

75

Presentation date: February, 2022

Date of acceptance: May, 2022

Publication date: August, 2022

DETERMINATION

OF THE ASSOCIATION OF QUALITATIVE VARIABLES RELATED TO JUVENILE DELINQUENCY FACTORS, ECUADOR

DETERMINACIÓN DE LA ASOCIACIÓN DE VARIABLES CUALITATIVAS RELACIONADAS CON LOS FACTORES DE LA DELINCUENCIA JUVENIL EN ECUADOR

Iyo Alexis Cruz Piza¹

E-mail: ub.iyocruz@uniandes.edu.ec

ORCID: <https://orcid.org/0000-0002-9411-9672>

Manaces Easud Gaspar Santos²

E-mail: uq.manacesgaspar@uniandes.edu.ec

ORCID: <https://orcid.org/0000-0003-4929-4495>

María José Calderón Velásquez³

E-mail: ur.mariacalderon@uniandes.edu.ec

ORCID: <https://orcid.org/0000-0002-9382-7845>

¹ Universidad Regional Autónoma de Los Andes Babahoyo. Ecuador

² Universidad Regional Autónoma de Los Andes Quevedo. Ecuador

³ Universidad Regional Autónoma de Los Andes Riobamba. Ecuador

Suggested citation (APA, 7th ed.)

Cruz Piza, I. A., Gaspar Santos, M. E & Calderón Velásquez, M. J, (2022) Determination of the association of qualitative variables related to juvenile delinquency factors. *Revista Universidad y Sociedad*, 14(S4), 721-731.

ABSTRACT

The present study describes the main associations between the occurrence of crimes of robbery, homicide, assault, and vandalism in the face of exposure to risk factors for juvenile delinquency, according to the literature consulted. For this, expert knowledge is processed through the AHP multi-criteria decision method and statistical analysis for data validation. A random selection of 350 files of minors under 21 years of age processed during the year 2021 for causes attributable to homicide, robbery, property damage, and assault was carried out, as well as a bibliographic review to determine the study variables to be analyzed. It was observed that drug consumption is associated with the occurrence of vandalism, homicides, and robberies. Likewise, a statistically significant association was observed between belonging to criminal gangs and the occurrence of vandalism and robbery. The analysis carried out revealed the existence of significant relationships in terms of exposure to violent housing environments and the performance of robbery, vandalism, and assault in the young defendants. It was possible to observe the existence of a certain degree of association between child abuse and the occurrence of robbery and assault.

Keywords: risk factors, juvenile delinquency, AHP method; association, variables.

RESUMEN

El presente estudio describe las principales asociaciones entre la ocurrencia de delitos de robo, homicidio, asalto y vandalismo ante la exposición a factores de riesgo para la delincuencia juvenil, según la literatura consultada. Para ello, se procesa el conocimiento experto mediante el método de decisión multicriterio AHP y el análisis estadístico para la validación de los datos. Se realizó una selección aleatoria de 350 expedientes de menores de 21 años tramitados durante el año 2021 por causas atribuibles a homicidio, robo, daños a la propiedad y agresión, así como una revisión bibliográfica para determinar las variables de estudio a analizar. Se observó que el consumo de drogas está asociado a la ocurrencia de vandalismo, homicidios y robos. Asimismo, se observó una asociación estadísticamente significativa entre la pertenencia a bandas criminales y la ocurrencia de vandalismo y robos. El análisis realizado reveló la existencia de relaciones significativas en cuanto a la exposición a ambientes violentos en la vivienda y la realización de robos, vandalismo y agresiones en los jóvenes acusados. Se pudo observar la existencia de un cierto grado de asociación entre el maltrato infantil y la realización de robos y agresiones.

Palabras clave: factores de riesgo, delincuencia juvenil, método AHP; asociación, variables.

INTRODUCTION

One of the most worrying variants of criminal behavior is that carried out by young people and minors (Sanabria & Uribe, 2010). Of all the problems in which young people can be involved, this is one of those that promote the greatest concern and fear on the part of public opinion (Perera, 2016). The incursion of young people and adolescents into the different forms of delinquency from such an early age can lead to negative future consequences, both for them and for their environment (Anjaswarni et al, 2019).

Different behaviors can expose young people to the risk of the reaction of the justice system. However, the types of conduct that are considered illegal vary between different countries and even between states within the same country, as does the age limit for being classified as a juvenile (Bezi, 2021). In practice, the term delinquency usually refers to premeditated acts committed, which violate established social rules (Bobbio et al, 2020). Juvenile delinquency includes, from the legal point of view, the behaviors typified as crimes in the Penal Code, committed by minors. The definition of minority is a variable measure from one country to another. In general, young people between 14 and 18 years of age are considered as such (Loeber & Farrington, 2012).

