



## WHAT AFFECTS YOUR RISK FOR ALCOHOL- AND DRUG-USE PROBLEMS: YOU GET TO CHOOSE!

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### YOUNG REVIEWERS:



AHMAD  
AGE: 14



CARYN  
AGE: 14



HIBA  
AGE: 15



KATHERINE  
AGE: 13



TEMI  
AGE: 14

You may have heard that the risk of some health problems, such as heart attacks or diabetes can be affected by a person's diet and physical activity level. Did you know that there are also things in a person's life that affect their risk of developing an alcohol- or drug-use problem? Scientists have identified risk factors that make people more likely to develop an addiction to alcohol or drugs. Certain risk factors cannot be changed, but others can be. This article reviews what we know about these risk factors.

As a young person, it may often feel like you have little choice in what you get to do. The truth is that everyone makes choices every day. One thing most people do not think about as being a choice is what they allow into their **personal space**. A person's personal space includes things they eat, drink, breathe in, or otherwise put into, or do with, their bodies [1]. An individual's hygiene, exercise routine, sexual practices, diet, family and friendship circles, and use of drugs are all factors in that person's personal space [1]. Around the world,

## PERSONAL SPACE

An individual's hygiene, exercise, diet, use of drugs and/or alcohol, sexual practices, and family and friendship circles.

<sup>1</sup> See: [https://apps.who.int/iris/bitstream/handle/10665/43375/9241594209\\_eng.pdf;sequence=1](https://apps.who.int/iris/bitstream/handle/10665/43375/9241594209_eng.pdf;sequence=1)

## ADDICTION

A brain disorder that results in people losing control over their ability to control certain behaviors, such as their use of alcohol or other drugs.

## ALCOHOL- OR DRUG (SUBSTANCE)- USE PROBLEM

Repeated use of alcohol or a drug (substance) leading to an uncontrollable need for the drug, which greatly affects a person's ability to adequately perform academic, work, and/or social tasks.

## NON-MODIFIABLE RISK FACTORS

Things in a person's life that affect their chances of developing a health problem that *cannot* be changed or controlled by that person.

## MODIFIABLE RISK FACTORS

Things in a person's life that affect their chances of developing a health problem that *can* be changed or controlled by that person.

about 24% of ill health is due to things that people allow into their personal space<sup>1</sup>.

About three out of four students in the United States try alcohol, cannabis (marijuana), nicotine, or other drugs before they finish high school [2]. Some teenagers who allow these drugs into their personal space by trying them will go on to develop a brain disease called an **addiction**. When an addiction develops, the person loses control over their use of drugs and continues to use them even if they no longer find using drugs fun, and even if their use of drugs is hurting them. In people with an addiction, drug use can become automatic—meaning that they use drugs without really thinking about it. Many people with an addiction can only stop themselves from taking drugs through intentional effort, which can be very tiring. Imagine how much work it would be if you had to use intentional effort to keep yourself breathing!

## RISK FACTORS FOR ALCOHOL- AND DRUG-USE PROBLEMS

Addiction can happen to people of all educational, social, and financial backgrounds. However, there are certain factors in a person's life that make developing an **alcohol- or drug (substance)- use problem** more likely or less likely. Things that affect a person's chances of developing a health problem are called risk factors. Simply having a risk factor does not mean that a person *will* develop a problem, but it increases the chances. For example, not wearing a bicycle helmet is a risk factor for having a serious head injury, but not everyone who rides a bike without a helmet will be injured.

Risk factors fall into two broad categories that describe whether a given factor can or cannot be changed. **Non-modifiable risk factors** *can never* be changed, while **modifiable risk factors** are things that *can* be changed.

## NON-MODIFIABLE RISK FACTORS

### Genetic Make-Up

A person's genetic make-up—their collection of genes—is a non-modifiable risk factor that can affect a person's chances of developing an addiction to alcohol or other drugs. Since a person cannot choose their birth family, they cannot choose or change their genetic make-up. A person's **genes** are the instructions for all the proteins made by their body. Genes play a big role in determining our features, like hair and eye color, height, and skin tone. Genes also carry risk factors for many illnesses, like heart disease, cancer, and even mental health disorders like depression, anxiety, and addiction. Even

## GENES

Information found within cells of the body that determines a person's physical features, mental functioning, and disease risk. This information is passed on from parents to their children.

when a person is adopted and grows up with another family, their genes still affect their chance of disease.

