Drugs, Alcohol, Harmful Substances and their Impact on Teens and Young Adults

Witten By Ilia Rafi Samii

Abstract

In this report, I am going to be analysing and exploring the topic of alcohol and drug use, and the different ways they impact young adult and teens as well as the long term health consequences. I will also be gathering data pertaining to teen substance use and using descriptive statistics to explore the findings. The results show a strong indication that drug use has an overall negative impact on young individuals. In the following sections of this report, I will take you through the steps and research I conducted in order to reach this conclusion.

Drugs, Alcohol, Harmful Substances and their Impact on Teens and Young Adults

We all know how harmful drugs can be to an individual, but we often overlook the true extent and impact they can have on our lives. People with disabilities, personality disorders, or other mental health problems are especially prone to using drugs and substances. Therefore, it is vital that we find solutions to help at risk youth avoid using harmful substances. Research indicates that frequent use of alcohol or other substances can have long term health consequences, particularly for teens and young adults.

It is rather obvious that substance use can lead to self-destructive behaviours, but did you know that this seems to take the biggest toll on young adults and teenagers? The National Centre for Drug Abuse Statistics (NCDAS) claims that “the most significant increases in destructive behavior appear to take place among older teens and young adults”. They also claim that marijuana is one of the most common used substances among teens. According to Centers for Disease Control and Prevention, “alcohol, marijuana, and tobacco are substances most commonly used by adolescents”. . This suggests that we should allocate more of our time and resources towards monitoring the distribution of marijuana and tobacco, and perhaps are legal system should put stricter regulations on their use. The NCDAS advises that youth drug abuse trends “may provide clues about the future public health as well as the efficacy of educational initiatives”. This raises the question of how well our education system is addressing issues related to alcohol and substance use, and whether it is teaching youth about the harmful consequences.

Mayo Clinic gives a description of how different types of drugs affect individuals. According to them, cocaine can cause risk of heart attack, stroke and seizures while marijuana can cause “risk of impairment in memory, learning, and problem solving”. It can even lead to developing psychosis, such as schizophrenia and paranoia. The Centers for Disease Control and Prevention claims that alcohol and substance use can “affect the growth and development of teens, especially brain development”. So, with all these negative consequences and outcomes, why do people use drugs and alcohol? Well, research conducted by Child Mind Institute suggests that “In the short term, [substance use](https://childmind.org/topics/disorders/substance-use-and-addictive-disorders/) can help alleviate unwanted mental health symptoms like [hopelessness](https://childmind.org/topics/concerns/depression/), [anxiety](https://childmind.org/guide/anxiety-basics/), irritability and [negative thoughts](https://childmind.org/article/how-to-help-kids-worried-about-bad-thoughts/)”. While substance use “makes depressed teenagers more prone to impulsive [suicidal behavior](https://childmind.org/article/youre-worried-suicide/)” (Mayo Clinic), it can be a great way for vulnerable teenagers to alleviate stress and anxiety.

Now let’s bring the discussion back to the long term consequences. An article written by the National Library of Medicine suggests that teenage substance use at an early age, usually before the age of 15, “is strongly associated with risk for developing a substance use disorder later in life” (Kessler et al., [2001](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5943494/#B3)). It is no surprise that bad habits, such as overuse of alcohol and drugs, can be hard to overcome later on in life. According to the same article, research evidence seems to suggest that “young adults who engage in heavy drinking display greater volume loss in regions such as the frontal cortex and hippocampus” (Meda et. al.). This suggests that a young alcoholic will likely experience serious deficits in neurodevelopment later on in life.

Now that we have looked at the long term consequences on drug and alcohol use as well as which substances are most used by teens and young adults, let’s explore the solutions to these issues. According to my research, medication, social support groups and various treatments are the most common used methods to help an addict. CBT is also an effective strategy that can train the brain to overcome negative thoughts and change unwanted behaviours. It is most commonly used for people with OCD or other mental health disorders, although it can be very useful to someone who is struggling with addiction. There are also some famous support groups such individuals can resort to like Narcotics Anonymous and Alcoholics Anonymous, to name a few. These service providers can give individuals a safe space to share their concerns and receive support.

