

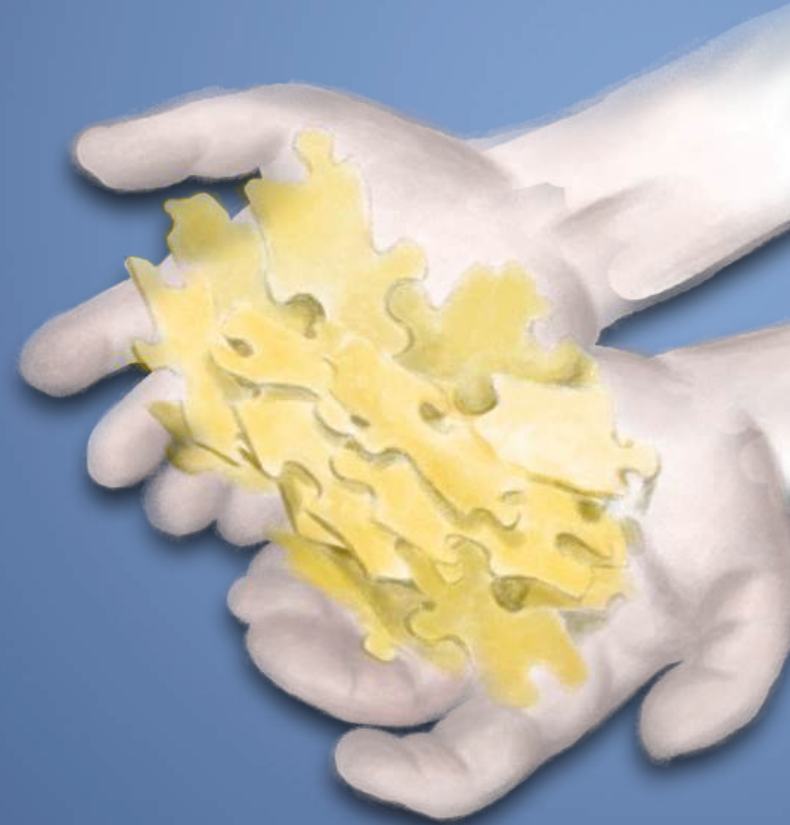


Designed by: Claudia Li

Mental Illness

Underlying Causes and Approaches to Recovery

How does it all fit together?