We can identify genes that cause some diseases, like breast cancer, using a blood test. There are currently no laboratory tests that identify genes that put people at risk for addiction, but we can get an idea of whether a person may have a genetic risk for addiction by looking at their blood relatives. People whose close family members have alcohol- or drug-use problems have a higher chance of developing an addiction [3]. As the number of relatives a person has with an addiction goes up, so does their risk for developing an addiction.

Simply having relatives with a substance-use problem does not automatically mean that a person will also develop an alcohol- or drug-use problem. This is because a person's genetic make-up is only one of the many risk factors for developing an addiction.

## MODIFIABLE RISK FACTORS

### Friendships

While people do not get to choose family, friendship *is* a choice. Friends play a big role in influencing whether someone will develop an alcohol- or drug-use problem [4]. Researchers in Australia found that the risk for heavy drinking at a young age was more than three times higher for young people who had friends who were using alcohol [4]. Because friends can influence each other, people who do not use drugs can influence their friends not to use alcohol or drugs as well. So, friend groups are a modifiable risk factor for developing an alcohol- or drug-use problem.

### Age

For many diseases, age is a non-modifiable risk factor. This is because the risk for developing most diseases increases as a person gets older, and aging occurs naturally. This is not the case with alcohol- or drug-use problems. Most people get to choose if, or when (at what age), they will try drugs. Almost everyone who becomes addicted started using drugs before their 18th birthday. Research studies have shown that the younger a person is when they start using alcohol, the greater their chances of developing an alcohol-use disorder (Figure 1) [5]. Individuals whose first exposure to drugs is after their 21st birthday have a smaller chance of developing an alcohol or drug addiction at any point in their lifetimes (Figure 1) [5]. For those who decide *never* to try drugs, their risk of developing an alcohol- or drug-use problem is zero! In fact, addiction is the *only* chronic disease that is 100% preventable.

### Figure 1

People's chances of developing an alcohol- or drug-use disorder are related to the age at which they first tried those substances. The older people are when they first try alcohol or drugs, the less likely they are to develop a substance-use disorder [5].

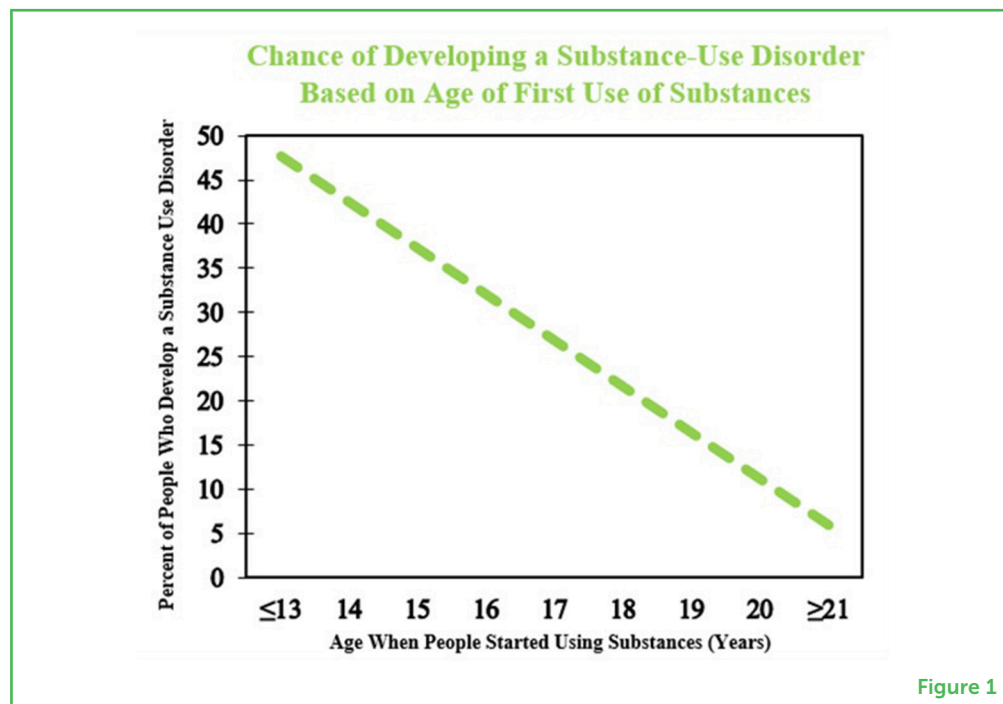


Figure 1

### Social Support

Young people who have supportive adults in their lives are less likely to develop an addiction. Seeking out the help of a parent, family member, teacher, social worker, religious leader, healthcare provider, school counselor, or other supportive adult can help some people to manage difficult situations. Supportive adults are good at listening to concerns, and if they do not think they can help in certain situations, they may be able to connect a young person to someone who can. Since people can seek to build their social support, this is a modifiable risk factor for developing an addiction.