Overall, research and empirical evidence suggests that substance use can lead to problems later on in life. Even experimenting with drugs might seem safe in the short run, but it can lead to problems later on. In the next few sections of this report, I am going to present data pertaining to drug and alcohol use, and use statistical methods to analyse that data and present clear findings and results.

Method

*Design and Test Variables*

In this section, I will be presenting various data sets collected through multiple sources as well as the statistical analysis used to analyse the data. All data sets have been entered into an excel spread sheet for cleaning, organization and analysis. The first set of data I collected was from NCDAS which pertains to the use of drugs and alcohol by teens in the United States. The table is displaced below:

|  |  |  |
| --- | --- | --- |
| **State** | **Teens Using Drugs** | **Teens Drinking** |
| Alabama | 8.33% | 9.15% |
| Alaska | 6.99% | 8.33% |
| Arizona | 7.58% | 7.93% |
| Arkansas | 6.26% | 8.35% |
| California | 10.37% | 8.85% |
| Colorado | 11.45% | 10.53% |
| Conneticut | 8.95% | 11.19% |
| Delaware | 10.06% | 10.06% |
| DC | 9.32% | 9.32% |
| Florida | 7.87% | 9.05% |
| Georgia | 6.75% | 7.20% |
| Hawaii | 7.36% | 6.31% |
| Idaho | 7.67% | 7.67% |
| Illinois | 8.69% | 8.90% |
| Indiana | 8.51% | 9.06% |
| Iowa | 7.66% | 11.29% |
| Kansas | 6.70% | 10.06% |
| Kentucky | 7.03% | 9.67% |
| Louisiana | 6.35% | 9.94% |
| Maine | 12.28% | 10.05% |
| Maryland | 8.19% | 9.07% |
| Massachusetts | 11.11% | 10.90% |
| Michigan | 8.91% | 9.17% |
| Minnesota | 8.15% | 10.87% |
| Mississippi | 6.56% | 7.79% |
| Missouri | 7.46% | 9.17% |
| Montana | 11.63% | 11.63% |
| Nebraska | 8.17% | 10.06% |
| Nevada | 10.24% | 9.39% |
| New Hampshire | 10.63% | 10.63% |
| New Jersey | 7.71% | 9.48% |
| New Mexico | 11.42% | 8.41% |
| New York | 8.31% | 9.50% |
| North Carolina | 8.14% | 9.15% |
| North Dakota | 5.42% | 9.03% |
| Ohio | 7.98% | 9.67% |
| Oklahoma | 7.49% | 8.11% |
| Oregon | 11.46% | 10.79% |
| Pennsylvania | 7.22% | 9.19% |
| Rhode Island | 9.64% | 11.02% |
| South Carolina | 8.11% | 8.89% |
| South Dakota | 7.09% | 8.51% |
| Tennessee | 6.78% | 9.10% |
| Texas | 7.07% | 9.02% |
| Utah | 5.98% | 5.67% |
| Vermont | 14.65% | 14.65% |
| Virginia | 6.96% | 9.01% |
| Washington | 11.11% | 9.83% |
| West Virginia | 8.78% | 9.58% |
| Wisconsin | 8.33% | 11.04% |
| Wyoming | 8.75% | 8.75% |

Data Set 1: % of teens using drugs by state

From the above data set, we can conclude that the highest percentage of teen drug and alcohol users are in Vermont. According to NDAS, Teenagers in Vermont are 75.83% more likely to have used drugs in the last month than the average American teen. The question of why this is the case still remains unknown, however, it could be due to a variety of reasons such as lenient drug laws. On the other hand, North Dakota has the lowest drug use rate among teenagers while Utah has the lowest alcohol use rate. This is perhaps due to stricter rules and regulations in these states, or it could be the case for many other reasons.

Presenting a visual for this table would be more useful to analyse the data:

We can also look at this data using a scatter plot:

Looking at the above scatter plot, we can easily tell that there is a relatively strong positive correlation between the percentage of teenage drug and alcohol use. Using some code written in python and excel, I discovered that the correlation coefficient is 0.63056 which is as expected. This lets us assume that, overall, the more teenagers use alcohol, the more likely they are to also use drugs.

