

Title: bio-medi English

Schizophrenia

- ✓ **Instructor:** 트레이스 피터
- ✓ **Institution:** 충남대학교
- ✓ **Dictated:** 김은비, 박원정, 한소영, 김보미

🔊 [00:30]

Okay, today's lecture is kind of a continuation we've talked about neuro-biology, we've talked about different kinds of disorders, right?

You guys took your test already, we've talked about Alzheimers disease that was on your test.

We've talked little bit about Parkinson's disease with the stem cell therapy and then we talked about stroke which is... affects the brain, blood going to the brain.

Today we're talking about Schizophrenia, Schizophrenia is psychiatric disease, so a little bit different here.

Because this disease is affecting the mind, the way we think and the way we perceive things.

Schizophrenia is very strange disease because people with Schizophrenia will find out today, have delusions and hallucinations which are things that you can also experience by using drugs that we talked about marijuana one of the drugs we talked about.

And we talked about different kinds of psychedelic drugs.

For example, LSD, maybe you've heard about that drug, crystal meth, we talked about people who take crystal meth and get addicted to it, they start to have delusions and we talked about people with crystal meth after a long time, they might feel like bugs are clawing on their skin.

And so they start digging in their skin, that is a delusion right?

They think something is there, and it is not there.

Schizophrenia is a disease not using drugs just chemical imbalances in people's brains or some abnormal these in their brain causing them to feel to hear voices, or to see things that aren't there, or to think things that are true that are not.



So, it is a very disturbing illness, because these people they cannot perceive reality like you do or I do.

And we're going to find out that this disease affects people who are young unlike Alzheimers and Parkinson's disease that affect people when they are older.

Schizophrenia, we're going to find out effects of people at your age.

 **[03:00]**

And it is not very uncommon.

Disease is like this.

We're going to find out 1 percent of the entire population is affected by Schizophrenia or some kind of psychiatric illness like this.

Okay, we'll start with the over view.

First it says the overview is talking about a movie, how many of you have seen the movie, 'A Beautiful Mind', Russell Crowe?

Do you know Russell Crowe? Do you like Russell Crowe? Very sexy man.

Anyway, Russell Crowe, very famous actor, right?

He was in this movie called 'A Beautiful Mind'.

In the movie, what was his character? What was his job?

He was a professor, yes, he was a professor and he developed this illness Schizophrenia.

If you see the movie you can understand about what Schizophrenia is doing to the mind.

Today, we're going to talk about how it makes people paranoid?

And that we've talked about that word in this lecture, paranoia.

You guys remember that word? What is paranoia? Anybody remember?

Okay, Korean definition.

It is a fear, a fear that people are trying to get you or people are trying to hurt you or people are after you.

So, someone with Schizophrenia and also we talked about with drug use smoking



marijuana can make people paranoid.

You think people are trying to get you or are after you.

It is very disturbing illness.

Okay, anyway, It won the academy award for best picture in 2002, and it is a very good movie, you haven't seen it, I suggest watching it.

I think you will like it.

It talked about Schizophrenia and it brought it into the public eye, okay?

It was a true story, that movie is a true story about the progression of illness of a brilliant Nobel prize winner, and he was a professor.

In the film, it talked about how Schizophrenia makes it difficult for a person to distinguish between what is real and what is not real.

And that Schizophrenia is exactly what that means.

Schizo means split, this means split and that Phrenia means mind, so your mind is split in two.

What is split? What is real and what is not real?

Your mind cannot tell, so your mind is split and that is what Schizophrenia means, split mind.

Real and unreal, you don't know the difference.

 **[06:00]**

Okay, so you can't tell between real and unreal and therefore, socially, you have many problems socially.

Because you are experiencing things that other people are not experiencing.

So, of course, you have trouble functioning, you have trouble with relationships between people, and the one good thing or one positive thing is that in the beautiful mind, the movie, Russell Crowe, he does in the end, he is able to control the illness a little bit and he is able to have a normal, kind of normal life.

So, there is medicine we'll talk about it today, you can get medicine for Schizophrenia and with medicine and with a lot of support from family or friends, you can live kind of a normal life.

