37]. This rate is similar to that of the general adult population of South Korea (3.0%) [38]. Our findings revealed a remarkably high prevalence of prescription drug (2.0%) and inhalant (1.5%) use. By contrast, U.S. college students exhibit relatively lower rates of inhalant (2.5%) and prescription drug (0.7%) use [37]. The relatively high prevalence of prescription drug use in South Korea may stem from accessibility, with issues such as “narcotics medical shopping” [39-41], while inhalants may be used frequently as they are accessible and legal [42].

In South Korea, all narcotics are illegal, and drug policies are punitive rather than treatment-oriented [43]. Therefore, individuals may choose legally obtainable drugs instead of engaging in illegal activities. Studies have suggested that, despite the strict laws, thrill-seeking and impulsivity might drive some South Koreans to use illegal drugs [38]. Comprehending psychological drivers and legal access is crucial for developing effective strategies to address drug use.

Among individual and environmental factors, we identified peer pressure as drug use’s most significant predictor—consistent with previous studies highlighting the powerful role of peer dynamics [44,45] for young adults seeking acceptance in peer groups. This population is particularly vulnerable to normative social influence [46]. On perceiving drug use as common or acceptable among peers, young adults may conform to gain social approval [47]. Strategies such as peer-led interventions disseminating anti-drug social

norms and campaigns correcting misperceptions regarding drug use prevalence can mitigate drug use among youths [48,49].

Likewise, perceived drug availability was a significant predictor of drug use. Peers who use drugs strongly influence this factor [50]. National-level rigorous monitoring and regulation of drug availability and vigilance on social media platforms are necessary to influence perceived availability [51].

The perception of South Korea's drug problem was another key factor. Individuals who perceived drug use as a serious societal concern were less likely to use drugs. Those aware of drug use's risks were less likely to partake, highlighting the importance of effective communication from the government, educational institutions, and the media regarding drug hazards [52]. Media glorifying drug use and presenting users as prosperous and trendy [11,53] frequently convey misconceptions that necessitate counter-advertisement campaigns [51].

Stress level was another influential factor, with higher stress levels correlating with elevated drug use. This trend is particularly evident among university students facing academic pressure [54,55]. High stress levels may result in individuals using drugs as a coping mechanism. Interestingly, higher depression levels were associated with reduced drug use, possibly because the lethargy and hopelessness induced by depression reduce the likelihood of drug use despite heightened intent [56]. Additional investigation is necessary to elucidate specific mechanisms. Initiatives targeting mental health support and stress management—including mindfulness-based interventions—are crucial for preventing and treating drug use in this population [57,58].

Attitudes toward drug use significantly predict drug use behavior. Specifically, individuals with negative attitudes toward drug use or enjoyment were less likely to engage in drug use. Drug use is a pleasure-seeking behavior [59] and, therefore, more likely to be prevalent among individuals tending to seek enjoyment. Moreover, knowledge regarding drugs and their consequences influences drug use among young adults. Individuals with greater drug-related knowledge were more prone to drug use, possibly owing to greater confidence or curiosity levels [60]. These findings align with previous research indicating that attitudes crucially contribute to predicting drug use and intention [61,62], highlighting the importance of educational efforts aimed at modifying attitudes toward drug use.

Drug use was significantly more prevalent among sexual minority individuals than among their heterosexual counterparts, with rates being nearly eight times higher in our sample. This disparity may be partially explained by minority stress and discrimination, which enhance psychological distress and increase the likelihood of using substances as a coping mechanism [63-65]. Furthermore, prior research has demonstrated that substance use in this population is associated with elevated risks of human immunodeficiency virus, sexually transmitted infections [66], and co-occurring mental health disorders [67]. Targeted interventions offering support and resources for sexual minority individuals struggling with drug abuse can help alleviate these issues [68].

