



Oral health, coping strategies and neuropsychological determinants in patients with schizophrenia: A systematic review.

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Abstract

Background

Individuals with schizophrenia experience a high burden of oral disease due to psychotropic medication effects, impaired self-care, cognitive dysfunction, and social marginalization. Psychological determinants, including coping strategies and neuropsychological functioning, may influence oral health behaviour and treatment outcomes in this population.

Methodology

A systematic literature search was performed in PubMed, Scopus, and the Cochrane Library. Prospective and retrospective studies published in English evaluating oral health status, coping strategies, psychological determinants, or neurocognitive correlates among individuals diagnosed with schizophrenia were included. Editorials and conference abstracts were excluded. Studies were screened using predefined inclusion and exclusion criteria. Owing to heterogeneity in outcome measures and study designs, findings were synthesized narratively.

Results

Fifty records were identified, of which twenty full-text articles were assessed for eligibility. Ten studies met the inclusion criteria. Evidence consistently demonstrated increased dental caries, periodontal disease, xerostomia, and reduced preventive dental attendance among individuals with schizophrenia. Psychological determinants, including coping strategies, resilience, sense of coherence, self-esteem, hope, and neuropsychological functioning, were associated with oral health behaviour. Maladaptive coping and dental stress correlated with poor oral hygiene and delayed dental care. Studies also indicated that collaborative care involving dental and psychiatric professionals improved treatment engagement and rehabilitation outcomes.

Conclusions

Coping strategies and neuropsychological functioning influence oral health behaviour among individuals with schizophrenia. Interdisciplinary psychiatric–dental care models may improve oral health outcomes and quality of life.

Future research

Future research should focus on longitudinal studies examining neuropsychological determinants of oral health behaviour and the effectiveness of integrated rehabilitation-based oral health interventions.

Keywords: Dental, psychiatry, neurological, Quality of life, Stress

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Background

Oral and maxillofacial disorders, endocrine pathology, infectious diseases, neoplastic conditions, respiratory disorders, gastrointestinal upset, and cardiovascular pathologies may be witnessed in these patients. The global population accounts for about 0.7% to 1% accounts to schizophrenia. Gain of weight, disturbances to the metabolic system, and poor oral hygiene status are the main side effects from psychiatric medications^{1,2,3,4,5}. Moreover, the side effects also include dry mouth in case of anti-psychotics, whereas clozapine induces increased salivary secretion, which is also common in first-generation anti-psychotics, and increased smoking habits. Dental treatments in such patients are really challenging because these patients develop neurological complications, and the anti-psychotic drugs are used to avoid stressful and aversive stimuli. Main obstacles in the case of learning new strategies which might lead to improved health include personality disorders, dysfunctional self-esteem, and social life ultimately leading to isolation and victimization^{6,7,8,9,10}.

Objective

This study focuses on patients with neurological complications in conjunction with oral manifestations.

Materials and methods

Study design

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines.

Eligibility criteria

Studies were included if they:

- Involved participants diagnosed with schizophrenia based on standardized diagnostic criteria such as DSM or ICD.
- Evaluated oral health status, oral health behaviour, coping strategies, neuropsychological determinants, or psychological predictors related to oral health.
- Used prospective or retrospective observational study designs.
- Were published in peer-reviewed journals in English.

Studies were excluded if they:

- Were editorials, letters, commentaries, narrative reviews, or conference abstracts.
- Did not report primary data.
- Focused exclusively on pharmacological trials without oral health outcomes.
- Included mixed psychiatric populations without extractable schizophrenia-specific data.

For synthesis, studies were grouped into:

- Oral health status and clinical burden
- Psychological and coping determinants
- Neuropsychological predictors and behavioural correlates
- Interdisciplinary and rehabilitation-based interventions

Information sources

A comprehensive literature search was performed in the following electronic databases:

- PubMed
- Scopus
- Cochrane Library

In addition, reference lists of included studies were manually screened to identify additional relevant articles. The final search was conducted on January 30, 2026.