So, it is not, it is not completely depressing.

Okay, today, learning objectives, understand behaviors and actions of schizophrenics and how the disease gets worse.

Um... identify and distinguish between different signs and symptoms we'll talk about today.

Explain possible causes what is causing Schizophrenia and we'll also talk about some of the risk factors just like our lessons with Alzheimer's and stroke.

Okay, so this first part, we'll talking about one man's story, so this is typical case, a case study of Schizophrenia.

You can see the age, this man is 21 years old, about your age, he was in school he was in college, in university, he's doing very well, good grades, everything is going well, he has a part time job, 아르바이트.

And things are good but then what starts to happen.

We start to see some warning signs, some signs, he gets paranoid, we talked about paranoid.

He thinks people are out to get him, so he is paranoid.

He acts in bizarre ways, bizarre, that word means strange, weird, strange ways, so he's acting strange, he is paranoid.

He thinks his professor is trying to get him, paranoid.

And you can see it says he starts talking very confusing talk in the classroom.

It says ranting, ranting means talking loudly and interrupting, that is a rant.

And so he's speeches, he's talking strange, he's acting strange, and he is paranoid.

 **[09:00]**

He talks to his roommate and he says people are trying to get me, other students are trying to get me too.

And then, he dropped out of school.

So you can see he is doing really good and now...

So, they say he dropped out of school, that was the first paragraph and now, things are getting worse. What happens?



He stops bathing, so he stops cleaning himself this is common sign, Schizophrenia.

People don't take care of their body they don't clean they don't wash their hair they don't brush their teeth so they are dirty they smell bad.

It is a sign of Schizophrenia.

Um... at his job, he thinks that there are cameras and the TVs and the cameras are watching him all the time.

You can see there is the paranoia right?

Someone is trying to get him.

So he, what happens, finally he starts breaking the TVs and he is yelling "I'm going to get this cameras out!", right? He is smashing the TVs.

And of course, at that point, they call the police, the police come and take him and then they realize he needs to be put in a mental institution.

Okay, so you can see how it gets worse and worse.

In the movie a beautiful mind, a Russell Crowe, the professor very similar to this story he thinks people are spying on him, thinks the CIA is trying to spy on him and get his ideas from his head.

Hi thinks that there might be some... they put something in his food or they put something in his head they can read his mind.

And actually a true story from my life I had a friend and I still have a friend in America, a good friend of mind actually and he doesn't have Schizophrenia but he did have, I told you there are many types of psychiatric illness.

And my friend there was he went throw a time in his life he had a very high stress time in his life and going throw this time, I remember he was starting to have some paranoid thoughts, and it is not uncommon in people's lives to go throw a time where you get paranoid.

But anyway, I was on the elevator with my friend and I know he was having some problems so I was helping him talking with him trying to be a good friend.

We're on the elevator and we were going up the elevator and he is... on the elevator he pulling at something in the elevator.

He's trying to unscrew a bolt from the elevator and pulling it and I 'm looking at him and I'm saying... I'm thinking wow this is little strange.



I said “what do you doing right now?”, he says, “I have to get this weapon out so because people are going to get us when we get out of the elevator.”

🔊 **[12:00]**

And initial feeling is kind of laughing right? I think he is joking but I look at him and he is very serious about this.

And so that at that time is when that I think we need to go in and get you some help talk to somebody and you can see, so those paranoid thoughts is not uncommon.

Many people can have this throw out their lives but when it is a ...

Stress, we're going to find out today, stress is a common trigger, which means it can start these types of feelings.

And so he was under a lot of stress, a lot of pressure, and that is why in your lives, you want to... A little stress is good, right? Cause it makes you work hard.

But too much can push your mind over and get you into trouble.

Okay. Good. So what they're talking about here, like I said, split mind.

They can't tell, someone with schizophrenia can't tell what is real, and what is not real.

Their mind can't understand that part. And it tells you some of the things that will happen.

They may see or hear things that don't exist. But they think that they do exist.

They may speak in strange or confusing ways. Their speech is strange.

They think other people are trying to harm them, paranoia again.

And they think they're being constantly watched by cameras or by someone.