Youths with—compared to those without—a history of living abroad exhibited a 34% higher likelihood of using drugs. Approximately 40% of South Korean students study abroad, primarily in North America [69], where higher drug prevalence may influence their attitudes toward drug use. Developing culturally sensitive prevention strategies is essential

for combatting the spread of drug use among returning international students [70]. The Korea Association Against Drug Abuse runs prevention programs targeting youths, though these programs are not yet implemented nationwide [71]. Integrating these programs with Screening, Brief Intervention, and Referral to Treatment programs can enhance early detection efforts [72]. Along with prevention efforts, intervention strategies are necessary for youths already using drugs. Culturally sensitive approaches—including counseling, peer support, and evidence-based therapies—should be expanded in South Korea to support treatment and recovery [73,74].

Our pioneering study presents several notable strengths. Specifically, it examines drug use among South Korean youths, integrating personal and environmental factors. This comprehensive approach offers a deeper understanding of illicit drug use's complex dynamics among South Korean youths. However, this study has several limitations. Utilizing an online research panel might have limited our findings' generalizability. Additionally, oversampling during analysis might have introduced constraints. Owing to the geographical distance between the minority and majority classes, employing SMOTE might have compromised the model's accuracy [75]. Therefore, researchers should interpret the findings prudently, considering oversampling's potential impact on the analysis outcomes. Although the SMOTE technique might have raised overfitting-related concerns, cross-validation results supported the model's generalizability (area under the curve = 0.83, accuracy = 74.5%). The trade-off in overall accuracy reflected a reduction in majority-class bias and a significant gain in recall, indicating an enhanced identification of drug users.

Self-reported data might have introduced potential social desirability, recall, denial, or deception bias [76]. However, self-reporting is commonly employed to investigate sensitive

data [77], and overall, high agreement was observed between self-reported and biologically tested results for illicit drugs [78]. As a causal relationship cannot be determined owing to our study's cross-sectional nature, we propose conducting a longitudinal study to deepen the understanding of this relationship. Although we included key demographic and psychological control variables, other potential confounders—such as socioeconomic status, family background, and trauma history—were not examined. Future studies should incorporate these factors to provide a more comprehensive model elucidating drug use behavior.

The internal consistency values of the knowledge scale were modest, consistent with prior findings on true/false knowledge assessments involving heterogeneous content [79]. The relatively low KR-20 and item-total correlations may reflect the multidimensional nature of the construct and ceiling or floor effects. Nonetheless, items were retained based on content validity and conceptual relevance.

While the study measures various psychological constructs—such as knowledge, attitudes, perceptions, and peer norms—the internal consistency of the instruments varies considerably, with some scales showing low reliability ($\alpha < .70$) and others displaying excessively high reliability ($\alpha = .99$). Extremely high Cronbach's alpha values may indicate item redundancy, suggesting a lack of item diversity. Therefore, it is important to examine the potential redundancy of items and assess whether the instruments adequately capture the breadth of each construct.

CONCLUSIONS

Policy Implications

This study offers insight into the prevalence of illicit drug use and associated factors among young individuals in South Korea. While drug use's overall incidence was low, certain drugs—such as prescription drugs and inhalants—demonstrated relatively high use rates. Our findings can inform policymakers, healthcare professionals, and educators in developing more effective strategies to promote healthy behaviors and combat drug abuse across diverse populations.

Future studies should examine diverse populations to elucidate illicit drug use trends and trajectories. Additionally, longitudinal studies should be conducted to identify the factors and mechanisms underlying drug use.

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Table 1. Individual characteristics of drug users and non-users in original and SMOTE-sampled populations

