Using the Logistic Regression Model to Determine the Most Important Factors in Drug Proliferation in Sudanese Universities

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Abstract

This study includes a study of the factors affecting the spread of drug abuse in Sudanese universities, the researcher used the logistic regression method to determine the most important factors leading to the spread of this phenomenon from the viewpoint of Sudanese university students.

In order to determine the most important of these effects, data was collected by designing a controlled questionnaire that clarifies a set of reasons that lead to the spread of drug use. The sample size reached 300 male and female questionnaires. The number of completed and complete questionnaires reached 294.

A preliminary descriptive study was carried out to produce initial indicators of the phenomenon, and then a logistic regression model was applied to determine the most important factors leading to drug abuse. The study also found that the most important factors that lead to drug use are:

The most important results that were reached were:
* *That drug use has become a phenomenon that deserves to stand firmly, and there is a feeling of anxiety over the increase in users, emptiness, bad companions, and weak religious faith, one of the most important reasons for its spread and instilling the values of Islam in the hearts of children represents the best solution in addition to conducting educational lectures and media interest in the problem.*

The most important recommendations were the following:

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- *The need to take the necessary measures and steps to prevent the increase in the percentage of users.*
- *Inculcating the values of Islam in the hearts of adolescents, and universities conducting educational lectures*
- *Increased oversight and strict law enforcement against promoters.*

Key words: logistic regression model, drug proliferation Sudanese universities

INTRODUCTION

The problem of drug use in Arab societies and in the world in general occupies a large area of the interests of researchers, thinkers, politicians, religion and those concerned with issues of social control due to the risks it threatens to community security and its values and ethical controls for social behavior in addition to its negative effects on the structure of the economy and in view of the importance and seriousness of this phenomenon comes This paper explores the extent of drug use among university students in Sudan and the factors that lead to the spread of drug use by university students. The study also examines the consequences of widespread drug use. Drugs in universities and the most important proposals to reduce this phenomenon, which has become the talk of people, societies and the media, so it was necessary to investigate its reality and the extent of its spread, the study was applied to Sudanese public universities in Khartoum State and logistic regression analysis was used in the statistical analysis of the problem and its dimensions

The Study Problem:
A problem centered on researching the extent of drugs in the university student community, as drug use is considered one of the problems that affect the building of society, due to the social, economic and psychological effects it entails, as it is a destructive phenomenon that many factors drive to it, some related to the individual and others related to the family and the third to construction Social as a whole

The importance of studying:

The importance of this study stems from the importance of the topic covered by the study, which is the extent of drug use among university students. The importance of this study can be summarized in the following points:

1. This study shows the reality and extent of drug use among university students.

2. This study examines the causes and motives that lead a university student to drug use.

3. The importance of the study stems from the fact that it searches for the social and economic consequences of widespread drug use in the university student community.

4. Demonstrate the efficiency of the logistic regression model in this type of study.

5. The study is one of the rare studies that dealt with this problem in Sudanese society.

The study is an addition to the Sudanese and Arab library, and it allows researchers and interested educators, thinkers and media professionals to study a statistical statistic of this problem

Study assumptions:

1- There is a proliferation of drugs in Sudanese universities in the state of Khartoum.

2- There are many reasons that drive a university student to use drugs.

3- The spread of drug abuse in universities has many consequences.

4- There are many solutions that can limit the spread of drugs.

Objectives of the study:

The study aims to:

1. Know the extent of drug use among the public university students in Khartoum State.

2. Investigate the reasons that drive a university student to use drugs

3. Discuss the consequences of drug proliferation among college students

4. Examine appropriate solutions to reduce the phenomenon of drug proliferation in the university student community

5. Introduce quantitative analysis tools rarely used in social research as a logistic regression model.

The limits of the study:

Human boundaries: The results of this study are determined specifically by the community of public universities in the state of Khartoum.

Spatial and temporal limits: These studies are limited to universities in Khartoum State for the year 2018AD

Study Approach

This study adopts the descriptive approach that depends on the study of the phenomenon as it exists in reality, and is interested as an accurate description and expresses qualitatively as it and clarify its properties, and quantitatively by giving it a digital description through numbers and tables that clarify the amount of this phenomenon or its size or the degree of its association with other phenomena. Quintet and the analytical method using logistic regression, which means organizing and controlling the mental and logical process and guiding it through scientific principles and laws to reach the truth, its interpretation and prediction.