So it makes it very difficult for them to live normally. Medication can help them.

If you look here, just some facts about schizophrenia.

First of all, it is the most distressing and disabling mental disorder.



And you can imagine. You don't know what's real and what's not real. How do you live? How are you able to live your life? Very difficult.

I told you guys it begins in young adulthood, so, about for men, the age is about 16 to 25 it can happen. And women the average age between 25 and 30. So you can see a little bit older for women.


I told you the facts about 1 to 2 percent of the population all over the world, Korea and America included.

Men and women have equal chance of getting it.

The symptoms are very confusing. We talked about some of the symptoms.

But I told you with medicine, called antipsychotics, 'anti' means 'not', 'psychotic', 'psycho', so taking medicine, 'Not Psycho'. So you're not psycho. [Students Laughing] And getting therapy. Very important.

There are some myths. You can see, it is common misconceptions about schizophrenia.

 **[15:01]**

The reason these are in here, sometimes people talk about schizophrenia, they hear about it, I'm sure some of you have probably seen someone with schizophrenia.

Maybe you didn't know. If you go to the bus stop, you go to the Daejeon-yeok, Seoul-yeok, Seoul station, Daejeon station, sometimes you see a person, a Korean person maybe, they're very dirty. Their hair is not combed. Their teeth are not brushed, their clothes are dirty.

And maybe you see them, and they are Right?

They're talking, they're talking to someone, but no one is listening or no one is there.

That person most likely, you're seeing someone who has schizophrenia. Ok?

Often times, people with schizophrenia, have no home or no family.

Because their family cannot care for them. Very difficult to take care of someone with schizophrenia.



Because they are always agitated, they don't know real, or unreal, and often times in Korea, I don't want to say only Korea, but Korea is not a very good country about caring for disabled people.

Maybe you don't agree with me, that is my feeling. I think in Korea often times, families will try to get rid of someone who has a mental problem or physical problem or schizophrenia.

So anyway, some of the myths about schizophrenia.

First of all, it says, many people think schizophrenia means people have a split personality which means they have two different personalities. That is not true.

The only difference, the split is, they don't know what's real and unreal. The personality is the same.

This is a different disorder, split personality. So schizophrenia is not a split personality.


Many people think schizophrenia, they think, 'Oh, that is a very... not many people, that is very rare disorder.'

But 1 out of 100 has schizophrenia. So it is pretty common actually.

Another myth is people think that people with schizophrenia are very dangerous people. Like they're going to kill them. Or they're going to hurt them.

If you see that person at the Daejeon-yeok, you are not going to... many people don't go near them. They're very scared. Like they're going to hurt them.

But schizophrenias are not usually violent. They won't hurt you. They are more scared of you than you are of them. Ok. And another myth.

 **[18:00]**

Some people think that someone has schizophrenia because their parents were not good. They have bad parenting. But that also is not true. That is a myth.

Ok. Next. We will go to warning signs.

Good. So, warning signs. Sometimes it happens... saying, sometimes it happens very sudden but that is not common.



Usually with schizophrenia or psychiatric disease like this, it comes on slowly.

The person starts acting strange and then stranger and then suddenly some big event happens, like in the case study, where the person starts breaking the TVs.

And then, 'Oh. there's some big problem. Now we know.'

But if you talk to the family, they say, "Oh. Yeah. He was acting a little strange before this. And now this happened."

Another sad story, and the true story from my life, but actually not so sad now, but this is true, my younger brother, my younger brother was one year younger than me, he was diagnosed with a psychiatric illness called 'bipolar disorder'.

Bipolar disorder, very similar to schizophrenia. But actually the symptoms can be worse.

But the prognosis, which means, the prognosis, the ability to live a normal life, can be easier than schizophrenia.

But anyway, my brother is still... has this disorder, but now he's doing very well, he's still working at his job, he's a catholic priest, but he had a very big problem with bipolar disorder, very similar to this.

And so, you can see, I'll tell you through this lesson about what he experienced. Ok.

With my brother, so with my brother, his symptoms came on gradually.