Juvenile delinquency is a phenomenon that has gained an increasing boom, however, in the literature an absolute profile of a young offender is not identified (Corrado et al, 2019). In general, those who participate in one way or another in different offenses are not among a homogeneous group of people. In this sense, it has been observed that there is a wide diversity of backgrounds and characteristics in which they venture to give rise to the commission of the crime (Montero-Hernanz, 2014).

Various studies conducted on juvenile delinquency and antisocial behavior (Sijtsema & Lindenberg, 2018; Khanna et al, 2021), indicate a multi-causal nature of the phenomenon analyzed and indicate numerous risk factors that precipitate and enhance it. In addition to this, the psychocognitive characteristics of young people and adolescents place them in a stage of learning and evolution in which, apparently, young people explore and experience a variety of risky behaviors (Richmond-Rakerd et al, 2019).

The risk factors faced by a young person with a probability of turning into criminal behavior can be grouped into certain classification groups. On the one hand, those of a psychological nature can include low self-esteem, insufficient coping skills, anxiety, impulsiveness, low tolerance for frustration, cognitive rigidity, and external locus of control. On the other hand, family factors include family

instability, coercive, permissive, or ambivalent parenting styles, and inappropriate models. Social factors usually include certain conflicts in the environment of the young person or adolescent, exposure to antisocial models, marginalization, access to and use of drugs and narcotics, and lack of access to social support (Young et al, 2017).

As a result, negative consequences have influenced high levels of school dropouts, intimidation, lack of security in the streets and educational institutions, domestic violence, and others. Due to this, the interest of governments in the development of strategies that allow minimizing and promoting the prevention of delinquency in young people and adolescents is understandable (Włodarczyk-Madejska & Ostaszewski, 2021).

In Ecuador, as in many other regions, violence has been increasing in recent years. The area that includes the cantons of Guayaquil, Samborondón, and Daule is one of the most affected in this regard. The main problems that affect the security of the country are drug trafficking, murders, contract killers, domestic violence, femicides, assaults, and robberies. On the other hand, between January and July 2021, violent deaths grew 108% compared to 2019 and common robberies were reduced by 17%, although motorcycle and car robbery showed a slight increase. According to (Farrington et al, 2017), it has been shown that criminal acts are increasingly frequently carried out by minors. From 2014 to February 2021 in Ecuador, 869 adolescents were reported as material authors of murders or homicides. Likewise, in terms of levels of insecurity and internal violence, 2020 has the worst figures of the last six years.

In this way, along with the problem of organized crime, the consumption of psychoactive substances, and the various risk factors present in today's society, crime in youth is a daily activity (Aguilar & Pereda, 2022). In this context, the current situation is more than alarming. Thus, it is the responsibility of the state and legal and social institutions to establish mechanisms for the analysis and study of the main risk factors, as well as for the establishment of policies for the prevention and minimization of violence and delinquency in adolescents and minors.

The present work focuses on the adolescent population that is inserted in the criminal sector. So, with the completion of this study, it is intended to describe the main associations between the occurrence of crimes of robbery, homicide, assault, and vandalism in the face of exposure to risk factors for juvenile delinquency, according to the literature consulted. The work reflects a review of the social, economic, family, and individual conditions of young people prosecuted for different types of crimes. In order

to develop the proposal, some considerations of statistical logic and multicriteria decision methods are used, specifically the AHP.

Risk factors for violence and juvenile delinquency

As stated by (Abdel-Basset et al, 2018), risk factors are variables that can negatively affect people’s development. This means, in more specific terms, the presence of contextual or personal situations that increase the probability of developing emotional, behavioral, or health problems. These factors are usually crises in the individual, family, school, social, community, socioeconomic, cultural, and peer group environments (Saaty, 2008). Other voices point out that the elements of risk to promote criminal behavior in childhood and adolescence have to do with psychological or personal factors, among which are :

- Clandestine habits of behavior and lies.
- System of values different from the normalized ones.
- Acquisition of negative behavior patterns.
- Lack of social skills.
- Empathy problems.
- Lack of social sensitivity.
- Discipline problems at school.
- School maladjustment: school failure and dropout.
- Wrong decisions about their future.
- Inability to achieve normalized goals.
- Victim role.
- No access to culture in general.
- The street is seen as a space of freedom.
- Inadequate understanding of what is external to him.
- Lack of identification with the peer group at school.
- Need to brag; not to be afraid; to achieve some success.

Summarizes the main factors in 5 aspects with some of their fundamental areas, as shown in Figure 1.

