http://jppbr.ub.ac.id/
DOI: 10.21776/ub.jppbr.2023.004.02.6
eISSN: 2723-083X pISSN: 2723-0821

Journal of Psychiatry Psychology and Behavioral Research
Vol. 4, No. 2, September 2023

JPPBR

CHRONIC SMOKING AND PORNOGRAPHIC ADDICTION IN SCHIZOPHRENIA PATIENT WITH URBAN LIVING: CASE REPORT

Gumilar Fardhani Ami Putra[1]; Zain Budi Syulthoni[2]; Zuhrotun Ulya[3]

Correspondence: *gumilarfardhani@student.ub.ac.id*
[1]Department of Anatomy Faculty of Medicine Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia; [2]Department pf Psychiatry Faculty of Medicine Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia; [3]Department of Psychiatry Faculty of Medicine Brawijaya University, Malang, Indonesia

REVIEW **OPEN ACCESS**

ABSTRACT

Introduction – Urban living, chronic smoking is a risk factor in schizophrenia. Pornographic addiction is also a potential risk factor of schizophrenia considering its neurobiological pathways. Schizophrenia is one of the most dangerous mental illness contributing to 2,8% years lived with disability. Considering many people with urban living, chronic smoking, and pornographic consumption, relation of these risk factors to schizophrenia is demonstrated in this case report.
Methods – Presented the case of the patient, 39 years old with psychotic symptoms was found to be born and lived most of his life in urban area, smoking since junior high school, and often consumed pornographic contents since senior high school. Data were taken from psychiatric interviews, general, and mental status examinations in psychiatric clinics, then a literature review was carried out.
Results – People who born, and live through their live longer in a larger city, have more risk of Schizophrenia. Patient was known to be born in one of the biggest city in Indonesia, before moved out to another urban area in different countries in last two years. Crave with chronic smoking and pornographic addiction become one of contraproductive conduct source which arise difficulty in patient's side to take an health life style with the risk of poor prognosis and mental health deterioration.
Discuss – People who born and live longer in urban areas such as cities are in increased risk of schizophrenia due to social status awareness and fast paced life induce brain stress. Chronic smoking is a risk factor of schizophrenia due to the effect of nicotine on dopamine levels. Pornographic addiction is a potential risk factor due to addiction pathway effect on dopamine threshold.
Conclusion – Urban living, chronic smoking, and pornographic addiction are risk factors associated with schizophrenia found in this case report. Epidemiologic and pathophysiological mechanisms behind these risk factors are an interesting view for physician dealing with schizophrenia patients. Awareness of social status and fast paced life in urban lifestyle, pathways of nicotine in dopamine dysregulation, and dopamine-related impairment in addiction are the neurobiological mechanisms behind these risk factors which a physician needs to be aware of.

Keywords: schizophrenia, urban living, chronic smoking, pornographic addiction.

Article History:
Received: May 26, 2021
Accepted: December 25, 2021
Published: September 30, 2023

Cite this as: *Putra, G.F.A., Syulthoni, Z.B., Ulya, Z. Chronic Smoking and Pornographic Addiction in Schizophrenia Patient with Urban Living: Case Report. Journal of Psychiatry Psychology and Behavioral Research; 2023.4(2):22-25.*

INTRODUCTION

Schizophrenia is one of the most dangerous mental illness. Systematic reviews show relatively high prevalence of schizophrenia but relatively low incidence because of its early adult onset and chronic duration. Globally, schizophrenia contributed to 2,8% years lived with disability. Schizophrenia is more common in men, and is occurring at earlier age in men than women. Genetic and various environmental factors, such as social isolation also play an important role in schizophrenia.[1]

Psychosis is the main feature of schizophrenia spectrum disorders. Defined broadly as loss of ego boundaries or impairment in perception of reality, psychosis also interferes with an individual ability to do daily activities. Current definition of psychosis requires presence of hallucinations or delusions without insight that him or herself are having illness (lack of insight). Hallucination defined as perceptions occurring without any external stimuli, and delusion defined as beliefs maintained strongly, even with inevitable, contradicting evidence present.[2]

