Bullying and legal and illegal drug use in adolescents: a systematic review

Abstract
The objective was to examine the relation between bullying and legal and illegal drug use in adolescents, using data bases such as EBSCO CINAHL, EBSCO Academic Research complete, MEDLINE, Elsevier, Springer, Cochrane, PUBMED, as well as in sources of grey literature like Open Access, with the descriptors: drug abuse, drug addiction, drug dependence, bullying, cyberbullying, young adolescence, among others, in the month of October of 2016. The results obtained showed that men are the principal actors of bullying and that the aggressors in their majority are drug consumers, besides the increase in age decreases the probability of being a victim, but increases the probability of being an aggressor.

Keywords: bullying, drug abuse, adolescent

Introduction
Legal and illegal drug use is a public health problem that has increased as the years go by; its use, abuse, and dependence affects all society with physical, psychological, social, and school problems. Diverse studies have shown that tobacco and alcohol are initial consumption drugs and these drugs are the gateway to the consumption of other drugs like marijuana, cocaine, heroin, methamphetamine, among others.1–3

In Mexico legal and illegal drug use in the last years has increased, the Encuesta Nacional de Adicciones (ENA) reported as age of onset of consumption at 13.7 years on average, which manifests that adolescents are a vulnerable group to acquire these risky behaviors, due to the fact that in this stage they find themselves in a growing need for autonomy and experimentation, where they reject adults protection and they are exposed to situations and behaviors that put them at risk; in the need of feeling special or accepted, which may lead them to believing or feeling invulnerable.2,4

According to the type of consumption the ENA reported that 2042 adolescents have consumed tobacco some time in their life, of these 68.6% started consumption out of curiosity and 24.1% by influence of others, in the month of October of 2016. The results obtained showed that men are the principal actors of bullying and that the aggressors in their majority are drug consumers, besides the increase in age decreases the probability of being a victim, but increases the probability of being an aggressor.2,4

The onset of drug use is associated with diverse risk factors, within the main are found, low and high self-esteem, friends and parents that are consumers, under self-control, low school adherence, dysfunctional family relationships, curiosity, lack of religious support, Social permissiveness and accessibility.3,5–7 Recently diverse studies have documented the association between bullying and drug consumption; bullying is defined as the intentional aggression that persists in time and leads to an imbalance of power.3 In a longitudinal study carried out by Kim, Catalano, Haggerty and Abboutt it showed how the children that were victims of bullying were associated significantly to excessive alcohol and marijuana consumption at the age of 21. Nevertheless, other studies mention that drug consumption is an important factor to be an intimidator.10,11

In Mexico, between 20 and 32% of the school population from 10 to 21 years old are exposed to violence, the students in elementary with an 8.8% and Jr. high scholars with a 5.6%, being the constant mockery the main kind of violence practiced, followed by physical injuries and harassment. The places where these practices take place are mainly; in classrooms, in sports fields, in the patio, in the hallways, the restrooms, the cafeteria, and the streets, due to the fact that the aggressors continues to bully outside the school area.12,13

Generally the person being bullied is considered weak because of their age, sex, social class, race, ethnicity, for having different capacities or some type of social stigmatized label (“the Dummy, Lazy”), sexual orientation, religion and beliefs, among others. Bullying is accompanied by silence, by both the aggressor and the victim and the people that were witnesses; nobody does or says anything, the person being bullied lives terrified and afraid.14,15

The aggressive behavior between students is a common and universal problem, traditionally accepted as a natural phenomenon which the majority of the time the adequate attention is not paid. Nevertheless, bullying can have immediate or late effects in general or mental health by which it is necessary to implement precautionary measures to achieve a healthy and safe social coexistence between the adolescents more than anything it requires attention for the association with substance use and abuse in adolescents as for the aggressor and the victim. Therefore, according to the established above the following objective was proposed.

Objective
Evaluate the evidence available about the relation of bullying with legal and illegal drug use in adolescents.
Method

The process of synthesis of the literature was carried out based on
the proposed model by Cooper, which is divided into seven steps that
contemplate: the formulation of the problem, la search for literature,
gather the information of the studies, the evaluation of the quality of
the studies, analyze and integrate the results, interpret the evidence
and present the results.