THE
UNIVERSITY OF
BRITISH
COLUMBIA



TPGG
Translational Psychiatric
Genetics Group

**BC WOMEN'S
HOSPITAL+
HEALTH CENTRE**

An agency of the Provincial Health Services Authority



**BC MENTAL HEALTH
& SUBSTANCE USE SERVICES**

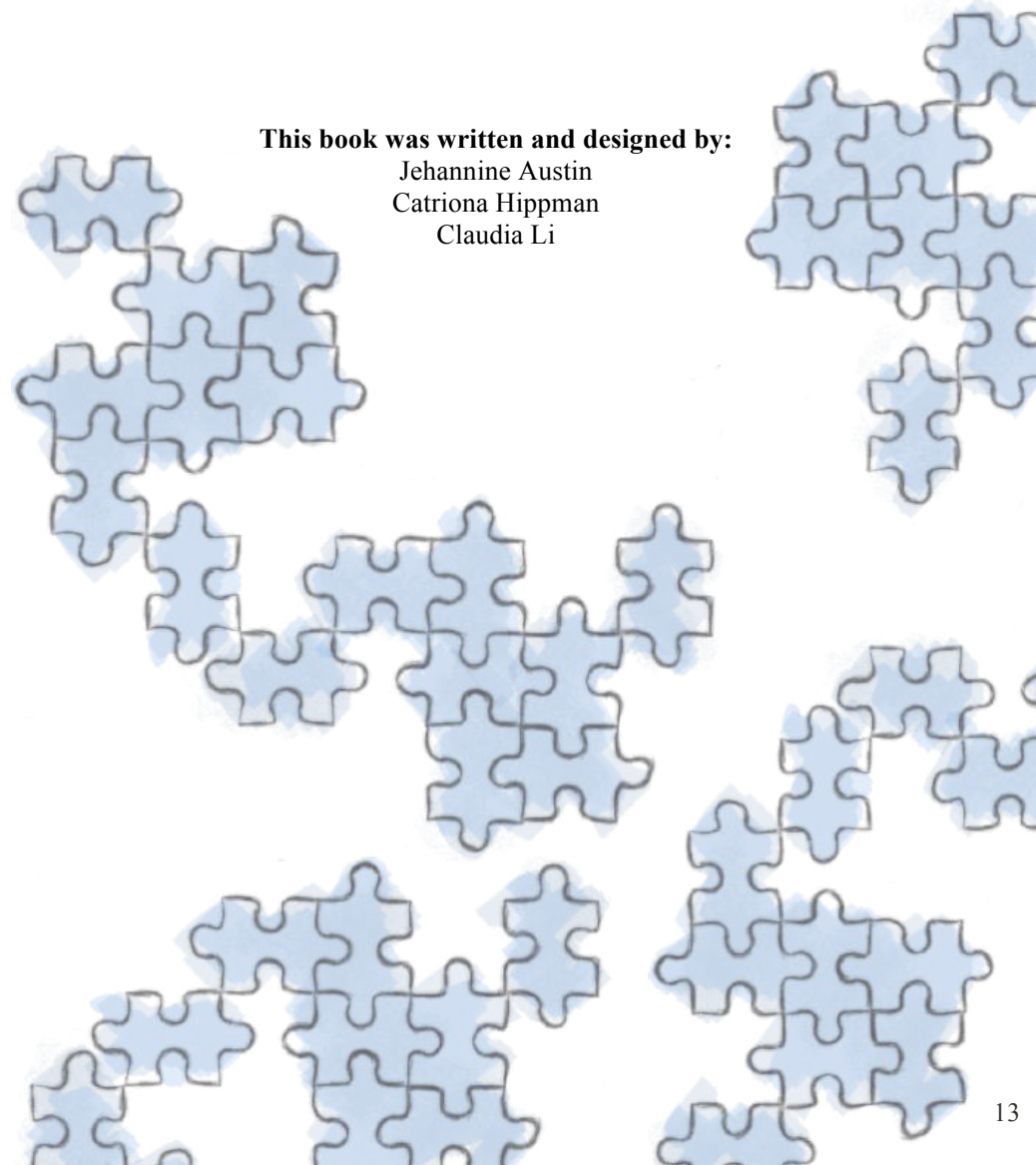
An Agency of the Provincial Health Services Authority



CIHR IRSC
Canadian Institutes of
Health Research Instituts de recherche
en santé du Canada

This book was written and designed by:

Jehannine Austin
Catriona Hippman
Claudia Li



Resources

Who is this booklet for?

Local resources for people with mental illness and their families can be found at:

CANADA

The Canadian Mental Health Association
www.cmha.ca

The Mood Disorders Society of Canada
www.mooddorderscanada.ca
Tel: 519 824 5565

The Schizophrenia Society of Canada
www.schizophrenia.ca
Tel: 1800 263 5545

The Canadian OCD Network
<http://canadianocdnetwork.com>

The following two websites offer information about use of psychiatric medications during pregnancy:

www.motherisk.org

<http://www.mothersobaby.org/>

The following website offers information on a wide variety of mental illnesses, addictions, pregnancy and mental illness, signs and symptoms of illness onset, and suggestions for how to support family members with mental illness. Additionally, many fact sheets have been translated into several different languages:

heretohelp.bc.ca

USA

National Alliance on Mental Illness
www.nami.org
Tel: 1800 950 NAMI

Depression and Bipolar Support Alliance
www.dbsalliance.org
Tel: 1800 826 3632

The International OCD Foundation
www.ocfoundation.org

This booklet is for people who are interested in understanding what causes illnesses like:

schizophrenia
schizoaffective disorder
bipolar disorder
obsessive compulsive disorder

When we use the term “mental illness” we are talking about the illnesses listed above in particular. But, the take home messages in this booklet are also relevant to other mental health problems like depression or anxiety.