### Emotional Wellbeing

Poor **emotional wellbeing** increases a person's chance of developing an addiction. Many people live with depression, anxiety, trouble sleeping, eating disorders, and attention problems. These problems can affect a person's emotional wellbeing. Some people have also experienced difficult situations or have even survived **trauma**, which can impact emotions. Luckily, emotional wellbeing *can* be improved. Working on hobbies like exercising or playing sports, reading, singing, or making art, are just some of the activities known to improve mood, reduce anxiety, and positively affect a person's emotions. If available, professional counseling and learning ways to build self-confidence can also help some people improve their emotional wellbeing. While it is not always necessary, some people find it helpful to use medication from a healthcare provider to help treat mental illnesses that may be contributing to their poor emotional wellbeing.

### EMOTIONAL WELLBEING

A person's ability to identify, express, and manage their feelings and emotions appropriately.

### TRAUMA

Stressful or frightening life events that affect a person's mind, body, and emotions for a very long time, sometimes for their entire life if they do not get help and support.

Some things that people choose to do can also decrease their emotional wellbeing. Using drugs like alcohol, nicotine, or cannabis (marijuana) to deal with difficult emotions can feel like it helps for a short time, but repeated alcohol and other drug use most often worsens emotional wellbeing. This leads to an increased chance that a person will develop an addiction. Since people can take steps to improve their emotional wellbeing, emotional wellbeing is a modifiable risk factor for developing an alcohol- or drug-use problem.

## WHAT DOES ALL OF THIS MEAN?

Overall, there are many risk factors that can lead to alcohol or drug problems. Some factors individuals have no control over and *cannot* change—these are non-modifiable factors. Other factors *can* be changed—these are modifiable risk factors. Just by doing a quick count of the factors discussed here, you can see that the modifiable risk factors far outnumber the non-modifiable risk factors (Figure 2).

### Figure 2

Modifiable risk factors (**left**) can be changed, while non-modifiable risk factors (**right**) cannot. Many of the risk factors for alcohol- and drug-use problems are modifiable.

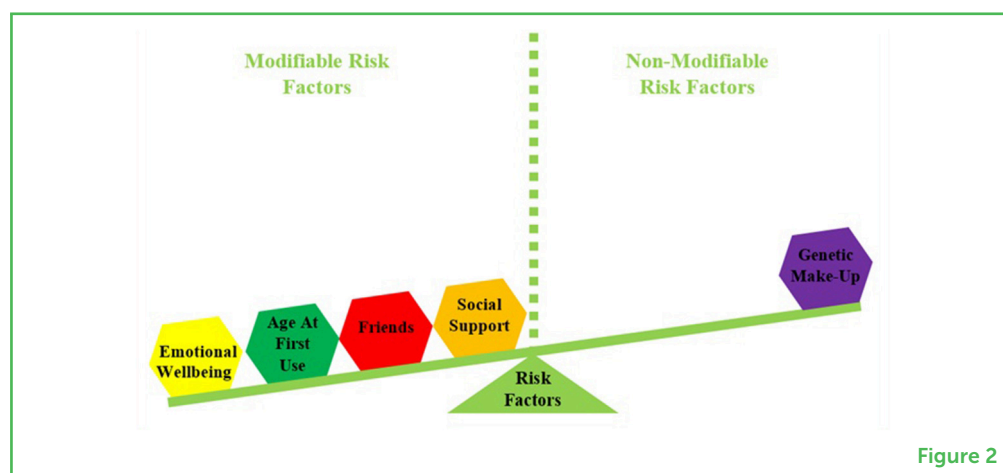


Figure 2

For those seeking to lower their risk of developing an alcohol- or drug-use problem, this is great news. Depending on an individual's identified risks, that person can make changes to their personal space to get rid of those risks. Deciding whether to make these changes ultimately determines a person's risk for developing an alcohol- or drug-use problem.

That said, some people may feel powerless to change their modifiable risk factors, but it is important to note that these factors *can* be changed. If you, or someone you care about, has some of these risk factors and would like to try to lower the risk of developing an alcohol- or drug-use problem, ask for help. Talk with a friend, parent, religious leader, healthcare provider, or another trusted person at school or in your community. Ask that person to work with you to help you make

changes to your environment that will lower your risks. Deciding to never start using alcohol or drugs makes the chance of developing an addiction to those substances impossible. So, it is up to you—and to every individual—to choose!

