

Analysis Model of Knowledge, Social Demographics, and Social Environment on Drug Abuse: A Case Study in Swamp Areas

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Abstract

In Indonesia, various geographical and demographic factors have been exploited by drug abusers to facilitate their illegal activities more easily and safely. Geographic diversity, such as numerous islands, remote coastal villages, meandering rivers, and protected forests, creates conditions conducive to drug abuse. Swamp areas often face their own challenges, including limited accessibility and complex socio-economic issues. This study aims to analyze how knowledge, social demographics, and social environment influence drug abuse. The sample in this research consists of all detainees or drug abusers in Palembang City, Indonesia. Palembang City is located along the Musi River in the form of extensive swamp areas. A total of 100 individuals were selected as samples through incidental sampling techniques. This study used a questionnaire consisting of knowledge and social environment variables, which were then analyzed using logistic regression models. The collected data include histories of drug abuse, knowledge, age, gender, occupation, education, ethnicity, income, marital status, social environment, and swamp areas characteristics. Having an unstable job, negative social environment, low education, income, and knowledge, as well as living in swamp areas, can increase drug abuse. The combination of these factors increases the individual's risk of involvement in drug abuse.

Keywords: Knowledge, Social Demographics, Social Environment, Drug Abuse, Case Study, Swamp Areas.

INTRODUCTION

Drug abuse is one of the serious health and social problems globally as well as in Indonesia. The high prevalence of drug use issues across various segments of society not only damages individual health but also has negative impacts on social and economic aspects, as well as posing a threat to the potential demographic dividend that is expected to be a strength in national development (Aikoye et al., 2023). Drug abuse problems are more prevalent in communities residing around swamp areas compared to those living on the mainland (Feinberg, 2012). This presents a complex and concerning social issue. The age group of 16-25 years old is the demographic with the highest rate of drug abuse, especially in the categories of moderate to severe severity (Roshanpajouh et al., 2020). Drug abuse not only harms individual health but also creates conflicts within families and interpersonal relationships (Shafie, Othman, et al., 2023).

Drug abuse entails a complex problem influenced by individual, familial, and environmental factors. Individual factors such as personality, curiosity, life difficulties, and the belief that occasional use does not lead to addiction can influence drug abuse behavior (Wulandari & Hartati, 2020). Family, school, and peer environments also play crucial roles in either promoting or preventing drug abuse (Dusenbury, 2000). Effective prevention efforts involve communication and collaboration among various agencies, raising awareness about the dangers of drugs, and utilizing traditional media (Futri, 2019). Parents and schools must also play key roles in prevention, with drug prevention education starting at an early age (Kaggwa et al., 2022).

The impact of drug abuse, whether physical, psychological, or social, underscores the importance of education and the role of families in preventing it (Simatupang, 2022). The prevalence of drug abuse can vary, and factors such as age, gender, and place of residence can influence the level of abuse (Greer et al., 2022). Prevention programs have proven successful in various contexts (Wijaya, 2011). However, internal and external obstacles,

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such as personal and environmental factors that support abuse, remain challenges in law enforcement efforts and drug abuse prevention (Raharni et al., 2022).

Age, gender, and place of residence are among the determining factors of drug abuse among youth (Nakibuuka & Nalubega, 2022). Prevention of drug abuse emphasizes the need to build personal-social skills in individuals to resist pressure from their environment and peers to use drugs (Amini Pozveh & Saleh, 2020). They must learn the correct norms, learn to refuse, and acquire social skills. The socio-cultural model is based on the assumption that changes in knowledge will lead to changes in social norms. If someone is given knowledge about drug abuse, then they will avoid the use of illicit drugs (Shafie, Walid, et al., 2023).

In Indonesia, various geographical and demographic factors have been exploited by drug crime perpetrators to carry out their illegal activities more easily and safely. Indonesia's geography, consisting of numerous islands, remote coastal villages, long rivers, and protected forests, creates ideal conditions for drug smuggling and production. Remote islands and hard-to-reach villages are often used as locations for drug production and distribution due to minimal supervision. Additionally, Indonesia's large population provides a vast market for drug abuse.

The entry process of narcotics into Indonesia often occurs through routes with high mobility such as airports, seaports, border crossings, and through difficult-to-monitor smuggling routes. The geographical conditions of swamp areas, such as those around rivers, characterized by slum environments and high levels of poverty, tend to have higher rates of drug abuse compared to mainland areas. Swamp areas are often used as hiding places or gathering spots for drug traffickers to conduct their illegal activities, as they are difficult to access and less monitored by authorities.

