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# ADOLESCENTS' PERCEPTION OF HARMS, BENEFITS AND INTENTION TO USE MARIJUANA WITHIN THE CONTEXT OF REGULATORY CHANGES IN BELIZE

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## ABSTRACT

**Objective:** to evaluate the perception of harm and benefits from using marijuana in adolescents', to determine lifetime, past year and past month prevalence of marijuana use; and to analyze the relationship between marijuana use and the perception of harm and benefits from using marijuana.

**Methods:** multi-centric, quantitative cross sectional survey design method was utilized for this research. Data was collected using structured standardized approved questionnaire. A total of 273 students from three high schools in two cities of the country of Belize participated in the survey conducted in 2015.

**Results:** lifetime prevalence of marijuana use of 41.4% (39.2% past year, 24.9% past 30 days), and average age of onset of 12 years. First time prevalence of marijuana use among students by sex indicated 53.1% male students used marijuana as compared to 46.9% female students with no significant ( $p>0.05$ ) statistical difference seen between genders. Participants reported that their friends use marijuana (45.1%); while 68.1% of the marijuana users had some friends that use marijuana. 51% of the students surveyed stated that they would not use marijuana, even if it were legally available. The majority (70%) perceived no risk to using marijuana occasionally. Statistical analysis revealed that a high perception of benefits, a low risk perception and friends' use of marijuana was associated with individual use as well as intention to use in a hypothetical context of regulatory changes.

**Conclusion:** the Belizean school-aged adolescents are more than likely to smoke marijuana because of friends' influence, low perception of risks and if marijuana is legally available and accessible to them.

**DESCRIPTORS:** Cannabis. Adolescent Behavior. Risk-Taking. Marijuana Abuse. Medical Marijuana.

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# PERCEPCIÓN DE LOS DAÑOS, BENEFICIOS E INTENCIÓN DE USO DE LA MARIHUANA EN EL CONTEXTO DE LOS CAMBIOS REGULATORIOS EN BELICE

## RESUMEN

**Objetivo:** evaluar la percepción de los daños y beneficios del uso de la marihuana en adolescentes, para determinar la prevalencia de consumo de marihuana a lo largo de la vida, en el último año y en el último mes; y analizar la relación entre el consumo de marihuana y la percepción de los daños y beneficios de su uso.

**Métodos:** se utilizó un estudio multicéntrico para el método de corte transversal cuantitativo. Se recolectaron los datos a través de una encuesta estructurada, estandarizada y aprobada. Un total de 273 estudiantes de tres escuelas secundarias en dos ciudades del país de Belice participaron en la encuesta realizada en 2015.

**Resultados:** los resultados demostraron que la prevalencia del consumo de marihuana a lo largo de la vida fue de 41,4% (39,2% el año pasado, y 24,9% en los últimos 30 días) y la edad media de inicio fue de 12 años. La prevalencia del uso de la marihuana por primera vez entre los estudiantes demostró que 53,1% de los estudiantes de sexo masculino consumen marihuana en comparación con los 46,9% de las estudiantes, sin que haya diferencia estadísticamente significativa ( $p > 0,05$ ) entre los géneros. Los participantes informaron que sus amigos utilizan marihuana (45,1%); mientras que el 68,1% de los consumidores de marihuana tenía algunos amigos que usan marihuana. El 51% de los estudiantes entrevistados dijeron que no consumían marihuana, aunque estuviera legalmente disponible. La mayoría (70%) no señaló ningún riesgo en el uso de la marihuana ocasionalmente. El análisis estadístico reveló de que la percepción de grandes beneficios, la percepción de bajo riesgo y el uso de la marihuana por amigos están asociados al uso individual, así como de que hay una intencionalidad de uso en un contexto hipotético de cambios regulatorios.

**Conclusión:** los adolescentes en edad escolar en Belice están más propensos a fumar marihuana, debido a la influencia de sus compañeros, a una percepción de bajo riesgo y a que la marihuana esté legalmente disponible y sea accesible para ellos.