For information specific to other mental illnesses, please visit www.nimh.nih.gov or www.cmha.ca.

Please note: This booklet is intended to be a supplement to genetic counseling, not a replacement for it. You can find a genetic counselor in your area using the National Society of Genetic Counselors' Find a Genetic Counselor tool:
<http://nsgc.org/p/cm/ld/fid=164>

What causes mental illness?

“Mental illness” is a term used to describe a group of illnesses like schizophrenia, obsessive compulsive disorder and bipolar disorder. You might have heard many ideas about what might cause mental illness. You might have heard people ask whether “nature or nurture” causes mental illness, or you might have wondered this yourself.

Recently scientists have found that they can understand the causes of mental illnesses better. This booklet is for people who have a mental illness and their relatives. We hope that this booklet will help you to better understand the causes of mental illnesses as well.

Mental illnesses in families: nature or nurture?

What are the most important things to remember?

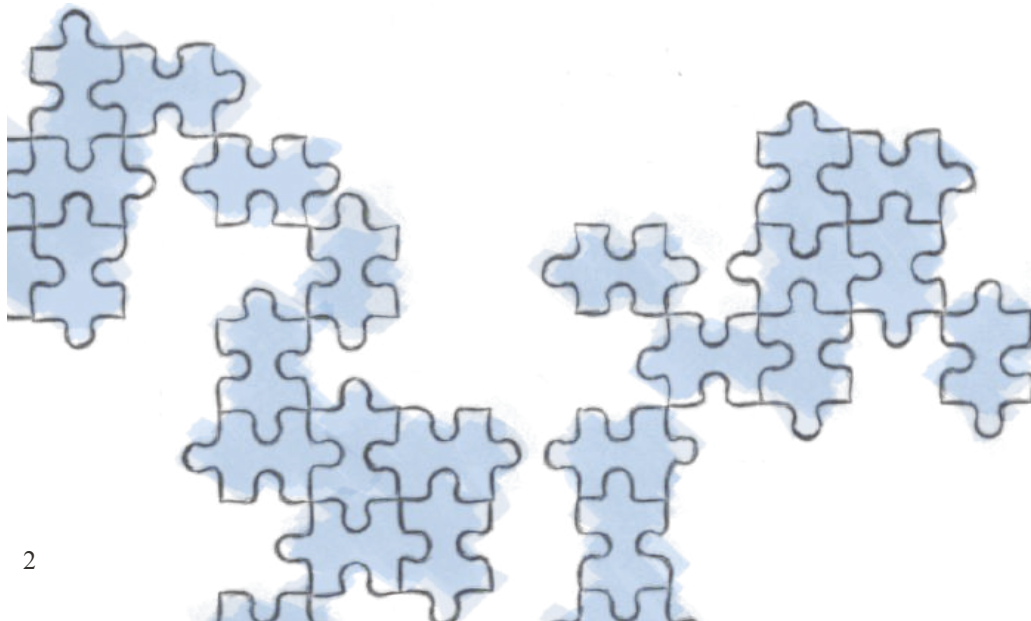
Mental illnesses can “run in families”. A person who has a relative with mental illness has a higher chance of having a mental illness than a person with no affected relatives. There are different reasons for why this might be. It could be because mental illness is inherited. Or, it could be because a family shares experiences that make them more likely to have mental illness.

So, scientists have been trying to work out whether mental illness is caused by inherited factors, or by experiences that we have. This is like asking whether mental illness is caused by nature or nurture.

