



## Important Phone Numbers

National Alliance on Mental Illness Help Line

1-800-950-6264 <https://www.nami.org/help>

Suicide Prevention Lifeline 800.273.TALK

Veteran's Crisis Line 800.273.8255 press 1

Pastoral Care—Pastor Jim Alexander 623.792.5295

<https://thepalms.org/Tools2Thrive>

## MENTAL ILLNESS, RECOVERY, AND THE SCIENCE BEHIND IT

Mental illness is complicated but learning more about the science behind it is a great step in figuring out what recovery might look like for you. Most mental illnesses are not caused by just one thing – it's often a combination of factors like genetics, environment, traumas, lifestyle, brain chemistry, and more. There is a lot of anecdotal evidence to support different experiences, like advice from friends on what anxiety feels like and success stories from people taking a certain medication, but every individual is unique and has their own experience with mental illness and recovery. Understanding what is happening in your body, why you feel the way you do, and how different treatments work can help you find your own path to recovery.

### WHAT CAUSES MENTAL ILLNESS?

*This section was original published as an article on MHA's website [here](#).*

Most mental illnesses don't have a single cause. Instead they have a variety of causes, called **risk factors**. The more risk factors you have, the more likely you are to develop a mental illness. Sometimes, the mental illness develops gradually. Other times, it doesn't appear until a stressful event **triggers** it.

There are many risk factors and triggers, but here are a few examples:

- Genetics. Mental illness often runs in the family.
- Environment. Living in a stressful environment can make you more likely to develop a mental illness. Things like living in poverty or having an abusive family put a lot of stress on your brain and often trigger mental illness.
- Childhood trauma. Even if you're no longer in a stressful environment, things that happened to you as a child can have an impact later in life.
- Stressful events: like losing a loved one, or being in a car accident.
- Negative thoughts. Constantly putting yourself down or expecting the worst can get you stuck in a cycle of depression or anxiety.
- Unhealthy habits: like not getting enough sleep, or not eating.
- Drugs and alcohol: Abusing drugs and alcohol can trigger a mental illness. It can also make it harder to recover from mental illness.
- Brain chemistry. Mental illness involves an imbalance of natural chemicals in your brain and your body.

These risk factors don't just affect who will develop a mental illness in the first place. They also affect how severe their symptoms will be, and when they will experience those symptoms.

You can also improve your own mental health by [taking action to reduce your risk factors](#). That might include [seeking treatment, like medication or therapy](#).

## IS MENTAL ILLNESS GENETIC?

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Genetics is [one of many risk factors that can contribute to mental illness](#). Your genes are passed down from your parents and ancestors, and they provide the blueprint for how your body and brain develop. Genetics is really complicated, and so is mental illness. There's no single gene that determines for sure whether you'll have a mental illness. (Even something as simple as the [color of your eyes](#) is determined by up to 16 different genes!) Instead there are many genes that affect the way your brain develops, and this can make you more or less likely to develop a mental illness later on. Other factors that contribute to mental illness include your environment, your habits, and stressful or traumatic events.

## DOES KNOWING MY FAMILY HISTORY HELP?

If members of your family have been treated for mental illness, it can be useful to know which treatments have or have not worked for them. Just remember that you are still an individual, and there's no substitute for finding the treatment that works best for *you*. Knowing your family history can also help you make better decisions about your lifestyle. For example, if addiction runs in your family, it's probably a good idea to be careful about your own drug and alcohol use. There's some evidence that [marijuana use can trigger psychosis](#) if you have a family history of schizophrenia.

At the end of the day, there's nothing you can do about your genes—but you *can* do something about your other risk factors. You can remove yourself from toxic environments, [practice healthier habits](#), and [seek treatment and support](#).

## PHARMACOGENOMIC TESTING

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Pharmacogenomics is the study of how a person's genes impact their reaction to drugs. It is a relatively new field that holds promise for choosing the most effective medications and dosages with the least likelihood of side-effects based on a person's genetic makeup. Doctors can use these tests to inform decisions about what kind of anesthesia is safest to use and to select the best treatment options for cancer, heart disease, neurological problems, infectious diseases, and some mental health conditions like depression.<sup>[1]</sup> By analyzing the genetic variations in your DNA, the test can provide information about genes that may impact how you break down or react to certain medications.

When it comes to depression, a pharmacogenomic test will look at two main factors in your genes.

- **Pharmacodynamic factors.** Pharmacodynamic factors are genetic variations that indicate how a medicine will affect your body. Depending on who makes the test, a test may look for variations in one, or up to four different genes.
  - \* The SLC6A4 gene determines how many serotonin transporters you have. If you have a low number of transporters, it is less likely that a group of medications called SSRIs (selective serotonin reuptake inhibitors) will be effective for you.
  - \* A variation in the 5HTR2A gene indicates a higher likelihood that you will experience side effects from certain medications.
  - \* Variations in the HLA-B\*1502 and HLA-A\*3101 genes have to do with your immune system and the likelihood that you will have skin reactions from certain drugs. One particular type of skin reaction called Stevens-Johnson syndrome is serious and can be fatal.

- **Pharmacokinetic factors.** Pharmacokinetic factors have to do with what your body will do to medication. This includes the presence of certain enzymes in your liver that breakdown medications. Because everyone is different, some people will break down medications more quickly or more slowly than others. People who break down medications more slowly have an increased risk of side effects and may need lower doses of medication, while people who break down medications more quickly may need higher doses of medication or medications that have a longer half-life.

Pharmacogenomic tests, unlike genetic tests (Ancestry, 23andMe, etc.) must be ordered by a medical professional and are done at a doctor's office with a quick and painless cheek swab. Most health professionals will not order a pharmacogenomic test before putting you on your first medication for depression. This tool is more likely to be used after you have tried one or more medications that have not given you relief for depression or have caused side effects that are too disruptive to warrant continued use of a certain drug. Multiple studies have found that people whose treatment providers selected medications based on a certain pharmacogenomic test had improvement in depression symptoms based on the Hamilton Rating Scale for Depression (HAM-D17).[\[ii\]](#)

If you struggle with depression that has not responded to one or more medications, it is worth mentioning pharmacogenetic testing to your treatment provider at your next appointment so they can make more informed decisions about which treatments to try moving forward. Be sure to contact your insurance company to see if this type of test is covered by your plan, and what (if any) costs you may have to pay out-of-pocket if a test is done.

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