The concept of drugs

Drugs in the language collect narcotic, and narcotic substance in the Arabic language revolves around the meanings of weakness, laziness, lethargy and apathy, and it was named so because it numbs people in their homes. (Lisan Al-Arab, p. 1109)

And drugs as a convention is every substance that consumes the exhaustion of the body and an effect on the mind until it almost takes it.

Addiction is defined as a chronic periodic condition that damages the individual and society and results from repeated use of a natural or manufactured drug. Addiction is characterized by the following symptoms (Demerdash 1982, p. 54):

1. An urgent or compulsive desire to use the drug and obtain it by any means.

2. Tendency to increase the dose of the anesthetic.

3. Psychological and physical dependence, or both, of the drug.

4. Harmful effects on the abusing individual, his family, and society

Causes and drivers that lead to drug users

There are many social and economic factors behind the phenomenon of drug proliferation among young people, and it is true that these motives differ from one place to another and from time to others, but there are some constants that may be shared by most societies and the researcher mentions the most important of them in the following points:

1. The weakness of religious faith among many young people.

2. The absence of a family role in care and guidance.

3. The daily and life pressures that young people are exposed to.

4. The separation of the individual from the culture and values that prevail in society.

5. Emptiness and bad companions.

6. Travel and expats

7. High standard of living for some young people.

8. The hidden intentions of the enemies and their fierce attacks on members of society

The most important social effects of drug use

The harmful and dangerous effects of drug use, proliferation and addiction are numerous, whether these effects are social, health or economic. These effects begin with the individual who is the basic pillar of society and is the basis of the family, which is the basic building block of society. There is no doubt that the individual, any individual, especially young people and students, is an active member of society and has His role in life and the child If he was born in a family and grew up in it, his personality is undoubtedly confirmed through his relationship with his family and his family's relationship with him and the level of the family's material and intellectual balance and the imbalance that occurs in this balance leads to an imbalance in the formation of the individual and his upbringing, as the abuser also leads to a major defect in the bin E family and community network relationships are affected by each other.

The drug user in any family is often whose family relationship is bad, fierce disputes prevail and therefore the safety factor negates

the family's feeling that the abuser causes them security and moral problems and a bad reputation for the family within society and between the family, especially the Arab and Islamic societies that still give the greatest considerations to values and morals as conservative societies (Al-Juyber, 1986, p. 14)

Logistic regression model

The logistic regression model has several advantages that make it suitable for use in the case of taxonomic dependent variables. (Gebotys, 2000) explains the importance of logistic regression analysis by saying, "Logistic regression is a more powerful tool because it provides a test of the significance of coefficients and it gives the researcher an idea of how much the independent variable affects a variable. The response, in addition to the logistic regression, arranges the effect of the variables, allowing the researcher to conclude that a variable is considered more powerful than another in understanding the appearance of the desired result, and that the logistic regression analysis can include qualitative variables and the limits of interactions.

It is noteworthy that the logistic regression analysis is less sensitive to deviations from the moderate distribution of the study variables, as the logistic regression can exceed many severe assumptions of the usual minimum squares regression, which makes the logistic regression analysis the best method in the case of the binary dependent variable. Logistics The researcher will address the following points.

What is the logistic regression?

The logistic regression model is the most common in metadata analysis and it is a statistical method for examining the relationship between the dependent variable with the descriptive level and one or more independent variables, which are sometimes called accompanying variables or interpreted variables so that these independent variables are of any type of measurement levels. (Al-Jad'i, 2005, p. 74).

As for this study, the logistic regression analysis means the statistical method used to check the finding of the relationship between the two-value dependent variable and several independent

variables of any type. The analysis in this case is called the dual logistic regression analysis.

