Psychological Consequences Associated with The Intensity of Drug Use in The Adult Population of Ecuador

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Abstract

Introduction. The use of illegal substances is considered one of the health problems facing the world today, given the condition caused in the population by the damage or consequences of their consumption. Method. The present investigation was carried out an analytical-descriptive cross-sectional study, working with a sample of 480 patients representing 95% of the population, intentionally selected by non-probabilistic sampling. Results. The data obtained make it possible to determine the intensity of drug use and its relationship with anxiety, depression, perceived stress and self-esteem, in a population group of adult consumers; in addition to broadening the vision of the behavioral dynamics of these phenomena. Conclusions. These results can contribute to the epidemiological monitoring of the mental condition of hospitalized patients, as well as contribute to the generation of general and specific intervention proposals for anxiety, depression, stress and self-esteem by regulating drug use.

Keywords: *Drug Addiction, Depression, Anxiety, Stress, Self-Esteem*

INTRODUCTION

Drug use in the current reality has been increasing throughout the population and addiction has become a public health problem. From the United Nations, the member countries agreed to prohibit the production, marketing and consumption of certain substances. Contrary to these agreements, the persistence of the consumption of illicit substances in the world is now evident. It is estimated that there are approximately 275 million people who used drugs in the year 2020, representing about 5.5% of the world's population (UNODC, 2021).

This problem is latent in all countries, in Ecuador the main drugs of consumption are alcohol, tobacco as legal and easily accessible drugs, and as the most consumed illicit substances are cannabis, cocaine and hallucinogens; Tranquilizers and amphetamines are also widely consumed, although in some cases prescribed for health reasons. These substances are usually more related to dependence due to their psychoactive component and cause observable effects on behavior, such as mood modifications, stress reduction, and performance improvements (CICAD and OAS, 2019).

According to Hernández et al. (2015), the intensity of drug use, whether of a single substance or several at the same time, which we call polyconsumption, triggers psychophysiological consequences in users. The pleasurable effect of drugs is one of the main reasons for their use (Filbey, 2019; Kuri & Vélez, 2021) however, regardless of the pleasurable effects of addictive substances, there is a functionality or intentionality in their consumption (Muñoz & Rojas, 2019) capable of causing multiple mental health complications in people (Huremović, 2020).

According to the United Nations Office on Drugs and Crime (UNODC, 2021) 13% of all those who consume drugs suffer from drug use disorders, the drug is considered as any substance that, administered in a living organism, has the ability to operate on the Central Nervous System (CNS), causing physical and/or psychological variation, the experience of new sensations or the transformation of a psychic state. The psychological consequences of drug use progressively affect individual attitudes, behavior towards oneself and those around them. They also affect self-esteem, causing feelings of devaluation, dissatisfaction and lack of

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confidence. There is evidence of an association between attention disorder, stress and anxiety with the use of illicit substances (Gonçalves, 2018), as well as with depression and low self-esteem.

The prevalence and consequences of drug use produce changes in the psychic state that are very harmful to the user. Consequently, Scoppetta & Castaño (2018) state that approximately 35 million individuals suffer from some type of disorder due to drug use. Thus, the comprehensive attention of this event demands efforts that allow the development of scientific knowledge aimed at its comprehensive care (UNODC, 2021). Based on the above, we can affirm the importance of analyzing and evaluating the psychological consequences as a fundamental part of the treatments carried out in the Therapeutic Communities.

According to Hernandez et al. (2015), physiologically, drugs interact primarily with the brain's reward circuits. These anatomical-physiological structures are made up of a group of gradually developed connections that provide mechanisms that facilitate the survival of the subject, reinforce useful behaviors and extinguish harmful ones (central reinforcement mechanisms). The main neurotransmitter responsible is dopamine, it is released whenever any action is performed that the brain considers favorable for the body, or every time a desire or a need is satisfied, producing the sensation of pleasure. Regardless, these neurotransmitters exert an inhibitory influence once the desire or need is satisfied, restricting the activation of the circuits that produce the compulsion. That's why dopamine is often referred to as "the pleasure neurotransmitter."