**DESCRIPTORES:** Cannabis. Conducta del adolescente. Toma de riesgos. Abuso de la marihuana. Marihuana medicinal.

# PERCEPÇÃO DE DANOS, BENEFÍCIOS E INTENÇÃO DE USO DA MACONHA NO CONTEXTO DE ALTERAÇÕES REGULATÓRIAS EM BELIZE

## RESUMO

**Objetivo:** avaliar a percepção de danos e benefícios do uso de maconha em adolescentes, para determinar a prevalência de uso de maconha ao longo da vida, no último ano e no último mês; e analisar a relação entre o consumo de maconha e a percepção de danos e benefícios do seu uso.

**Métodos:** foi utilizado método de levantamento multicêntrico de desenho de corte transversal quantitativo para esta pesquisa. Os dados foram coletados por meio de questionário estruturado, padronizado e aprovado. Um total de 273 estudantes de 3 escolas de ensino médio de duas cidades do país de Belize participaram da pesquisa realizada em 2015.

**Resultados:** os resultados mostraram que a prevalência do uso de maconha ao longo da vida foi de 41,4% (39,2% no ano passado, 24,9% nos últimos 30 dias) e idade média de início foi de 12 anos. A prevalência do uso da maconha pela primeira vez entre os estudantes por sexo indicou que 53,1% dos estudantes do sexo masculino usavam maconha, em comparação com 46,9% das estudantes do sexo feminino, sem diferença estatística significativa ( $p > 0,05$ ) entre os gêneros. Os participantes relataram que seus amigos usam maconha (45,1%); enquanto 68,1% dos usuários de maconha tiveram alguns amigos que usam maconha. 51% dos estudantes entrevistados declararam que não usariam maconha, mesmo que estivessem legalmente disponíveis. A maioria (70%) não percebeu nenhum risco em usar maconha ocasionalmente. A análise estatística revelou que uma alta percepção de benefícios, uma percepção de baixo risco e o uso de maconha por amigos estavam associados ao uso individual, bem como a intenção de usar em um contexto hipotético de mudanças regulatórias.

**Conclusão:** é mais do que provável que os adolescentes em idade escolar de Belize fumem maconha por causa da influência dos amigos, baixa percepção de riscos e se a maconha for legalmente disponível e acessível a eles.

**DESCRIPTORIOS:** Cannabis Comportamento do Adolescente. Tomada de risco. Abuso de maconha. Maconha Medicinal.

## INTRODUCTION

Marijuana is perceived as the illicit drug causing the least harm, and its prevalence among secondary school students is increasing.<sup>1</sup> The World Health Organization (WHO) has recognized that most health problems during adulthood are the consequences of health-compromising behaviors during adolescence, when the brain is still developing and acquiring skills for the future. Specifically, the morbidity rates related to many non-communicable diseases are linked to unhealthy behaviors during adolescence such as the use of tobacco, alcohol and psychoactive substances.<sup>2</sup> Early and regular marijuana use predicts an increased risk of marijuana addiction.<sup>3</sup> Such patterns also pose an increased risk for the use of other illicit drugs.<sup>3</sup> Individuals who initiate marijuana use in adolescence are approximately two to four times as likely to have symptoms of marijuana dependence within two years after first use compared with those that begin use adulthood.<sup>4</sup>

According to the WHO Mental Health Plan 2013-2020, adolescents are among the most vulnerable groups in society with an increased risk of mental health problems and a risk of first exposure to substance use.<sup>4</sup> More than 50% of mental health disorders in adults develop by the age of 14, so prevention and promotion strategies should be implemented among school-aged adolescents to teach them about the risks related to substance use.<sup>5</sup> In most parts of the Americas where surveys on marijuana use were conducted, results are showing an increase in use of marijuana among young people.<sup>5-7</sup> Surveys conducted in Belize and the wider Caribbean revealed that among the youth aged 13-15, 11.3% had tried marijuana at least once; of these, 77.3% had first tried before the age of 14.<sup>7</sup>

Early use of marijuana defined as “use before age 14” is a growing concern, given that this age of onset is related with an increased risk of abuse and dependence in adulthood, compared with those who first tried marijuana after the age of 18.<sup>8</sup> Some health risks associated with marijuana use are respiratory, motor, mental, and cardiovascular effects; it may also cause psychotic symptoms and increase the risk of lung cancer, immune deficiency, and decreased fertility.<sup>8-9</sup>