Urban living and chronic smoking have been associated with prevalence of schizophrenia. Urban living, whether it is a place of birth, or a place of living has been associated with increasing prevalence of schizophrenia. Chronic smoking, by its direct and indirect neurobiological pathway is also associated with increasing prevalence of schizophrenia. Various psychosocial factors and neurobiological mechanism interact within each other, causing the effect of chronic smoking and urban living in schizophrenia.[3–5]

Pornography content consumption had been studied in its relation with psychosocial disorders. Depression, and psychosomatic symptoms are two of the common psychosocial-related symptoms associated with excessive pornography consumption. Previous study also relate pornography addiction to other forms of addiction, such as substance use addiction and sex addiction. The relation between these addictions and psychosocial disorders may be related to stages of addiction and its neurobiology, which will be discussed later in this case report.[6]

METHOD

Presented the case of the patient, 39 years old with psychotic symptoms was found to be born and lived most of his life in urban area, smoking since junior high school, and often consumed pornographic contents since senior high school. Data were taken from psychiatric interviews, general, and mental status examinations in psychiatric clinics, then a literature review was carried out.

This case report was approval and permitted by Rumah Sakit Universitas Brawijaya, patient and his families. Ethical clearance was permitted by Ethical Team in Faculty of Medicine Brawijaya University (No. 135/EC/KEPK/07/2020).

CASE REPORT

A 39 years old man visited Psychiatry Clinic with his uncle. Patient came with complaints of talking by himself and getting confused sometimes. As portrayed by his uncle, he also sometimes getting angry by himself. The patient first became aware of his symptoms at the age of 19. At first, patient symptoms consist of talking by himself and getting confused, then symptoms progressively got worse by him getting angry by himself, then tried to stab his mother at the age of 37.

Since his birth and until adolescent age, patient didn't have any particular event that led to his current condition. Patient was known to be born in one of the biggest city in Indonesia, before moved out to another urban area in different countries in last two years. Patient is an introverted person since his childhood. Patient started smoking since junior high school, and have been smoking around 1 box (12 pieces) of cigarettes per day until time of interview. In senior high school, patient and his close friends often watched pornographic contents via compact disc (CD). It was around second grade of senior high school that his first symptoms appear. Patient was sometimes seen talking by himself and getting confused.

Worsening of patient's symptoms happened when he was at the age of 23. Going in and out of jobs because of his symptoms, this was the first time that patient was getting angry by himself. Because of patient's symptoms, he was forced to leave from his job, and his family admitted him to alternative medicine for three weeks. The patient never attended any medical facility, hence no treatment with antipsychotics or any other drugs. Patient's condition never reached normal state, constantly talking by himself, even getting angry by himself few times each week. There is no particularly bad relationship by patient with any member of his family. His father had cardiovascular disease, and died when the patient was 30 years of age.

Worsening of the patient's psychiatric condition happened again when the patient was at 38 years old. At that time, patient attempted to stab his mother with a knife, and interfered by his younger brother. The patient then left his house and became a homeless person. The patient said that he had to feed himself by asking other people for food, and slept at public places such as mosque. Social services finally found the patient after went missing for almost a year, and admitted in Mental Health Hospital. The patient undergoes one and a half months of intra-hospital therapy. Patient admitted out with risperidone and clozapine treatment.

Physical examination showed normal vital signs and generalist status. Mental status showed appearance that was appropriate for age, cooperative person with normal psychomotor condition. Mood and affect were normal and coherent. Flow of thought was coherent with no particularly abnormal content. Patient had visual and olfactory hallucinations when he was in Mental Health Hospital. Mental status examination also showed that patient had difficulty in concentration. The patient's surveillance degree is grade 4 (patient understands that he is sick but does not know why).