Rey (2019) states that the cross-section of the midbrain at the level of the superior colliculus and the nucleus accumbens are two strongly interrelated and transcendental areas for the development of dependence. The first is an area rich in dopamine-containing neurons, the cell bodies of these neurons send signals to regions of the brain involved in primary emotions, thinking, memory, planning and executing behavior. The second is an area of the brain committed to motivation, learning and the prioritization of the motivational value of stimuli. In acute episodes, in one type of addiction or another, it increases the release of dopamine in the nucleus accumbens, which turns an important stimulus into reward and reinforcement

According to Rey (2019), motivation and incentive are important concepts in addictions, given that the mesolimbic dopaminergic pathway is involved in motivational processes through gratification, reward, and positive reinforcement. This means that the brain gives preponderance to stimuli recognized as important for the survival of the person. Motivation lies in the allocation of attentional and behavioral resources to stimuli according to their expected consequences, making timely intervention necessary to reduce the psychological consequences associated with drug use that affect the individual, family and community. From this reality, the objective is to analyze and determine the level of association between the psychological consequences and the intensity of drug consumption manifested by inpatients in therapeutic communities in Ecuador.

METHODOLOGY

Type of study

In the present research, an analytical-descriptive cross-sectional study was carried out. The research is methodologically channeled by exhibiting the levels of psychological consequences that manifest after drug use and how anxiety, depression, perceived stress and self-esteem are related to the consumption of different drugs.

Participants

The population participating in the study is 480 adults of both sexes from the therapeutic communities of Ecuador, aged between 18 and 64 years, all of them signed the informed consent, where they were expressly indicated that the results obtained would be used only for research purposes.

Instruments

The following instruments were used:

Alcohol, tobacco, and substance use screening (ASSIST).

Its application is brief and assesses health risks and other problems related to the ingestion of illicit substances. It is an instrument that investigates the frequency and patterns of use, providing results on the level of associated

risk and is linked to the intervention or treatment strategy. It makes it possible to identify individuals who have the use or abuse of these substances or even drug dependence.

The Hamilton Depression Scale (HDRS).

The original version had 21 items, but was later reduced to 17. Each question has three to five possible answers that are scored from 0 to 2 or 4, depending on the case. The total score ranges from 0 to 52 points. This instrument has been evaluated on multiple occasions, demonstrating its validity and reliability, both in hospitalized patients and in the outpatient population.

Hamilton Anxiety Test (HARS).

It is a scale that is administered through a face-to-face interview, known as HARS, where each item is scored between 0 and 4 points, assessing its intensity and frequency. The items list possible symptoms of anxiety, and the ratings mean 0 absence of anxiety, 1 mild symptom, 2 moderate symptom, 3 severe symptom, and 4 very severe or disabling symptom.

The Perceived Stress Scale (PES)

It is a specially developed instrument to determine the cognitive assessment of a stressful event during the last month. Originally made up of 14 items that ask about the degree to which the person feels that they exert control over unexpected situations, or if they feel them as uncontrollable, which translates into the experience of stress or discomfort.

The Rosenberg Self-Esteem Scale.

It is a self-administered questionnaire, which originally reported the measurement of a single factor of self-esteem measured by 10 items, and which refer to self-esteem and self-acceptance; five were written positively and five negatively. They are scored using a Likert-type scale from 1 to 4, where Strongly Disagree = 1 and Strongly Agree = 4, although initially the Guttman scalogram technique was used.

Procedure

First, approval was obtained from the directors of the selected Therapeutic Communities. Patients were contacted to inform them about the study, its objectives and the activities to be carried out by the investigators. They were invited to take part in the study as volunteers, explaining informed consent to participants and signing acceptance of their participation. The information was collected individually, through direct interviews with all the subjects who were part of the study, for subsequent analysis and evaluation. The time taken to complete the surveys was 45 minutes. Once the information was collected, the data were processed, carrying out the appropriate statistical analyses, contrasting hypotheses and determining the conclusions for the preparation of the research reports, as well as complying with ethical standards in accordance with the work with human beings as indicated in the Helsinki Convention.

