Entitlement Eligibility Guideline

Schizophrenia

Date reviewed: 22 January 2025

Date created: May 2011

ICD-11 **code:** 6A20

VAC medical code: 00607 Schizophrenia

Definition

Schizophrenia is a condition in the *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition- Text Revision* (*DSM-5-TR*) category of schizophrenia spectrum and other psychotic disorders. The common features of schizophrenia may include delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behaviour, and negative symptoms.

The following is a list of terms contained in Criterion A of the criteria set for schizophrenia:

Delusion is a false fixed belief. The content may include a variety of themes:

- persecutory, for example, belief one is being followed
- referential, for example, a passage from a book is specifically directed at oneself
- religious, for example, belief one is an important religious figure.

Non-bizarre delusions are derived from plausible life experiences, for example the belief one is under surveillance by the police. Bizarre delusions are clearly implausible, for example the belief one's internal organs are removed and replaced with someone else's organs.

A belief is not considered to a delusion if it is reasonable given the context, for example a belief one will be assaulted in a threatening environment.

Hallucination is a sensory experience that has no basis in external stimulation. In schizophrenia, auditory hallucinations are the most common. An example would be hearing a voice maintaining a running commentary on the person's behaviour or thoughts.

Disorganized speech infers the presence of disorganized thinking. Elements may include, for example:

- derailment or loose associations (disorderly switching from one topic to another)
- tangentiality (answers to questions may be loosely related or completely unrelated)
- incoherent speech, severe enough to impair communication (word salad).

Grossly disorganized behaviour may be manifested in a variety of ways, for example dressing in an unusual manner, unpredictable and untriggered agitation or catatonic behaviour. Catatonic behaviours can be a complete lack of verbal and motor responses (mutism and stupor), maintenance of a rigid, inappropriate or bizarre posture or purposeless or excessive motor activity without obvious cause (catatonic excitement).

Negative symptoms are a reduction or loss of normal functions which account for a substantial portion of the morbidity associated with schizophrenia.

The two negative symptoms which are prominent in schizophrenia are:

- diminished emotional expression
- avolition.

Diminished emotional expression is a reduction in nonverbal communication such as facial expression, eye contact, or gestures of the head or hands.

Avolition is a decrease in motivation for self-initiated and purposeful activities, for example showing little interest in work or social activities.

Other negative symptoms include:

- alogia—diminished speech output
- anhedonia—decreased ability to experience pleasure from current or past experiences
- asociality—lack of interest in social interactions.

Diagnostic standard

A diagnosis from a qualified medical practitioner (family physician or psychiatrist), nurse practitioner, or a registered/licensed psychologist is required.

The diagnosis is made clinically. Supporting documentation should be as comprehensive as possible.

Clinical features

Schizophrenia is a complex condition which reflects an interaction between genetic vulnerability and environmental contributors. None of the considerations for schizophrenia alone is sufficient for the development of schizophrenia, and they operate at various levels to contribute to the onset and progression of schizophrenia. Research and understanding of schizophrenia continues to evolve.

Biological considerations: Schizophrenia has a well-established genetic component. Genome-wide analyses of schizophrenia have identified more than 100 genetic contributors. Genes alone are not sufficient to account for schizophrenia and some of the risk may be due to gene-environment interactions. Studies in twins who share 100% of their genes show a concordance rate of 40-50%, suggesting both genetic and environmental factors contribute to the development of schizophrenia.

Advances in neuroscience have identified neurochemical disturbances and brain functional changes in different regions of the brain for individuals living with schizophrenia. Neuroanatomical changes have been shown in the early stages of psychosis that are different than those associated with normal development. Several neurotransmitters are also involved in the pathology of schizophrenia, including dopamine, glutamate, gamma-aminobutyric acid, and acetylcholine.

Environmental considerations: Environmental risk factors for schizophrenia include pregnancy and birth complications, childhood trauma, migration, social isolation, urban living, and substance abuse. These factors may act alone or in combination towards the development of schizophrenia. Advanced paternal age has been associated with schizophrenia, suggesting that age-associated mutations in male germ cells may play a role. The impact of maternal age is unclear from present research with mixed findings.

Trauma and social differences have been extensively investigated as potential risk factors for schizophrenia. Social inequalities are associated with psychosis. First-episode psychosis patients are more likely to live alone, be single or unemployed, live in rented accommodation, live in overcrowded conditions, and receive an income below the poverty line. These conditions are found at first contact with psychiatric services but exist up to five years prior to the onset of psychosis.

Growing up in an urban environment has frequently been associated with an increased risk of schizophrenia or psychosis in general. The more years a child spends in an urban area, the greater the risk becomes. Conversely, research shows living in or near a greenspace (appreciable to the size of the greenspace) during childhood lessens the risk of later developing schizophrenia.

Substance use is highly prevalent in psychotic individuals. There is good evidence that a number of substances can induce psychosis. Cannabis has been consistently reported to be associated with schizophrenia, with a dose-response relationship between extent of use and risk of psychosis.