## ACKNOWLEDGMENTS

We express sincere gratitude to Emanuel Levy for comments on the manuscript.

## REFERENCES

1. Moller, D. W. 2011. *Environmental Health, 4<sup>th</sup> Edn.* Cambridge, MA: Harvard University Press.
2. Levy, S., Campbell, M. C., Shea, C. L., DuPont, C. M., and DuPont, R. L. 2020. Trends in substance nonuse by high school seniors: 1975–2018. *Pediatrics*. 146:e2020007187. doi: 10.1542/peds.2020-007187
3. Meyers, J. L., and Dick, D. M. 2010. Genetic and environmental risk factors for adolescent-onset substance use disorders. *Child Adolesc Psychiatr Clin N Am.* 19:465–77. doi: 10.1016/j.chc.2010.03.013
4. Yuen, W. S., Chan, G., Bruno, R., Clare, P., Mattick, R., Aiken, A., et al. 2020. Adolescent alcohol use trajectories: risk factors and adult outcomes. *Pediatrics*. 146:e20200440. doi: 10.1542/peds.2020-0440
5. Hingson, R. W., Heeren, T., and Winter, M. R. 2006. Age at drinking onset and alcohol dependence: age at onset, duration, and severity. *Arch Pediatr Adolesc Med.* 160:739–46. doi: 10.1001/archpedi.160.7.739

**SUBMITTED:** 16 December 2021; **ACCEPTED:** 17 November 2022;

**PUBLISHED ONLINE:** 08 December 2022.

**EDITOR:** [Slavica Vuckovic](#), The University of Queensland, Australia

**SCIENCE MENTORS:** [Vimig Socrates](#) and [Stephanie Richardson-Solorzano](#)

**CITATION:** Oliver AL and Levy S (2022) What Affects Your Risk For Alcohol- And Drug-Use Problems: You Get To Choose! *Front. Young Minds* 10:837699. doi: 10.3389/frym.2022.837699

**CONFLICT OF INTEREST:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## YOUNG REVIEWERS

**AHMAD, AGE: 14**

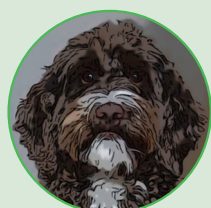
My name is Ahmad, and I enjoy reading, biking, taking walks on the beach, playing badminton, playing video games, and traveling. I have been to six countries. My favorite food is smoked salmon. My favorite animals are spiders and cats.

**CARYN, AGE: 14**

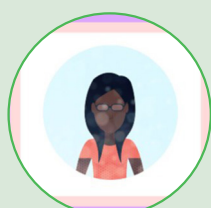
Hello! This is Caryn. I am a rising 9th grader in CT.

**HIBA, AGE: 15**

I enjoyed reading the article. It is an important topic that I enjoyed learning about.

**KATHERINE, AGE: 13**

Katherine loves dogs, especially her Australian Labradoodle. She is in fact slightly obsessed with her dog. She enjoys singing and playing flute. Her favorite subject in school is geography, but she hopes to be a doctor 1 day.

**TEMI, AGE: 14**

Hi! My name is Temi and I am 14 years old. I am really passionate about science, more specifically the field of medicine; I really enjoy pediatrics and I also like to learn different math concepts! Some extracurricular activities I enjoy include playing tennis, playing basketball, and completing various science fair projects.

## AUTHORS

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Dr. Alicia L. Oliver was born and raised in The Commonwealth of The Bahamas. Her primary training is in Preventive Medicine and Public Health and she pursued further specialty training in addiction medicine at the Adolescent Substance Use and Addiction Program at Boston Children's Hospital. Dr. Oliver is committed to helping to equip individuals with tools that can help them to work to prevent the development of diseases, including substance use disorders.

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Dr. Sharon Levy is a Developmental-Behavioral Pediatrician, Addiction Medicine specialist, Director of the Adolescent Substance Use and Addiction Program at Boston Children's Hospital and Associate Professor at Harvard Medical School. Over the past 20 years she has evaluated and treated thousands of adolescents with substance use disorders, and she has written extensively on the topic. In 2016 she established the first accredited Pediatric Addiction Medicine Fellowship training program in the United States. She has expertise in the integration of substance use treatment services into pediatric primary care.