Data analysis

For the analysis of the information obtained, the statistical program SPSS 28.0 is used; For quantitative variables with a scale measurement level, position and dispersion statistics are determined. Absolute frequencies are presented for nominal and ordinal scale variables, estimating the prevalence rates of depression, anxiety, stress, and self-esteem. To analyze the relationship between the variables of frequency of consumption of tobacco, alcohol, cannabis, coca, amphetamines, inhalants, tranquilizers and hallucinogens with the index of anxiety, depression, perceived stress and self-esteem obtained in the applied instruments, the Chi-square technique is used to determine whether or not the proportions with which the quantitative variables observed appear in the sample have a significant relationship with each other. that is, they are not attributed to chance. For cases in which significance is demonstrated, corresponding contingency tables were obtained to analyze the extent to which they are associated with each other. The significance level $\alpha=0.05$ is selected for the research, or in other words, a significance of 5%.

RESULT AND FINDINGS

Relationship between Intensity of Use and Level of Anxiety

Table 1 shows that the variables intensity of consumption of tobacco, alcohol, cannabis, cocaine, amphetamines, inhalants, tranquilizers, hallucinogens, opiates and other substances, with respect to the level of anxiety, have a significance value greater than 0.05, therefore, the null hypothesis that the variables are independent and there is no significant relationship between them is accepted. The above shows that there is no significant relationship for any of the variables.

Table 1. 0.31

Variable		Significance value(p)
Tobacco consumption intensity		0.13
Intensity of alcohol consumption		0.36
Intensity of cannabis consumption		0.79
Coca consumption intensity		0.53
Intensity of amphetamine consumption		0.79
Intensity of inhalant consumption	Anxiety level	0.88
Intensity of tranquilizer consumption		0.86
Intensity of hallucinogen consumption		0.41
Intensity of opioid consumption		0.43
Intensity of opioid consumption		0.31

Relationship between frequency of use and level of depression

Table 2 shows that the variables frequency of consumption of alcohol, cannabis, coca, amphetamines, inhalants, tranquilizers, hallucinogens and opiates, with respect to the level of depression, the variables are independent and there is no significant relationship between them, the frequency of tobacco use, with respect to the level of depression, the level of significance (p) (0.05) is equal to 0.05, therefore the null hypothesis is rejected and the alternative hypothesis that the variables are and there is a significant relationship between them.

Table 2

0.13

Variable		Significance value(p)
Frequency of tobacco consumption	Depression level	**0.05**
Frequency of alcohol consumption	Depression level	0.89
Frequency of cannabis consumption	Depression level	0.88
Frequency of coca consumption	Depression level	0.44
Frequency of amphetamine use	Depression level	0.97
Frequency of inhalant consumption	Depression level	0.86
Frequency of tranquilizer consumption	Depression level	0.73
Frequency of hallucinogen consumption	Depression level	0.78
Frequency of opioid use	Depression level	0.13

Relationship between Intensity of Consumption and Level of Perceived Stress

Table 3 shows that the intensity of alcohol, cannabis and tranquilizer consumption variables, with respect to stress level, the level of significance (p) (0.00, 0.03 and 0.00 respectively) is less than 0.05, therefore the null hypothesis is rejected and the alternative hypothesis that the variables are dependent and there is a significant relationship between them is accepted.