Slightly more males than females are diagnosed with schizophrenia. Females tend to be diagnosed later in life than males, with a second spike of diagnoses later in life. Females tend to experience more mood-related symptoms that may increase in severity over the course of their lives. Psychotic symptoms have been observed to worsen during the premenstrual time period when estrogen levels are dropping, improve during pregnancy when estrogen levels are high, and worsen again postpartum when estrogen levels quickly drop. There is evidence the prognosis may be worse in males as they experience negative symptoms, disorganized thinking, and social impairment more frequently.

Criteria set

The schizophrenia criteria set is derived from the *DSM-5-TR*.

This EEG provides the *DSM-5-TR* diagnostic criteria; however, the *International Classification of Diseases 11th Revision* (*ICD-11)* is also considered an acceptable diagnostic standard.

Criterion A

Two (or more) of the following, each present for a significant portion of time during a one-month period (or less if successfully treated). At least one of these must be (1), (2) or (3):

1. delusions
2. hallucinations
3. disorganized speech (e.g., frequent derailment or incoherence)
4. grossly disorganized or catatonic behaviour
5. negative symptoms (i.e., diminished emotional expression or avolition).

Criterion B

For a significant portion of the time since the onset of the disturbance, level of functioning in one or more major areas, such as work, interpersonal relations, or self-care, is markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, there is failure to achieve expected level of interpersonal, academic, or occupational functioning).

Criterion C

Continuous signs of the disturbance persist for at least six months. This six-month period must include at least one month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or by two or

more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).

Criterion D

Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either: 1) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms, or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness.

Criterion E

The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.

Criterion F

If there is a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations, in addition to the other required symptoms of schizophrenia, are also present for at least one month (or less if successfully treated).

Entitlement considerations

Section A: Causes and/or aggravation

Causal or aggravating factors versus predisposing factors

Causal or aggravating factors directly result in the onset or aggravation of the claimed psychiatric condition.

Predisposing factors make an individual more susceptible to developing the claimed condition. They are experiences or exposures which affect the individual's ability to cope with stress. For example, severe childhood abuse may be a predisposing factor in the onset of a significant psychiatric condition later in life. These factors do not cause a claimed condition. Partial entitlement should not be considered for predisposing factors.

Physical/constitutional symptoms are prevalent in people living with psychiatric diagnoses and are often associated with psychological distress. Physical and mental health symptoms frequently co-occur. Physical symptoms associated with psychiatric conditions are included in entitlement/assessment. However, once a symptom has developed into a separate and distinct diagnosis, the new diagnosis becomes a separate entitlement consideration.

For Veterans Affairs Canada (VAC) entitlement purposes, the following factors are accepted to cause or aggravate schizophrenia, and may be considered along with the evidence to assist in establishing a relationship to service. The factors have been determined based on a review of up-to-date scientific and medical literature, as well as evidence-based medical best practices. Factors other than those listed may be considered, however consultation with a disability consultant or medical advisor is recommended.

The timelines cited below are for guidance purposes. Each case should be adjudicated on the evidence provided and its own merits.

Factors

1. Experiencing the **death of a related child** (biological, adopted, step or foster child) within the five years before the clinical onset or aggravation of schizophrenia.

2. Experiencing the **early death of a parent** (before the individual is 18 years old) within the ten years before the clinical onset of schizophrenia.

3. Having a **substance use disorder**, involving cannabis, within the ten years before the clinical onset of schizophrenia.

4. Using **cannabis** at least twice a week for a continuous period of at least six months before the age of 18 years, within the ten years before the clinical onset of schizophrenia.

5. Having a **clinically significant psychiatric condition** at the time of the aggravation of schizophrenia. A clinically significant psychiatric condition as defined by the *DSM-5-TR* is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion, regulation, or behaviour that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning.

6. Directly experiencing a **traumatic event(s)** within the six months before the aggravation of schizophrenia.

   Traumatic events include, but are not limited to:

   - exposure to military combat
   - threatened or actual physical assault
   - threatened or actual sexual trauma
   - being kidnapped
   - being taken hostage
   - being in a terrorist attack
   - being tortured
   - incarceration as a prisoner of war

- being in a natural or human-made disaster
- being in a severe motor vehicle accident
- killing or injuring a person
- experiencing a sudden, catastrophic medical incident.

7. **In-person witnessing** of a traumatic event(s) as it occurred to another person(s) within the six months before the aggravation of schizophrenia.

   Witnessed traumatic events include, but are not limited to:

   - threatened or serious injury to another person
   - an unnatural death
   - physical or sexual abuse of another person
   - a medical catastrophe in a close family member or close friend.

8. Experiencing **repeated or extreme exposure** to aversive details of a traumatic event(s) within the six months before the aggravation of schizophrenia.

   Exposures include, but are not limited to:

   - viewing and/or collecting human remains
   - viewing and/or participating in the clearance of critically injured casualties
   - repeated exposure to the details of abuse and/or atrocities inflicted on another person(s)
   - dispatch operators exposed to violent or accidental traumatic event(s).

   Note: If the exposure under factor eight is to electronic media, television, movies and pictures, the exposure must be work related.

9. Living or working in a **hostile or life-threatening** environment for a period of at least four weeks before the aggravation of schizophrenia.