A case study in swamp areas provides a unique perspective in understanding the dynamics of drug abuse in a specific context. Swamp areas often face their own challenges such as limited accessibility, low educational levels, and complex socio-economic issues. This study aims to analyze how knowledge, social demographics, and social environment influence drug abuse. This study is expected to contribute to the causes of drug abuse so as to produce comprehensive and targeted solutions.

METHOD

Palembang is located in Palembang City, South Sumatra Province, Indonesia. Palembang City is located along the Musi River, which is the longest river on the island of Sumatra. The river divides the city into two parts: Seberang Ilir in the north and Seberang Ulu in the south. The area around the river is often a large swampy area. The sample in this study was 100 prisoners or drug abusers in Palembang city. The sample was selected through incidental sampling technique, where respondents were selected based on their availability and presence in the research context. Data was collected using a questionnaire consisting of knowledge and social environment, which was then analyzed using a logistic regression model to understand the influence of knowledge, social demographics, and social environment on drug abuse. Data collected included drug abuse history, knowledge, age, gender, occupation, education, ethnicity, income, marital status, social environment, and swamp area characteristics.

The statistical model in this study can be mathematically expressed as:

$$\text{Narc} = \alpha_0 + \alpha_1\text{Know}_i + \alpha_2\text{Age}_i + \alpha_3\text{Gend}_i + \alpha_4\text{Job}_i + \alpha_5\text{Educ}_i + \alpha_6\text{Eth}_i + \alpha_7\text{Inc}_i + \alpha_8\text{Mari}_i + \alpha_9\text{Soc}_i + \alpha_{10}\text{Swam}_i \epsilon_1, \dots, (1)$$

where:

Narc = Narcotic abuse

α_0 = Intercept

Know = Knowledge

Age = Age

- Gend = Gender
- Job = Employment
- Educ = Education
- Eth = Ethnicity
- Inc = Income
- Mari = Marital Status
- Soc = Social Environment
- Swam = Swamp Areas Characteristics
- α_1, α_2 = Estimation Coefficients
- i = Palembang City
- ϵ_1 = error term (Disturbance Variable)

RESULT

The city of Palembang is located between 2°52’–3°5’ S and 104°37’–104°52’ E, situated in a tropical area with relatively humid winds. The temperature is quite hot, ranging between 23.4°C to 31.7°C, with the highest rainfall occurring in April at 338 mm, and the lowest in September at 10 mm. The soil structure is predominantly layered with alluvial clay and sand, located on relatively young layers, abundant in crude oil, and also known as the Palembang–Jambi valley. The terrain is relatively flat with some slightly elevated areas in the northern part of the city. Most of the land is regularly flooded during or after continuous rainfall, with an average surface elevation of 8 meters above sea level.

In terms of hydrological conditions, the city of Palembang is divided by the Musi River into two major parts known as Seberang Ulu and Seberang Ilir (Hidayat, Fatoni, et al., 2022). Palembang has 108 tributaries. There are four major rivers that traverse the city. The Musi River is the largest river with an average width of 504 meters (the widest point being around Pulau Kemaro with a width of 1,350 meters and the narrowest point being 250 meters located near the Musi II Bridge). The other three major rivers are the Komerling River with an average width of 236 meters; the Ogan River with an average width of 211 meters, and the Keramasan River with an average width of 103 meters.

In addition to these major rivers, there are other smaller rivers located in Seberang Ilir which function as urban drainage (approximately 68 active tributaries). These smaller rivers have widths ranging from 3 to 20 meters. Some of these rivers have retention ponds built along their course, thus becoming part of the riverbanks. The water level of the Musi River is greatly influenced by tidal fluctuations. During the dry season, there is a decrease in river discharge, resulting in the Musi River reaching its minimum water level. Many water hyacinth plants and mussels are found (Erlyn et al., 2023; Yuliana et al., 2021).

The respondents in this study amount to 100 individuals involved in drug abuse. The characteristics of these drug abuse respondents include whether they are drug users or traffickers, their knowledge about narcotics, social demographics consisting of age, gender, occupation, education, respondent's origin, income, and marital status, as well as social environmental factors and characteristics of swamp areas.

