Schizophrenia Affecting Religion and Twins

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Abstract (150-250 word summary of paper):

Schizophrenia is a chronic psychiatric illness influenced by a complex interaction of biological, cultural, and environmental influences. This paper will review how symptoms, their interpretations, and treatment of the disorder vary across international contexts. Cultural and religious explanations dominate concerning hallucinations and delusions, even as stigma is high in collectivist Eastern societies that seek out supernatural interpretations. These often delay access to psychiatric care while increasing reliance on traditional healing practices. Second, genetic research has provided substantial evidence for hereditary vulnerability, while at the same time pointing out various environmental stressors that may trigger or exacerbate symptoms. Neuroscience is further uncovering some abnormalities in brain structure and function, including abnormalities in areas of memory, decision-making, and control of dopamine. Newer treatments have combined medication, psychotherapy, community support, and developing technologies such as TMS and neuroimaging, guiding care. While science has made many gains in understanding schizophrenia, stigma remains, culturally and socially influenced, an enduring barrier to effective care. Greater public education, culturally sensitive care, and a commitment to further research hold the key to better outcomes for those affected with this illness.

Introduction:

Schizophrenia is a chronic and severe mental health disorder that affects a person's thoughts, perceptions, emotions, and behaviors (Patel et al., 2014). Some symptoms of this condition could be delusions, hallucinations, abnormal motor behavior, disorganized thinking, etc. There is not much known about Schizophrenia compared to other issues in the healthcare field, and one of the reasons for that is that it is a mental illness (Patel et al., 2014). This is because with chronic disorders that affect people physically, mental illness and its effects are not always observable. Multiple explanations are used to understand the abnormal behavior a person exhibits. Since the scientific community doesn't know as much about mental illness compared to other diseases, this creates a fear and stigma of mental illness, which doesn't allow people to get the help they need (Tirupati et al., 2019).

Cultural, Religious, and Sociological factors impacting Schizophrenia diagnosis, treatment, and outcomes

Religion and culture also have a big role in this condition, more specifically, religions that don't believe in healthcare or religions that have a stigma against it (Triveni et al., 2017). These sorts of religions prevent Schizophrenia patients, or patients with any other sort of mental disease, from attaining the healthcare that they need, and it often increases the symptoms (Tirupati et al., 2019). Stigmatization of schizophrenia varies by culture and can impact treatment outcomes in these patients (Gaines, n.d.).

Eastern cultures have a large number of religions that have a stigma against healthcare, as opposed to Western cultures that have a smaller portion of that stigma (Gaines, n.d.). Western cultures are known to be more individualistic, but Eastern cultures are known to be more collectivist (Gaines, n.d.). Individualistic cultures are cultures that stress the needs of the individual over the needs of the group as a whole. Many people in this type of culture are seen as independent. Collectivist cultures, on the other hand, are cultures that are based on valuing the needs of a group or a community over the individual (Gaines, n.d.). For example, children in

collectivist societies are likely to take care of elderly parents even if they fall ill, and they will change their own plans if there is a family emergency. This collectivist mindset can prevent people from discussing their own mental health symptoms (Gaines, n.d.).

In these Eastern collectivist cultures, many people are reluctant to discuss or talk about emotional problems with strangers, and instead of focusing on mental or emotional issues, they would rather focus on physical issues (Gaines, n.d.). This is one of the issues that leads to patients with mental issues not getting the treatment or help that they need, and it can cause their symptoms to get worse (Tirupati et al., 2019).

When scientists first began to study Schizophrenia, they realized after a while that symptoms of this disease varied across cultures (Khaled et al., 2023). Western societies tend to connect hallucinations and delusions to a mental illness that needs to be cured immediately (Tirupati et al., 2019). They often go to doctors to get a scientific explanation from them, and then they go to take their needed medication. Eastern societies, however, tend to believe that they get these hallucinations or delusions because of supernatural or spiritual reasons (Tirupati et al., 2019). An example of this would be that mental illness in Eastern societies could be because of being possessed by evil spirits, a curse, being attacked by spirits, etc (Triveni et al., 2017).

In Vietnam, the term mental illness means madness (Gaines, n.d.). Along with this, psychiatrists are also referred to as doctors who treat madness (Gaines, n.d.). Both of these words have created a negative stereotype about mental illness and the people who treat it. Because of this, even students who want to become psychiatrists are often pressured not to because of the stigma surrounding that profession (Gaines, n.d.).

