times increased risk of dying from cardiovascular disease, 2 to 6 times more likely to die from respiratory disease, and an increased risk of chronic viral infections such as HIV and hepatitis C. Patient, medication, and healthcare system factors influence the morbidity and mortality of people with severe mental illness. Stigma and discrimination by healthcare workers is a key contributing factor. We conducted this novel study in the Seychelles Islands with the aim of assessing the attitude and mental health knowledge of general practitioners and nurses towards severe mental illness in all 16 government primary healthcare facilities. We also aimed to explore the association of attitude and knowledge variables with socio-demographic characteristics and compare the attitude and knowledge between the two groups. We hypothesized that the greater the knowledge and understanding of severe mental illness the more positive and supportive the attitude would be.

Methods: A probability-stratified sampling technique was utilised to recruit 42 doctors and 97 nurses. The exposure variables were the sociodemographic characteristics. The outcome variables were attitude which was measured using the Mental Illness: Clinician's Attitude Scale (MICA) and knowledge which was measured using the Mental Knowledge Schedule (MAKS). Chi-square test was used to examine the association between the sociodemographic characteristics with the attitude and knowledge variables. The threshold of significance was set at $p<0.05$.

Results: 24 doctors and 64 nurses participated in the study with a response rate of 57.1% and 66% respectively. 66.7% (n=16) of the doctors were expatriates and 93.8% (n=64) of nurses were Seychellois (n=64, 93.8%). 54.69% (n=35) of the nurses had high knowledge and 58% (n=14) of the doctors had positive attitude. Male practitioners were more inclined to have a better knowledge of mental health. Doctors with postgraduate qualification had more positive mental health attitude. No statistically significant association was found between attitude and mental health knowledge in the participants.

Conclusion: The study has shown that half of the primary health workers had inadequate mental health knowledge and half of them had negative mental health attitude. Primary health workers lack training in the area of mental health. The key intervention is training in mental health. Additionally, recommendation may be made to revise the orientation programme for doctors and nurses entering the healthcare system in Seychelles.

Abstracts were reviewed by the RCPsych Academic Faculty rather than by the standard *BJPsych Open* peer review process and should not be quoted as peer-reviewed by *BJPsych Open* in any subsequent publication.

Tobacco Use in Schizophrenia: A Literature Review

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Aims: Schizophrenia is a mental illness with chronic course and varied outcomes, characterized by positive, negative, affective and cognitive symptoms along with aggression. Tobacco use is notably more prevalent in individuals with schizophrenia, often accompanied by severe dependence, compared with the general population. This literature review aims to explore the neurobiological mechanisms underlying tobacco use in schizophrenia, as well as potential treatment options and their associated benefits to the individual.

Methods: A comprehensive search was conducted on PubMed using the keywords "Tobacco use" and "Schizophrenia". Information from Free Full-text articles, including systematic reviews, meta-analyses, clinical trials, randomized controlled trials, review articles and books and documents published within the last 10 years were included, and studies published in languages other than English were excluded.

Results: The prevalence of tobacco use in patients with schizophrenia is 45–88% compared with less than 16% of general population. Nicotine acts via Nicotinic Acetylcholine Receptors (nAChRs) modulating the release of neurotransmitters. It helps improve the connectivity between salience network and other brain regions such as ventrolateral prefrontal cortex and superior parietal lobule, amongst others, which are deficient in schizophrenia.

The self-medication hypothesis suggests that tobacco reduces cognitive deficits. It also reduces extrapyramidal symptoms by inducing cytochrome P450 1A2, interacting with nAChRs in the ventral tegmental area, and inhibiting monoamine oxidase enzymes, which helps counteract dopamine reduction caused by antipsychotics.

The addiction vulnerability hypothesis suggests that genetic, neurobiological, and environmental factors in schizophrenia also increase susceptibility to tobacco use. Animal model studies also suggest that developmental limbic abnormalities which are seen in schizophrenia could also alter behaviour associated with drug use.

From a prognostic point of view, tobacco use in schizophrenia significantly increases the risk of cardiovascular diseases, shortening lifespan by up to 25 years, and raises the likelihood of metabolic syndrome. Pharmacotherapies like varenicline, bupropion (sustained release), nicotine replacement therapies (NRT), and combinations of bupropion and NRT have shown some success. Electronic cigarettes, along with psychological approaches like Acceptance and Commitment Therapy, Mindfulness, and Contingency Management (both digital and in-person), show promise. Neuromodulation via transcranial magnetic stimulation has shown some promise with limited results.

Conclusion: It is seen that tobacco use in schizophrenia is influenced by genetic, neurobiological, and cognitive factors, with nicotine causing long-term health risks and decreased effectiveness of treatment, hence proper understanding is essential for adequate patient care.

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Epigenomics and Schizophrenia: A Literature Review

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Aims: Schizophrenia is a severe mental illness, characterized by positive, negative, cognitive, affective symptoms with aggression, marked by disrupted structural and functional brain connectivity, as evidenced by neuroimaging, neurophysiological and neuropathological studies. Recent epigenetic research highlights the role of deoxyribonucleic acid (DNA) methylation, histone modifications, and non-coding ribonucleic acid (RNA) amongst others in mediating both genetic predisposition and environmental influences on gene expression as seen in schizophrenia.