Scopes	Variables
Individual	Consumption of drugs
	Personality traits (low tolerance for frustration, anxiety, distorted vision of reality, hostility, lack of emotional and social intelligence, etc.)
	Psychopathologies
	Certain biological characteristics of the hormonal and endocrine system, among others.
Relatives	Absence of limits, rules and control by parents
	Insecure attachment disorder developed in childhood
	Disparity of educational criteria of the parents
	Family conflicts, domestic violence
	Parental criminal behavior
	Parental drug addiction
	Child abuse
Living with people other than parents (with grandparents or extended family, in institutions, etc.)	
Relationship with peers	Experience of criminal acts with the peer group
	Have few friends
	Being part of a gang
Schoolchildren	School failure
	Learning difficulties
	School absenteeism or early school leaving
	Absence of rules in educational centers or lack of a comprehensive educational program
Socio-economic	Low economic level of the family and the environment
	Reside in a deteriorated neighborhood or with a high rate of poverty and/or crime
	High levels of unemployment in the environment
	High levels of crime in the environment
	Belonging to groups of social exclusion (ethnic minorities, single-parent household, unemployed parents or parents with few resources, etc.)
	Coming from cultures with high rates of violence
	Premature abandonment of the home, and immigration to other countries where one resides in an illegal situation

Figure 1: Risk factors for youth violence. Source.

MATERIALS AND METHODS

The mathematical model known as Analytical Hierarchy Process (AHP) is used as an effective way to define the factors of greatest influence and importance, according to the criteria of experts in the area (Saaty, 1987). This tool was created in the late seventies by Professor Saaty, a doctor of mathematics at Yale University. The AHP is a theory oriented towards the decision-maker and serves to identify the best alternative according to the allocated resources.

In multi-criteria analysis, the selection and adaptation of the tools used to achieve the stated objectives are very important. This method, due to its characteristics and the conditions of the study objectives, is optimal for the development of the desired analysis. In this way, the use of this tool is intended to address those aspects that are difficult to quantify, but that sometimes requires a unit of measurement (Saaty, 1987).

The AHP method allows measurements of both subjective and objective factors from numerical, verbal, or graphic estimates, which provides great flexibility. In this way, a

great variety of applications in fields extremely different from each other are allowed. On the other hand, the AHP approach is totally systemic, since, although it analyzes the decisions based on the hierarchical decomposition, at no time does it lose sight of the general objective and the existing interdependencies between the sets of factors, criteria, and alternatives. Thus, this method is focused on the system in general, and the solution it presents is for the whole, not for the particularity.

The proposed Saaty AHP methodology consists of the following steps:

- Prioritization of the elements of the hierarchical model (Table 1)
- Binary comparison of elements
- Evaluation of elements by assigning weights
- Ranking of the alternatives according to the given weights
- Synthesis
- Sensitivity analysis

Table 1: Saaty Rating Scale (Verbal Judgment Rate). Source: (Saaty, 2008)

Scale
9 Extremely Most Preferred
7 Very Powerfully Most Preferred
5 Powerfully Most Preferred
3 Moderately more preferred
1 Equally Preferred

An algorithm for calculating this is presented below (this must be applied to all criteria):

- For each line of the pairwise comparison matrix, determine a weighted sum based on the sum of the product of each cell by the priority of each corresponding alternative or criterion
- For each line, divide its weighted sum by the priority of its corresponding alternative or criterion
- Determine the mean λ_{max} of the result of the previous stage
- Calculate the consistency index (CI) for each alternative or criterion

$$CI = \frac{\lambda_{max} - m}{m - 1} \quad (1)$$

where m is the number of alternatives

- Determine the Random Index (RI) of Table 2

- Determine the consistency ratio index (the ratio of the consistency index to the random index)

Table 2: Random index for the calculation of the consistency coefficient. Source: (Saaty, 2008)

Number of alternatives for decision n	Random Index
3	0.58
4	0.9
5	1.12
6	1.24
7	1.32
8	1.41
10	1.49

In this case, the judgment of 5 experts is used. Each of them has participated in the treatment and solution of cases of violence or juvenile delinquency for more than 9 years, so their opinion regarding the study carried out is more than important. The AHP method is applied to determine the critical factors that, according to the opinion of experts, influence the occurrence and incidence of youth violence. Each of the experts is given a small form in which they must evaluate the incidence or influence of the different factors shown in Figure 1 on violence in young people and adolescents.

The results obtained are computed and taken to the arithmetic mean to obtain a single mean value for each of the alternatives. In this case, the method of comparison by importance is used, since it is considered more effective given the information that is sought to be obtained. The results obtained from this method constitute the basis on which the statistical analysis is developed.