If there is a binary descriptive dependent variable and one independent variable, then the model takes the following formula

$$P(x) = \frac{\exp(\alpha + \beta X)}{1 + \exp[\alpha + \beta X]} \; ; 0 < P < 1 \qquad (1)$$

This formula then converts to

$$P(x) = \frac{1}{1 + \exp[-(\alpha + \beta X)]} \; ; \qquad (2)$$

whereas :

α and β: the estimated coefficients of data

X is the independent variable

exp: e is the natural logarithmic base, approximately equal to 2.718

P (x) is the dependent variable Y.

In the case of both the dependent variable and descriptive binary value and there were several independent variables, the model takes the following formula:

$$P(x) = \frac{1}{1 + \exp[-Z]} \qquad (3)$$

Whereas:

$$Z = \alpha + \beta 1 X 1 + \beta 2 X 2 + \ldots\ldots\ldots + \beta p X p$$

- Logistic regression models are a special case of general regression models. These models are sometimes called logic models and are usually used when we want to predict the existence of a particular characteristic, phenomenon or specific property based on the values of a variable or a group of other independent variables that have to do with the dependent variable exactly as it is. The case in general regression models. The logistic model coefficients are used to estimate the possible or differential ratio for each of the independent variables in the model. (Telbani, p. 191)

- Estimated logistic regression coefficients
  One of the methods developed by statisticians to estimate features in linear and non-linear models is to describe the method of greater possibility. To determine the method of

greater possibility, the function of the possibility of L must be known.

1-Maximum Likelihood Function

2- The function of possibility in the case of logistic regression is: (Kleinbaum and klain, 2002 (

$$L = \prod_{i=1}^{m1} p(x1) \prod_{i=m+1}^{n} [1 - p(x1)] \qquad (4)$$

Where:

L   : Is the function of possibility

P(x)   : : Is the probability that the attribute will appear.

(1-p(x1)) : : Is the possibility that the attribute will not appear

n   : Is the total number of cases.

m1   : : The number of cases representing the attribute .

$\prod$: Denotes the product of the product and is similar to the plus sign $\sum$, which means that the function is the product of the probability values for each case maximum likelihood estimation (MLE)

It is a method used to calculate logistic coefficients, and it corresponds to the method of lower squares in linear regression. While the lower squares method looks for the lowest sum of squares of the data deviations observed from the regression line, the largest possible method seeks to maximize the log likelihood logarithm, which reflects the possibility or probability that these observed values of the dependent variable can be expected or predicted through the independent variable or variables Independent, and it is noticed that the largest probability estimates are an iterative method that begins with an initial value of what the logistic parameters should be, then this method determines the direction and amount of change in the logistic parameters, which will increase the logarithm of the LL and after this first function is estimated E, the residuals are tested and re-appreciation through improved function, and the process is repeated until the convergence process that does not change then the logarithm possible and symbolized by the symbol LL (Garson occur, 2006).

The effect of independent variables on the dependent variable

(Pample, 2000) considers that according to the expected and usual of non-linear transformations, the effects of the non-independent variables on the dependent variable in the logistic regression analysis will have several interpretations according to the method of

interpreting the logistic regression coefficients and that the interpretation based on any of the following methods has its pros and cons:

- Interpretation of transactions in terms of log
- Interpretation of transactions in terms of weighting
- Interpretation of transactions in terms of the weighting ratio
- Interpretation of transactions in terms of probabilities
- The best way to study the effect of independent variables on the dependent variable in the logistic regression analysis is to interpret the logistic regression coefficients in terms of Odd Ratio.

Convenient logistic regression model

Hos (Hosmezr and lemshow, 2000) sees that once we reconcile the logistic regression model the process of evaluating the model begins and there are two ways to verify the suitability of the model can be classified as follows: -

1. Verify the suitability of the model as a whole

Verify the overall suitability of the model through overall measures of the fit and there are several important summary measures that help evaluate the final model that has been reconciled to the data: sediments and differences, R2 statistics and the Hozmer-Limsho test of conformity quality, possible ratio testing, and a schedule of possible Classification plus ROK curve analysis.

2. Examination of the statistical function for each independent variable separately:

Examine the individual components of the model, meaning that if the model as a whole is appropriate, then what is the significance of each of these independent variables? What is its ability to predict the dependent variable? Which variables are better and which are worse in predicting the dependent variable?