Two factors could explain the trend of marijuana consumption among adolescents: decreasing perception of risk related to experimenting with marijuana and easier access.<sup>9</sup> Previous studies have reported that when the perception of risk declines, the use of marijuana increases and *vice-versa*.<sup>10-11</sup> Some studies reported that adolescents who perceived marijuana use as involving less risk were twice as likely to use marijuana.<sup>12-13</sup>

Drug abuse has resulted in serious health problems and severe social decline in the Belizean society.<sup>14</sup> Illicit drug use and addiction affect youth, students, and entire family units. Marijuana, alcohol and crack cocaine are reported<sup>8,15</sup> to be the most commonly illicit drugs used in Belize. In the last decade, marijuana industry became a major economic activity especially in the northern districts of Belize. Other factors contributing to further expansion of the marijuana industry in the country are Belize’s strategic location in the transshipment route; inadequate law enforcement resources; ready access to the cheap labor of Central American refugees who work on the marijuana plantations; and open borders and large tracts of underpopulated areas.<sup>8,15</sup>

The implications of marijuana legalization/decriminalization are difficult to predict.<sup>1</sup> Although previous studies have been conducted on drug use among adolescents in Belize, few of such studies examined the perception of adolescents towards marijuana use. A recent study<sup>14</sup> on prevalence and pattern of drug use among third year high school students in Belize City indicated that alcohol (76.4%) and marijuana (31.1%) are the main drugs used by Belize City. The report summarized an increase use of marijuana use among high school students in Belize. In 2016, a report by the United Nations on Drugs & Crime indicated that approximately 8.5% of Belizeans use marijuana and Belize was ranked 18<sup>th</sup> out of all countries in prevalence of marijuana use, higher than both Netherlands & Jamaica.<sup>15</sup> It is important, therefore, to identify adolescents’ perception of the adverse effects and/or

benefits of marijuana use. It is also necessary to assess adolescents' intention to use marijuana, within the context of global discussions on regulatory changes. This current study therefore, evaluated the perceived harms and benefits of marijuana and its association with marijuana use among secondary school students aged 15-17, as well as their intention to use within the context of regulatory changes in Belize.

The research question is what are the perceived harms and benefits of marijuana, and their associations with marijuana use among secondary school students aged 15-17, and students' intention to use marijuana in the context of regulatory changes in Belize?

The objectives of the study are to describe prevalence, proportion of friends that use marijuana, general perception of harms and benefits associated with marijuana use among adolescents; To explore associations between harm, benefits, friends' drug use and intention to use; To explore how regulatory changes might affect their intention to use marijuana.

## METHOD

This study is a multi-centric, quantitative cross-sectional survey conducted in three secondary schools from 2 different cities in the country of Belize.

The participants for this study comprised 273 students between the ages of 15-17 years, from 3 public secondary school students selected from 2 cities in the country of Belize. Convenience sampling was used to select the cities where the survey was conducted while simple random sampling was used to select the secondary school(s) in which the study was conducted. A sample size of 273 with a medium effect size at  $\alpha=0.05$  level<sup>16</sup> was used. Sample size of 91 was selected from each of the participating schools. Respondents were selected through random sampling with the use of Microsoft excel.

Inclusion criteria: any student aged 15-17 years who was enrolled in a public coeducational secondary school in the selected city, that have the ability to read and write in English without any assistance AND can provide informed assent and parental consent.

Exclusion criteria: any student who was unwilling/unable to provide informed consent or whose parent/guardian was unwilling/unable to give parental consent and/or did not have the ability to read and write English without assistance.

Independent variables were: Demographics (sex, age, grade and city); Perception of harm The general perception of harm was assessed by three items used within the Monitoring The Future (MTF) questionnaire. Perception of specific harm was assessed using the Benthin Risk Perception Measure.<sup>17</sup> Perception of benefits: this variable was assessed using two items from the Benthin Risk Perception Measure.<sup>17</sup> Two items for evaluating health and emotional benefits were developed and included by the researcher.

Other variables were: age of onset of marijuana use, use of marijuana by friends. Dependent variables: two dependent variables were explored, both related to marijuana use. Marijuana use. Lifetime, past 12 months, and past 30 days prevalence, and frequency of marijuana use for past 12 months and past 30 days. Intention to use marijuana: intention to use marijuana in the hypothetical context of regulatory changes.