He had a job, he was doing very well, he was working hard, but he got very stressed in his job and my brother is always trying to do much, more than he can handle and he got very stressed out, he started having problem sleeping, and we're going to find out one of the warning signs is oversleeping or insomnia.

Insomnia means you can't sleep. And my brother had that symptom. He would oversleep, sleep too much, or sometimes he wouldn't sleep for like one week. No sleeping.

 **[20:54]**

And he would, another thing he would do, it says inappropriate laughter or crying.



And my brother sometimes he was talking with my mother or talking with my family he just started laughing. No reason. Very strange. So we were all looking at each other, 'Hmm.. why is he doing this? What did I say?'

And the small things. And also, I've told you guys, deterioration of personal hygiene.

Hygiene means keeping clean. Washing your body.

And my brother, I remember, he would go to work some days and his hair, he didn't comb his hair, he just go into work, his hair is ... right?

And I would asking, "What about... Aren't you going to...", "Aagh, too, I have to go quickly. No, no, no. I have no time."

And he was a little strange. Finally, what finally happened is, he woke up one night screaming, and having nightmares.

And we finally brought him into the hospital and they after some time they diagnosed him, he had bipolar disorder.

After three months of getting the right medicine and going to see therapist, like I just tell you, now my brother is doing very well, he seems just the same as he was before when I know.

But there was a time when was very, very difficult for him.

Okay, so here are warning signs.

Social withdrawal. Staying away from other people. Not being social.

Hostility. So, acting out. Kind of getting angry or paranoid, suspicious.

We talked about this. Bad hygiene. Not staying clean.

No expression. My brother during his bipolar. He would call me on the telephone. I'm in Korea. He called me from USA.

And for some reason, he liked talking to me, he liked talking to people but talking to my brother was so Because he had no expression.

I would say, "Hey! How are you doing?" "El.. I'm doing pretty good.."



I'm not joking, it is exactly. And so but he was enjoying the conversation.

For me, I was like, 'Ahh...' I was feeling very depressed, right?

I get to go. I want to go.

But so, no expression, no feeling, because during this time, my brother, he told me, his feeling, he's feeling so depressed, but actually, talking to me, was making him feel better, but still he's so depressed that it was just really difficult.

 **[24:05]**

Very, very difficult. that is why caring for someone with mental illness is so difficult because you love the person, very much but they are not fun to be next to it. Right?

So it is not fun. We talked about oversleeping and insomnia, saying strange things.

And my brother would do this too. You're be talking conversation and he would saying completely weird....

You'd be talking a conversation and then he would say something completely weird like not what you are talking about.

So, another thing forgetting things or not concentrating and again strange speech.

Ok, those are all, warning signs.

So, now we are going to talk about the symptoms.

What is happening inside these people's minds, what are some of the symptoms that they are feeling?

And it says that there are five.

Delusions, we'll talk about what those are, hallucinations, disorganize speech, disorganize behavior and then we are going to talk about negative symptoms.

Symptoms change between person to person.

Also, how serious the symptoms are can change from person to person, so not every person is the same, just like we in this classroom are not the same.

Ok, first, let's see what are delusion is.

Delusion, so what is a delusion?



Delusion is a thought, your thinking, so delusions talk about your thinking.

What you think is true is not, is actually not true.

So delusions are talking about what you think.

And very common.

Schizophrenics, 90 percent of schizophrenics have delusions, so this is the most common symptom.

Alright, my brother had delusions.

And we are going to talk about different types of delusions.

My brother had delusions of grandeur.

We'll talk about that, it is the third one here.

So there are different types of delusions.

One type is called delusion of persecution.

'Persecute' trying to hurt you. People trying to get you. So, paranoid delusion.

Delusion of persecution is paranoia.

Delusion of reference delusion of grandeur, and delusion of control.


You can see in your reading.

Delusion of persecution, belief that people are trying to get you and that is like the case study we talked about and just like the movie a 'Beautiful Mind'.

He had delusions of persecution.

Another delusion is delusion of reference.

And that is when the person thinks that something happening in the environment is specially talking to them.

 **[27:03]**

For example, a person with schizophrenia might believe a billboard or a person on TV is sending a message only to them.