The statistical analysis performed is carried out for a 95 percent level of significance. For the analysis of the information, the Chi-square test is performed to evaluate the level of association of the variables analyzed. In the distributions that do not find statistical significance, the indicated tests will not be continued. The database was made with the support of Microsoft Excel.

To perform the calculation of the Chi-square statistician, the equation shown is used

$$\chi^2 = \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad (2)$$

Where O_{ij} are the observed values and, E_{ij} corresponds to the expected values.

The study was carried out with the support of the judicial units of the province of Guayaquil, where the documentary review and information collection were carried out. The random selection of 350 files of minors under 21 years of age processed during the year 2021 for causes attributable to homicide, robbery, damage to property, and assault was carried out. The data collected was coded and categorized for a better understanding and facilitation of information processing.

The data obtained through the review of the files is carried out in the presence and with the help of a work team specialized in the subject, as well as empowered to do so. The personal information of the data contained in the files is not disclosed, to guarantee the anonymity of minors.

RESULTS

The use of the AHP method through the criteria of the experts allows determining those factors that are of greater relevance according to the experience compiled by them. In this sense, the evaluated criteria are analyzed by pairwise comparisons to obtain the priority vector of the criteria as shown in Table 3.

Table 3: Vector of priorities obtained according to the analysis carried out by the experts on the criteria. Source: own elaboration

Criteria	Priorities Vector	Consistency Indicators
Relatives	0.3906	
Economic partner	0.2559	Eigenvalue = 5.4322
Relationship with peers	0.1587	Consistency Ratio = 0.0974
Individual	0.1223	
Schoolchildren	0.0724	

Subsequently, the realization of a vector of priorities is sought to obtain the relative importance of each of the dimensions incorporated within the factors analyzed. In this way, Table 4 shows the relationship obtained in terms of priority vectors and consistency indicators for each of the dimensions analyzed.

Table 4: Vector of priorities obtained according to the analysis carried out by the experts on the dimensions of the criteria. Source: own elaboration

Dimensions	Priorities Vector	Consistency indicators
Consumption of drugs	0.332	Eigenvalue = 4.0328 Consistency Ratio = 0.012
Conditioning personality traits	0.291	
Psychopathologies	0.291	
Biological characteristics of the hormonal system	0.086	
Absence of limits by parents	0.082	Eigenvalue = 8.848 Consistency ratio = 0.0866
Insecure attachment disorders from childhood	0.033	
Disparity of educational criteria of the parents	0.035	
Conflicts or domestic violence	0.174	
Parental delinquency	0.187	
Parental drug addiction	0.174	
Child abuse	0.290	
Living with people other than the parents	0.024	Eigenvalue = 3.039 Consistency Ratio = 0.0389
Crimes committed in the group of friends	0.260	
Child abuse	0.106	
Membership in criminal gangs	0.633	

School failure	0.375	Eigenvalue = 4.26458 Consistency ratio = 0.0991
Learning deficiencies	0.087	
School dropout or absenteeism	0.279	
Poor institutional educational system	0.258	
Poverty in the family environment	0.059	Eigenvalue = 7.3347 Consistency ratio = 0.0413
High rate of poverty and/or crime in the housing environment	0.083	
High level of unemployment in the environment	0.065	
High level of crime in the residential environment	0.326	
Social exclusion	0.075	
Belongs to a culture with a high rate of violence	0.326	
Early leaving home	0.065	

Table 5 shows the general results obtained when applying the method. As can be seen, within the individual factors, the factor that has the greatest overall weight is drug consumption. When considering the elements related to family factors, it is observed that intra-family conflicts or violence, the existence of parental delinquency, parental drug addiction, and child abuse constitute some of the most significant elements.

Table 5: AHP analysis result. Source: own elaboration

Factors	Dimensions	Local Importance	Factor Weight	Overall Importance
Individual	Consumption of drugs	0.332	0.122	0.041
	Conditioning personality traits	0.291		0.036
	Psychopathologies	0.291		0.036
	Biological characteristics of the hormonal system	0.086		0.011
Relatives	Absence of limits by parents	0.082	0.391	0.032
	Insecure attachment disorders from childhood	0.033		0.013
	Disparity of educational criteria of the parents	0.035		0.014
	Conflicts or domestic violence	0.174		0.068
	Parental delinquency	0.187		0.073
	Parental drug addiction	0.174		0.068
	Child abuse	0.290		0.113
	Living with people other than the parents	0.024		0.009
Relationship with peers	Crimes committed by a group of friends	0.260	0.159	0.041
	Child abuse	0.106		0.017
	Membership in criminal gangs	0.633		0.101
Schoolchildren	School failure	0.375	0.072	0.027
	Learning deficiencies	0.087		0.006
	School dropout or absenteeism	0.279		0.020
	Poor institutional educational system	0.258		0.019