   Situations or settings which have a pervasive threat to life or body, including but not limited to:

   - being under threat of artillery, missile, rocket, mine or bomb attack
   - being under threat of nuclear, biologic or chemical agent attack
   - being involved in combat or going on combat patrols.

10. Inability to obtain **appropriate clinical management** of schizophrenia.

Section B: Medical conditions which are to be included in entitlement/assessment

Section B provides a list of diagnosed medical conditions/categories which are considered, for VAC purposes, to be included in the entitlement and assessment of schizophrenia.

- All other schizophrenia spectrum and other psychotic disorders
- All other trauma-and stressor-related disorders
- Anxiety disorders
- Adjustment disorder
- Bipolar and related disorders
- Depressive disorders
- Dissociative disorders
- Feeding and eating disorders
- Neurodevelopmental disorders
    - Attention-deficit/hyperactivity disorder
- Obsessive-compulsive and related disorders
- Pain disorder (*Diagnostic and Statistical Manual of Mental Disorders Fourth Edition-Text Revision* [*DSM-4-TR*] Axis I Diagnosis)
- Posttraumatic stress disorder
- Personality disorders
- Sleep-wake disorders
    - Insomnia disorder
    - Hypersomnolence disorder
- Somatic symptom disorder with predominant pain (previously pain disorder in the *DSM-4-TR*)
- Substance use disorders

Note:

- If specific conditions are listed for a category, only those conditions are included in the entitlement and assessment of schizophrenia. Otherwise, all conditions within the category are included in the entitlement and assessment of schizophrenia.
- Separate entitlement is required for a *DSM-5-TR* condition not included in Section B of this EEG.
- Somatic symptom and related disorders, such as functional neurological symptom disorder (conversion disorder), somatic symptom disorder, illness anxiety disorder, and bodily distress disorder (*ICD-11* diagnosis) are entitled separately and assessed on individual merits.

Section C: Common medical conditions which may result, in whole or in part, from schizophrenia and/or its treatment

Section C is a list of conditions which can be caused or aggravated by schizophrenia and/or its treatment. Conditions listed in Section C are not included in the entitlement and assessment of schizophrenia. A consequential entitlement decision may be considered where the individual merits and the medical evidence of the case support a consequential relationship. Conditions other than those listed in Section C may be considered; consultation with a disability consultant or medical advisor is recommended.

- Tardive akathisia
- Persistent medication-induced parkinsonism
- Tardive dyskinesia

If it is claimed a medication required to treat schizophrenia resulted in whole, or in part, in the clinical onset or aggravation of a medical condition the following must be established:

- The medication was prescribed to treat schizophrenia.
- The individual was receiving the medication at the time of the clinical onset or aggravation of the condition being claimed to the medication.
- The current medical literature supports the medication can result in the clinical onset or aggravation of the condition being claimed to the medication.
- The medication use is long-term, ongoing, and cannot reasonably be replaced with another medication or the medication is known to have enduring effects after discontinuation.

Note: Individual medications may belong to a class of medications. The effects of a specific medication may vary from the grouping. The effects of the specific medication should be considered.

Links

Related VAC guidance and policy:

- Adjustment Disorder - Entitlement Eligibility Guidelines
- Anxiety Disorders - Entitlement Eligibility Guidelines
- Bipolar and Related Disorders - Entitlement Eligibility Guidelines
- Depressive Disorders - Entitlement Eligibility Guidelines
- Feeding and Eating Disorders - Entitlement Eligibility Guidelines
- Posttraumatic Stress Disorder - Entitlement Eligibility Guidelines
- Substance Use Disorders - Entitlement Eligibility Guidelines

- Pain and Suffering Compensation - Policies
- Royal Canadian Mounted Police Disability Pension Claims - Policies
- Dual Entitlement – Disability Benefits - Policies
- Establishing the Existence of a Disability - Policies
- Disability Benefits in Respect of Peacetime Military Service – The Compensation Principle - Policies
- Disability Benefits in Respect of Wartime and Special Duty Service – The Insurance Principle - Policies
- Disability Resulting from a Non-Service Related Injury or Disease - Policies
- Consequential Disability - Policies
- Benefit of Doubt - Policies

References as of 22 January 2025

Abdel-Baki, A., Ouellet-Plamondon, C., Salvat, É., Grar, K., & Potvin, S. (2017). Symptomatic and functional outcomes of substance use disorder persistence 2 years after admission to a first-episode psychosis program. *Psychiatry Research*, *247*, 113-119. https://doi.org/10.1016/j.psychres.2016.11.007

Abel, K. M., Drake, R., & Goldstein, J. M. (2010). Sex differences in Schizophrenia. *International Review of Psychiatry*, *22*(5), 417-428. https://doi.org/10.3109/09540261.2010.515205

Amad, A., Guardia, D., Salleron, J., Thomas, P., Roelandt, J. L., & Vaiva, G. (2013). Increased prevalence of psychotic disorders among third-generation migrants: Results from the French Mental Health in General Population survey. *Schizophrenia Research*, *147*(1), 193-195. https://doi.org/10.1016/j.schres.2013.03.011

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.).

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.).

American Psychiatric Association (Ed.). (2022). *Diagnostic and statistical manual of mental disorders: DSM-5-TR* (5th ed., text rev.).