The following amalgamated instruments were used for data collection. Inter-American Drug Use Data System (SIDUC) Secondary Students School Survey;<sup>18</sup> Monitoring the Future (MTF);<sup>13</sup> and, the Benthin Risk Perception Measure.<sup>17</sup>

Ten items from this SIDUC<sup>18</sup> questionnaire were used as a standardized measure for the study. Three questions were used to collect demographic data about sex, age and grade; and seven items for assessing marijuana use (lifetime, past-12 months and past 30 days), along with frequency of smoking marijuana and age of onset. The SIDUC is a standardized methodology created for obtaining

data, forming explanatory concepts, and supporting responses to address psychoactive substance use across Americas and the Caribbean.

The current study included three items from MTF<sup>13</sup> that explored a general perception of harms related to experimental and frequent marijuana use, scored using a five-point scale. One item that asks about intentions to use marijuana within the context of regulatory changes and one for medical marijuana were included. This is an annual survey of the lifestyles and values of youths; designed to explore changes in important values, behaviors, and lifestyle orientations of contemporary American youth.<sup>13</sup>

Bentlin Risk Perception Measure<sup>17</sup> uses a seven-point scale to assess the perceived risks and benefits of various behaviors. It has been used widely in studies exploring perception of risk, harm and benefits, most of which have reported Cronbach alphas over 0.70.<sup>19–22</sup> For this study, a slightly modified version was used to investigate participants' perceptions about harm and benefits of smoking marijuana. This modified version consists of eleven questions: eight items from the original scale and three additional items. As in the original measure, a seven-point scale was used. When a Likert scale is increased to seven-points the reliability limits and its sensitivity are improved.<sup>23</sup> Additionally, the scale is more likely to be normally distributed.<sup>24</sup> Following the procedure set out by an overall average of risk and benefits was calculated, such that higher scores reflected greater risk.<sup>22</sup> The frequency of each response option was calculated. Two items for evaluating age of onset and marijuana use by friends were developed and included in this study.

The questionnaire was used for data collection. The questionnaire was composed by 23 items: Demographic variables (sex, age, and grade - 3 items); Marijuana use and age at onset (3 items), Friends' use of marijuana (4 items); Perception of harm (11 items); Perception of medical and recreational marijuana use (1 item); Intentions to use marijuana in the future (1 item).

Informed consent and assent were obtained from all participants before the administration of the questionnaire. Participation was voluntary, and confidentiality was maintained at all times. After potential participants have been selected, they were provided with a brief outline of the study's purpose and significance, the lack of risk involved in participation, and their right to withdraw from the study without penalty. They were also given a letter for their parents along with a consent form. The school counselor in collaboration with classroom teachers followed-up with the students to return the signed consent forms from their parents. To ensure anonymity and confidentiality, data was gathered using a pre-coded and self-administered questionnaire. Students who completed the questionnaire were not identified. The questionnaire was administered using paper and pencil in a classroom at the selected school. The schools' counselor and/or teachers assisted in the monitoring of the students, however, they were not required to inform the students on any information that pertains to the survey. Completed questionnaire were placed in brown envelopes, sealed and safely locked in the cabinet until processed.

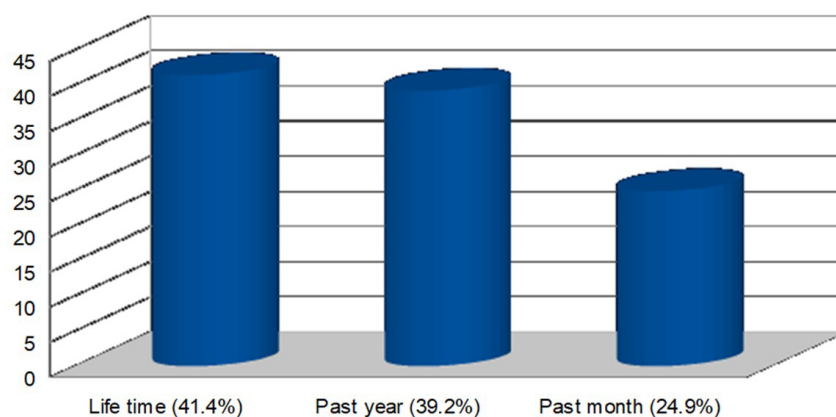
Data was entered based on a manual's code-book/procedure and analyzed using SPSS software version 20. The accuracy of the data was validated by randomly cross-checking at least 20% of questionnaires against the database.