Socioeconomic	Poverty in the family environment	0.059	0.256	0.015
	High rate of poverty and/or crime in the housing environment	0.083		0.021
	High level of unemployment in the environment	0.065		0.017
	High level of crime in the residential environment	0.326		0.083
	Social exclusion	0.075		0.019
	Early leaving home	0.326		0.083
	Belongs to a culture with a high rate of violence	0.065		0.017

Within the *Relationship with peers* factor, it is observed that the association with criminal gangs also constitutes an element considered of great weight by the experts. Finally, within the *socioeconomic* factor, *belonging to neighborhoods or violent environments*, as well as *premature abandonment of the home*, are considered potential risk situations.

Taking into account the analysis carried out and obtained from the criteria of the experts, we proceed to carry out the statistical analysis, to validate or verify the results obtained by the indicated experts. Table 6 shows the distribution of the factors analyzed according to sex.

Table 6: Factors analyzed according to gender. Source: own elaboration

Analyzed factors	Female	%	Male	%
Consumption of drugs	54	58.70%	206	79.84%
Conflicts or domestic violence	33	35.87%	163	63.18%
parental delinquency	56	60.87%	187	72.48%
parental drug addiction	57	61.96%	198	76.74%
Child abuse	49	53.26%	209	81.01%
Membership in criminal gangs	51	55.43%	208	80.62%
High level of crime in the residential environment	64	69.57%	171	66.28%
Belongs to a culture with a high rate of violence	42	45.65%	124	48.06%

Of the total files analyzed, 105 correspond to crimes of assault, 20 to homicides, 109 to robberies, and 116 to vandalism. Of them, 26.28% corresponded to crimes caused by young women, while 73.72% corresponded to young men. Among the cases analyzed, it was observed that drug use was more prevalent in males, for 79.8%, while 58.7% of females, who were also drug users. 63.2% of the boys developed in an environment of intra-family conflict, while this was the same situation for 35.9% of the girls.

Likewise, 60.9% of the girls and 72.5% of the boys present at least one case of a family situation with a previous criminal record; while 62% of the young women and 77.7% of the young men analyzed have at least one of their parents or guardians who are drug users. On the other hand, 53.26% of the girls, analyzed by reviewing the files, suffered child abuse; in the case of boys, the proportion reaches 81.01%.

According to the analyzed data, 55.43% of the young females belonged to criminal gangs or had some kind of association with them; as well as 80.62% of the young people analyzed. In both sexes, more than 65% of young people have been affected by a violent or criminal housing environment, such is the case of 69.57% of young women, as well as 66.68% of young men. Finally, 36.96% of the young women, as well as 36.43% of the young men, have suffered the experience of abandoning their home or do not live with their parents.

To determine if there are association relationships between the analyzed variables, the Chi-square test is carried out, for a maximum risk level of 5%. For this, equation (2) is used. It is assumed, in all cases, that the null hypothesis refers to the non-existence of a relationship between the variables, while the alternative hypothesis assumes the existence of a relationship between the variables.

Table 7 shows a summary of the results achieved in this regard. As shown in the analysis performed, in all cases the value of the experimental statistician is higher than the critical value of the Chi-square distribution, so it can be assumed,

with a 95% confidence level, that, statistically, there is a high probability of relationship between the dimensions analyzed and the occurrence of crimes.

Table 7: χ^2 statistician calculated for each of the dimensions analyzed. Source: own elaboration

	Experimental χ^2	GI	critical χ^2	P-value
Consumption of drugs	34.5415069	3	7,851	0.017
Parental delinquency	28,655	3	7,851	0.001
Parental drug addiction	22,878	3	7,851	0.001
Child abuse	69.1965069	3	7,851	0.001
Membership in criminal gangs	72.2206978	3	7,851	0.001
High level of crime in the residential environment	58.0648883	3	7,851	0.001
Home abandonment	44.6572	3	7,851	0.001

Regarding the types of crime and their relationship with the different variables, Table 8 summarizes the most significant aspects. In this way, it was observed that drug use was higher in young people who committed vandalism (91%), followed by those who committed homicide (85%). Although less high values are observed, the consumption of 69% of the young people who committed robberies and 58% of those who committed assault is equally significant.