Arseneault, L., Cannon, M., Poulton, R., Murray, R., Caspi, A., & Moffitt, T. E. (2002). Cannabis use in adolescence and risk for adult psychosis: Longitudinal prospective study. *BMJ*, *325*(7374), 1212-1213. https://doi.org/10.1136/bmj.325.7374.1212

Australian Government. (2009). Statement of Principles concerning schizophrenia *(Balance of Probabilities) (No. 16 of 2009).* SOPs - Repatriation Medical Authority

Australian Government. (2009). Statement of Principles concerning schizophrenia *(Reasonable Hypothesis) (No. 15 of 2009).* SOPs - Repatriation Medical Authority

Australian Government. (2018). *Statement of Principles concerning schizophrenia (Balance of Probabilities) (No. 84 of 2016).* SOPs - Repatriation Medical Authority

Australian Government. (2018). *Statement of Principles concerning schizophrenia (Reasonable Hypothesis) (No. 83 of 2016).* SOPs - Repatriation Medical Authority

Barnett, J. H., Werners, U., Secher, S. M., Hill, K. E., Brazil, R., Masson, K. I. M., Pernet, D. E., Kirkbride, J. B., Murray, G. K., Bullmore, E. T., & Jones, P. B. (2007). Substance use in a population-based clinic sample of people with first-episode psychosis. *The British Journal of Psychiatry*, *190*(6), 515-520. https://doi.org/10.1192/bjp.bp.106.024448

Benjamin, K. J., Chen, Q., Jaffe, A. E., Stolz, J. M., Collado-Torres, L., Huuki-Myers, L. A., Burke, E. E., Arora, R., Feltrin, A. S., Barbosa, A. R., Radulescu, E., Pergola, G., Shin, J. H., Ulrich, W. S., Deep-Soboslay, A., Tao, R., the BrainSeq Consortium, Hyde, T. M., Kleinman, J. E., & Paquola, A. C. (2022). Analysis of the caudate nucleus transcriptome in individuals with schizophrenia highlights effects of antipsychotics and new risk genes. *Nature Neuroscience*, *25*(11), 1559-1568. https://doi.org/10.1038/s41593-022-01182-7

Blosnich, J., Foynes, M. M., & Shipherd, J. C. (2013). Health Disparities Among Sexual Minority Women Veterans. *Journal of Women's Health*, *22*(7), 631–636. https://doi.org/10.1089/jwh.2012.4214

Blosnich, J. R., Gordon, A. J., & Fine, M. J. (2015). Associations of sexual and gender minority status with health indicators, health risk factors, and social stressors in a national sample of young adults with military experience. *Annals of Epidemiology*, *25*(9), 661–667. https://doi.org/10.1016/j.annepidem.2015.06.001

Bojesen, K. B., Ebdrup, B. H., Jessen, K., Sigvard, A., Tangmose, K., Edden, R. A. E., Larsson, H. B. W., Rostrup, E., Broberg, B. V., & Glenthøj, B. Y. (2020). Treatment response after 6 and 26 weeks is related to baseline glutamate and GABA levels in antipsychotic-naïve patients with psychosis. *Psychological Medicine*, *50*(13), 2182–2193. https://doi.org/10.1017/S0033291719002277

Bourque, F., van der Ven, E., & Malla, A. (2011). A meta-analysis of the risk for psychotic disorders among first-and second-generation immigrants. *Psychological Medicine*, *41*(5), 897-910. https://doi.org/10.1017/S0033291710001406

Bradley, W. G., Daroff, R. B., Fenichel, G. M., & Jankovic, J. (2008). *Bradley's neurology in clinical practice* (5th ed.). Butterworth-Heinemann Elsevier.

Burns, J. K. (2013). Pathways from cannabis to psychosis: A review of the evidence. *Frontiers in Psychiatry*, *4*, 128. https://doi.org/10.3389/fpsyt.2013.00128

Cannon, M., Jones, P. B., & Murray, R. M. (2002). Obstetric complications and Schizophrenia: Historical and meta-analytic review. *American Journal of Psychiatry*, *159*(7), 1080-1092. https://doi.org/10.1176/appi.ajp.159.7.1080

Cantor-Graae, E., & Selten, J. P. (2005). Schizophrenia and migration: A meta-analysis and review. *American Journal of Psychiatry*, *162*(1), 12-24. https://doi.org/10.1176/appi.ajp.162.1.12

Carbone, J. T., Holzer, K. J., Vaughn, M. G., & DeLisi, M. (2020). Homicidal Ideation and Forensic Psychopathology: Evidence From the 2016 Nationwide Emergency Department Sample (NEDS). *Journal of Forensic Sciences*, *65*(1), 154–159. https://doi.org/10.1111/1556-4029.14156

Chan, P. K. (2016). Mental health and sexual minorities in the Ohio Army National Guard [Case Western Reserve University School of Graduate Studies]. http://rave.ohiolink.edu/etdc/view?acc_num=case1458924994