So they see, they are watching TV, they see an advert and they think 'Oh that is



talking only to me, not to other people'.

Delusion of grandeur, this is what my brother was experiencing and he talks about it.

This is when the person believes that they are a famous or an important person.

For example, the person might think that they are Jesus Christ and they might think that they have these powers.

The person might think they are the President of Korea, Lee Myung Park.

And my brother told me his delusion of grandeur, he thought is actually he thought he was Jesus Christ.

Now I told you my brother is a priest.

He's now a priest.

He was going through the priesthood studying the bible.

So he told me he felt like he had some healing powers.

It was kind of strange.

He realizes now how strange that was but it is a true delusion that they might have.

And the last one, delusion of control.

This was also in a 'Beautiful Mind'.

Delusion of control, you think that someone can read your mind or that your mind is being broadcast to other people.

So, people can read your thoughts or people are putting thoughts into your head, things like that.

So those are delusions of control, someone is controlling you or reading your mind.

Ok. Good. Those are all delusions.

Another positive... so, you can see these are positive symptoms.

And positive symptoms means that your mind is more active. More active, so it is positive symptom.

Delusions and the next positive symptom, hallucinations.

Ok. So we found that delusions are thoughts that you think are true but they are not.



Hallucinations are sensations.


So, seeing, hearing, smelling, or tasting, or feeling, something that is you think is true but it is not.

The most common hallucinations, the most common sensations are hearing voices.

People with schizophrenia, they often say that they are hearing voices. Voices that are telling them what to do or how to act.

These voices are usually not nice.

They are very... not nice telling the person bad things, ok?

 **[30:04]**

Other hallucinations would be, the next most common is seeing something that is not true, but you feel like you see something that is not there.

So those delusions and hallucinations, very common.

Next positive symptom, disorganize speech.

Disorganize speech, just exactly what it says, someone is talking and you are listening and you are thinking 'what are they talking about? I can't understand them.'

It is telling you they can't concentrate.

Someone with schizophrenia has very hard time concentrating on one thing because in their head, they hearing voices or they're seeing things that are not there, so of course, their mind, their brain is just jumping to many different things.

So, they can't concentrate.

And when they speak, they start talking about one thing and maybe they end up talking about something completely different.

So it is not... their speech is not connected well.

So you can't understand them.

Ok. Common signs of disorganize speech.

You can see some of the signs of disorganize speech are loose associations which means changing from topic to topic is not connected.

Another, neologisms, neologisms are made up words.



So, words that they just make up of their own brain.

They are not true words.

Perseveration is repeating words saying the same words over and over again.

That is something that someone with schizophrenia might do.

And the last one, cling, people use cling, schizophrenics, it is meaningless use of rhyming words.

You see an example, it says, 'I said the bread in red the shed in fed net at the head'.

Um ... interesting.

No sense. Making no sense but it only sounding very same, right?

It is rhyming.

Ok, that is disorganize speech.

Last positive symptom, disorganize behavior.

Now we are talking about not speech, not talking but behaving.


How do they behave?

Well, I told you disorganize behavior, their overall functioning is not as good.

They don't clean their body, they don't do their normal activities.

So their behaviors change.

Unpredictable you don't know what they are going to do.

 **[32:59]**

They are not following their normal routine.

So their behavior is very unpredictable.

You don't know what will happen, what are they going to do next.

Also their behavior can be inappropriate.

For example, if you had schizophrenia, you are sitting in my class, I'm doing this talking and you just stand up and you say "Hello, ...".



That behavior is very unpredictable, right?

It is also inappropriate, right?

So, someone with schizophrenia, you can see their behavior is very strange, a word we talked about today, bizarre.

'Bizarre' means very strange.

Ok alright.

Now, the last part the symptoms we'll talk about are negative symptoms.

And negative symptoms means your mind is less active.

Your normal behavior is not there.

And so the person this type of behavior, these types of symptoms, negative symptoms, the person is very depressed not showing anything.

Hallucinations and delusions, the persons mind is very active, right?

They are seeing things, they are hearing things.

They are acting strange.

So they are active. Their mind is very active.

Here, negative symptoms, their mind is less active.