Data was analyzed using descriptive and inferential statistics. Descriptive statistics was primarily used to describe demographic data and address research questions on prevalence; while inferential analyses was used to explore relationships. The main descriptive statistical procedures used were frequencies and percentages, and the main inferential statistics used was t-test.

## RESULTS

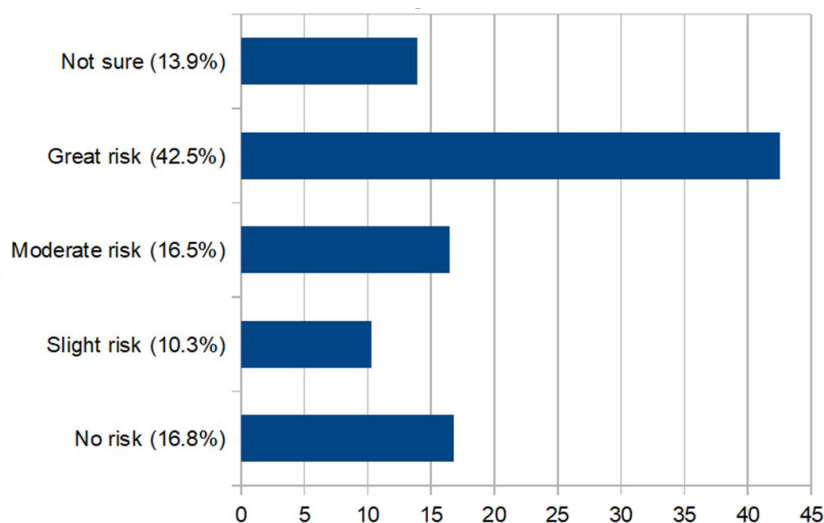
Of the total population studied, 41% reported having smoked marijuana at least once in their lifetime. Past year and past month prevalence were reported as 39.2% and 24.9% respectively (Figure1).





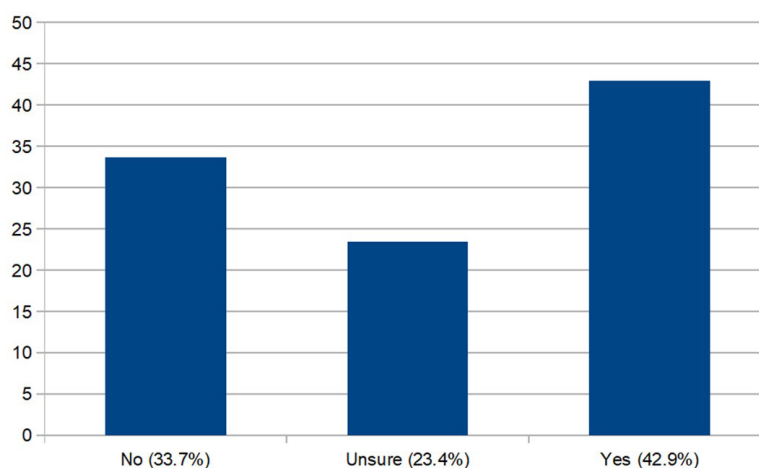
**Figure 1** – Prevalence of marijuana use among adolescents, Belize, 2015

68.8% of students reported one, some, or all of their friends smoke marijuana. 42.5% of students responded 'great risk' if marijuana is smoked regularly while approximately 17% reported 'no risk' if marijuana is smoked regularly (Figure 2).