Search strategy

The following keywords and Boolean operators were used:

“Schizophrenia” AND “oral health”
“Schizophrenia” AND “dental health”
“Psychiatry” AND “oral hygiene”
“Coping strategies” AND “schizophrenia”
“Neuropsychology” AND “oral health”
“Stress” AND “dental” AND “schizophrenia”

Search filters:

Human studies

English language

No restriction on publication year

The search strategy was adapted appropriately for each database syntax.

Selection process

All identified records were exported into citation management software, and duplicates were removed.

Screening was performed in two stages:

Title and abstract screening

Full-text assessment for eligibility

Two reviewers independently screened studies. Disagreements were resolved through discussion and consensus. A PRISMA flow diagram summarizes the study selection process.

From 50 identified records, 20 full-text articles were assessed, and 10 studies met the inclusion criteria.

Data collection process

Data extraction was performed independently by two reviewers using a pre-designed standardized extraction form.

Extracted data were cross-verified. Any discrepancies were resolved through discussion. If required, corresponding authors were to be contacted for clarification; however, no additional unpublished data were obtained.

No automation tools or artificial intelligence-based screening software were used.

Data items

The following variables were extracted:

Study Characteristics
Author
Year of publication
Country
Study design
Sample size
Participant Characteristics
Age
Gender
Diagnostic criteria for schizophrenia
Oral Health Outcomes
DMFT index
Periodontal status
Gingival inflammation
Tooth loss
Xerostomia
Oral hygiene indices
Psychological and Neurocognitive Outcomes
Coping strategies
Sense of coherence
Resilience
Self-esteem
Hope
Self-determination
Neuropsychological functioning
Stress levels
Stigma

Synthesis methods

Due to heterogeneity in study design, outcome measures, and assessment tools, quantitative meta-analysis was not feasible.

A narrative synthesis approach was adopted. Studies were grouped based on thematic domains:

Clinical oral health burden

Psychological coping mechanisms

Neuropsychological predictors

Social and rehabilitative determinants

Patterns, consistencies, and divergences across studies were identified and synthesized descriptively.

Risk of bias assessment

Given the heterogeneity and predominantly observational study designs, methodological quality was appraised descriptively.

Risk of bias due to missing results within studies was considered by evaluating:

- Incomplete outcome reporting
- Attrition bias
- Selective reporting
- Sample size adequacy

Formal quantitative assessment of publication bias was not performed due to the limited number of included studies and the absence of meta-analysis.

Results

Study selection

The database search identified 50 records. After screening titles and abstracts, 20 full-text articles were assessed for eligibility. Ten studies met the inclusion criteria and were included in the qualitative synthesis.

Study Characteristics

The 10 included studies were conducted in France, China, Thailand, Malaysia, Romania, Syria and India. Study designs were predominantly cross-sectional observational studies, with one retrospective cohort and one instrument validation study.

Sample sizes ranged from small outpatient cohorts to national database-based retrospective analyses.

Results of individual studies

1. Denis et al., 2020 (France)

Retrospective cohort study assessing oral treatment patterns in individuals with schizophrenia. Patients with schizophrenia had significantly higher rates of tooth extraction compared to those with restorative care.

Preventive dental visits were lower compared to the general population.

2. Paredes et al., 2019 (France)

Cross-sectional study examining coping strategies for oral health problems. Adaptive coping strategies were associated with better oral hygiene practices. Maladaptive coping correlated with delayed dental consultation.

3. Yang et al., 2018 (China)

Cross-sectional study evaluating oral hygiene status. Participants demonstrated higher mean DMFT scores and poorer plaque control compared to non-psychiatric controls. Severity of psychiatric symptoms correlated with worse oral hygiene indices.

4. Thatreenaranon et al. (Thailand)

Clinical observational study emphasizing interdisciplinary collaboration. Integrated dental-psychiatric teamwork improved treatment compliance and oral hygiene reinforcement.

5. Denis et al., 2017 (France)

Study assessing oral health profile development. Higher symptom burden was associated with neglected oral hygiene and unmet dental needs.