Table 8: Relationship of the crimes committed in the most influential variables. Source: own elaboration

	Homicide			Vandalism			Robbery			Assault		
	F	%	P-value	F	%	P-value	F	%	P-value	F	%	P-value
Consumption of drugs	17	85%	0.017	106	91%	0.0001	76	70%	0.0001	61	58%	0.0971
Conflicts or domestic violence	8	40%	0.371	84	72%	0.0001	42	39%	0.0166	62	59%	0.6370
Parental delinquency	9	45%	0.655	94	81%	0.0001	81	74%	0.0001	59	56%	0.2046
Parental drug addiction	3	15%	0.002	92	79%	0.0001	81	74%	0.0001	79	75%	0.0001
Child abuse	13	65%	0.180	56	48%	0.7103	106	97%	0.0001	83	79%	0.0001
Membership in criminal gangs	14	70%	0.074	97	84%	0.0001	98	90%	0.0001	50	48%	0.6256
High level of crime in the residential environment	6	30%	0.074	101	87%	0.0001	96	88%	0.0001	32	30%	0.0001
Home abandonment	1	5%	0.0001	46	40%	0.0259	46	42%	0.1035	8	8%	0.01%

On the other hand, the presence of family conflicts or domestic violence was found in young people who committed crimes of vandalism, for 72.4%, while 59% of those accused of assault also suffered from family conflicts. Regarding child abuse, it is observed that it is expressed more strongly in vandalism, since about 81% of the young people who committed vandalism suffered child abuse, as did 74.3% of those who were penalized for robbery. More than 50% of the young people who committed assault are also within this category.

The data obtained show a high incidence of criminal or delinquent gangs. 79% of the boys prosecuted for vandalism belonged to a gang or criminal organization; as well as 75% of those prosecuted for assault and 74% of those prosecuted for robbery. The lowest incidence in this aspect was observed in the case of homicides, in which only 15% of the young people prosecuted had some relationship with criminal groups or gangs.

Regarding crime in the residential environment, the data show that this is higher in young people prosecuted for robbery since 97% of these young people come from problematic environments with high levels of crime. Similarly, 79% of the cases prosecuted for assault are found, as are 65% of the cases prosecuted for homicide. On the other hand, it is

observed that there is no strong association between the abandonment of the home and homicide, while 42% of those who committed robbery were abandoned or ran away from home.

The grouping of the data shown in Figure 2, shows more clearly the existence of a higher proportion of drug use (85%) and belonging to criminal gangs in the case of homicides (70%); drug use (91%), and high level of crime in the residential environment (87%) in vandalism; child abuse (97%), belonging to criminal gangs (90%) and crime in the environment (88%) in cases of robbery; and child abuse (79%) and parental drug addiction (75%) in prosecuted assault cases.

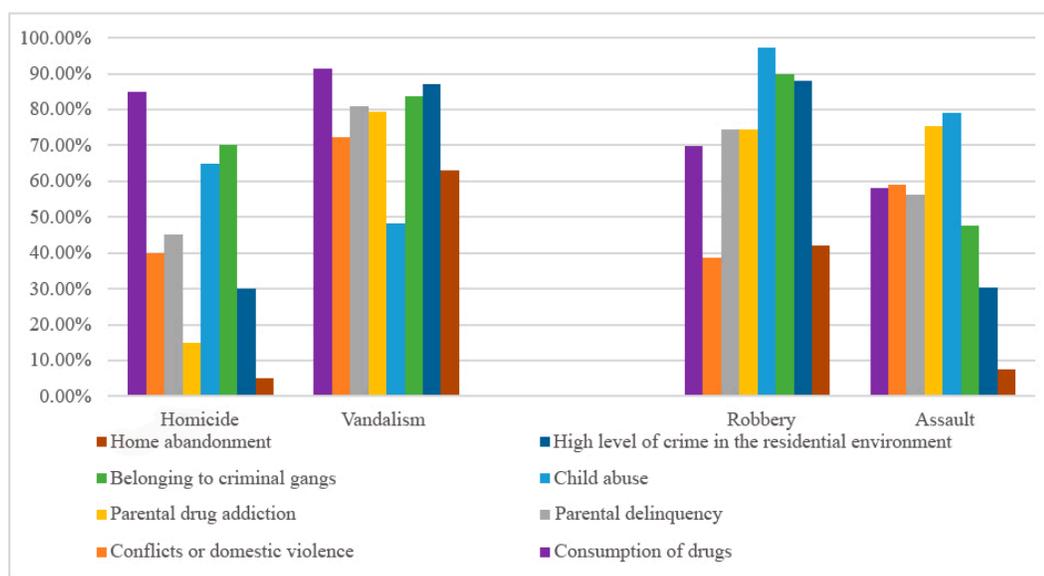


Figure 2: Variables analyzed according to the type of crime committed. Source: own elaboration

DISCUSSION

As could be seen, drug use in the analyzed sample is very high. This characteristic is usually in accordance with the occurrence of crimes of various kinds, as well as associated with criminal behavior in groups or gangs. In the analyzed case, it can be verified that this variable is associated with the occurrence of vandalism, homicides, and robberies. No statistical evidence was found to support the association between this variable and the occurrence of assault.