If a family in Eastern culture were to have a relative with a mental illness, they would often come up with alternative explanations to justify their behavior so that they wouldn't get labeled as mad (Gaines, n.d.). Another thing families would do in that culture if a member of the family were to present signs of a mental illness would be to follow a hierarchy to solve the problem. The first option for them is to solve the issue within the family. But if this doesn't work out for them, then they will turn towards traditional medicine for treatment (Gaines, n.d.). These traditional medicines would most of the time be monks and fortune tellers. It is also more acceptable for a family to be seen asking for traditional healing than going to a hospital (Gaines, n.d.). Traditional healing is widely available to families in Eastern cultures since they are significantly cheaper than going to a psychiatric hospital, and they are also usually more accessible because of how common they are. If a family from this culture were to go see a psychiatrist, it would usually be a last-resort option (Gaines, n.d.).

The delusion of possession is also another common theme experienced by people in Eastern cultures who have Schizophrenia hallucinations (Gaines, n.d.). These people believe that a spirit is haunting their minds and controlling their bodies (Triveni et al., 2017). Most of the time, family members of these people do not think that their relatives have a mental disorder. Instead, they believe that a spirit haunts that family member from another world (Gaines, n.d.). There was a study done on this idea, where a patient wore a bracelet that belonged to her grandmother, and she believes that the spirit of her dead grandparents is controlling her through the bracelet (Gaines, n.d.).

There was a cross-cultural comparison done among patients with schizophrenia-spectrum disorders (SSD), which showed that some types of hallucinations varied by culture (Khaled et al., 2023). In some studies and tests, it has been proven that culture influences the amount of negative content and the type of hallucinations that are given (Khaled

et al., 2023). One of the studies that proved this showed that there was a higher rate of auditory verbal hallucinations, which were commanding, abusive, cursing, arguing, and frightening among Europeans compared to West African patients (Khaled et al., 2023). Another study showed that Schizophrenia-spectrum disorders (SSD) in Middle Eastern patients often report culture-based content in their auditory hallucinations (Khaled et al., 2023).

Biological Underpinnings of Schizophrenia

Schizophrenia usually runs in families, and it is believed that not one gene, but different combinations of genes which can make people vulnerable to this condition (Besteher et al., 2020). The evidence and proof of this comes from studies of twins (Tirupati et al., 2019). In identical twins, since both twins share the same genes, that would mean that if one twin develops schizophrenia, then there is a 50% chance that the other twin would also develop it (Besteher et al., 2020). When it comes to non-identical twins, they don't share the same genes, and they have different genetic makeups. This means that when one twin develops schizophrenia, the other twin has a 1 in 8 chance of developing it (Besteher et al., 2020).

One case that involves Schizophrenia in identical twins is where twin A developed symptoms at age 23, and she was then diagnosed with Schizophrenia (Besteher et al., 2020). While this happened, twin A was single, she attended a day program, and she lived with her parents. Twin B, on the other hand, worked in a professional career, and she is married and has a family. She stayed well until the age of 48, which was when she developed a depressive disorder that required medical attention, but there were no signs of Schizophrenia (Besteher et al., 2020). A few years later, twin B developed delusions and hallucinations. In conclusion, Schizophrenia and other medical conditions can occur in identical twins (Besteher et al., 2020).

Along with this, twin studies also allow scientists to study brain structure and cognition to fully understand the impact that twin studies have had in recent years and how they can contribute to the understanding of Schizophrenia (Besteher et al., 2020). Brain structure and cognition are important to schizophrenia research since they help scientists learn more about how the brain works and how it impacts other skills when a patient has the disease. Using the brain, scientists have discovered many findings that help understand Schizophrenia more. One of the things discovered is that Schizophrenia is a heritable disease (Besteher et al., 2020). If a person has a first-degree relationship with another person who has schizophrenia, then the likelihood of getting Schizophrenia from that person is very high (Besteher et al., 2020). There are also environmental factors that play a role in this. Cognitive deficits in Schizophrenia are used to study how and why people act differently and how it has an impact on a person's daily life (Besteher et al., 2020). Studying twin brains and their cognitive abilities allows scientists to understand how Schizophrenia really works through heredity (Besteher et al., 2020). Scientists would study twins with schizophrenia, and they would study the genetic vs. non-genetic components, heritabilities, and the shared genetic differences in cognitive parameters (Besteher et al., 2020).