Chang, C. J., Fischer, I. C., Depp, C. A., Norman, S. B., Livingston, N. A., & Pietrzak, R. H. (2023). A disproportionate burden: Prevalence of trauma and mental health difficulties among sexual minority versus heterosexual U.S. military veterans. *Journal of Psychiatric Research*, *161*, 477–482. https://doi.org/10.1016/j.jpsychires.2023.03.042

Chin, S., Carlucci, S., McCuaig Edge, H. J., & Lu, D. (2022). Health differences by entry stream among Canadian Armed Forces officer cadets. *Journal of Military, Veteran and Family Health*, *8*(3), 45–57. https://doi.org/10.3138/jmvfh-2021-0124

Cochran, B. N., Balsam, K., Flentje, A., Malte, C. A., & Simpson, T. (2013). Mental Health Characteristics of Sexual Minority Veterans. *Journal of Homosexuality*, *60*(2–3), 419–435. https://doi.org/10.1080/00918369.2013.744932

Crow, J. F. (2003). Development. There's something curious about paternal-age effects. *Science*, *301*(5633), 606-607. https://doi.org/10.1126/science.1088552

Dalman, C., Thomas, H. V., David, A. S., Gentz, J., Lewis, G., & Allebeck, P. (2001). Signs of asphyxia at birth and risk of schizophrenia: Population-based case–control study. *The British Journal of Psychiatry*, *179*(5), 403-408. https://doi.org/10.1192/bjp.179.5.403

Davis, G. P., Compton, M. T., Wang, S., Levin, F. R., & Blanco, C. (2013). Association between cannabis use, psychosis, and schizotypal personality disorder: Findings from the National Epidemiologic Survey on Alcohol and Related Conditions. *Schizophrenia Research*, *151*(1-3), 197-202. https://doi.org/10.1016/j.schres.2013.10.018

de Leon, J., & Diaz, F. J. (2005). A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. *Schizophrenia Research*, *76*(2-3), 135–157. https://doi.org/10.1016/j.schres.2005.02.010

Fischer, B. A., Kirkpatrick, B., & Carpenter, W. T. (2009). The Neurobiology of Negative Symptoms and the Deficit Syndrome. In A. Lajtha, D. Javitt, & J. Kantrowitz (Eds.), *Handbook of Neurochemistry and Molecular Neurobiology* (pp. 505–523). Springer US. https://doi.org/10.1007/978-0-387-30410-6_16

Goldman-Rakic, P. S., Castner, S. A., Svensson, T. H., Siever, L. J., & Williams, G. V. (2004). Targeting the dopamine D1 receptor in schizophrenia: Insights for

cognitive dysfunction. *Psychopharmacology*, *174*, 3-16. https://doi.org/10.1007/s00213-004-1793-y

Gorman, K. R., Kearns, J. C., Pantalone, D. W., Bovin, M. J., Keane, T. M., & Marx, B. P. (2022). The impact of deployment-related stressors on the development of PTSD and depression among sexual minority and heterosexual female veterans. *Psychological Trauma: Theory, Research, Practice, and Policy*, *14*(5), 747–750. https://doi.org/10.1037/tra0001102

Gressier, F., Calati, R., & Serretti, A. (2016). 5-HTTLPR and gender differences in affective disorders: A systematic review. *Journal of Affective Disorders*, *190*, 193–207. https://doi.org/10.1016/j.jad.2015.09.027

Grossman, L. S., Harrow, M., Rosen, C., Faull, R., & Strauss, G. P. (2008). Sex differences in schizophrenia and other psychotic disorders: A 20-year longitudinal study of psychosis and recovery. *Comprehensive Psychiatry*, *49*(6), 523-529. https://doi.org/10.1016/j.comppsych.2008.03.004

Guidotti, A., Auta, J., Davis, J. M., Di-Giorgi-Gerevini, V., Dwivedi, Y., Grayson, D. R., Impagnatiello, F., Pandey, G., Pesold, C., Sharma, R., Uzunov, D., & Costa, E. (2000). Decrease in reelin and glutamic acid decarboxylase 67 (GAD67) expression in schizophrenia and bipolar disorder: A postmortem brain study. *Archives of General Psychiatry*, *57*(11), 1061–1069. https://doi.org/10.1001/archpsyc.57.11.1061

Gurillo, P., Jauhar, S., Murray, R. M., & MacCabe, J. H. (2015). Does tobacco use cause psychosis? Systematic review and meta-analysis. *The Lancet Psychiatry*, *2*(8), 718-725. https://doi.org/10.1016/S2215-0366(15)00319-3

Harper, K. L., Blosnich, J. R., Livingston, N., Vogt, D., Bernhard, P. A., Hoffmire, C. A., Maguen, S., & Schneiderman, A. (2024). Examining differences in mental health and mental health service use among lesbian, gay, bisexual, and heterosexual veterans. *Psychology of Sexual Orientation and Gender Diversity*. https://doi.org/10.1037/sgd0000712

Hashimoto, T., Volk, D. W., Eggan, S. M., Mirnics, K., Pierri, J. N., Sun, Z., Sampson, A. R., & Lewis, D. A. (2003). Gene expression deficits in a subclass of GABA neurons in the prefrontal cortex of subjects with schizophrenia. *The Journal of Neuroscience*, *23*(15), 6315–6326. https://doi.org/10.1523/JNEUROSCI.23-15-06315.2003