On the other hand, through the analysis carried out, it was possible to verify the influence that the association of young people in gangs or delinquent groups can have. More than 65% of the young people prosecuted for vandalism, homicide, or robbery belonged to gangs or groups with criminal associations. In recent years, youth gangs have become especially relevant in Central America, becoming both a problem of public insecurity and an object of concern for governments and of fear among the population.

The violence and brutality displayed by some current gangs are unprecedented. In the cases analyzed, a statistically relevant association was observed in terms of the occurrence of vandalism and robbery. This is consistent with what was expressed by (Jütersonke et al, 2009), referring to the fact that the juvenile crime rate tends to increase when affiliations with criminal gangs arise.

The high levels of delinquency in the housing environment of the young people analyzed are also a notorious characteristic to be analyzed. Both in cases of vandalism and cases of robbery, high levels of presence of young people who suffered violence in their environment or who grew up in a similar situation were observed. The analysis carried out shows that for both the cases of robbery, vandalism and assault, there are significant associations that could explain or influence this aspect.

Child abuse in the analyzed sample was one of the most predominant variables. According to, the consequences of child abuse become visible in the medium and long term in the physical and psychosocial development of the affected children. This type of situation can lead to learning problems, aggressiveness, and bad behavior, which can turn

into various psychosocial problems and become various types of delinquency.

More than 60% of the cases analyzed in the study prosecuted for homicide, robbery, or assault suffered some type of child abuse before. The analysis carried out allowed us to observe the existence of a certain degree of association between child abuse and the occurrence of robbery and assault by young people.

CONCLUSIONS

Youth violence, and with it the rates of juvenile delinquency has increased dramatically in recent years. The present work allowed the realization of a descriptive study to determine the association between variables of interest related to the occurrence of certain types of crimes. A bibliographic review of the specialized literature was carried out to obtain an approximation as accurate as possible of the different factors that have an impact on the emergence or triggering of juvenile delinquency.

The knowledge of experts in the field was used to determine the factors with the highest incidence, using the AHP multicriteria method. The validation of the data obtained was carried out using statistical analysis. The Chi-square test was used to verify the association between the variables. It is observed that, in the analyzed group, drug use is associated with the occurrence of vandalism, homicides, and robberies. Likewise, a statistically significant association was observed between belonging to criminal gangs and the occurrence of vandalism and robbery.

The analysis carried out also revealed the existence of significant relationships in terms of exposure to violent housing environments and the performance of robbery, vandalism, and assault in the young defendants. Finally, it was possible to observe the existence of a certain degree of association between child abuse and the occurrence of robbery and assault that could explain or influence this aspect.