The search for the literature was done based on the publications
made in the last 10 years, from January 2006 to 2016. The location of
the publications was done in the month of October in the following
data bases: EBSCO CINAHL, EBSCO Academic Search Complete,
MEDLINE, Elsevier, Springer, Cochrane, PUBMED, as well as
in sources of gray literature like Open Access, mainly collecting
correlational and prospective studies with the following descriptors
taken from MeSH (Medical Subject Headings): drug abuse, drug
addiction, drug dependence, drug habituation, drug usage, drug use
disorders, substance dependence, substance use disorder, organic
mental disorders, substance- induced, substance abuse, substance
addiction, substance dependence, substance use disorder, bullying,
cyber bullying, young, adolescence, adolescent and teen.

The main criterion of inclusion in the studies was the relation of
bullying cyber bullying and legal and illegal drug use in adolescent
of both genders. To select the studies first the reading of the titles
was done, second the reading of the abstract was done on the studies
selected, where the studies that met with the criteria of inclusion
were identified and finally the critical reading of the complete text
was done, where a table of evaluation of bias was designed by the
investigators Annex 1.

Annex 1 Table of evaluation of bias.

| Characteristics                                    | E1 | E2 | E3 | E4 | E5 |
|---------------------------------------------------|----|----|----|----|----|
| Probabilistic Sample                              |    |    |    |    |    |
| Size of the sample                                |    |    |    |    |    |
| The congruence of the independent variable at the beginning and at the end of the study |    |    |    |    |    |
| Clarity of the criteria                           |    |    |    |    |    |
| The instrument reports                            |    |    |    |    |    |
| Reliability in the collection of data             |    |    |    |    |    |
|Congruence between the hypotheses and the objectives. |    |    |    |    |    |

In this table of evaluation of bias the following sections were
included: characteristic of the sample, size of the sample, potential,
effect, confidence interval, non-response cup, the congruence of the
independent variables at the beginning and at the end of the study,
clarity in the criteria of inclusion, exclusion and elimination, the alpha
reported for the instrument and its validity, reliability in the collection
data in addition to the congruence between the hypotheses and the
objectives.

The flow chart of QUORUM (Quality of Reporting of Meta-
analyses) is presented below, where the technique of selection of the
studies included in the revision is shown Figure 1.

Results

From the 23 studies analyzed the results were classified in two
forms, the first one referenced the type of actor (aggressor or victim)
and drug consumption Table 1 and the second one is by gender and
relation with the type of actor in bullying Table 2.

According to the studies analyzed by Luke et al. victimization is
associated positively with substance use in men and in both men and
women. In women’s case it was found depression as a mediating role
in the association between victimization and substance use.

Figure 1 QUORUM/Selection of the studies.

Citation: Ahumada-Cortez JG, Gámez-Medina ME, Valdez-Montero C, et al. Bullying and legal and illegal drug use in adolescents: a systematic review. Nurse Care Open Acces J. 2017;3(4):297 - 302. DOI: 10.15406/ncoaj.2017.03.00082
### Table 1 Actor and drug consumption