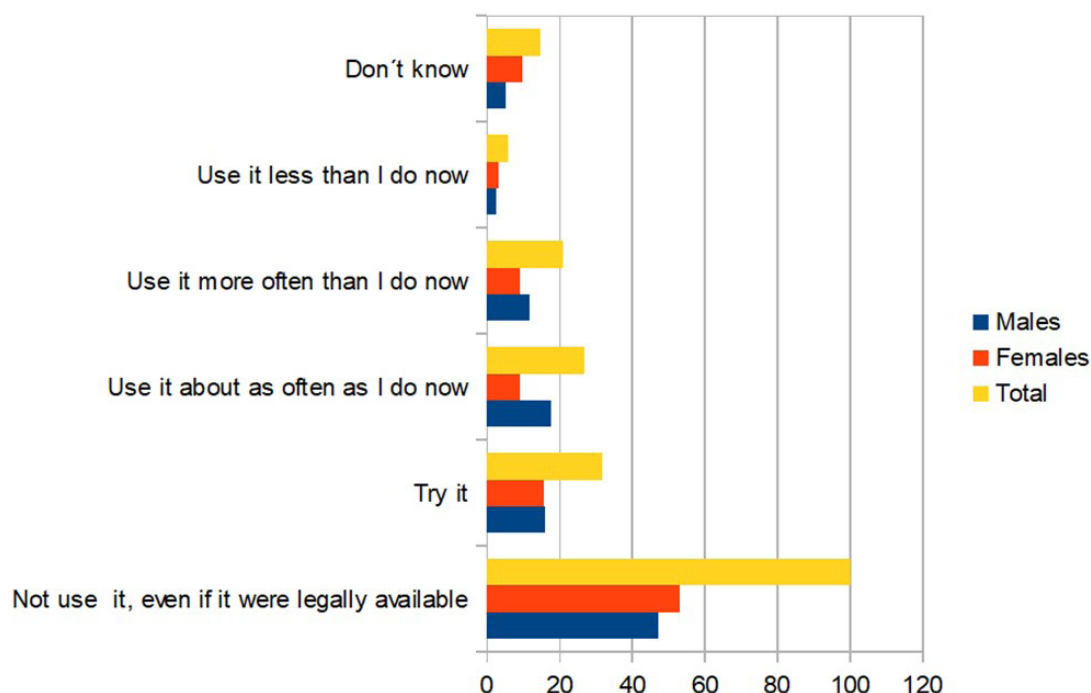
**Figure 2** – Perception of Risks if Marijuana is smoked regularly. Belize, 2015

46.6% of students responded that 'they will be admired by friends' if they smoke marijuana. 42.9% of students reported that smoking marijuana 'helps in coping with emotional difficulties' (Figure 3).



**Figure 3** – Benefits: helps to cope with emotional difficulties, Belize, 2015

About 30% of the students that responded to the question reported they will try marijuana if they are 18 years and marijuana is legally available while 100% also reported they will not even if marijuana is legally available and they are 18 (Figure 4).



**Figure 4** – Intention to use marijuana at 18 if legalized, Belize, 2015

Out of the total population of 273 students studied, approximately 59% reported never having smoked marijuana in their lifetime. However, lifetime prevalence of 41.4%; past year 39.2% and past month 24.9% were reported confirmed previous studies of high school students actively involved with marijuana use.<sup>1</sup> Average age of onset was found to be 12 years among the population studied.<sup>1</sup> First time prevalence of marijuana use among students by gender indicated that 53.1% of the male students used marijuana as compared with 46.9% female students. The result did not show any significant ( $p>0.05$ ) statistical difference between genders. Among the participants, 23.1% reported having used marijuana before they became teenagers with age five being the lowest age of onset, and 68% of the students reported marijuana use by their friends.

## DISCUSSION

The common believe regarding marijuana is that it is a harmless substance and because it is a plant and considered natural, many people have the believe that they should be granted ease of access without any form of regulation or at best it's use should not be regarded illegal. In 2013, The Center for Behavioral Health Statistics and Quality reported that in the United States alone, marijuana is the most commonly used illicit substance with about 12% of people ages 12 or older reported having used marijuana in the past year and particularly high rates of use among young people were also reported.<sup>3,25</sup> The results of this study provides further evidence that even though at the time of data collection marijuana use in Belize was highly regulated with stringent penalties, young adolescents still engage in it's use without due regard to harms or risks associated with marijuana consumption. The brain, including the endocannabinoid system for instance, undergoes active development during adolescence which probably makes adolescents vulnerability to adverse long-term outcomes from marijuana use more disturbing hence making marijuana use by adolescents uniquely worrisome.<sup>3,26</sup>



Associations between prevalence, friends & perception of harms/benefits were analyzed. A logistic regression was performed to analyze the association between lifetime, past year and past month prevalence of marijuana use & the perception of harm and benefits, evaluated with the Benthin measure.<sup>17</sup> An interaction between harms & benefits was evaluated. A binary logistic regression for each prevalence was also conducted. The results showed that perception of harms and benefits, and having friends (68.1%) that use marijuana were significantly associated with lifetime prevalence.