Although identical twins look similar, they can also have different genetic makeups, which is also an explanation for why some identical twins don't share diseases (Besteher et al., 2020). There was a study done where a research team looked after two pairs of identical twins, where only one had schizophrenia (Besteher et al., 2020). After having research done on the twins, they have noticed that the genetic makeup is similar, but there are still many differences, which means that these small differences could decide whether or not one twin gets Schizophrenia (Besteher et al., 2020).

Numerous studies have also explored how brain neurotransmitters might have contributed to the development of Schizophrenia, with much of the research centering on dopamine (Tirupati et al., 2019). According to the “dopamine theory of Schizophrenia,” the disorder arises from an overactive dopamine system in the brain (Tirupati et al., 2019). While there is substantial evidence backing this theory, some findings challenge this or contradict this (Besteher et al., 2020).

Firstly, dopamine is a type of neurotransmitter (a chemical messenger) that helps transmit signals in the brain and throughout the nervous system (Tirupati et al., 2019). It is crucial for coordinating body movement, motivation and reward, mood and emotion, and attention and learning (Tirupati et al., 2019).

Medications that block dopamine activity have been shown to reduce the symptoms of Schizophrenia (Tirupati et al., 2019). However, these drugs often produce side effects similar to Parkinson’s disease, which is a condition that is linked to low dopamine levels in an area of the brain called the basal ganglia (Tirupati et al., 2019). Further support for this theory comes from studies on amphetamines (Tirupati et al., 2019). At high doses, amphetamines induce a condition known as amphetamine psychosis, which mimics many symptoms of Schizophrenia (Tirupati et al., 2019). Since drugs that treat amphetamine psychosis also help alleviate symptoms of Schizophrenia, this condition is often used as a model for studying the disorder (Tirupati et al., 2019). There is also evidence that children who are at risk for developing Schizophrenia may show brain wave abnormalities similar to adults with the same disorder (Tirupati et al., 2019). These irregular brain patterns can be reduced with drugs that block out dopamine receptors, which further supports the idea that there is a link between dopamine and Schizophrenia. (Besteher et al., 2020)

However, while amphetamines are known to increase dopamine levels, they also affect neurotransmitters, suggesting that other brain chemicals may be involved in Schizophrenia (Tirupati et al., 2019). Although drugs that block dopamine receptors act quickly at a receptor level, it often takes days before noticeable behavioral improvements appear in these individuals with Schizophrenia (Tirupati et al., 2019). This delay proves the idea that the therapeutic effects of dopamine blockers may be indirect, and possibly involve changes in other neural systems that more directly influence Schizophrenic symptoms (Tirupati et al., 2019). Recent advancements in treatment have led to the development of newer antipsychotic medications, such as Clozapine, which targets dopamine and serotonin receptors (Tirupati et al., 2019). These drugs reflect a growing understanding that Schizophrenia may involve a complex interaction of several neurotransmitter systems and not just dopamine alone (Tirupati et al., 2019).

Dopamine can also be dangerous in excessive amounts, especially in the part of the brain called the mesolimbic pathway (Tirupati et al., 2019). This overactivity is thought to cause positive symptoms of Schizophrenia, for example, delusions, paranoia, or hallucinations (Tirupati et al., 2019). However, at the same time, some other areas, like the prefrontal cortex, might not be getting enough dopamine (Tirupati et al., 2019). This can lead to negative symptoms such as a lack of emotion, trouble talking, or not wanting to do anything (Tirupati et al., 2019).

Environmental Contributors and Gene Environment Interaction in Schizophrenia:

Twin studies have also identified several environmental factors that may increase the risk of Schizophrenia in individuals, such as complications during pregnancy, infections or nutritional deficiencies, growing up in an unstable environment, etc. (Besteher et al., 2020). Using these factors, the risk of schizophrenia likely increases when genes and environment interact (Besteher et al., 2020).

Several studies have examined the family histories of individuals who were adopted early in life and later diagnosed with Schizophrenia (Besteher et al., 2020). There was one study where a group discovered that 13% of the biological relatives of adoptees with Schizophrenia were also diagnosed with the disorder, compared to just 2% among the biological relatives of adoptees without Schizophrenia (Besteher et al., 2020). These findings provided the evidence for a genetic influence in the development of Schizophrenia (Besteher et al., 2020).