| Authors/year         | Population/sampling                                                                 | Actor  | Drug Legal | Drug Illegal |
|----------------------|--------------------------------------------------------------------------------------|--------|------------|--------------|
| Wright EEUU          | 867 eighth grade students (middle school)                                            | Victim | *Alcohol   | *Marihuana   |
| Ringwalt et al. EEUU | 53,750 middle school and high school sixth, seventh and eighth grade students       | Victim | *Alcohol   | *Marihuana   |
| Luk et al. EEUU      | 1,495 tenth grade students                                                           | Victim | *Alcohol   | *Marihuana   |
| Mitchell et al. EEUU | 1,501 adolescents from 10-17 years of age                                            | Victim | *Alcohol   | *Marihuana   |
| Morris et al.        | 3,312 adolescents from 14-16 years of age                                            | Agressor| *Alcohol   | *Marihuana   |
| Kim et al. EEUU      | 518 youths with a median age of 21.52                                               | Victim | *Alcohol   | *Marihuana   |
| Fleming et al.Virginia, EEUU | 104,614 (19 countries) Adolescents from 13-15 years of age | Victim | *Tobacco   | *Drugs       |
| Toppe et al.         | 324 students of high school                                                           | Victim | *Alcohol   |              |
| Azadga Canada        | 28,843 eighth grade students                                                          | Victim | *Alcohol   |              |
| Carmona-Torres et al. | 960 students (adolescents)                                                            | Agressor| *Alcohol   | *Cocaine, *Marihuana, *MDMA |
| Harlow et al. New Jersey-Texas, EEUU | 1,002 students from 6, 8, 10 y 12 grade                                               | Victim | *Alcohol   | *Any drug    |
| Luukkonen et al.     | 508 adolescents from 12-17 years of age                                              | Victim | *Tobacco   | *Marihuana   |
| McKenna et al. Massachussetts, EEUU | 5,807 students from middle and Jr. high school                                          | Agressor| *Alcohol   | *Any drug    |
| Kelly, et al. Conrod & Teeson, Australia | 1,888 Jr. High school students                                                       | A-V    + Agresso | *Tobacco   | *Marihuana   |
| Méndez et al.        | 886 Jr. High school students                                                          | Victim | *Alcohol   | *Cocaine     |
| Hertz et al. EEUU    | 13,846 ninth and tenth grade students                                                | Victim | *Alcohol   | *Any drug    |
| Forster et al. EEUU  | 1,167 ninth grade students                                                            | Victim | *Tobacco   | *Any drug    |
| Litwiller et al. EEUU | 4,693 high school students                                                            | Victim | *Alcohol   | *Any drug    |
| Luk et al. EEUU      | 7,508 students from 6th to 10th grade                                               | Agressor| *Alcohol   | *Marihuana   |
| Niemelä et al. Finlandia | 2,946 18 year old adolescents                                                        | Victim | *Tobacco   | *Marihuana   |
| Russell et al. EEUU  | 245 Youth from 21-25 years, 13-19 years who have suffered bullying                    | Victim | *There was no relation | *There was no relation |
| Sullivan et al. EEUU | 276 jr. High school students                                                          | Victim | *Alcohol   | *Marihuana   |
| Tharp-Taylor et al. EEUU | 926 adolescents from 11-14 years old from a jr. high school                          | Victim | *Alcohol   | *Marihuana   |

**Citation:** Ahumada-Cortez JG, Gámez-Medina ME, Valdez-Montero C, et al. Bullying and legal and illegal drug use in adolescents: a systematic review. *Nurse Care Open Acces J*. 2017;3(4):297-302. DOI: 10.15406/ncoaj.2017.03.00082
Table 2 Sex and bullying position

| Authors/Year       | Population/Sample                             | Sex | Aggressor | Victim | A-V |
|--------------------|-----------------------------------------------|-----|-----------|--------|-----|
| Fleming et al. EEUU 21 | 104,614 (19 countries) Adolescents 13-15 años | Men | *         |        |     |
| Luk,Yang et al. EEUU 22 | 7,508 sixth and tenth grade students         | Men | *         |        |     |
| Luk,Yang et al. EEUU 22, 27 | 1,495 tenth grade students                  | Men | *         | Women  | *   |
| McKenna Massachusetts, EEUU 11 | 5,807 Intermediate nd jr. High school students   | Men | *         |        |     |
| Méndez et al. 20 | 886 jr. High school students                  | Men | *         | *      |     |
| Morris et al. 21 | 3,312 14-16 year old adolescents              | Men | *         | Women  | *   |
| Sullivan et al. EEUU 25 | 276 Jr. High school students                | Men | *         |        |     |
| Tharp-Taylor et al. EEUU 26 | 926 11-14 jr. High school students         | Men | *         |        |     |

Note:*=Relation

Mitchell et al. 25 found that the victims of bullying informed having consumed 3 or more legal substances, also the victims of online violence (internet/cyber bullying) and not online (harassment) have twice as more probabilities to report consumption than those who did not present violence. The victims that only reported violence online have 2.6 more probability to report substance consumption.

It was also found that either men or women smoker have a higher possibility of being an aggressor and a less probability of being victims in comparison to those who are non-smokers, in addition to that as the age increases the probability of being an aggressor increases. 21 Azagba reported that the students involved in bullying have 1.48 times more provability of consuming tobacco than those who are not involved in bullying. Likewise, it is mentioned that the aggressors (bully) (OR=1.93, 95% CI=1.42-2.63), the victims (OR=1.31, 95% CI=1.14-1.50) and the bully-victims (OR=1.75, 95% CI=1.45-1.67) have a higher possibility of consuming tobacco. 24 On the other hand Kelly found that the consumption of marihuana increased the possibility of being a victim of bullying and the consumption of alcohol reduces the probability of being a victim. Also the consumers of alcohol increased the probability of being an aggressor (bully) and the consumers of tobacco and marihuana increased the probability of becoming a bully-victim. 28

Kim et al. 9 from their part they found that the youth that were intimidated in their childhood were associated with the risk in developing violent behaviors or with behavior problems in late ages and with the substance use like alcohol and marihuana in excessive form, unlike in the study conducted by Niemelä et al. 23 they found that children that were victims of bullying in their childhood was only related to daily tobacco consumption and in large quantities.