And the person is very ... like my brother when I telling him talking on the telephone, that would be the negative symptoms, no emotion, no feeling.

Alright. So I told you, absence of normal behavior.

First one is called blunting, or blunted effect.

What this means, no emotions, the person shows no emotion even their face, their facial expression, there's nothing.

Don't show anything.

You're waving your hand in front of them, nothing.

My brother was like this.

It was very strange.



I've seen it with my own eyes.

It is kind of funny. Very strange.

Another one is called avolition.

Avolition, very similar.


The person has no enthusiasm, no goals, 'apathetic' means no feeling, no interest in life.

And again, what my brother, bipolar, bipolar means very very high symptoms and to very very low symptoms.

That is the difference with bipolar, bipolar means high and low.

Schizophrenia has both these but not so much high and low but they are very similar.

Anyway, my brother, avolition, I noticed this with my brother because when my brother was okay, he loved to play sports.

 **[36:04]**

I played golf with him, I played basketball with him, we go bike riding. Very active.

And I know he loved to play golf.

That was his favorite thing.

So, during this time with my brother, said "Hey, let's go play some golf.", "No.", "Well, let's go ride bikes.", "No.".

Just no interest and he told.... now that he is better, now he is fine.

And I talked to him about this and I said "What was that... why was it, why you didn't want to play golf or do anything?"

He said, it is just my feeling in my body.

Nothing, there's not anything in the world that could make me happy at that time.

He's like it was so depressing.

And I can't imagine how horrible he must have been feeling but he said it is just not one thing could make him happy.

He said only seeing family members and like my children, my boys, seeing my boys,



he said that we make him feel...

He was... it was strange because he never said it made him feel better.

It just made him feel a little less worse.

You know what I mean?

So it really... not good.

Another strange negative symptom is called catatonia or catatonic. Someone is catatonic.

My brother did not have this.

But someone with catatonia, no moving.

So their body does not move at all.

They will sit in the same spot for maybe twelve hours with not moving any muscle.

And very interesting, someone with catatonia is not moving even if you hit them or you take a needle and stick a needle in them, they don't move.

They don't feel, they can't feel either.

And catatonia, someone is just completely unresponsive to pain, to touch, to anything.

Very very strange.

Some people with catatonia, they don't move for days.

They'll sit in the same place without moving, without eating, without doing anything for days.

So it can be very very dangerous.

The person could die.

Alright, in the last symptom [38:45]

[38:47] is troubles speaking and trouble making any kind of words or any kind of conversation.

So you can see negative symptoms, no showing of any emotion or action.

Alright, now we talked about the symptoms.




How these people are feeling, we can see the strange behaviors and the non-behaviors that they are showing.

But why? Right?

Why is this happening?

What makes them act like this?

What's happening in their bodies?

 **[39:30]**

What are the causes?

Alright. Let's go to causes of schizophrenia, next reading.

[Student Speaking]

Causes of Schizophrenia.

[Student Speaking]

Ok. So we are going to be talking about genetic.

So that means in our genes, in our DNA, that can be a problem.

And also in environmental.

Environmental means after we were born, people that we meet or things that we experience after life, after being born.

Ok. So what they are saying here basically is that heredity just like Alzheimer's disease and stroke and uh... what else... Parkinson's disease.

Heredity is a risk factor.

With schizophrenia, if you have a parent, your mother or father or brother and sister has schizophrenia, your chance goes from 1 percent to 10 percent.

So the risk increases quite a bit if it is in your family.

So I have a higher risk of bipolar but now I am older.

I'm passed the age so, hopefully I am ok.



So they're saying that genetic DNA poses a higher risk heredity.

But 60 percent of schizophrenics have no one in their family with schizophrenia.

So 60 percent of the time, it just happens random.

So you don't know why.

Ok. [41:35] is a hormone in your body.

[41:38], maybe you heard about it.

Anyway, what they are saying here?

You talked about heredity is a risk.

Someone in your family has it, you have a higher risk.

But what they are saying here is that you might have a higher risk from heredity, but what happens what can make it even higher is things happening in the environment.


Plus, heredity will cause even higher risk.