Table 3

0.81

Variable		Significance value (p)
Tobacco consumption intensity	Stress level	0.24
Intensity of alcohol consumption		**0.00**
Variables		**Intensity of tobacco use**
Anxiety level		Intensity of alcohol consumption
Intensity of amphetamine consumption		Intensity of cannabis use
Intensity of inhalant consumption		Intensity of coca consumption
Intensity of tranquilizer consumption		**Intensity of amphetamine use**
Intensity of hallucinogen consumption		Intensity of inhalant use
Intensity of opioid consumption		Intensity of tranquilizer use
Intensity of consumption of other		Intensity of hallucinogen use

Relationship between Intensity of Consumption and Level of Self-Esteem

Table 4 shows that the intensity of consumption of tobacco, alcohol, coca, amphetamines, tranquilizers and hallucinogens, with respect to the level of self-esteem, the level of significance (p) (0.00, 0.00, 0.02, 0.00, 0.01 and 0.05) is less than or equal to 0.05, therefore the null hypothesis is rejected and the alternative hypothesis that the variables are dependent and there is a significant relationship between them is accepted.

Table 4

0.93

Variables		0.41
Intensity of opioid use		**0.43**
Intensity of opioid use		**0.31**
Intensity of cannabis consumption		0.87
Coca consumption intensity		**0.02**
Intensity of amphetamine consumption	Nivel de autoestima	**Variable**
Significance value(p)		Level of depression
0.05		**Level of depression**
0.89		**Level of depression**
0.88		Level of depression
0.44		Level of depression

Association Between Intensity of Drug Use and Psychological Consequences

For the analysis of the association between the intensity of drug use and psychological consequences, the latter are processed based on levels of anxiety, depression, perceived stress and self-esteem. In this sense, Table 5 shows that:

- There is a positive correlation between the strong desire to consume tobacco and the levels of anxiety, depression, perceived stress and self-esteem (0.08, 0.00, 0.05 and 0.08 respectively) and of little or no intensity, however, it could be said that between these variables there is a joint association of both variables, to the extent that the frequency of drug consumption increases. Self-esteem levels improve.

- A positive correlation was found between the strong desire to consume alcohol and the levels of anxiety, depression, perceived stress and self-esteem, the latter being significant at the 0.01 level (0.01, 0.02 and 0.20 respectively). For the level of self-esteem the correlation is negative (-0.07). For all cases with little or no intensity.

- Between the strong desire to consume cannabis and the levels of anxiety, depression, perceived stress and self-esteem there is a positive correlation with the levels of depression and self-esteem (0.04 and 0.01 respectively) and a negative correlation with the levels of anxiety and perceived stress (-0.02 and -0.13 respectively), the level of significant stress at the level of 0.01. For all cases with little or no intensity.

- Between the strong desire to consume coca and the levels of anxiety, depression, perceived stress and self-esteem there is a positive correlation with the level of self-esteem (0.04) and a negative correlation with the level of anxiety, depression and stress, the latter significant at the level 0.05 (-0.05, -0.05 and -0.11 respectively). For all cases with little or no intensity.

- A positive correlation was found between the strong desire to consume amphetamines and the levels of anxiety, depression, perceived stress and self-esteem (0.00, 0.02 and 0.06 respectively). In the case of stress level, the correlation is negative (-0.07). For all cases with little or no intensity.

- Between the strong desire to consume inhalants and the levels of anxiety, depression, perceived stress and self-esteem, there is a positive correlation with the level of self-esteem (0.00) and a negative correlation for the levels of anxiety, depression and stress (-0.02, -0.03 and -0.05 respectively). For all cases with little or no intensity.

- A positive correlation is evidenced between the strong desire to consume tranquilizers and the levels of anxiety, depression, perceived stress and self-esteem (0.03, 0.00 and 0.36 respectively), in the case of stress this value is significant at the 0.01 level with a weak intensity. The level of self-esteem shows a negative correlation (-0.00). With the exception of the level of stress, the intensity is low or non-existent.

- A positive correlation was found between the strong desire to consume hallucinogens and the levels of anxiety, depression, perceived stress and self-esteem (0.03 and 0.01 respectively). For stress and self-esteem levels, the correlation is negative (-0.03 and -0.05 respectively). In all cases, there is little or no intensity.