In relation to sex it was found that boys have a higher possibility of being intimidated in comparison to girls and this at the same time have a higher probability of developing risky behaviors.22,26,28 Other studies agreed with these findings but also it was referred that men are more likely to be abusers and victims.10,11,21

Litwiler et al. 31 reported that physical bullying obtained a positive significant relation with substance use, violent behavior, sexual behavior, and suicide behavior. In the examination of the portion of the mediate effects it showed that 50% of the total effect of physical bullying in the suicide behavior was mediated by substance use and violent behaviors.31

Carmona-Torres et al. 23 reported that the aggressor presented a significant alcohol, tobacco and marihuana consumption. Méndez et al. 10 found that the aggressors referred a polyconsumption of drugs like alcohol and marihuana or alcohol and cocaine, this without having spent more than two hours since the consumption from one to another, also they referred that the majority of the times that they had been involved in a fight or physical aggression they had consumed alcohol or marihuana.

Hertz et al. 29 found that the women were more susceptible to being victims of bullying in persona and cyberbullying and men presented a greater bullying in person. In relation with having suffered bullying in person it was associated with tobacco, alcohol, or some type of illegal drug us, similar patterns in men and in women. In relation to women who have been victims from the two types of bullying this aggression was associated with alcohol consumption and having been a victim of bullying in person was associated with illegal drug consumption.

The excessive tobacco use daily and alcohol consumption in boys and girls is associated with being a victim of bullying, in girls the victimization was associated with marihuana and hard drug consumption, in boy’s physical aggression was associated with higher alcohol consumption.16,17,18,23 Tobacco consumption was associated significantly with being a victim according to the study reported by Forster et al.28 In another study made by Ringwalt et al.29 in 2012, found that being a victim of bullying was related with alcohol consumption, binge drinking, marihuana, inhalants between others drugs during the next 30 days.19

Wright19 found that the victims of cyberbullying were related to alcohol use and the consumption of any drug other than marihuana, cocaine, heroin, inhalants, or prescribed drugs. Luke et al. 22 found that the adolescents that presented a lower level of maternal knowledge had a higher probability of being consumer of substances (OR=2.81) and of being bullies (OR=1.87), compared with those that reported a
higher level of maternal knowledge. Likewise, it was found that those adolescents with less paternal knowledge had a higher probability of being consumers of substances (OR=2.39) and being bullies (OR=1.61) compared to those who had a higher level of paternal knowledge. Lastly it was found that those adolescents that spend more time with their friends had a higher probability of consuming substances (OR=2.62) and being bullies (OR=1.41).17 According to Topper et al.25 a significant correlation was shown in victimization related to the score on alcohol problem (fights, personality changes, bad acts, etc.) and the same results were presented 12 months after.25

Conclusion

By the analysis of the diverse studies it can be conclude that bullying takes place especially in the masculine gender, these are more likely take part in both roles in this type of violence, also that the majority of the aggressors consume drugs and the older the less probability of being a victim, but higher is the probability of becoming an aggressor. Being a smoker increases the probability of becoming an aggressor being men or women.

Being a victim increases notably the legal and illegal drug use, especially alcohol, tobacco and marijuana consumption, but with a tendency of consuming inhalants and cocaine, this last one belonging to hard drugs. It’s important remark that violence is not a game, a joke, or amusing, this is why it’s necessary to consider violence or reconstruct programs of prevention for this social phenomenon that naturalizes or demerits this form of violence that this acts are a game, although, in many occasions who practices or who receives it normalize or deniers this form of violence that this acts are considered a game, a joke, or amusing, this is why it’s necessary to learn how to identify it to be able to put a stop to this types of risk behaviors.

It is necessary that the following investigations add or explain in a more specific manner the type of violence practiced and describe the different actors and not just report the victim, it is important to determine the aspects that surround this problematic to be able to imply or reconstruct programs of prevention for this social phenomenon that is increasing and be able to avoid short and long term complications in children and adolescents.

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Conflict of interest

The author declares no conflicts of interest.

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