Scientists have found that mental illness is not usually caused by either inherited factors (nature) or experiences (nurture) alone. Usually, BOTH nature and nurture together are important in causing a mental illness.

You can inherit a vulnerability to mental illness. But, it is very rare to have a mental illness that is entirely caused by inherited factors.

1. Mental illness is caused by BOTH nature and nurture. Usually, inherited (genetic) factors and environmental factors contribute together to cause mental illness.
2. You can inherit a vulnerability to mental illness. But, it is very rare to have a mental illness that is entirely caused by inherited factors.
3. We all have some genetic factors for mental illness. Some people have a large amount, others have a small amount, but most people have a medium amount.
4. A person who has a large amount of genetic factors may be more likely to have mental illness than someone who has only a small amount. But, a person can have a lot of genetic factors and not develop mental illness.
5. Genetic differences may play a role in causing chemicals in the brain to become imbalanced.
6. People who have had an episode of mental illness can recover. We can remove some environmental factors from our jars and try to do things to protect our mental health for the future. Some suggestions are listed on page 7.
7. People who have never had an episode of mental illness can benefit from protective factors too! Protective factors can decrease the chance of experiencing a first episode of mental illness.
8. A person who has a close blood relative with a mental illness has a higher chance to develop a mental illness themselves. If you want more information about this, or if you are worried about these chances, please talk to a genetic counselor.
9. Genetic tests by themselves will never be able to tell us who will and who will not develop mental illness, because the environment plays an important role.
10. If you are worried that someone might have symptoms of mental illness, get help quickly. Options listed on page 12 might help.



What about genetic testing to predict mental illness?

The “mental illness jar”

It seems that most genetic factors will only make small changes to a person’s chance to develop mental illness. We don’t know yet how different combinations of genetic factors affect a person’s chance to develop mental illness.

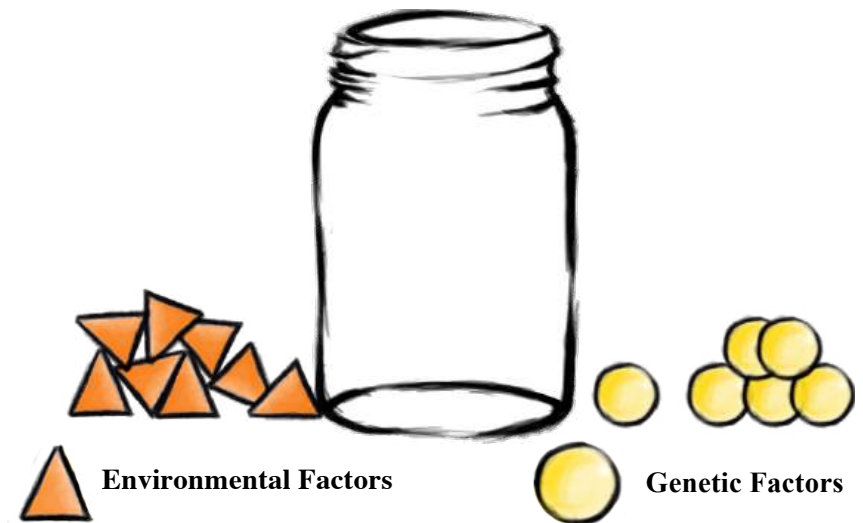
Until we better understand how genetic factors work with each other, and with environmental factors, genetic tests may not be very useful in determining who will and who will not develop mental illness, and will not change how a doctor will treat a person.

For the latest research findings about mental illness, take a look at the websites listed on page 6.

Environmental factors play a very important role in mental illness. So, genetic tests will never be able to tell us exactly who will and will not develop a mental illness.