Hill, M. (Mar 2014). Clearing the smoke: What do we know about adolescent cannabis use and schizophrenia? [Editorial]. *Journal of Psychiatry and Neuroscience, 39*(2), 75-77. https://doi.org/10.1503/jpn.140028

Holloway, I. W., Green, D., Pickering, C., Wu, E., Tzen, M., Goldbach, J. T., & Castro, C. A. (2021). Mental Health and Health Risk Behaviors of Active Duty Sexual Minority and Transgender Service Members in the United States Military. *LGBT Health*, *8*(2), 152–161. https://doi.org/10.1089/lgbt.2020.0031

Janssen, I., Krabbendam, L., Bak, M., Hanssen, M., Vollebergh, W., de Graaf, R., & van Os, J. (2004). Childhood abuse as a risk factor for psychotic experiences. *Acta Psychiatrica Scandinavica*, *109*(1), 38-45. https://doi.org/10.1046/j.0001-690X.2003.00217.x

Jauhar, S., Johnstone, M., & McKenna, P. J. (2022). Schizophrenia. *Lancet (London, England)*, *399*(10323), 473–486. https://doi.org/10.1016/S0140-6736(21)01730-X

Javitt, D. C., & Zukin, S. R. (1991). Recent advances in the phencyclidine model of schizophrenia. *The American Journal of Psychiatry*, *148*(10), 1301–1308. https://doi.org/10.1176/ajp.148.10.1301

Kauth, M. R., & Shipherd, J. C. (2016). Transforming a System: Improving Patient-Centered Care for Sexual and Gender Minority Veterans. *LGBT Health*, *3*(3), 177–179. https://doi.org/10.1089/lgbt.2016.0047

Keshavan, M. S., Anderson, S., & Pettergrew, J. W. (1994). Is schizophrenia due to excessive synaptic pruning in the prefrontal cortex? The Feinberg hypothesis revisited. *Journal of Psychiatric Research*, *28*(3), 239-265. https://doi.org/10.1016/0022-3956(94)90009-4

Koskinen, J., Löhönen, J., Koponen, H., Isohanni, M., & Miettunen, J. (2009). Prevalence of alcohol use disorders in schizophrenia - A systematic review and meta-analysis. *Acta Psychiatrica Scandinavica*, *120*(2), 85-96. https://doi.org/10.1111/j.1600-0447.2009.01385.x

Kotlicka-Antczak, M., Pawełczyk, A., Rabe-Jabłońska, J., Śmigielski, J., & Pawełczyk, T. (2014). Obstetrical complications and Apgar score in subjects at risk of psychosis. *Journal of Psychiatric Research*, *48*(1), 79-85. https://doi.org/10.1016/j.jpsychires.2013.10.004

Krabbendam, L., & Van Os, J. (2005). Schizophrenia and urbanicity: A major environmental influence - conditional on genetic risk. *Schizophrenia Bulletin*, *31*(4), 795-799. https://doi.org/10.1093/schbul/sbi060

Lehavot, K., Beckman, K. L., Chen, J. A., Simpson, T. L., & Williams, E. C. (2019). Race/ethnicity and sexual orientation disparities in mental health, sexism, and

social support among women veterans. *Psychology of Sexual Orientation and Gender Diversity*, *6*(3), 347–358. https://doi.org/10.1037/sgd0000333

Lehavot, K., & Simpson, T. L. (2014). Trauma, posttraumatic stress disorder, and depression among sexual minority and heterosexual women veterans. *Journal of Counseling Psychology*, *61*(3), 392–403. https://doi.org/10.1037/cou0000019

Lynch, K. E., Gatsby, E., Viernes, B., Schliep, K. C., Whitcomb, B. W., Alba, P. R., DuVall, S. L., & Blosnich, J. R. (2020). Evaluation of Suicide Mortality Among Sexual Minority US Veterans From 2000 to 2017. *JAMA Network Open*, *3*(12), e2031357. https://doi.org/10.1001/jamanetworkopen.2020.31357

Malaspina, D., Corcoran, C., Fahim, C., Berman, A., Harkavy-Friedman, J., Yale, S., Goetz, D., Goetz, R., Harlap, S., & Gorman, J. (2002). Paternal age and sporadic schizophrenia: Evidence for de novo mutations. *American Journal of Medical Genetics*, *114*(3), 299-303. https://doi.org/10.1002/ajmg.1701

Marcelis, M., Navarro-Mateu, F., Murray, R., Selten, J. P., & van Os, J. (1998). Urbanization and psychosis: A study of 1942–1978 birth cohorts in the Netherlands. *Psychological Medicine*, *28*(4), 871-879. https://doi.org/10.1017/s0033291798006898

Marconi, A., Di Forti, M., Lewis, C. M., Murray, R. M., & Vassos, E. (2016). Meta-analysis of the association between the level of cannabis use and risk of psychosis. *Schizophrenia Bulletin*, *42*(5), 1262-1269. https://doi.org/10.1093/schbul/sbw003