And in my brother's case, this is... when I studied about schizophrenia, and I studied about psychiatric diseases, I noticed my brother falls into this part.

My father's mother had a psychiatric illness.

It was depression which is a type of illness.

Anyway, her depression, she had a severe depression.

 **[42:34]**

And so my family had a higher risk because of genetics for mental disorder, for this kind of disorder.

What happened with my brother, my younger brother, during birth, when my mother was pregnant with him, he was born too early, premature baby.

And so when he came out of my mother, he was too little, he had to be put into a special, you guys, incubator, thank you.

He was put into an incubator and he has some problems in the beginning, right?

It was very a lot of stress on him.

And so this hormone, cortisol, more of the cortisol was produced.



And therefore, that increase my brother's risk, I think.

Now this, of course, I'm just doing my own thinking here but it is true.

Also, my brother had a couple other things that increase his risk.

We've talked about Alzheimer's disease and stroke.

Remember we talked about head injury.

Head injury is a risk.

When my brother was 12 years old, he was riding a bike.

And he did not, it was his first time riding a bike.

And he wasn't, he didn't know about brakes.

The brakes were... he got a new bike and the brakes were on the hand, not on the feet.

Do you know the bikes, when you were young, you pedal backward and it makes the brakes?

Well, this bike had the hand brakes.

My brother didn't know.

He wasn't aware so he went down a hill and he starts pedaling backwards to stop but not stopping.

And he ran into a house.

And I can laugh about it now.

He is okay but he broke his collarbone.

And also he lost his memory for 2 or 3 days.

He had amnesia which means you can't remember.

So I would go to see him in the hospital and he didn't know who I was.

"Who are you?"

"I am your brother."



And I thought, of course, I was uh... I was 13 years old.

So I thought it was really funny.

So I would play my brother in card games.

And I always I was winning because he can't remember his cards.

I would look and he said 'stop looking!' and then he would forget that I was looking at his cards.

I was always winning!

True story.

But I am not proud about that now.

Anyway, you can see, my brother had higher risk factors and so now when I think about this, I think maybe that has caused.

 **[45:29]**

Environment plus genetic risk, so made his risk very high for this.

I am just happy now that my brother is doing well.

Ok, so you can see what are some of the things that... we talked about stress.

Stress is a huge risk especially during birth.

So you can see here, prenatal exposure to a virus.

So if you are young and you get sick, you are just very young, you get sick, you get a virus that can increase your risk for psychiatric disease.

Low oxygen levels when you were born.

Getting a virus during infancy.

Losing a parent.

Your parent dies when you are very young.

That can cause stress.

And cause cortisol to be produced causing psychiatric illness later in your life.

Physical or sexual abuse can increase your risk.



And also we are going to talk about brain chemical imbalances.

Neuro-transmitters, right?

So here we go.

There are some neuro-transmitters in the brain.

That can lead to psychiatric illness.

We've talked in this class.

We talked about dopamine.

So you can see here dopamine is the primary brain chemical implicated in schizophrenia.

The dopamine hypothesis is saying that people with schizophrenic have too much dopamine in their brain, okay?

So too much dopamine can lead to schizophrenia.

Another neuro- transmitter we haven't talked about is called glutamate.

Now glutamate, there is not enough.

So there is more dopamine and not enough glutamate, that can cause risk for schizophrenia.

Ok.

What is talking about, brain structure, alright.

We've talked about in this class, right, the lobes of the cortex.

Remember those?

What are the 4 lobes?

Temporal, frontal, occipital, parietal lobe.

Right, so and here they are talking about abnormal brain function.

With someone of schizophrenia, they have abnormal function in the frontal lobe.

Reasoning, remember?



Frontal lobe is doing your thinking, your reasoning, intelligence.

So there is problem with their reasoning

They can distinguish real from unreal.

Also problems in the temporal lobe.

We talked about delusions and hallucination.

There's some problems, some abnormal activity happening in the temporal lobe, the hippocampus and the frontal lobe.

Ok.

 **[48:30]**

But there is so many areas of the brain that are effective with schizophrenia.

They can't pin point just one area.

Ok, guys we are finished today

Thank you for coming.