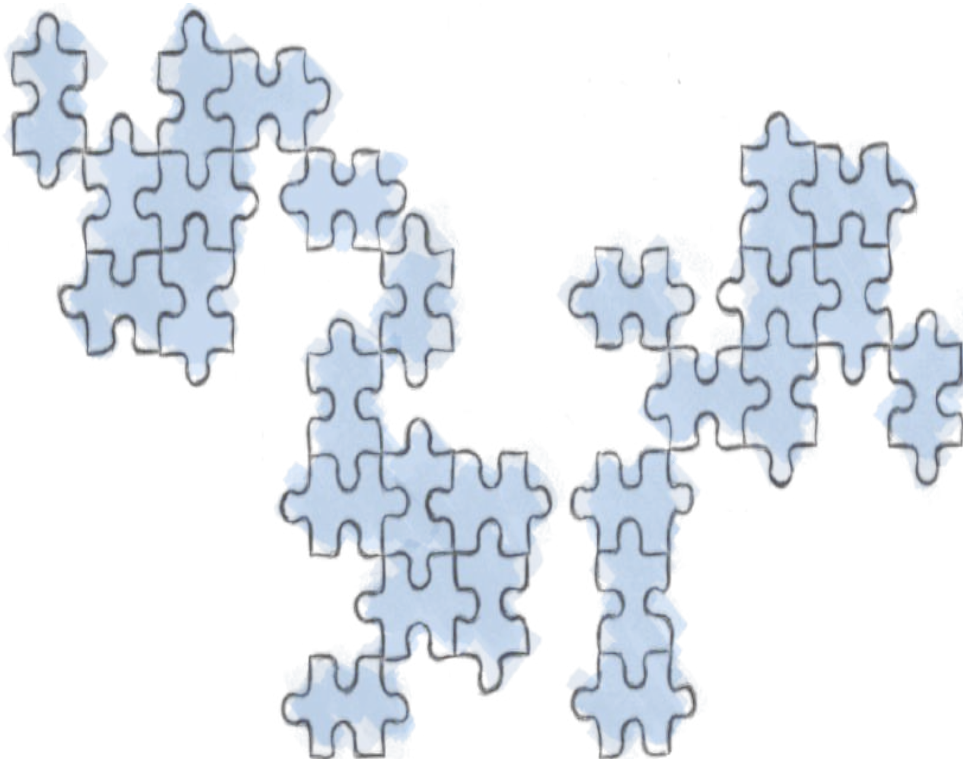
The picture below shows a “mental illness jar”. We each have a mental illness jar. We can use this jar as a model to show how inherited factors and our experiences work together to cause mental illnesses. We will call the inherited factors “genetic factors”. We will call our experiences “environmental factors”.

The mental illness jar can be filled up with both genetic and environmental factors. If the jar becomes full, a person experiences an episode of mental illness. If the jar is not full, a person is not experiencing an episode of mental illness. But, the closer to “full” the jar becomes, the more vulnerable to mental illness the person is.



We are all different in how sensitive we are to things in our environment, like stress. Those of us who are more sensitive may be more likely to develop mental illness after a **stressful*** experience. The differences in how sensitive we are might be due to us each having different amounts of genetic factors in our jars.

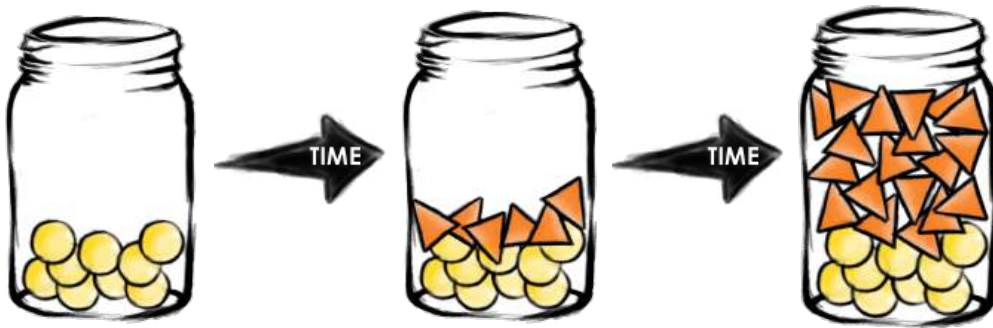
***When we use the term "stressful" we mean it in a broad sense; both positive and negative experiences can be stressful, and can include physical events such as head injuries.**