The Wald statistic is usually used to test the statistical significance of each logistic regression coefficient, and the Wald test tests the null hypothesis that the logistic regression coefficient associated with the independent variable x is zero

$$Ho : b = 0$$

The statistics of a parent, as given in the equation, are calculated as follows:

$$W^2 = \left(\frac{b}{SE}\right)^2 \qquad (5)$$

Where b: is the value of the logistic regression coefficient of the variable X

S.E is the value of the standard error of the logistic regression coefficient of the variable X

Where the statistic follows the W2 parent Kai squared X2 distribution If the value of the Wald W statistic is calculated instead of W2, then the formula will be calculated according to the following formula :

$$W^2 = \left(\frac{b}{SE}\right) \qquad (6)$$

Wherein the W statistic in this case follows the Z distribution (Hosmer and Lemshow 2000)

If the parent's statistic is statistically significant, this means that rejecting the null hypothesis that the value of the regression coefficient is equal to zero, meaning that the regression coefficient of that independent variable X will be different from zero, and therefore that independent variable will have an effect in predicting the value of the dependent variable Y. But if its statistic is a parent that is not statistically significant, then this means that the regression coefficient of that variable for an independent X is zero, meaning that that independent variable has no effect in predicting the value of Y, which means that it can be removed from the model because it has no statistical significance. (Menard, 2002(

Steps to logistic regression analysis

Before starting to analyze the logistic regression model, it is necessary to examine the data to find correlation between the independent variables as is the case in other general regression models, as the correlation between the independent variables can lead to biased estimates of the features and non-inflation in the standard error. There are usually three basic steps in analyzing the logistic model:

1. Matching the general model
2. Adjusting the modified form
3. Hypotheses testing.

However, these steps need not necessarily be followed in analyzing each logistic regression model although they can be taken as guidance.

From the above, the use of the logistic regression model, on which many previous studies relied, is considered one of the most common statistical methods in dealing with metadata, but this model faces the problem of the inability to deal with data that depends on the change in the time point that precedes The event occurs

Applied study

Study population

The study population consists of male and female students, faculty, and university workers in Khartoum State, with a focus on the major universities, which are Sudan University, the Nile University, the Islamic University of Omdurman, the University of the Holy Qur'an, the University of High Africa, Omdurman Private University and the University of Expatriates.

The above universities were chosen because they include the largest segment of students in the whole of Sudan.

The researcher's choice of the state of Khartoum as a community for study came due to the human capital represented by the capital, which may represent a third of the Sudanese population, in addition to the mentioned universities that include all segments of society.

The study sample

In this study, the researcher used the questionnaire as a measurement tool for the aims of the study. The researcher distributed 300 questionnaires to university students in Khartoum State. All questionnaires were collected. The number of questionnaires that were answered was 294, meaning that the response rate was 98%.

The questionnaire consisted of two parts. The first part contains demographic variables that may have an impact on the opinions of the respondents. The second part included the main questions of the study.

The researcher used the Lekart five-point scale (strongly disagree - disagree - neutral - agree - strongly agree) as in the following table:

Table (4-1)

The opinion	The Weight
Strongly not Agree	1
Not agree	2
Neutral	3
Agree	4
Strongly Agree	5

Source (prepared by the researcher)

Where the arithmetic average (weighted average) was then calculated and then the trend was determined according to the weighted average values as in the following table :

Table (4-2)

Level	Weighted average
Strongly not Agree	From 1-1.79
Not agree	From 180-2.59
Neutral	From 2.60-3.39
Agree	From 3.40-4.19
Strongly Agree	From 4.20-5

Source (prepared by the researcher)

The results of the field study and answering the study questions

In this part of the study, the researcher will discuss measuring the effect of independent variables on the respondents' view of the extent of drug spread in Sudanese universities, their results, their causes, and proposed solutions.

In order to measure that effect, the effect of each variable will be measured separately to see which variables have a relationship with the dependent variables, and the effect of each variable will be measured separately through a test such as squaring, and then the researcher will address measuring the effect of all independent variables together through the logistic regression model. The topic will address the following:

The first requirement: Measuring the impact of independent variables on the extent of drug spread among Sudanese university students in Khartoum State.