Original population					SMOTE-sampled population			
	User (n = 78)	Non-user (n = 1922)	χ^2	P	User (n = 1566)	Non-user (n = 1542)	χ^2	P
Gender			2.62	.110			52.51	< .001
Female	32 (41.0)	968 (50.4)			591 (37.7)	781 (50.6)		
Male	46 (59.0)	954 (49.6)			975 (62.3)	761 (49.4)		
Age (mean (SD))	21.29 (2.11)	21.55 (1.99)	t = 1.09	.270	21.30 (1.81)	21.56 (1.99)	t = 3.91	< .001
Sexual orientation								
Heterosexuality	60 (76.9)	1596 (88.2)	8.94	.030	1249 (79.8)	1361 (88.3)	127.48	< .001
Homosexuality	3 (3.8)	41 (2.1)			192 (12.3)	30 (1.9)		
Bisexuality	11 (14.1)	140 (7.3)			105 (6.7)	116 (7.5)		
Asexuality	4 (5.1)	46 (2.4)			20 (1.3)	35 (2.3)		
Have experience living abroad			6.53	.010			39.30	< .001
Yes	20 (25.6)	288 (15.0)			368 (23.5)	226 (14.7)		
Subjective health status (mean (SD))	3.28 (1.01)	3.63 (0.86)	t = 3.50	.030	3.26 (0.87)	3.64 (0.86)	t = 12.35	< .001
Education level			8.20	< .001			57.78	< .001
High school graduate	26 (33.3)	384 (20.0)			506 (32.3)	313 (20.3)		
College attendee	52 (66.7)	1538 (80.0)			1060 (67.7)	1229 (79.7)		
Mental status (mean (SD))								
Depression level	14.90 (9.91)	9.35 (9.19)	t = -6.35	< .001	16.67 (8.37)	9.56 (9.28)	t = -15.29	< .001
Anxiety level	13.23 (9.58)	6.97 (7.99)	t = -6.73	< .001	13.00 (8.43)	7.06 (8.00)	t = -20.14	< .001
Stress level	17.08 (9.53)	10.46 (9.00)	t = -5.21	< .001	14.42 (8.46)	10.67 (9.07)	t = -19.17	< .001

Table 2. Prevalence of illicit drug use (N = 2000)

	Lifetime use		Past-year use	
	N	%	N	%
Hallucinogens/club drugs (e.g., ecstasy, special K, LSD)	13	0.7	7	0.4
Heroin	10	0.5	10	0.5
Inhalants (e.g., paint, glue, nitrous oxide)	29	1.5	12	0.6
Marijuana	11	0.6	10	0.5
Cocaine	11	0.6	9	0.5
Methamphetamine	10	0.5	7	0.4
Prescription medications (e.g., fentanyl, Adderall, ketamine, appetite suppressants)	39	2.0	23	1.2
Other illegal drugs	24	1.2	13	0.7
Overall	78	3.9	42	2.1

Table 3. The relationship between individual and environmental factors with illicit drug use

	OR (95% CI)	<i>p</i>
Individual factors		
Attitude		
Negative attitude towards drug users/addicts	1.06 (0.95-1.19)	.277
Negative attitude towards drug use	0.82 (0.74-0.92)	< .001
Approving attitude towards drug enjoyment	1.19 (1.07-1.32)	.002
Favorable attitude towards drug treatment	0.93 (0.83-1.04)	.187
Perception		
High perception regarding the drug problem in South Korea	0.90 (0.86-0.93)	< .001
High perception regarding the threat of drug use among young individuals	0.95 (0.92-0.99)	.005
Negative perception regarding drug user prototype	0.79 (0.71-0.89)	< .001
Similarity prototype perception	0.97 (0.89-1.05)	.449
High perceived risk regarding drug use	0.87 (0.82-0.93)	< .001
Knowledge		
High level of knowledge regarding the consequences of drug use	0.89 (0.79-0.99)	.039
High level of knowledge regarding drugs	1.17 (1.09-1.25)	< .001
Environmental factors		
High estimated drug use among peers	1.04 (1.03-1.05)	< .001
High peer pressure	1.86 (1.50-2.30)	< .001
High drug availability	1.08 (1.06-1.10)	< .001
Controlling variables		
Gender, male (vs. female)	0.95 (0.78-1.16)	.643
Age	0.92 (0.87-0.97)	.002
Sexual orientation		
Homosexuality	7.98 (5.13-12.43)	< .001
Bisexuality	0.92 (0.65-1.30)	.650
Asexuality	0.33 (0.17-0.64)	< .001
Heterosexuality (ref.)		
Have experience studying abroad, Yes (vs. No)	1.34 (1.06-1.73)	.015
High level of subjective health status	0.66 (0.58-0.74)	< .001
Education level		
College attendees (vs. High school graduate)	0.84 (0.67-1.07)	.154
Mental status		
High stress level	1.12 (1.08-1.16)	< .001
High anxiety level	1.04 (0.99-1.08)	.095
High depression level	0.94 (0.90-0.98)	< .001