Now let’s shift our attention and focus on how drug and alcohol usage levels vary by state. The average percentage of teenagers using drugs in the US is roughly 8.5% while the average percentage of teenagers using alcohol is roughly 9.4%. We can better visualize the spread of the data using box and whisker plots:Chart, box and whisker chart

Description automatically generated

Above is the box and whisker plot for percentage of teenage drug usage in the United States. We can see that the data is positively skewed, meaning that there are more states in which the percentage of teen drug use is greater than the median of roughly 8%. Now let’s take a look at the one for percentage of teen alcohol usage in the United States:

Chart, box and whisker chart

Description automatically generated

Looking at this box and whisker plot, we can see that, again, the data is positively skewed which means there are more states where the percentage of teenage alcohol usage is greater than the median of about 9%.

The next data set represents the number of drug arrests from 1990 to 2009. It is shown in the table below:

|  |  |
| --- | --- |
| **Year** | **Arrests** |
| 1990 | 20940 |
| 1991 | 16490 |
| 1992 | 25004 |
| 1993 | 37915 |
| 1994 | 61003 |
| 1995 | 82015 |
| 1996 | 87712 |
| 1997 | 94046 |
| 1998 | 91467 |
| 1999 | 89523 |
| 2000 | 95962 |
| 2001 | 97088 |
| 2002 | 85769 |
| 2003 | 87909 |
| 2004 | 87717 |
| 2005 | 88909 |
| 2006 | 95120 |
| 2007 | 97671 |
| 2008 | 93042 |
| 2009 | 90927 |

Looking at this graphically can give us a better picture:

We can see that the lowest number of arrests took place in 1991. Again, this could be for a variety of reasons. Maybe that year there was a shortage of drugs in the market, or perhaps less people felt the need to take drugs for personal reasons. Regardless, this is definitely something worth investigating since we can clearly see an upward trend. Why are the number of drug arrests increasing? Is there an increase in the crime rate, or does it have to do with other factors? The answer to these questions is complicated.

Let’s look at one last dataset. The following table shows risk perception of consuming different drugs from different age groups:

As we can see from the graph (the yellow bars are people ages 26+), older individuals clearly have a greater sense of danger when it comes to drug use, as expected. There are clearly more individuals who see the danger in using cocaine and heroin than with other drugs. Marijuana in particular has the least number of individuals who perceive a great risk. Why is this the case? Well from what I’ve heard, marijuana is indeed one of the less risky substances to use. However, it can only really be left to research to decide whether this is really true.

Conclusion

Throughout this report, we had been trying to analyse the research questions “Does substance abuse cause long term heath consequences?” and “Is teen substance abuse really a major problem in our society?”. We had look at three different datasets which try to answer these questions, and we can generally say that yes, drug and alcohol use is a major problem in our society, and it does have long term consequences. Using descriptive statistics, we analysed data pertaining to drug arrests and teenage alcohol and drug use and realized that there is a growing number of drug arrests and that teens who drink alcohol are also more likely to use drugs. While there is still much more research that needs to be done, we at least know the general issues pertaining to drug use and how it is affecting our youth.

According to National Center for Drug Abuse Statistics:

* the most significant increases in destructive behavior appear to take place among older teens and young adults
* Youth drug abuse trends may provide clues about the future public health as well as the efficacy of educational initiatives

According to Centers for Disease Control and Prevention:

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* Alcohol, marijuana, and tobacco are substances most commonly used by adolescents
* Affect the growth and development of teens, especially brain development

According to Child Mind Institute:

* In the short term, [substance use](https://childmind.org/topics/disorders/substance-use-and-addictive-disorders/) can help alleviate unwanted mental health symptoms like [hopelessness](https://childmind.org/topics/concerns/depression/), [anxiety](https://childmind.org/guide/anxiety-basics/), irritability and [negative thoughts](https://childmind.org/article/how-to-help-kids-worried-about-bad-thoughts/)
* substance use makes depressed teenagers more prone to impulsive [suicidal behavior](https://childmind.org/article/youre-worried-suicide/)

According to Mayo Clinic, some of the warning signs of teen drug use include sudden or extreme change in friends, eating habits, sleeping patterns, physical appearance, coordination or school performance, irresponsive behaviour, poor judgement, lack of interest, presence of medicine containers, and breaking rules or withdrawing from family.

Sentences To Use:

Marijuana is one of the most common used substances among teens (NCDAS).

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Report:

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