- Between the strong desire to consume opiates and the levels of anxiety, depression, perceived stress and self-esteem, there is a positive correlation with the level of self-esteem (0.00) and a negative correlation for the levels of anxiety, depression and perceived stress (-0.02, -0.06 and -0.05 respectively). In all cases, there is little or no intensity.

In summary, there is a weak and little or no correlation between the intensity of the consumption of the different drugs and the levels of anxiety, depression, perceived stress and self-esteem.

Table 5

.903

		Level of depression	0.86	Frequency of tranquilizer use	Level of depression
0.73	Frequency of use of hallucinogens	Level of depression	0.78	Frequency of opioid use	Level of depression
	Correlation coefficient	.053	.865	.205	.071
Frequency of strong desire to consume alcohol	Sig. (bilateral)	.019	.024	Variables	Significance value (p)

	Stress level	0.24	Intensity of alcohol consumption	.000	0.00
Intensity of cannabis use	Correlation coefficient	0.03	Intensity of coca consumption	-.133(**)	0.34
	Sig. (bilateral)	0.75	Intensity of inhalant use	.003	0.84
Intensity of tranquilizer use	Correlation coefficient	0.00	Intensity of hallucinogen use	-.113(*)	0.76
	Sig. (bilateral)	0.16	Intensity of consumption of other	.014	0.81
Frecuencia deseo fuerte de consumo anfetamina	Correlation coefficient	.000	.029	-.071	.062
	Sig. (bilateral)	**Variables**	**Significance value (p)**	**Intensity of tobacco use**	**Self-esteem level**
0.00	Intensity of alcohol consumption	-.022	0.00	Intensity of cannabis use	.008
	Intensity of coca consumption	.636	0.02	Intensity of amphetamine use	.860
0.00	Intensity of inhalant use	.036	0.97	Intensity of tranquilizer use	-.004
	Intensity of hallucinogen use	.431	0.05	Intensity of opioid use	.930
0.68	Intensity of consumption of other	.034	0.93	-.033	-.051
	Sig. (bilateral)	.461	.690	.478	.264
Frequency of strong desire to consume opiates	Correlation coefficient	-.021	-.064	-.054	.006
	Sig. (bilateral)	.653	.162	.236	.903

** Correlation is significant at level 0.01 (two-sided)

* The correlation is significant at the 0.05 level (two-sided).

Discussion

According to Contreras et al. (2022), epidemiological and clinical studies show a high presence of psychopathological alterations (cognitive, depressive, anxiety, personality and psychotic) in patients diagnosed with substance abuse/dependence. In this sense, the clinical picture that defines anxiety is an unpleasant emotional state that is often accompanied by physiological and behavioral changes, with subjective and physiological manifestations. Individuals experience worry, fear or excessive apprehension, agitation, irritability,

decreased concentration, obsessions, compulsions, with neurovegetative manifestations including sweating, dizziness, palpitations, and tachycardia.

On the other hand, depression is a clinical picture in which mood is altered, as the most frequent manifestations are persistent sadness, loss of interest or pleasure in activities that you previously enjoyed, including sexual relations, feelings of guilt, helplessness, hopelessness and pessimism, sleeping too much or too little, restlessness, irritability or easy and/or excessive crying. loss of appetite or weight, decreased energy, easy fatigue, difficulty concentrating, memory lapses, difficulty making decisions, thoughts of death or suicide (Coloma et al., 2022).

The representativeness of the levels of anxiety and depression in the population under study coincides to some extent with studies published by Ramírez et al. (2018) when they state that these disorders are phenomena of enormous importance in people's functionality. They are usually among the most frequent reasons for consultation in the psychological and psychiatric field, since they are conditions that are intimately associated. Within public health, they represent one of the significant problems and their epidemiological importance in recent years is enormous, because it affects all age groups, including student populations (Moreta et al., 2018).