Peers and friends drug use have been reported to predict adolescent use,<sup>27-29</sup> with effects prolonging for up to 10 years.<sup>13</sup>

Although multiple studies have reported damaging effects of marijuana use among adolescents, others reports were conflicting, and the question of whether marijuana is harmful remains the subject of heated debate till date.<sup>28</sup>

Several studies<sup>30-33</sup> have reported that higher perception of friends use of marijuana leads credence to acceptance and approval by adolescents to use marijuana. In addition, socializing with friends who use drugs is a stronger predictor of school-age adolescent drug use much more than having friends that do not use drugs. Socializing with close friends who use marijuana or other drugs is a strong motivator for marijuana use.<sup>13</sup> Friends are valued social referents that play a key role in social learning by modeling, reinforcing, or punishing particular behaviors;<sup>27</sup> they are a source of behavioral norms; and they may also provide opportunities for engaging in drug use. Because the majority of young people do not use marijuana,<sup>13</sup> friends may also serve as a protective factor if their behaviors and norms endorse abstaining from marijuana use.<sup>34</sup> The findings of this study clearly showed that more than half of the students do not use marijuana. This can provide a strong protective strategy in designing behavioral changes that endorses abstinence from marijuana if carefully utilized. Schools substance use interventions plays important roles in facilitating association among peers that have the potential to influence positive adolescent behaviors, and in identifying naturally occurring peer clusters that are drug users or share risk factors for subsequent drug use can help to delay or prevent marijuana use among adolescents. Consequently, adolescence is a critical developmental period for drug prevention and intervention if the right strategies are utilized.<sup>27</sup>

The results of this study also revealed a significant association between a lower perception of harm, a moderate perception of benefits, and having friends that use marijuana were related with marijuana use. Having at least one friend that uses marijuana showed a higher association with marijuana in addition to the perception of harms and benefits. Therefore, friends' use of drugs is a more powerful predictor for the result of this study. The influence of friends that use drugs seem to be very important in this study, and it was a more powerful predictor than any other variable.<sup>35-36</sup> Regarding risk perception, the majority of participants (70.7%) perceived that there was no risk to use marijuana once or twice or occasionally (20.1%). On benefits of marijuana use, students responded that using marijuana will make them to be admired by friends (46.6%) while stating that using also helps them to cope with emotional difficulties (42.9%). The results therefore showed a significant association between a lower perception of harm and a moderate perception of benefits among respondents. Perception of harms and benefits is a very significantly indicator with marijuana use among adolescents.<sup>37</sup>

Higher perception that friends use marijuana and that they also would approve its use, leads to a higher frequency of use among adolescents. Frequent exposure at home to illegal substances is a risk factor for drug use while environmental factors, such as physical conditions, criminal activity and exposure to drugs in the community have an impact on the onset of marijuana use and its subsequent use.<sup>34</sup> Subsequently, when there are favorable attitudes both within the community and among family members, there is a greater tendency to use marijuana and other drugs. Also, adolescents in higher grades have a perception of greater marijuana use among their friends and consider marijuana to be more widely and easily available.<sup>31</sup>

Overall, it has been reported<sup>38</sup> that abuse and dependency ensues if adolescents perceived that marijuana use will help them improve socially or academically. Marijuana users have a lower perception of its danger than non-users while regular users have a lower perception of the hazards involved than experimental users. With a positive concepts and opinions on drugs generally, adolescents ages 16 to 20 have greater risk of marijuana use.<sup>34</sup> The highest rates of use risk are found when friends approve its consumption and increase when the adolescent lacks the skills to resist peer group pressure.<sup>35</sup> Current findings seem to corroborate and agree with these reports as applicable to risk factors that could be facing school-age adolescents in Belize.