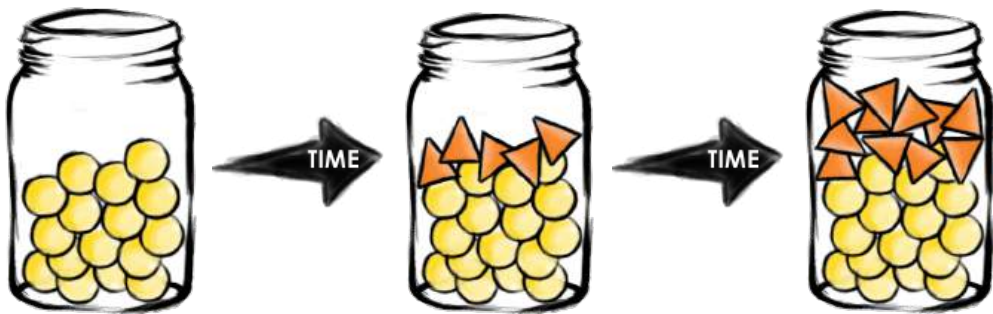
What are the chances that someone will develop a mental illness?

It seems that we all have genetic factors for mental illness. Some of us have only a small amount, others have a large amount, but most of us have a medium amount. Not everyone with mental illness will have a large amount of genetic factors for mental illness. Some people with mental illness will have a small amount of genetic factors, but a large amount of environmental factors.

Mental illness can be caused by a small amount of genetic factors, and a large amount of environmental factors, as shown below.



Mental illness can also be caused by a large amount of genetic factors, and a small amount of environmental factors, as shown below.



A person who has a large amount of genetic factors may be more likely to have mental illness than someone who has only a small amount. Another way to say this is that a person who has a large amount of genetic factors is more sensitive to the effects of stressful experiences. But, a person can have a lot of genetic factors and not develop mental illness.

Chances will not be the same for everyone, because every family is different. For example, someone who has two relatives with mental illness might have a higher chance to develop mental illness than someone who only has one affected relative.

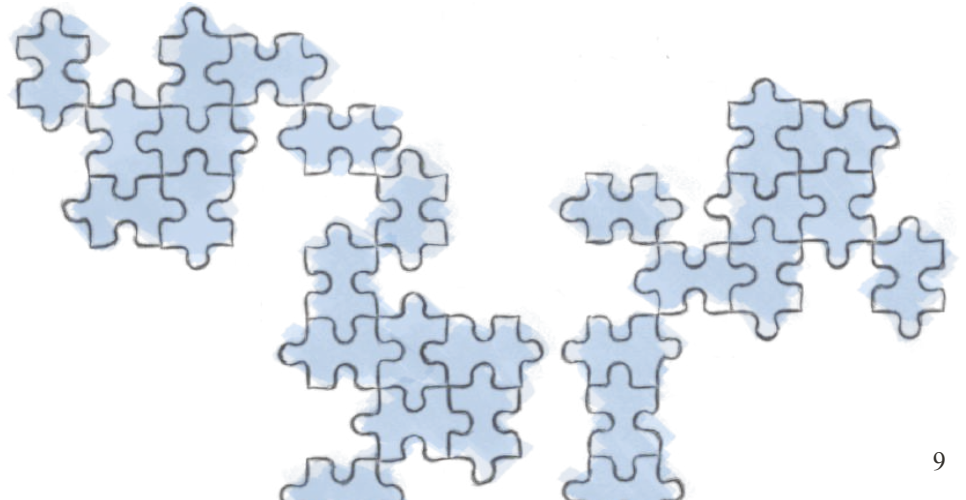
Mental illness usually appears when a person is in their teens or 20s. The chance to develop mental illness gets smaller as a person passes the age range during which the illness usually appears. It is very unlikely that someone who is older than 50 will develop an illness like schizophrenia or bipolar disorder.