RESULT

Some of the difficulties in handling this case that patient does not have insight into his mental disorder, denying about the needed of therapeutical process, worsening mental condition as the treatment process delayed as part of lack therapeutical adherence, and lack of care by his caregiver. One of the habits which arise in community and patient's caregiver is medication can be hold when the patient become agitated, got some violation behavior (in this case such as stabbing her mother), and had no continuity.

Initial treatment observations revealed that patient's agitation, anger and confusion become decreased gradually, but still had some concern problem such as chronic smoking and pornographic addiction. Patient beliefs about his urgency that he need to do both (smoking and watching porn video, masturbate, etc) to reduce his restless. When this behavior had not fullfil, the patient will get more sound in his ears such as, "*Hai you stupid moron! Just go ahead with your last habit, try to do that, it is easy for you to stab your old mom until she died, why take a bother for just some cigarette? Porn is a must.",* patient also take some note about increasing thougth of echo and thougth of withdrawal every night. Unemployment condition made patient felt insecure, more stressed due to inability in financial problem.

People who born, and live through their live longer in a larger city, have more risk of Schizophrenia. Patient was known to be born in one of the biggest city in Indonesia, before moved out to another urban area in different countries in last two years. Crave with chronic smoking and pornographic addiction become one of contraproductive conduct source which arise difficulty in patient's side to take an health life style with the risk of poor prognosis and mental health deterioration.

DISCUSS

Patient is a 39 years old men with introvert personality and excessive pornography content consumption. Studies showed higher men to women ratio of schizophrenia, with a 1.4 to 1 ratio, as well as higher prevalence found in people who born in cities. People who born, and live through their live longer in a larger city, have more risk of Schizophrenia. Patient was known to be born in one of the biggest city in Indonesia, before moved out to another urban area in different countries in last two years.[1]

There were many studies evaluating association between urbanicity of one's life with psychosis. Factors evaluated in urbanicity are place of birth and how long an individual live in urban areas. People born in urban city and live longer in an urban city are more likely to have schizophrenia.[3,4,7] Neurobiological mechanism contributing to this phenomenon is not fully understood yet. Theories suggest that constant stress due to social status awareness, and fast paced life in urban city may result in dysregulation of hypothalamus-pituitary-adrenal axis. This cause sensitization of mesolimbic dopamine pathway, contributing to higher risk of schizophrenia. Urban living also associated with anterior cingulate cortex (ACC) in the brain. ACC, which modulates negative emotion and stress response, is specifically activated in individuals exposed to unstable social status, and living in the city.[8–10]

Chronic smoking had been associated to schizophrenia by few studies. Although smoking in schizophrenia is associated with lots of factors such as psychosocial (stress, depression, and social affiliation), neurobiological mechanism of smoking and schizophrenia also contributes to the relation between smoking and schizophrenia. Nicotine is one of the substances. Nicotine is known to increase dopamine level in the prefrontal region of the brain. Nicotine achieves this effect by binding with glutamate receptor to enhance and stimulate glutamate activity, which in turn enhances dopaminergic activity directly. Nicotine also bind to GABA receptor, in chronic setting, this will desensitize GABA receptor and dampen dopaminergic inhibition, indirectly enhancing dopaminergic activity.[5]

Considering neurobiological consequences of nicotine, cessation of smoking in patient with schizophrenia is very important. Despite global efforts to decrease cigarette use, few studies showed that schizophrenia patients smoke frequently. Studies showed that at least 50% of schizophrenia patient who smoked cigarettes were more than three times as likely to smoke compared to individual without psychiatric disorders. Schizophrenia patients known to consume greater quantities, smoke more frequently, and have greater dependency to nicotine compared to normal individual. These epidemiological findings, combined with the knowledge of nicotine's neurobiological effect on schizophrenia, may lead to prevention and treatment challenge in schizophrenia patients.[11–15]