Lastly, one of the aims of this study was to explore how regulatory changes might affect their intention to use marijuana. Half of the students indicated they will not use marijuana if it were legally available and they are 18 years of age. 12.8% of students indicated they will use it as often as they currently use it, while 10.3% stated they will use marijuana more than they currently do. The results of this study therefore suggest that a total of 23.1% are likely to continue using marijuana if legalized. From the findings of this study therefore, it could be implied that prevalence of marijuana use should be expected to increase among adolescents in Belize if marijuana is decriminalized and legally available. This study corroborates similar findings in the US where 10% percent of non-cannabis-using students reported intent to initiate use if legal and this would be consistent with a 5.6% absolute increase in lifetime prevalence of cannabis use in this age group while 18% of lifetime users reported intent to use cannabis more often if it was legal.<sup>39</sup>

The U.S. Department of Health and Human Services reported that a leading impetus for youth treatment admissions is marijuana use.<sup>30</sup> Further more, the Center for Behavioral Health Statistics and Quality reported that most adolescents who misuse substances showed evidence of marijuana use disorder.<sup>40</sup> The current progressive campaign for legislation of medical and recreational marijuana use has widen its public acceptability and cultural permissibly.<sup>13</sup> As a result, risk perceptions among school-age adolescents is continually on the decline.<sup>41</sup> Collectively therefore, these issues underscore need for effective, affordable strategies to support and reinforce school-based interventions of marijuana use leading to delay in initiation or outright prevention of marijuana use. Some studies have reported increases in marijuana use corresponding to a change in the legal environment for medical marijuana.<sup>42–44</sup> In the current study, marijuana was not made legal for adolescents and the law had not been implemented at the time of data collection. However, in the light of present realities, where marijuana has now been decriminalized in Belize, there is need for a follow-up study to examine the risk perceptions of adolescents within current framework of changed marijuana policy.

Although findings from this study offers a valuable opportunity to explore school-age adolescents behaviors and characteristics in the context of marijuana use, these findings should be carefully interpreted and applied in the light of some limitations. One is related to the school participants' selection: because it was a convenience sampling technique, the findings cannot be generalized for the entire country of Belize. Moreover, the current study is cross-sectional, so causality cannot be accrued from its results. Drug use among adolescents is a complex phenomenon involving risk factors related within various domains (family, school, peers, community, and individual). The current study focused on the perception of harms and benefits therefore cannot address the whole complexity of the phenomenon. Finally, the study used hypothetical situations regarding regulatory changes in Belize to explore intentions to use marijuana. As at the time of the study, marijuana was not decriminalized but now it is. Therefore, the results might not be hundred percent accurate for predicting future behavior. Additionally, the inconsistencies in the regulatory framework and the differences in opinions where the data was collected may influence the analysis when the data is merged and compared between the cities. Nevertheless, the findings will be useful within current public policy debates and will be useful for educational purposes.

With marijuana, it is usually difficult and not realistic to prevent drug experimentation among young people. However, initiation of marijuana use by school-age adolescents can be delayed by designing interventions aimed at prevention. Studies on the ways in which marijuana affect public health within the framework of changing policies especially among vulnerable groups such as school-age adolescents should be urgently conducted. The need to examine regulatory frameworks & impact on health especially among vulnerable groups cannot be overemphasized.

A clear framework on marijuana should be provided regarding decriminalization while decent, adequate, correctional and rehabilitation centers should be put in place before considering decriminalization.<sup>38,43</sup>

## CONCLUSION

Despite recent changes in public perception and regulatory policies relating to the use and distribution of marijuana, relatively little research is available in Belize on the longer-term trends relating to school-age adolescents and young adults perceptions and use of marijuana. This study reported moderate perception of benefits, a low perception of risks and having friends that use marijuana was associated with an intention to use marijuana in a hypothetical context of regulatory changes. The findings of this study further suggest that Belizean school-aged adolescents are more than likely to smoke marijuana because of friends' influence, low perception of risks and if marijuana is legally available and accessible to them. Current study findings therefore point to the importance of urgently examining changes in the perception and use of marijuana with an appreciation for developmental differences within the context of regulatory changes. Further monitoring of predictors of marijuana use trends among adolescents is needed since Belize have decriminalized marijuana for recreational use.

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## NOTES

### CONTRIBUTION OF AUTHORITY

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Data analysis and interpretation: Husaini DC, Mann R

Discussion of the results: Husaini DC, Mann R

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### ETHICS COMMITTEE IN RESEARCH

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### CONFLICT OF INTEREST

No any conflict of interest.

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