What can I do if I am worried about the chances for me or my relative to develop mental illness?

Try to talk about mental illness at home. This can be very hard, but you might talk about how your family member with mental illness is doing. Or, you could go to a family support group together. This is helpful so that if a family member does have questions or worries they have a chance to talk about them.

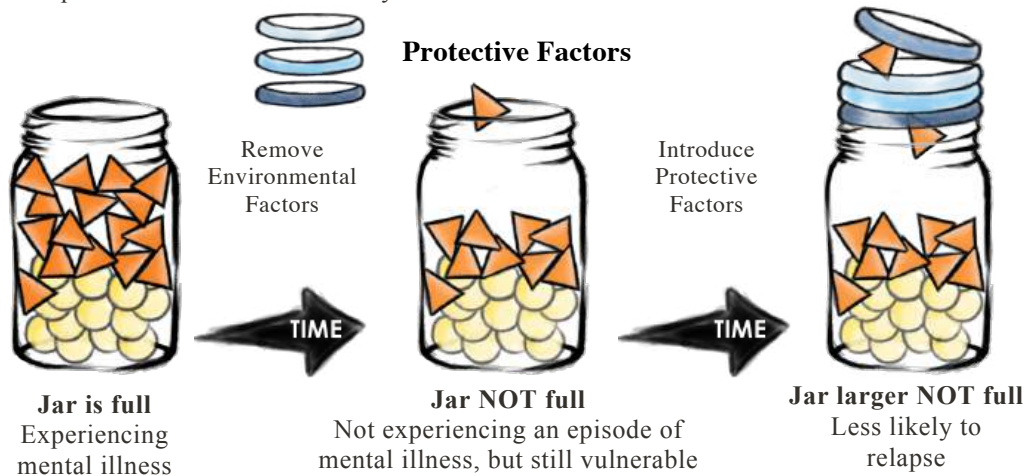
Remember that there are things that you can do to protect against mental illness. Some are listed on page 7 of this booklet. You could talk about these things with your family.

If you are worried that someone might have symptoms of mental illness, try to get help for them quickly. The websites and phone numbers on page 12 may be useful.

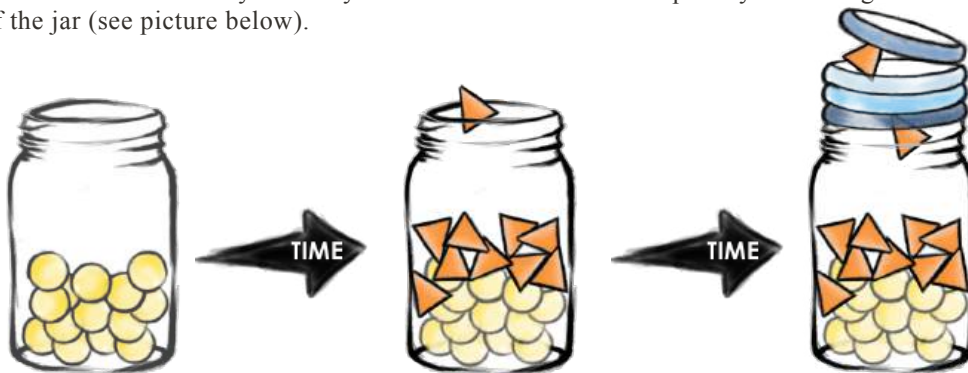


What environmental factors can make a person more likely to have mental illness?