BIBLIOGRAPHIC REFERENCES

- Abdel-Basset, M., Mohamed, M., & Smarandache, F. (2018). An extension of neutrosophic AHP-SWOT analysis for strategic planning and decision-making. *Symmetry*, 10(4), 116. <https://www.mdpi.com/2073-8994/10/4/116/pdf?version=1526286128>
- Aguilar, R., & Pereda, N. (2022). Exposure to family violence and risk factors for recidivism in juvenile offenders. *Victims & Offenders*, 17(2), 219-237. <https://www.tandfonline.com/doi/abs/10.1080/15564886.2021.1888168>
- Anjaswarni, T., Nursalam, N., Widati, S., & Yusuf, A. (2019). Analysis of the Risk Factors Related to the Occurrence of Juvenile Delinquency Behavior. *Jurnal Ners*, 14(2).
- Bezi, R. (2021). Juvenile delinquency in the Balkans: A regional comparative analysis based on the ISRD3-study findings. *Duncker & Humblot*. https://pure.mpg.de/pubman/faces/ViewItemOverviewPage.jsp?itemId=item_3291627
- Bobbio, A., Arbach, K., & Illescas, S. R. (2020). Juvenile delinquency risk factors: Individual, social, opportunity or all of these together?. *International journal of law, crime and justice*, 62, 100388. <https://www.sciencedirect.com/science/article/abs/pii/S1756061619302800>
- Corrado, R., Peters, A., & Mathesius, J. (2019). The Serious and Violent Young Offender: Examining the Multi-Domain Risk Profile, Mental Health, and Treatment Intervention Strategies. *The Wiley International Handbook of Correctional Psychology*, 221-234.
- Farrington, D., Gaffney, H., & Tfofi, M. (2017). Systematic reviews of explanatory risk factors for violence, offending, and delinquency. *Aggression and violent behavior*, 33, 24-36. <https://www.sciencedirect.com/science/article/abs/pii/S1359178916301975>
- Jütersonke, O., Muggah, R., & Rodgers, D. (2009). Gangs, urban violence, and security interventions in Central America. *Security dialogue*, 40(4-5), 373-397. <https://journals.sagepub.com/doi/abs/10.1177/0967010609343298>
- Khanna, G., Medina, C., Nyshadham, A., Posso, C., & Tamayo, J. (2021). Job Loss, Credit, and Crime in Colombia. *American Economic Review: Insights*, 3(1), 97-114.
- Loeber, R., & Farrington, D. (2012). *From juvenile delinquency to adult crime: Criminal careers, justice policy and prevention*. Oxford university press. https://books.google.es/books?hl=es&lr=&id=QfxQEAAQBAJ&oi=fnd&pg=PP1&dq=R.+Loeber+and+D.+P.+Farrington,+From+juvenile+delinquency+to+adult+crime:+Criminal+careers,+justice+policy+and+prevention.+Ney+York:+Oxford+university+press,+2012.&ots=vrHt98U5X7&sig=XofaabwhySv7_aUbB3m6v-QUNgU#v=onepage&q=R.%20Loeber%20and%20D.%20P.%20Farrington%2C%20From%20juvenile%20delinquency%20to%20adult%20crime%3A%20Criminal%20careers%2C%20justice%20policy%20and%20prevention.%20Ney%20York%3A%20Oxford%20university%20press%2C%202012.&f=false

- Montero-Hernanz, T. (2014). Juvenile delinquency in Spain (2007-2012). *Revista criminalidad*, 56(2), 247-261. <http://www.scielo.org.co/pdf/crim/v56n2/v56n2a05.pdf>
- Perera, H. (2016). The role of trait emotional intelligence in academic performance: Theoretical overview and empirical update. *The Journal of psychology*, 150(2), 229-251. <https://www.tandfonline.com/doi/abs/10.1080/00223980.2015.1079161>
- Richmond-Rakerd, L., Caspi, A., Arseneault, L., Baldwin, J., Danese, A., Houts, R., & Moffitt, T. (2019). Adolescents who self-harm and commit violent crime: testing early-life predictors of dual harm in a longitudinal cohort study. *American journal of psychiatry*, 176(3), 186-195. <https://ajp.psychiatryonline.org/doi/pdf/10.1176/appi.ajp.2018.18060740>
- Saaty, R. (1987). The analytic hierarchy process—what it is and how it is used. *Mathematical modelling*, 9(3-5), 161-176. <https://www.sciencedirect.com/science/article/pii/0270025587904738>
- Saaty, T. (2008). Decision making with the analytic hierarchy process. *International journal of services sciences*, 1(1), 83-98. https://www.researchgate.net/profile/Mohamed-Mourad-Lafifi/post/Problem-with-sub-criteria-code-for-multiple-decision-makers/attachment/59d644d679197b80779a0074/AS%3A450351808684033%401484383646403/download/Decision+making+with+the+analytic+hierarchy+process+Saaty_2008.pdf
- Sanabria, A., & Uribe, A. (2010). Psychosocial risk factors associated with problem behaviors in young offenders and non offenders. *Diversitas: Perspectivas en Psicología*, 6(2), 257-274. <http://www.scielo.org.co/pdf/dpp/v6n2/v6n2a05.pdf>
- Sijtsema, J., & Lindenberg, S. (2018). Peer influence in the development of adolescent antisocial behavior: Advances from dynamic social network studies. *Developmental Review*, 50, 140-154. <https://www.sciencedirect.com/science/article/abs/pii/S0273229717300527>
- Włodarczyk-Madejska, J., & Ostaszewski, P. (2021). Determinants of the Judicial Response to Juvenile Delinquency. *International Journal of Criminal Justice Sciences*, 16(1), 201-216. <https://www.proquest.com/openview/fccd1706d901e86bcea5a0168a7f0b6a/1?pq-origsite=gscholar&cbl=55115>
- Young, S., Greer, B., & Church, R. (2017). Juvenile delinquency, welfare, justice and therapeutic interventions: a global perspective. *BJPsych bulletin*, 41(1), 21-29. <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/EC2354DA185D34599D131E4B0A003CF5/S2056469400002977a.pdf/juvenile-delinquency-welfare-justice-and-therapeutic-interventions-a-global-perspective.pdf>