The second requirement: Measuring the effect of independent variables on the reasons that drive a university student to use drugs.

The third requirement: Measuring the effect of independent variables on the consequences of drug proliferation among university students.

Fourth requirement: Measuring the effect of independent variables on the proposed solutions to limit the spread of drugs in universities.

Measuring the effect of independent variables on the extent of drug spread among Sudanese university students in Khartoum State.

First: measure each variable separately:

Independent variables (age, gender, occupation, educational level) will be used to test the relationship between each variable separately with the dependent variable (the extent of drug spread among university students in Khartoum State) by testing the following hypothesis:

Nothing hypothesis: No relationship (there is independence)

Alternative hypothesis: there is a relationship (no independence)

For this purpose, a quadratic test was used to test the existence of a relationship between the independent variable and the dependent variable and the results of the test. The results indicated a significant relationship between (age, gender, occupation, educational level) in knowing the extent of drug spread among university students in Khartoum State.

Second, measure the effect of all variables together:

To know the most important independent variables affecting the respondents' knowledge of the extent of the reality of drug proliferation in Sudanese universities or not, which takes one of the two values:

:1A positive outlook means the spread of drugs in universities

:0A negative view means that there is no spread of drugs in Sudanese universities

The independent variables are those whose significance appears in the Kay squared test as previously, and this effect will be tested using the logistic regression model, which is characterized by not requiring that the independent variables follow the natural distribution nor that the relationship between them is linear.

And for the nihilistic hypothesis test, which states that the logistic regression model factors whose significance has been proven

equal to zero (that is, there is no effect of demographic variables on the respondents' view of the extent of drug prevalence in Sudanese universities.(

Table (4-3) shows the standard error and the degree of significance of the factors in addition to the wald test and the value of exp (B) odds Ratio, which are used to compare the reference category of other categories for each of the variables.

Table (4-3)

The results of the logistic regression model for the respondents to see the extent of drug prevalence in Sudanese universities

Variable	B	S.E	Wald	Sig.	Exp(B)
Gender					
Male	0.625	0.754	0.914	**0.022**	0.789
Female	0.714	0.855	0.893	**0.023**	0.814
Old					
>30	0.245	1.324	0.034	**0.043**	0.278
30-40	1.725	1.336	1.235	**0.007**	0.564
Job					
Student	2.223	4.385	0.432	**0.042**	0.211
Not student	0.288	1.432	0.023	**0.018**	0.511
Educational level					
Before college	0.122	6.125	0.365	0.067	0.311
College Level	2.015	0.995	0.063	0.074	0.721

It is noted from the above, and after knowing the independent variables that have a relationship with the opinion of the respondents about the extent of drug spread among university students in Khartoum State, a logistic regression model was used to find out which of these variables had an effect on the respondents' views on the issue under study and the value of this effect.

The results indicated that each of the variables (gender, age, occupation, educational level - university and postgraduate studies) have an effect on the respondents' opinions (p value <0.05 and with a confidence level of 0.95)

The results indicate that the value of Exp (B) odds ratio indicates that females are more positive to the prevalence of the drug than males, that the general view of the extent of drug spread decreases with increasing age, and that the positive view of the views of university students and professors about the extent of drug spread is nearly twice as high as secondary and below professors And the lecturers

Measuring the effect of independent variables on the reasons that drive a university student to use drugs
First: measure each variable separately:

First: Measuring each variable, independent variables (age, gender, job, educational level) will be used to test the existence of a relationship between each variable separately with the dependent variable (the reasons that drive the university student to take drugs) by testing the following hypothesis:

Nothing hypothesis: No relationship (there is independence(

Alternative hypothesis: there is a relationship (no independence(

For this purpose, a quadratic test was used to test the existence of a relationship between the independent variable and the dependent variable and the test results. The results indicated a significant relationship between (age, gender, job, educational level) in knowing the reasons that drive the university student to use drugs.
Second, measure the effect of all variables together:

To know the most important independent variables affecting the respondents' knowledge of the reasons that drive a university student to use drugs or not, which takes one of two values:
1- A positive outlook means being convinced of the reasons that drive a university student to use drugs

A negative view means that there is no conviction about the reasons that drive a university student to use drugs.