Table 1. Frequency Distribution of Respondents (n=100)

Drug Abuse	N
User	70
Dealer/Distributor/Courier	30
Knowledge	
Good	41
Poor	59
Age	
12-25 years old (Teenagers)	15
26-45 years old (Adults)	85

Gender	
Female	41
Male	59
Employment	
Employed	43
Unemployed	57
Education	
High (\geq High School)	37
Low ($<$ High School)	63
Ethnicity	
Outside South Sumatra	9
South Sumatra	91
Income	
High (\geq Rp 2,000,000)	18
Low ($<$ Rp 2,000,000)	82
Marital Status	
Not/Unmarried	33
Married	67
Social Environment	
Positive	19
Negative	81
Swamp Areas Characteristics	
Not Swamp	50
'Lebak' Swamp	50

Based on Table 1, a higher percentage of respondents with limited knowledge indicates that the majority of respondents do not have adequate information about narcotics and their impacts. This can include a lack of understanding about the various types of narcotics, how they work, and the potential health, social, and legal consequences that may arise from their use.

Most of the respondents involved in narcotic abuse are adults, with only a few teenagers involved. Adults have greater access and opportunities to engage in narcotic abuse than teenagers because they have more resources, such as money and social connections, which allow them to obtain narcotics and engage in such behavior. Additionally, they may be more exposed to situations or environments where narcotic abuse is more common or more accepted.

Male respondents involved in narcotic abuse outnumber female respondents. Social stigma and cultural pressures can influence narcotic consumption patterns among men and women. In many cultures, there are strong stereotypes about "masculinity" that include bold, impulsive, and risk-taking behaviors. This can lead men to be more likely to try and use narcotics as a way to express their identity or to meet certain social expectations.

The majority of respondents are unemployed, reflecting a relatively high unemployment rate among this group. Among the employed respondents, the types of jobs they do are quite varied, but most are in the informal sector and low-wage jobs. Some of them work as parking attendants, which is a job in the informal service sector and often lacks a steady income or job security. Others work as construction laborers, a job that is usually temporary and depends on ongoing construction projects. Street musicians are another group of respondents working in the informal sector, relying on uncertain income from performing arts in public places.

Most respondents have lower levels of education, reflecting various factors such as access to education, learning opportunities, or life priorities. Meanwhile, respondents with higher levels of education constitute a smaller group but have greater opportunities for access to advanced education or better educational resources.

This distribution of education can impact job opportunities, income, and access to broader services and opportunities. Respondents with lower education levels face challenges in finding adequate employment or improving their economic conditions, while respondents with higher education levels have greater access to better job opportunities and higher wages.

The majority of respondents involved in narcotic abuse come from South Sumatera Province, while only a small number are from outside the province. This indicates that the issue of narcotic abuse is predominantly a local problem rather than one involving people from other regions.

A significant majority of respondents involved in narcotic abuse have low incomes, with only a small number having high incomes. Some respondents live in stilt houses, indicating that their homes are in swampy areas prone to flooding, especially during the rainy season or tidal surges. Stilt houses, built on special foundations or stilts, can provide relative protection from floods, reducing the risk of damage or loss of property caused by waterlogging.

More respondents involved in narcotic abuse are married compared to those who are not yet married. Married respondents have greater family responsibilities, which may include their spouses and children. Having a spouse and dependents can be an indicator of stability or commitment in someone's life. However, it can also be interpreted that having a spouse and dependents does not always prevent narcotic abuse. In fact, problems in family relationships or financial pressures from dependents can be triggering factors for narcotic abuse.

Respondents involved in narcotic abuse are more likely to be in negative environments compared to positive ones. Negative environments, based on responses to each questionnaire item, include having poor relationships with family members, having friends or acquaintances involved in narcotic activities, experiencing social pressure or negative influences that affect their involvement in narcotic abuse, having a social environment that does not support rehabilitation or recovery efforts from narcotic abuse, lacking access to adequate healthcare and rehabilitation services, and experiencing discrimination or social stigma due to involvement in narcotic abuse.

Respondents living in swampy areas report that their land is covered by unpredictable floods and waterlogging, and during the dry season, they experience drought. Their homes are less than 500 meters from a river. The condition of the access roads to their residential areas consists of footpaths or dirt roads that can only be traversed by pedestrians and two-wheeled vehicles.