Modern Therapeutic Approaches and Support Programs for Schizophrenia:

In recent years, advances in science and medicine have improved the way we treat Schizophrenia (Tirupati et al., 2019). While antipsychotic medications are still the most common treatment option, therapy and support programs are also essential (Tirupati et al., 2019). CBT, for example, helps patients recognize and change unhelpful thought patterns and develop coping skills (Tirupati et al., 2019). Social skills training and vocational rehabilitation are also used to help individuals find their way back into communities (Tirupati et al., 2019).

Another growing area is family therapy, which educates relatives on how to support their family members without giving them stress or triggering symptoms (Tirupati et al., 2019). Studies also show that when family members are involved in the treatment process, relapse rates drop significantly (Tirupati et al., 2019).

Some new approaches also include electroconvulsive therapy (ECT) for severe cases where medication doesn't work, and transcranial magnetic stimulation (TMS), which is a non-invasive method that uses magnetic fields to stimulate certain parts of the brain (Tirupati et al., 2019). Although these are not yet widely used for Schizophrenia, these techniques offer hope for patients who haven't responded to traditional methods (Tirupati et al., 2019).

With the help of technologies like MRI (Magnetic Resonance Imaging) and PET (Positron Emission Tomography), researchers can now study the brains of people with Schizophrenia in much greater detail (Besteher et al., 2020). These tools showed researchers differences in brain volume, activity, and connectivity (Tirupati et al., 2019). For example, some patients show a reduction in the size of the Hippocampus and the Prefrontal Cortex, which are areas that are important for memory and decision-making (Besteher et al., 2020). These findings support the idea that Schizophrenia is not just a mental condition, but it is one that also has physical effects on the brain's structure and function (Besteher et al., 2020). They also help reduce stigma by showing that this disorder is a medical condition and that it is not a sign of weakness (Tirupati et al., 2019).

Conclusion:

Schizophrenia is a complex and often misunderstood disorder that affects people across the world (Triveni et al., 2017)(Gaines, n.d.). While the exact causes are still being studied, it is clear that a combination of genetic, environmental, and neurological factors plays a role (Tirupati et al., 2019). Culture and religion also shape how Schizophrenia is viewed and treated, which sometimes offers support but other times it reinforces harmful stigmas (Gaines, n.d.). As science continues to develop more ways of understanding the brain, treatments are becoming

more effective and more personalized (Tirupati et al., 2019). Still, social understanding and compassion remain just as important as medical intervention (Patel et al., 2014).

References:

1. Besteher, B., Brambilla, P., & Nenadić, I. (2020). Twin studies of brain structure and cognition in schizophrenia. *Neuroscience and Biobehavioral Reviews*, *109*, 103–113. https://doi.org/10.1016/j.neubiorev.2019.12.021
2. Gaines, R. (n.d.). Culture & Schizophrenia: How the Manifestation of Schizophrenia Symptoms in Hue Reflects Vietnamese Culture. *Independent Study Project Collection*.
3. Khaled, S. M., Brederoo, S. G., Yehya, A., Alabdulla, M., Woodruff, P. W., & Sommer, I. E. C. (2023). Cross-cultural Differences in Hallucinations: A Comparison Between Middle Eastern and European Community-Based Samples. *Schizophrenia Bulletin*, *49*(Supplement_1), S13–S24. https://doi.org/10.1093/schbul/sbac086
4. Patel, K. R., Cherian, J., Gohil, K., & Atkinson, D. (2014). Schizophrenia: Overview and treatment options. *P & T: A Peer-Reviewed Journal for Formulary Management*, *39*(9), 638–645.
5. Tirupati, S., Ramachandran, P., Kumar, S., & Mohanraj, R. (2019). Cross-cultural differences in recovery from schizophrenia: What to compare? *Australian & New Zealand Journal of Psychiatry*, *53*(3), 263–263. https://doi.org/10.1177/0004867418812677
6. Triveni, D., Grover, S., & Chakrabarti, S. (2017). Religiosity among patients with schizophrenia: An exploratory study. *Indian Journal of Psychiatry*, *0*(0), 0. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_17_17