Studies such as those by Santos, Saura & López (2020); Contreras, Miranda & Torres (2020) and Marín & Calderón (2018) highlight the important relationship between the use and abuse of some substances and the presence of mental health problems. However, it is difficult to establish what specific role each substance plays in the onset, maintenance, or worsening of the mental disorder. There are several reasons for this: firstly, most substances are often used in association with others. Second, it is considered that the onset of the mental disorder could precede the use of the substance, or simply coincide in time on many occasions. Finally, different diseases, especially anxiety and depression problems, are usually associated with other disorders (comorbidity), which makes it impossible to establish a direct relationship between the substance and each particular problem. In line with this work, in the present research it was possible to verify a weak, scarce or non-existent correlation between the different types of drugs and the levels of anxiety, depression, stress and self-esteem.

In the relationship between each group of substances and psychopathology, two levels can be considered: the consumption of the substance as a risk factor for developing a psychological problem (cause) and as a consequence of suffering from it (effect). Regular and prolonged use of a substance can lead to the onset of various psychiatric illnesses (Contreras et al., 2022). Assuming these approaches, it is justified that in the present research the results of the frequency and intensity of consumption correspond to both levels.

According to the same authors, according to the literature reviewed, many patients with substance dependence may have depressive and anxiety symptoms, to a greater or lesser degree of duration, throughout their evolution. The presence of such symptoms does not imply that the individual meets the criteria for a mood and anxiety disorder. In some cases, the presence of alcohol or other central nervous system depressants is decisive and tends to disappear in parallel with intoxication. In other cases, depressive and anxiety symptoms are related to the withdrawal syndrome, on other occasions to stressful situations, frequent in the course of the addictive disease, but without reaching the intensity and duration necessary to establish the diagnosis of mood or anxiety disorder. The morbidity associated between substance use and depression is the most common dual pathology in the field of substance addiction.

It should be noted that, although it has been observed in the case of cocaine or opiate addictions or in polydrug users, the episode of depression and anxiety tends to occur more frequently independently of consumption. In the case of alcohol, a higher prevalence of association with induced depression has been described, although both types of depression (primary and induced) can be found in the same patient, an aspect with which the research agrees.

As can be seen, the high association of affective disorders with substance dependence is demonstrated, pointing out the need to deepen this link, as a necessary condition in the comprehensive approach of these patients. The identification and treatment of mood disorders associated with substance use is a field of work of vital importance today and a front-line healthcare challenge for mental health professionals. In the present study, it

was confirmed that the patients presented alterations in anxiety, depression, stress and self-esteem and the frequency and intensity of consumption was related to the intensity of the symptoms.

CONCLUSION

Among the implications of this study, it can be mentioned that its results allow us to deepen the current knowledge regarding drug use and its relationship with anxiety, depression, perceived stress and self-esteem, in a population group of adults; in addition to broadening the vision of the behavioral dynamics that these phenomena hold. From practice, these results can contribute to the epidemiological monitoring of the mental condition of patients in hospitalization, as well as contribute to the generation of general and specific intervention proposals for anxiety, depression, stress and self-esteem through the regulation of drug use. However, it is considered appropriate to continue researching on the subject, in order to consolidate the results obtained.

The intensity of consumption of tobacco, alcohol, cannabis, coca, amphetamines, hallucinogens and tranquilizers demonstrate a significant association with the level of depression, stress and self-esteem. These drugs interfere with the way neurons send, receive, and process neurotransmitter information. Drugs, such as marijuana and heroin, have the effect of activating the capacity of neurons because their chemical structure is similar to that of a natural neurotransmitter in the body, so they end up adhering to the neuron and activating it, which can trigger a pleasure mechanism in the patient who consumes and after treatment the relapse occurs. It is necessary to delve into psychotherapeutic processes that allow comprehensive treatments for each consumer patient.

Limitations

As it is a cross-sectional study, it limits the obtaining of cause-effect results, it is suggested to carry out longitudinal studies that allow a more in-depth exploration of the behavior, the variables and their causality, which means that the intensity of the consumption of psychotropic substances in the adult population investigated can determine a more significant association with the psychological consequences and intensify the severity of the problems in their mental health. the same that can affect all areas of personal, family and social life.

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