The following are the results of logistic regression calculations using the SPSS 25 program.

Table 2. Estimation of the Narcotic Abuse Model

Variable	Coefficient	Sig.
Knowledge	-3.229	.029
Age	-.741	.531
Gender	1.111	.211
Employment	-6.004	.003
Education	-4.012	.019
Ethnicity	-.276	.828
Income	-3.767	.005
Marital Status	-16.646	.999
Social Environment	-4.715	.002
Swamp Areas Characteristics	2.588	.033
Constant	8.595	.004

Source: Data Analysis, 2023

The results of the panel data regression estimation calculation are explained by the following equation:

$$\text{Narc} = 8.595 - 3.229\text{Know} - 0.741\text{Age} + 1.111\text{Gend} - 6.004\text{Job} - 4.012\text{Educ} - 0.276\text{Eth} - 3.767\text{Inc} - 16.646\text{Mari} - 4.715\text{Soc} + 2.588\text{Swam} \dots (2)$$

The equation above can be interpreted as follows:

α_0 is 8.595, meaning that if all variables including knowledge, age, gender, occupation, education, origin, income, marital status, social environment, and characteristics of swamp areas are zero, then drug abuse is 8.595 units.

The coefficient of knowledge is -3.229, indicating that a 1-unit increase in knowledge, with other variables held constant, leads to a decrease in drug abuse by 3.229 units. The p-value of the knowledge variable is 0.029, which is significant for drug abuse.

The coefficient of age is -0.741, meaning that a 1-unit increase in age, with other variables held constant, results in a decrease in drug abuse by 0.741 units. The p-value of the age variable is 0.531, which is not significant for drug abuse.

The coefficient of gender is 1.111, indicating that a 1-unit increase in gender, with other variables held constant, leads to an increase in drug abuse by 1.111 units. The p-value of the gender variable is 0.211, which is not significantly influential for drug abuse.

The coefficient of occupation is -6.004, meaning that a 1-unit increase in occupation, with other variables held constant, results in a decrease in drug abuse by 6.004 units. The p-value of the occupation variable is 0.003, which is significant for drug abuse.

The coefficient of education is -4.012, indicating that a 1-unit increase in education, with other variables held constant, leads to a decrease in drug abuse by 4.012 units. The p-value of the education variable is 0.019, significant for drug abuse.

The coefficient of origin is -0.276, meaning that a 1-unit increase in origin, with other variables held constant, results in a decrease in drug abuse by 0.276 units. The p-value of the origin variable is 0.828, not significantly influential for drug abuse.

The coefficient of income is -3.767, indicating that a 1-unit increase in income, with other variables held constant, leads to a decrease in drug abuse by 3.767 units. The p-value of the income variable is 0.005, significant for drug abuse.

The coefficient of marital status is -16.646, meaning that a 1-unit increase in marital status, with other variables held constant, results in a decrease in drug abuse by 16.646 units. The p-value of the marital status variable is 0.999, not significantly influential for drug abuse.

The coefficient of social environment is -4.715, indicating that a 1-unit increase in social environment, with other variables held constant, results in a decrease in drug abuse by 4.715 units. The p-value of the social environment variable is 0.002, significant for drug abuse.

The coefficient of swamp areas characteristics is 2.588, meaning that a 1-unit increase in swamp areas characteristics, with other variables held constant, leads to an increase in drug abuse by 2.588 units. The p-value of the swamp areas characteristics variable is 0.033, significant for drug abuse.

DISCUSSION

In sequential order, the largest regression coefficient in influencing drug abuse in swamp areas among the independent variables are as follows: 1) occupation, 2) social environment, 3) education, 4) income, 5) knowledge, and 6) swamp areas characteristics (Tabel 2).

Unstable or irregular employment can increase the risk of drug abuse in several ways. Firstly, the financial uncertainty associated with such employment often triggers financial stress that may drive individuals to seek relief through drug use (Glei & Weinstein, 2019). Additionally, irregular and inconsistent work schedules can disrupt sleep patterns and daily activities, elevate stress levels, and encourage someone to turn to drugs as a means of coping with discomfort.

The influence of social environment on drug abuse is highly significant. A positive environment, such as support from family and friends, can be a key factor in helping someone cope with pressure or stress that may trigger drug use (Berto, 2014). Furthermore, a supportive environment can also provide healthier alternatives for social interaction.