The independent variables are those whose significance appears in the Kay squared test as previously, and this effect will be tested using the logistic regression model, which is characterized by not requiring that the independent variables follow the natural distribution nor that the relationship between them is linear.

And for the nihilistic hypothesis test, which states that the logistic regression model factors whose significance has been proven equal to zero (i.e. there is no relationship between demographic variables and the reasons that drive the university student to use the pillows.(

Table (4-4) shows the standard error and the significance of the factors, in addition to the wald test and the exp (B) odds Ratio value, which are used to compare the reference category of other categories for each of the variables.

Table (4-4) Results of the logistic regression model for the respondents to see the reasons that drive the university student to use drugs

Variable	B	S.E	Wald	Sig.	Exp(B)
Gender					
Male	0.847	0.632	0.714	**0.042**	0.217
Female	0689	0.745	0.362	**0.032**	0.514
Old					
>30	0.345	1.820	0.035	**0.003**	0.423
30-40	2.412	1.682	1.625	**0.016**	0.321
Job					
Student	3.203	3.315	0.234	**0.017**	0.352
Not student	0.125	2.472	0.023	**0.032**	0.412
Educational level					
Before college	0.174	2.195	0.562	0.047	0.303
College Level	2.010	0.015	0.082	0.024	0.412

Source: spss

It is noted from the above table, and after knowing the independent variables that have a relationship with the opinion of the respondents about the reasons that prompted the university student to use drugs, a logistic regression model was used to find out which of these variables has an effect on the respondents' conviction of the causes and motives and the value of this effect.

The results indicated that each of the variables (gender, age, occupation, educational level - university and postgraduate studies) have an effect on the respondents' opinions (p value <0.05 and with a confidence level of 0.95)

The results indicate that the value of Exp (B) odds ratio indicates that females are more convinced of the reasons that have been proposed and that lead to drug use if the value of the weighting of the reasons that drive a university student to drug use EXP (B) is 0.514, which is higher than the value of males It is 0.217, and the respondents 'conviction of the causes increases by 30 and less than others.

Measuring the effect of independent variables on the consequences of drug proliferation among university students First: measure each variable separately:

Independent variables (age, gender, occupation, level of education) will be used to test the relationship of each variable separately with the dependent variable (the consequences of drug proliferation among college students) by testing the following hypothesis:

Nothing hypothesis: No relationship (there is independence)

Alternative hypothesis: there is a relationship (no independence)

For this purpose, a quadratic test was used to test the existence of a relationship between the independent variable and the dependent variable and the results of the test. The results indicated a significant relationship between (age, gender, occupation, educational level) in knowing the consequences of drug proliferation among university students.

Second, measure the effect of all variables together:

To know the most important independent variables affecting the respondents' knowledge of the consequences of drug proliferation among college students, which takes one of two values:

1: A positive outlook means approval of the consequences of drug use

0: A negative view means that there is no conviction with the consequences of drug use

The independent variables are those whose significance appears in the Kay squared test as previously, and this effect will be tested using the logistic regression model, which is characterized by not requiring that the independent variables follow the natural distribution nor that the relationship between them is linear.

And for the nihilistic hypothesis test, which states that the logistic regression model factors whose significance has been proven equal to zero (i.e. there is no relationship between demographic variables and knowledge of the consequences of drug spread among university students.(

Table (4-5) shows the standard error and the degree of significance of the factors in addition to the wald test and the value of exp (B) odds Ratio, which are used to compare the reference category of other categories for each of the variables.

Table (4-5)

Results of the logistic regression model for the respondents to see the consequences of drug spread among university students

Variable	B	S.E	Wald	Sig.	Exp(B)
Gender					
Male	0.783	0.536	0.825	**0.002**	0.297
Female	578	0.741	0.433	**0.022**	0.214
Old					
>30	0.234	1.896	0.062	**0.001**	0.485
30-40	2.478	1.854	1.521	**0.036**	0.611
Job					
Student	2.471	2.254	0.221	**0.002**	0402
Not student	0.215	2.623	0.031	**0.042**	0.417
Educational level					
Before college	0.874	5.545	0.542	0.041	0364
College Level	2.074	0.213	00.120	0.034	0.452

Source: spss

It is noted from the above table, and after knowing the independent variables that are related to the opinion of the respondents on the consequences of drug use, a logistic regression model was used to find out which of these variables had an effect on the respondents' conviction of the results and the value of this effect.