Relation between pornographic addiction and schizophrenia may be associated with its dopamine-related neurobiological mechanism. Pathophysiology of schizophrenia related to dopamine pathway is not yet confirmed. But, various evidences, including efficacy of dopamine receptor antagonists to treat acute symptoms of schizophrenia, and the proof that increase of extracellular dopamine by amphetamines lead to stimulation of psychosis, support this theory. Initial theory of dopamine related pathway in schizophrenia proposed that increased dopamine level lead to psychosis, causing overactivity of the mesolimbic system, while more recent theories proposed dysfunction of presynaptic dopamine as the main neurobiological pathway to psychosis.[16–18]

Neurobiology of pornographic addiction is similar to other addiction. Addiction is a neurobiological shift from impulsive actions through positive reinforcement to compulsive actions through negative reinforcement. This shift leads to addiction cycle, known as three stages of addictive cycle, which are binge/intoxication, withdrawal/negative affect, and preoccupation/anticipation. These stages are related to mesolimbic dopamine pathway consists of ventral tegmental area (VTA) and nucleus accumbens (NAcc). This pathway then connects with amygdala, frontal cortex, and hippocampus to form the integrated circuits commonly called as the reward system.[19]

The binge or intoxication stage is when addiction (drugs, sex, pornographic consumption, etc) activate the reward system. Different forms of addiction activate reward system through different mechanisms, but the end result is similar, increase of dopamine in NAcc. This phenomenon results in positive reinforcement of the behavior that started the reinforcement at the first place. This stage of behavior and positive reinforcement results in neuroplastic changes. Continued release of dopamine increases dynorphin, which decreases dopaminergic function in reward system. This increases reward dopaminergic threshold, resulting in increase of tolerance.[19,20]

In the second stage or withdrawal/negative affect, dopamine had lost its increment, resulting in activation of extended amygdala, which induces negative emotional state and brain stress. This leads to decreased sensitivity to reward system and also increase to dopamine tolerance. The third stage or preoccupation/anticipation described as expansion of neuroplastic impairments. Rather than just the mesocortical dopamine, impairments also expand to other regions of prefrontal cortex, resulting in impairment of motivation, self-control, and other cognitive functions.[19–22] Although some of neurobiological mechanisms above are not yet confirmed, such as dopamine pathway in schizophrenia, and specific pornographic addiction in dopamine-related impairment, epidemiological evidences are strong enough that we should consider them in schizophrenia patient. Lack of confirmation of these specific mechanisms should be studied further in future researches.

CONCLUSION

Urban living, chronic smoking, and pornographic addiction are risk factors associated with schizophrenia found in this case report. Epidemiologic and pathophysiological mechanisms behind these risk factors are an interesting view for physician dealing with schizophrenia patients. Awareness of social status and fast paced life in urban lifestyle, pathways of nicotine in dopamine dysregulation, and dopamine-related impairment in addiction are the neurobiological mechanisms behind these risk factors which a physician needs to be aware of.