On the other hand, a negative social environment, such as living in areas with high levels of drug crime or within an unstable family, can increase the risk of involvement in drug use and trafficking (Mennis et al., 2016). Therefore, it is important to pay attention to social and familial factors in efforts to prevent drug abuse and to design prevention programs that involve broad participation from families and communities.

The role of the family plays a significant role in shaping behavior related to narcotics. Families that provide adequate support, understanding, and supervision can help prevent individuals from engaging in drug abuse. Conversely, families that lack attention, have family members involved in drug use, or experience dysfunction can increase the risk of involvement in drug abuse (Kourgiantakis & Ashcroft, 2018).

Knowledge about narcotics has a significant impact on their abuse. Having a good understanding of narcotics can increase public awareness of the dangers and risks associated with their abuse (Riesmiyatiningdyah et al., 2021). Higher levels of education can also increase understanding of the legal consequences that may result from the use or abuse of narcotics (Boden & Day, 2023). When individuals are aware of the negative consequences of drug use, they tend to avoid it. If someone is given knowledge about the dangers of drug abuse, they are more likely to steer clear of illicit drug use.

Education has a significant impact in reducing the risk of drug abuse. Higher levels of education are often associated with broader knowledge about the dangers of drugs to physical and mental health (Heckman, 2011). Educated individuals tend to be more capable of understanding the risks associated with drug use and are more likely to avoid it. They can also develop better decision-making skills, able to evaluate risks and benefits more wisely.

Higher levels of education also open doors to better and more stable job opportunities (West, 2000). People with adequate jobs and positive career prospects are less likely to be interested in drug abuse, which can damage their career opportunities. Higher education also increases understanding of the legal consequences of drug use. Individuals who understand the potential punishments or legal sanctions may be more likely to avoid illegal drug activities.

Higher education also provides the skills and knowledge needed to help communities in drug prevention efforts (Licciardone, 2003). They can act as educators, counselors, or advocates promoting healthy behaviors and providing understanding of the dangers of drugs to others. Higher levels of education can also open access to alternative life opportunities, such as talent or interest development, which can divert individuals' attention from drug use. Good education can improve the quality of human life (Erlyn et al., 2022). The government has invested in infrastructure spending, one of which is the construction of schools (Hidayat et al., 2024).

The level of knowledge about narcotics is often closely related to a person's level of education (Nurmala et al., 2021). Individuals with lower levels of education do not receive enough information about narcotics and their negative impacts, which ultimately can reduce their knowledge about how to avoid or reject narcotics offers. Lack of access to quality education can increase the likelihood of individuals being involved in dangerous activities such as drug use or trafficking (Holeksa, 2022). Those with low levels of education and access to information do not have adequate access to knowledge sources that can provide accurate information about narcotics and their consequences, including formal education, drug prevention programs, or information from health and government institutions.

Having good knowledge about narcotics can help individuals make wiser decisions regarding their use. They will better understand the health and legal risks associated with drug abuse, thus reducing the desire to try or use them (Lee et al., 2024). Communities with a good understanding of narcotics tend to support strict policies and prevention actions against illegal drug abuse. This can create political pressure to enforce stricter penalties against drug abuse perpetrators.

The characteristics of swamp areas are often associated with areas that may have high levels of poverty and social isolation. These factors can create conditions where drug users or traffickers tend to operate, and drug abuse can become an extra social problem in these areas (Raharni et al., 2022). Swamp areas are synonymous with Poverty. Especially in Palembang City, poverty is still a concern so that poverty alleviation is one of the goals of the sustainable development agenda (Hidayat, Yuliana, et al., 2022).

CONCLUSION

Someone who has unstable employment, negative social environment, low education, income, and knowledge, and resides in swamp areas can increase the likelihood of drug abuse. Someone in such conditions is vulnerable to the influence of drug abuse. Job uncertainty and income instability make them seek relief from stress and economic insecurity, often in ways that harm their health. A negative social environment can reinforce the urge to use drugs as a form of escape or to seek acceptance from peer groups. Low levels of education and knowledge make them less capable of understanding the dangers and risks associated with drugs, as well as how to address problems without relying on substances. Living in swamp areas can exacerbate the situation with limited access

to healthcare and social services that can provide support in dealing with these issues. Thus, the combination of these factors increases the risk of individuals engaging in drug abuse.

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