The results indicated that each of the variables (gender, age, occupation, and educational level) had an effect on the respondents' opinions (p value <0.05, with a confidence level of 0.95.)

The results indicate that the value of the Exp (B) odds ratio indicates that females are less convinced of the consequences of drug spread among college students if the weight of the percentage of females reaches 0.214 compared to 0.274, and the researcher attributes this to the mixing of young people with their peers more than females, which It makes them more aware of the consequences of drug proliferation

And that the respondents 'conviction of the results increases with increasing age and the growth of the educational level affects the respondents' conviction of the consequences of the spread of drugs and perhaps this is due to the fact that the increase in age and educational growth gives the owner a broader experience and more comprehensive knowledge in assessing such results.

Measuring the effect of independent variables on the proposed solutions to limit the spread of drugs in universities
First: measure each variable separately:
Independent variables (age, gender, job, educational level) will be used to test the relationship of each variable separately with the dependent variable (proposed solutions to limit drug proliferation in universities) by testing the following hypothesis:
Nothing hypothesis: No relationship (there is independence)
Alternative hypothesis: there is a relationship (no independence)
For this purpose, a quadratic test was used to test the existence of a relationship between the independent variable and the dependent variable and the test results. The results indicated a significant relationship between (age, gender, occupation, educational level) in knowing the proposed solutions to limit the spread of drugs in universities
Second, measure the effect of all variables together:
To know the most important independent variables affecting the respondents' knowledge of the proposed solutions to reduce drug proliferation in universities, which takes one of two values:
1: A positive outlook means agreeing to proposed solutions to reduce the spread of drugs in universities
0: A negative view means that there is no conviction with the proposed solutions to limit the spread of drugs in universities.

The independent variables are those whose significance appears in the Kay squared test, and this effect will be tested using the logistic regression model, which is characterized by not requiring that the independent variables follow the natural distribution nor that the relationship between them is linear.

And for the nihilistic hypothesis test, which states that the logistic regression model factors whose significance has been proven equal to zero (i.e. there is no relationship between demographic variables and proposed solutions to limit the spread of drugs in universities

Table (4-6) shows the standard error and the degree of significance of the factors in addition to the wald test and the value of exp (B) odds Ratio, which are used to compare the reference category of other categories for each of the variables.

Table (4-6) Results of the logistic regression model for the respondents' view of the proposed solutions to reduce drug spread in universities

Variable	B	S.E	Wald	Sig.	Exp(B)
Gender					
Male	0877	0.635	0.725	**0.001**	0389
Female	0.985	0.174	0.334	**0.016**	0.401
Old					
>30	0.411	0.411	0.045	**0.003**	0.615
30-40	3.541	3.541	1.278	**0.004**	0.841
Job					
Student	2.415	2.415	0.231	**0.002**	0.314
Not student	0.198	0.198	0.029	**0.028**	0.376
Educational level					
Before college	1.426	1.426	0.318	0.031	0.498
College Level	0.281	0.281	0.084	**0.007**	0.617

It is noted from the above table, and after knowing the independent variables that are related to the opinion of the respondents on the consequences of drug use, a logistic regression model was used to find out which of these variables had an effect on the respondents' conviction of the results and the value of this effect.

The results indicated that each of the variables (gender, age, occupation and educational level) had an effect on the respondents' opinions (p value <0.05 and with a confidence level of 0.95.(

The results indicate that the value of the Exp (B) odds ratio indicates that males and females are close in their convictions regarding the proposed solutions to limit the spread of drugs in universities.

And that the respondents' conviction of solutions increases with increasing age and educational level growth, while students and others agree in their conviction of the proposed solutions.

Results

The results of the study on the extent of drug use among students in Sudanese universities showed the following:

The responses of the sample members showed that drug use in Sudanese universities in Khartoum state has become a phenomenon that deserves to stand firmly, that the students using it are increasing, that there is a feeling of concern about the increase in the

phenomenon of drug use and that drugs are spread in medium to large proportions among university students.