REFERENCES

1. Picchioni MM, Murray RM. Schizophrenia. BMJ. 2007 Jul 14;335(7610):91–5.

2. Arciniegas DB. Psychosis. Contin Lifelong Learn Neurol. 2015 Jun;21(3 Behavioral Neurology and Neuropsychiatry):715–36.
3. Kelly BD, O'Callaghan E, Waddington JL, Feeney L, Browne S, Scully PJ, et al. Schizophrenia and the city: A review of literature and prospective study of psychosis and urbanicity in Ireland. Schizophr Res. 2010 Jan 1;116(1):75–89.
4. Vassos E, Pedersen CB, Murray RM, Collier DA, Lewis CM. Meta-Analysis of the Association of Urbanicity With Schizophrenia. Schizophr Bull. 2012 Nov 1;38(6):1118–23.
5. Lucatch AM, Lowe DJE, Clark RC, Kozak K, George TP. Neurobiological Determinants of Tobacco Smoking in Schizophrenia. Front Psychiatry [Internet]. 2018 [cited 2021 Apr 30];9. Available from: https://www.frontiersin.org/articles/10.3389/fpsyt.2018.00672/full
6. Love T, Laier C, Brand M, Hatch L, Hajela R. Neuroscience of Internet Pornography Addiction: A Review and Update. Behav Sci. 2015 Sep 18;5(3):388–433.
7. Kirkbride JB, Boydell J, Ploubidis GB, Morgan C, Dazzan P, McKenzie K, et al. Testing the association between the incidence of schizophrenia and social capital in an urban area. Psychol Med. 2008 Aug;38(8):1083–94.
8. Padhy SK, Sarkar S, Davuluri T, Patra BN. Urban living and psychosis – An overview. Asian J Psychiatry. 2014 Dec;12:17–22.
9. Tost H, Meyer-Lindenberg A. Puzzling over schizophrenia: Schizophrenia, social environment and the brain. Nat Med. 2012 Feb;18(2):211–3.
10. Lederbogen F, Kirsch P, Haddad L, Streit F, Tost H, Schuch P, et al. City living and urban upbringing affect neural social stress processing in humans. Nature. 2011 Jun;474(7352):498–501.
11. Sagud M, Mihaljevic Peles A, Pivac N. Smoking in schizophrenia: recent findings about an old problem. Curr Opin Psychiatry. 2019 Sep;32(5):402–8.
12. Dickerson F, Schroeder J, Katsafanas E, Khushalani S, Origoni AE, Savage C, et al. Cigarette Smoking by Patients With Serious Mental Illness, 1999-2016: An Increasing Disparity. Psychiatr Serv Wash DC. 2018 Feb 1;69(2):147–53.
13. Ohi K, Shimada T, Kuwata A, Kataoka Y, Okubo H, Kimura K, et al. Smoking Rates and Number of Cigarettes Smoked per Day in Schizophrenia: A Large Cohort Meta-Analysis in a Japanese Population. Int J Neuropsychopharmacol. 2019 Jan 1;22(1):19–27.
14. Castillo-Sánchez M, Fàbregas-Escurriola M, Bergè-Baquero D, Fernández-SanMartín M, Goday-Arno A. Screening of cardiovascular risk factors in patients with schizophrenia and patients treated with antipsychotic drugs: are we equally exhaustive as with the general population? Clin Exp Hypertens N Y N 1993. 2017;39(5):441–7.
15. Hickling LM, Perez-Iglesias R, Ortiz-García de la Foz V, Balanzá-Martínez V, McGuire P, Crespo-Facorro B, et al. Tobacco smoking and its association with cognition in first episode psychosis patients. Schizophr Res. 2018 Feb;192:269–73.
16. Weinberger DR. Implications of normal brain development for the pathogenesis of schizophrenia. Arch Gen Psychiatry. 1987 Jul;44(7):660–9.
17. Fusar-Poli P, Meyer-Lindenberg A. Striatal presynaptic dopamine in schizophrenia, part II: meta-analysis of [(18)F/(11)C]-DOPA PET studies. Schizophr Bull. 2013 Jan;39(1):33–42.
18. Howes OD, Kambeitz J, Kim E, Stahl D, Slifstein M, Abi-Dargham A, et al. The nature of dopamine dysfunction in schizophrenia and what this means for treatment. Arch Gen Psychiatry. 2012 Aug;69(8):776–86.
19. Volkow ND, Wang G-J, Fowler JS, Tomasi D, Telang F. Addiction: beyond dopamine reward circuitry. Proc Natl Acad Sci U S A. 2011 Sep 13;108(37):15037–42.
20. Koob GF, Volkow ND. Neurocircuitry of addiction. Neuropsychopharmacol Off Publ Am Coll Neuropsychopharmacol. 2010 Jan;35(1):217–38.
21. Ley D, Prause N, Finn P. The Emperor Has No Clothes: A Review of the 'Pornography Addiction' Model. Curr Sex Health Rep. 2014 Jun 1;6(2):94–105.
22. Goldstein RZ, Volkow ND. Dysfunction of the prefrontal cortex in addiction: neuroimaging findings and clinical implications. Nat Rev Neurosci. 2011 Oct 20;12(11):652–69.