Mattocks, K. M., Kauth, M. R., Sandfort, T., Matza, A. R., Sullivan, J. C., & Shipherd, J. C. (2014). Understanding Health-Care Needs of Sexual and Gender Minority

Veterans: How Targeted Research and Policy Can Improve Health. *LGBT Health*, *1*(1), 50–57. https://doi.org/10.1089/lgbt.2013.0003

Mazzoncini, R., Donoghue, K., Hart, J., Morgan, C., Doody, G. A., Dazzan, P., Jones, P. B., Morgan, K., Murray, R. M., & Fearon, P. (2010). Illicit substance use and its correlates in first episode psychosis. *Acta Psychiatrica Scandinavica*, *121*(5), 351-358. https://doi.org/10.1111/j.1600-0447.2009.01483.x

McCutcheon, R. A., Reis Marques, T., & Howes, O. D. (2020). Schizophrenia - An Overview. *JAMA Psychiatry*, *77*(2), 201–210. https://doi.org/10.1001/jamapsychiatry.2019.3360

McDonald, J. L., Ganulin, M. L., Dretsch, M. N., Taylor, M. R., & Cabrera, O. A. (2020). Assessing the Well-being of Sexual Minority Soldiers at a Military Academic Institution. *Military Medicine*, *185*(Suppl 1), 342–347. https://doi.org/10.1093/milmed/usz198

McNamara, K. A., Lucas, C. L., Goldbach, J. T., Kintzle, S., & Castro, C. A. (2019). Mental health of the bisexual Veteran. *Military Psychology*, *31*(2), 91–99. https://doi.org/10.1080/08995605.2018.1541393

Mittal, V. A., Ellman, L. M., & Cannon, T. D. (2008). Gene-environment interaction and covariation in schizophrenia: The role of obstetric complications. *Schizophrenia Bulletin*, *34*(6), 1083-1094. https://doi.org/10.1093/schbul/sbn080

Morgan, C., & Fisher, H. (2007). Environment and schizophrenia: Environmental factors in schizophrenia: Childhood trauma — A critical review. *Schizophrenia Bulletin*, *33*(1), 3-10. https://doi.org/10.1093/schbul/sbl053

Oakley, T., King, L., Ketcheson, F., & Richardson, J. D. (2020). Gender differences in clinical presentation among treatment-seeking Veterans and Canadian Armed Forces personnel. *Journal of Military, Veteran and Family Health*, *6*(2), 60–67. https://doi.org/10.3138/jmvfh-2019-0045

Olincy, A., Young, D. A., & Freedman, R. (1997). Increased levels of the nicotine metabolite cotinine in schizophrenic smokers compared to other smokers. *Biological Psychiatry*, *42*(1), 1–5. https://doi.org/10.1016/S0006-3223(96)00302-2

Pelts, M. D., & Albright, D. L. (2015). An Exploratory Study of Student Service Members/Veterans' Mental Health Characteristics by Sexual Orientation. *Journal of American College Health*, *63*(7), 508–512. https://doi.org/10.1080/07448481.2014.947992

Pierri, J. N., Chaudry, A. S., Woo, T. U., & Lewis, D. A. (1999). Alterations in chandelier neuron axon terminals in the prefrontal cortex of schizophrenic subjects. *The American Journal of Psychiatry*, *156*(11), 1709–1719. https://doi.org/10.1176/ajp.156.11.1709

Read, J., van Os, J., Morrison, A. P., & Ross, C. A. (2005). Childhood trauma, psychosis and Schizophrenia: A literature review with theoretical and clinical implications. *Acta Psychiatrica Scandinavica*, *112*(5), 330-350. https://doi.org/10.1111/j.1600-0447.2005.00634.x

Richardson, J. D., Thompson, A., King, L., Ketcheson, F., Shnaider, P., Armour, C., St. Cyr, K., Sareen, J., Elhai, J. D., & Zamorski, M. A. (2019). Comorbidity patterns of psychiatric conditions in Canadian Armed Forces personnel. *The Canadian Journal of Psychiatry*, *64*(7), 501–510. https://doi.org/10.1177/0706743718816057

Schizophrenia Working Group of the Psychiatric Genomics Consortium. (2014). Biological insights from 108 schizophrenia-associated genetic loci. *Nature*, *511*, 421–427. https://doi.org/10.1038/nature13595

Shipherd, J. C., Lynch, K., Gatsby, E., Hinds, Z., DuVall, S. L., & Livingston, N. A. (2021). Estimating prevalence of PTSD among veterans with minoritized sexual orientations using electronic health record data. *Journal of Consulting and Clinical Psychology*, *89*(10), 856–868. https://doi.org/10.1037/ccp0000691

Smith F.A., Wittman C.W., Stern T.A. (2008). Medical complications of psychiatric treatment. *Critical Care Clinics*. *24*(4), 635-656. https://doi.org/10.1016/j.ccc.2008.05.004

Stern, T. A., Fava, M., Rauch, S. L., Rosenbaum, J. F., Biederman, J. (2008). *Massachusetts general hospital comprehensive clinical psychiatry*. Mosby.