People who have already experienced an episode of mental illness can use protective factors to reduce the chance for a future episode. Protective factors increase the size of the jar, thereby making it harder to fill the jar to the top. Remember, a jar needs to be full for a person to have a relapse. So, protective factors reduce the chance for a relapse. The picture below shows recovery from mental illness.



People who haven't experienced an episode of mental illness can use protective factors to reduce the chance of a first episode. Protective factors reduce the chance for a first episode in the same way that they reduce the chance for a relapse: by increasing the size of the jar (see picture below).



People who have never had an episode of mental illness can benefit from protective factors too! The protective factors listed on page 7 can decrease the chance of experiencing a first episode of mental illness. **BUT, taking medication before experiencing a first episode of mental illness is not recommended.**

There are some environmental factors that can make a person more likely to have a mental illness. An environmental factor is another way of saying a “life experience”. We don’t know what all of the environmental factors for mental illness are, but some of the ones we do know about are listed below.

The first 3 in the list (**in bold text**) can make a person more likely to have either **bipolar disorder** or **schizophrenia** or **schizoaffective disorder**.

The last 4 in the list (*in italics*) can make a person more likely to have *schizophrenia*.

- **Being born in the winter months**
- **Experiencing stressful life events**
- **Taking certain illegal drugs**
(like cannabis or methamphetamine)
- *Being born after a difficult pregnancy or delivery*
- *Being brought up in a large city*
- *Being an immigrant*
- *Having had a childhood head injury*

Most of these experiences make it only slightly more likely that a person will develop mental illness. For example, for the average person in the general population, the chance to develop schizophrenia is about 1%. But, someone whose birth was difficult is twice as likely to have a mental illness, like schizophrenia, than someone whose birth was not difficult. This means that a person whose birth was difficult has a chance to develop schizophrenia of 2% rather than 1%.

How do genetic factors make a difference in the body?

You might have heard that mental illness is caused by a **chemical imbalance in the brain**. You might have wondered how the chemicals in the brain become imbalanced. The genetic factors that make it more likely for a person to develop a mental illness can affect how the body produces brain chemicals. So, genetic factors may play a role in causing chemicals in the brain to become imbalanced.

You may also have heard that **brain scans of people with mental illness look different** when compared to brain scans of people without mental illness. The genetic factors that make it more likely for a person to develop a mental illness can change the way that a brain develops. So, genetic factors may play a role in some of the differences that are sometimes seen on brain scans.

Does everyone with mental illness have the same genetic and environmental factors?

No. There are many different kinds of genetic and environmental factors. Each person with mental illness will have only a few of each. So, there are many different combinations of genetic and environmental factors, which could all lead to mental illness. This might explain how two people with the same mental illness diagnosis have differences in their symptoms.

We don't yet know how each combination of genetic and environmental factors changes a person's chance to develop mental illness. If you would like to know about new research findings in this area, you can visit: www.bbrfoundation.org, or www.schizophreniaforum.org.

How can people recover or protect themselves from mental illness?

We cannot change the amount of genetic factors we have. But, we can change some parts of our environment. Someone might **remove environmental factors from their jar** by:

- Finding ways to reduce stress (for example, at work)
- Not taking drugs like cannabis and methamphetamine



Jar is full
Experiencing mental illness



Jar NOT full
Not experiencing an episode of mental illness, but still vulnerable

Taking medication suggested by a doctor can help with recovery by making it easier to remove environmental factors from our jars.

Protecting your mental health

We have seen that there are things that make us more likely to have mental illness. But, there are also **protective factors** that make it less likely for us to experience an episode of mental illness. Examples of protective factors include:

- Stress reduction
- Adequate sleep or rest
- Regular meals and a healthy balanced diet
- Exercise and physical activity
- A good support system of people you trust
- Taking medication suggested by a doctor

Different protective factors may be important for different people. Some people find that having a hot bath, meditating, spending time with a pet, or painting can act as protective factors. Think about what works for you! Remember, to use all of our protective factors every day can be very hard. It is good to just do what you can.