The results indicated that each of the variables (gender, age, occupation, educational level - university and postgraduate studies) have an effect on the respondents' opinions.

The results indicate that females are more positive to the extent of drug spread than males, that the general view of the extent of drug spread decreases with increasing age, and that the positive view of university students about the extent of drug spread is nearly three times higher than that of professors and lecturers, and this may be due to their proximity to each other and their knowledge of hidden things that may be absent from others.

The results of the study with respect to the reasons that prompted the university student to use drugs showed the following:

The responses of the respondents from the members of the sample showed that the most important causes of drug use are emptiness, bad companions, weak religious faith among students, the absence of the family's role in care and guidance, that the individual's separation from values and culture that prevails in society, the daily and life pressures that young people are exposed to, and the high standard of living of some youth, travel and employment Expatriate as well as poverty and lack of hand.

The results indicate that each of the variables (gender, age, occupation and educational level) have an effect on the respondents' opinions (p value <0.05 and with a confidence level of 0.95)

The results indicate that females are more convinced of the reasons that have been put forward and that lead to drug use, that the respondents 'conviction has no age-related factors, and that the educational level contributes to increasing the conviction among the respondents of the reasons for drug use among the university student. The results of the study with respect to the axis of the consequences of the spread of drugs among university students showed the following:

The study sample responses about the axis of the consequences of the spread of drugs among university students showed that the most important results are that the drug makes its users stripped of values and morals, and that the addict does not rely on offering, money, or honesty, as well as the large number of marital and family differences, increasing divorce rates, and cracking and

breaking up of the family to add to The tendency of the abuser to aggression, the practice of vice, the theft of fraud and fraud in society, and finally the financial burden on society as a result of treating addicts.

The results indicated that each of the variables (gender, age, occupation, and educational level) had an effect on the respondents' opinions.

The results indicate that females are less convinced of the consequences of drug proliferation among university students, and the results indicate that the respondents 'conviction of the results increases with increasing age and the growth of the educational level affects the respondents' conviction of the consequences of drug proliferation.

The results of the study with respect to the axis of the proposed solutions to reduce the spread of drugs among university students showed the following:

The responses of the sample members on the axis of the proposed solutions to reduce the spread of drugs showed that the most important solutions is to instill the values of Islam and fear of God in the hearts of children since childhood, in addition to encouraging children to practice sports and beneficial hobbies and making lectures in which those who are addicted to addiction and those who repent participate to narrate their suffering with drugs.

The results indicated that each of the variables (gender, age, occupation, and educational level) had an effect on the respondents' opinions.

The results indicate that males and females are close in their convictions regarding the proposed solutions to limit the spread of drugs in universities

The respondents 'conviction of solutions increases with increasing age and educational level growth, while the job does not affect respondents' conviction of solutions and proposals to reduce the phenomenon of drug proliferation in universities.

RECOMMENDATIONS

Official and popular recognition of the problem of drug use in Sudanese universities, so that study on solutions can begin.

1. Take the necessary steps and measures to prevent the increase in the percentage of users.
2. Inculcating the values of Islam in the hearts of children, working to develop them, and inculcating the concept of self-censorship over behavior.
3. Assign children to the extent that they are able to perform so that they do not become weary and bored.
4. Being keen on creating a good marital relationship, as a happy mother contributes to protecting her family members.
5. Schools and universities are interested in seminars and lectures that discuss drug problems and look at ways to solve them.
6. Interest of imams of mosques and preachers in dealing with community issues and problems, the most important of which is the issue of drugs in their sermons and explaining their danger to society.
7. The media, including radio, television, newspapers, and magazines, conducting awareness-raising campaigns that include serials, plays, dialogues, and others extensively, working to demonstrate the danger to society as a result of the drift of its youth towards the drug world.
8. The universities carry out scientific research that searches the root causes of the problem and explains the deficiencies that led to the exacerbation of the problem and ways to remedy it.
9. The inclusion of people recovering from addiction in awareness programs to narrate their suffering with drugs and the extent of the negative effects suffered by them as a result of abuse.

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