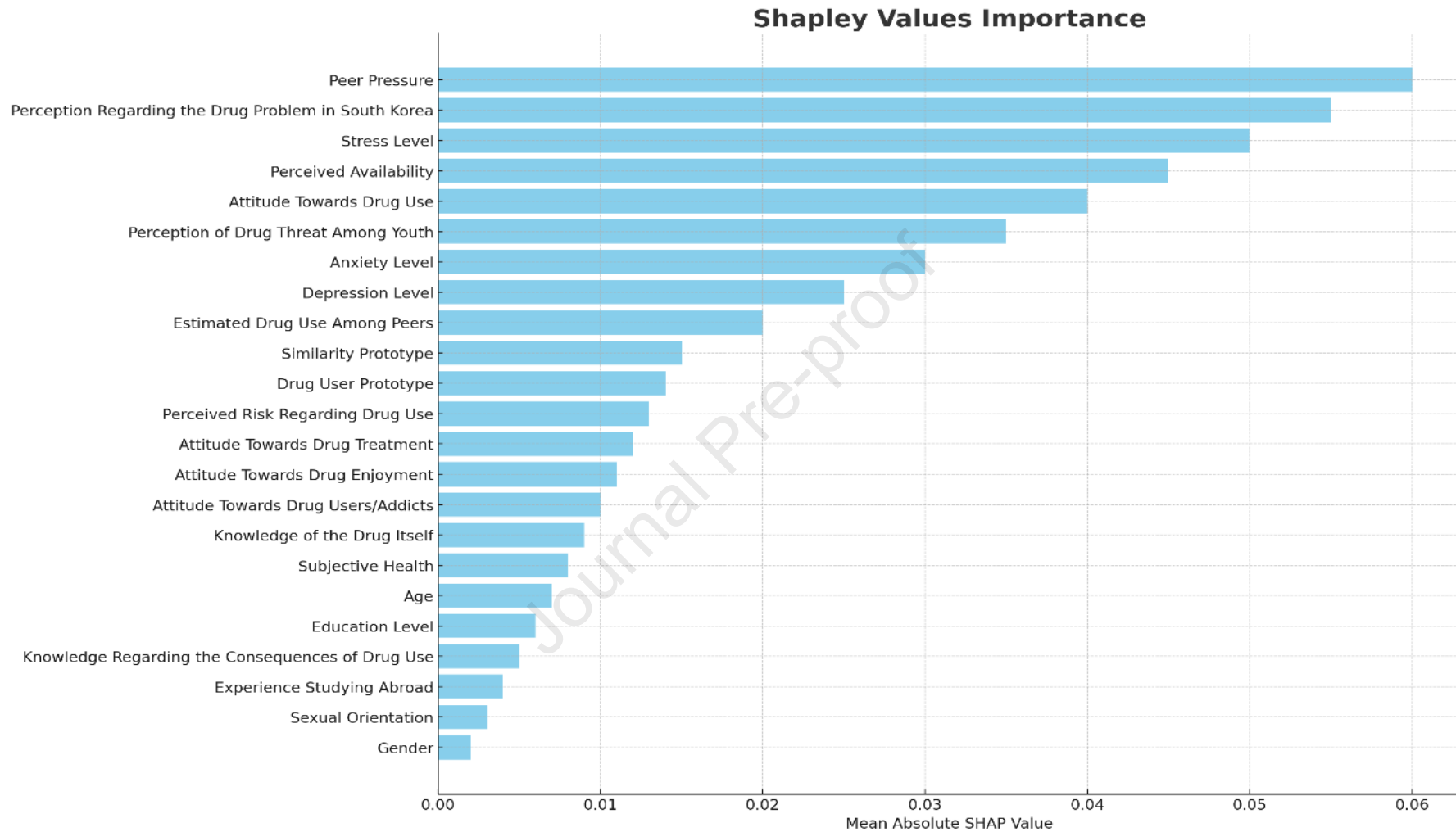


Figure 1. Shapley values importance plot