Stilo, S. A., Gayer-Anderson, C., Beards, S., Hubbard, K., Onyejiaka, A., Keraite, A., Borges, S., Monedelli, V., Dazzan, P., Pariante, C., Di Forti, M., Murray, R. M., & Morgan, C. (2017). Further evidence of a cumulative effect of social disadvantage on risk of psychosis. *Psychological Medicine*, *47*(5), 913-924. https://doi.org/10.1017/S0033291716002993

Stilo, S. A., & Murray, R. M. (2019). Non-Genetic Factors in schizophrenia. *Current Psychiatry Reports*, *21*(10), 100. https://doi.org/10.1007/s11920-019-1091-3

Torrey, E. F., Buka, S., Cannon, T. D., Goldstein, J. M., Seidman, L. J., Liu, T., Hadley, T., Rosso, I. M., Bearden, C., & Yolken, R. H. (2009). Paternal age as a risk factor for schizophrenia: How important is it?. *Schizophrenia Research*, *114*(1-3), 1-5. https://doi.org/10.1016/j.schres.2009.06.017

The International Schizophrenia Consortium. (2009). Common polygenic variation contributes to risk of schizophrenia and bipolar disorder. *Nature, 460*(7256), 748–752. https://doi.org/10.1038/nature08185

Uçok, A., Polat, A., Bozkurt, O., & Meteris, H. (2004). Cigarette smoking among patients with schizophrenia and bipolar disorders. *Psychiatry and Clinical Neurosciences*, *58*(4), 434–437. https://doi.org/10.1111/j.1440-1819.2004.01279.x

Usall, J., Ochoa, S., Araya, S., & Márquez, M. (2003). Gender differences and outcome in Schizophrenia: A 2-year follow-up study in a large community sample. *European Psychiatry*, *18*(6), 282-284. https://doi.org/10.1016/j.eurpsy.2003.06.001

Van Os, J., Bak, M., Hanssen, M., Bijl, R. V., De Graaf, R., & Verdoux, H. (2002). Cannabis use and psychosis: A longitudinal population-based study. *American Journal of Epidemiology*, *156*(4), 319-327. https://doi.org/10.1093/aje/kwf043

Van Os, J., Hanssen, M., Bijl, R. V., & Vollebergh, W. (2001). Prevalence of psychotic disorder and community level of psychotic symptoms: An urban-rural comparison. *Archives of General Psychiatry*, *58*(7), 663-668. https://doi.org/10.1001/archpsyc.58.7.663

Van Os, J., Pedersen, C. B., & Mortensen, P. B. (2004). Confirmation of synergy between urbanicity and familial liability in the causation of psychosis. *American Journal of Psychiatry*, *161*(12), 2312-2314. https://doi.org/10.1176/appi.ajp.161.12.2312

Van Os, J., Rutten, B. P., & Poulton, R. (2008). Gene-environment interactions in schizophrenia: Review of epidemiological findings and future

directions. *Schizophrenia Bulletin*, *34*(6), 1066-1082. https://doi.org/10.1093/schbul/sbn117

Volk, D., Austin, M., Pierri, J., Sampson, A., & Lewis, D. (2001). GABA transporter-1 mRNA in the prefrontal cortex in schizophrenia: Decreased expression in a subset of neurons. *The American Journal of Psychiatry*, *158*(2), 256–265. https://doi.org/10.1176/appi.ajp.158.2.256

Volk, D. W., Pierri, J. N., Fritschy, J. M., Auh, S., Sampson, A. R., & Lewis, D. A. (2002). Reciprocal alterations in pre- and postsynaptic inhibitory markers at chandelier cell inputs to pyramidal neurons in schizophrenia. *Cerebral Cortex*, *12*(10), 1063–1070. https://doi.org/10.1093/cercor/12.10.1063

Wade, D., Harrigan, S., Edwards, J., Burgess, P. M., Whelan, G., & McGorry, P. D. (2005). Patterns and predictors of substance use disorders and daily tobacco use in first-episode psychosis. *Australian & New Zealand Journal of Psychiatry*, *39*(10), 892-898. https://doi.org/10.1080/j.1440-1614.2005.01699.x

Williams, J. M., Gandhi, K. K., Lu, S. E., Kumar, S., Shen, J., Foulds, J., Kipen, H., & Benowitz, N. L. (2010). Higher nicotine levels in schizophrenia compared with controls after smoking a single cigarette. *Nicotine & Tobacco Research. 12*(8), 855–859. https://doi.org/10.1093/ntr/ntq102

Woo, T. U., Whitehead, R. E., Melchitzky, D. S., & Lewis, D. A. (1998). A subclass of prefrontal gamma-aminobutyric acid axon terminals are selectively altered in schizophrenia. *Proceedings of the National Academy of Sciences of the United States of America*, *95*(9), 5341–5346. https://doi.org/10.1073/pnas.95.9.5341

World Health Organization. (2019). *International statistical classification of diseases and related health problems* (11th Revision). https://icd.who.int/

Zammit, S., Allebeck, P., Andreasson, S., Lundberg, I., & Lewis, G. (2002). Self reported cannabis use as a risk factor for schizophrenia in Swedish conscripts of 1969: Historical cohort study. *BMJ*, *325*(7374), 1199. https://doi.org/10.1136/bmj.325.7374.1199