Methods: A comprehensive search was conducted on PubMed using the keywords "schizophrenia" and "epigenomics". Information from

articles published within the last ten years were selected, including those with free full-text access, including books and documents, clinical trials, meta-analyses, randomized controlled trials, and systematic reviews. Only articles published in the English language were included in the selection process.

Results: The brain methylome consists of DNA methylation marks at cytosine and guanosine separated by phosphate group (CpG) sites in the brain's genome, which regulate gene expression without altering the DNA sequence. This modification influences cellular processes like gene activity, development, and memory. Dysregulation of gene expression, particularly in the prefrontal cortex (PFC), contributes to schizophrenia's pathophysiology, impacting neurotransmission, myelination, metabolism, and immune signalling.

Histone modifications (acetylation, deacetylation, methylation, phosphorylation) also regulate gene expression, with reduced Histone Deacetylase 2 (HDAC2) expression seen in the dorsolateral PFC of schizophrenia patients. Additionally, microRNAs (miRNAs) and long non-coding RNAs (lncRNAs) are implicated in gene expression dysregulation in schizophrenia, influencing processes like synaptic plasticity and neural differentiation.

Epigenetic changes in peripheral tissues, such as blood and saliva, may serve as biomarkers for schizophrenia.

A comprehensive approach integrates genotyping, epigenotyping, and deep phenotyping to enhance understanding of an individual's health and treatment responses. Early therapeutic interventions may reverse epigenetic changes, improving outcomes. Incorporating molecular endophenotypes and neuroimaging biomarkers aids in identifying schizophrenia subgroups and enhancing treatment predictions. Omics integration (genomics, transcriptomics, proteomics, metabolomics) increases the precision of schizophrenia risk stratification.

There are various advancements in DNA methylation analysis include high density CpG array system (850,000 sites), whole genome bisulphite sequencing (better resolution but costly), targeted bisulphite sequencing (cost-effective), and emerging single molecule/nanopore sequencing technologies.

Conclusion: Current research in schizophrenia reveals interactions between genetic, environmental, and epigenetic factors. While significant advancements have been made in understanding the role of DNA methylation, histone modifications, and non-coding RNAs, further studies with larger sample size and more robust structure along with using multi-omic approach are desirable for understanding the disease pathophysiology and to deliver personalized treatment.

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H-MRS Correlates of Deep TMS in Schizophrenia: Insights From a Randomized Sham-Controlled Study on Negative Symptoms

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Aims: Negative symptoms of schizophrenia are disabling and often show inadequate response to antipsychotic treatment. Dysfunction in cortical regions such as the anterior cingulate cortex (ACC) and medial prefrontal cortex (mPFC) has been implicated in these symptoms. While repetitive transcranial magnetic stimulation (rTMS) has shown efficacy, deep transcranial magnetic stimulation (dTMS) offers the advantage of targeting deeper brain structures.

To assess the efficacy of high-frequency dTMS in improving negative symptoms of schizophrenia and to examine its effects as measured by proton magnetic resonance spectroscopy (h-MRS).

Methods: This sham-controlled, double-blind study randomized 46 patients with schizophrenia into active and sham dTMS groups. Participants received 10 sessions of high-frequency (10 Hz) dTMS at 100% of the resting motor threshold using an H7 coil over 2 weeks. Symptom severity was assessed using the Positive and Negative Syndrome for the Assessment of Negative Symptoms (SANS), and Clinical Global Impression (CGI) at baseline, 2 weeks, and 4 weeks post-treatment. h-MRS of the ACC and mPFC was performed at baseline and after 2 weeks of treatment.

Results: A total of 43 patients completed the study. While both groups showed improvement over time, the active dTMS group demonstrated significantly greater improvement in negative symptoms, as reflected by a reduction in SANS scores compared with the sham group ($p=0.003$) and improvement in the negative subscale of PANSS ($p=0.044$). h-MRS analysis revealed a positive correlation between ACC total N-acetylaspartate (tNAA) levels after 2 weeks of treatment and baseline SANS anhedonia subdomain scores.

Conclusion: High-frequency dTMS significantly improves negative symptoms and overall illness severity in schizophrenia. These findings highlight the potential role of dTMS as an adjunctive treatment and suggest that h-MRS may serve as a valuable biomarker for treatment response. Future studies with larger sample sizes are needed to further explore the therapeutic and neurobiological effects of dTMS.

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9-Year Trajectory of Depressive and Anxiety Symptoms in Community – the Hong Kong Mental Morbidity Survey Follow Up Studies

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Aims: Depression and anxiety are common in every community. Appreciation of the long-term trajectories of these symptoms will inform more targeted interventions for reduction of disease burden. We evaluated the 7th and 9th year episode onset and remission rates of common mental disorders (CMD) in participants of the Hong Kong Mental Morbidity Survey (HKMMS) at baseline (2010–2023), who were reassessed at 7th and 9th years follow up.

Methods: The HKMMS and follow up studies were commissioned by the Medical and Health Research Fund in Hong Kong. Baseline study was conducted from 2010–2013 (n=5,719). We reassessed 1,392 subjects at 7th (2019–2021, COVID pandemic) and 9th (2020–2023, late to post-COVID) years. Depression and anxiety symptoms, episode onset and remission rates of CMD were evaluated with the Clinical Interview Schedule – Revised scores at baseline and follow up. Repeated measures ANCOVA computed factors affecting CISR scores over time.