6. Gupta et al., 2016

Review-based clinical observational synthesis highlighting poor awareness among dental professionals regarding psychiatric comorbidity and oral disease burden.

7. Wey et al., 2015 (Malaysia)

A cross-sectional study reporting significantly higher caries prevalence and untreated decay in patients with chronic schizophrenia. Dental decay disparity was pronounced compared to the general population.

8. Szalontay et al., 2021 (Romania)

Reported increased xerostomia and parafunctional habits among psychiatric patients, contributing to periodontal and caries risk.

9. Alhaffar et al., 2018 (Syria)

Cross-sectional evaluation showed increased gingival inflammation, missing teeth, and higher restorative burden in psychiatric populations.

10. Denis et al., 2016 (France)

Validation study of the Schizophrenia Oral Health Profile (SOHP). Demonstrated reliability in capturing oral health-related quality of life in individuals with schizophrenia.

Thematic synthesis of outcomes

Across studies, the following consistent findings were observed:

Increased DMFT scores and untreated caries
Higher prevalence of gingivitis and periodontal inflammation
Increased tooth loss and extraction rates
Xerostomia associated with antipsychotic use
Reduced preventive dental attendance
Strong association between maladaptive coping and poor oral health
Neurocognitive impairment linked to inadequate oral hygiene behaviour
Coping strategies and neuropsychological functioning emerged as primary determinants, while resilience, self-esteem, peer support, and rehabilitation programmes functioned as secondary modifiers.

Risk of bias assessment

Given the predominance of observational designs, methodological quality was evaluated descriptively based on selection bias, measurement bias, confounding control, and reporting transparency.

Selection Bias

Most studies recruited institutional or outpatient psychiatric samples, limiting generalizability.

Measurement bias

Oral health indices such as DMFT and periodontal indices were standardized in several studies; however, psychological constructs were measured using heterogeneous tools.

Confounding

Few studies adequately controlled for smoking, socioeconomic status, medication type, and duration of illness.

Attrition and Missing Data

Longitudinal attrition reporting was limited. Cross-sectional designs reduced attrition bias but limited causal inference.

Reporting bias

Outcome reporting was generally complete, though selective reporting could not be fully excluded due to the absence of pre-registered protocols.

Overall, the majority of studies were judged to have a moderate risk of bias, primarily due to cross-sectional

design, limited adjustment for confounders, and small sample sizes.

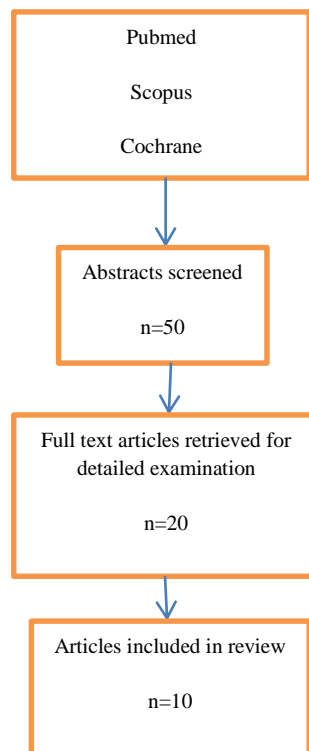


Figure 1. PRISMA flow diagram showing study selection process

Scientific literature in the English language was included. Participating countries were France, Canada, China, Thailand, Malaysia, Romania, Syria and India.

Table A: Factors influencing coping strategies

Author	Year	Country	Description
Frederic Denis et al	2020	France	Preferred treatment was tooth extraction.
Francesca Siu Paredes et al	2019	France	The coping strategies were favourable.
Mi Yang et al	2018	China	Poor oral hygiene was witnessed.
Sathaka Thatreenaranon		Thailand	Teamwork between dental and mental healthcare workers is preferred.
Frederic Denis et al	2017	France	Oral health and hygiene are mandatory.
Swati Gupta et al	2016	China	Medical professionals need to work in conjunction with dental professionals. Hence, knowledge and awareness of different aspects of this disease will help dental professionals in the diagnosis and planning of better treatment strategies for this specific population.

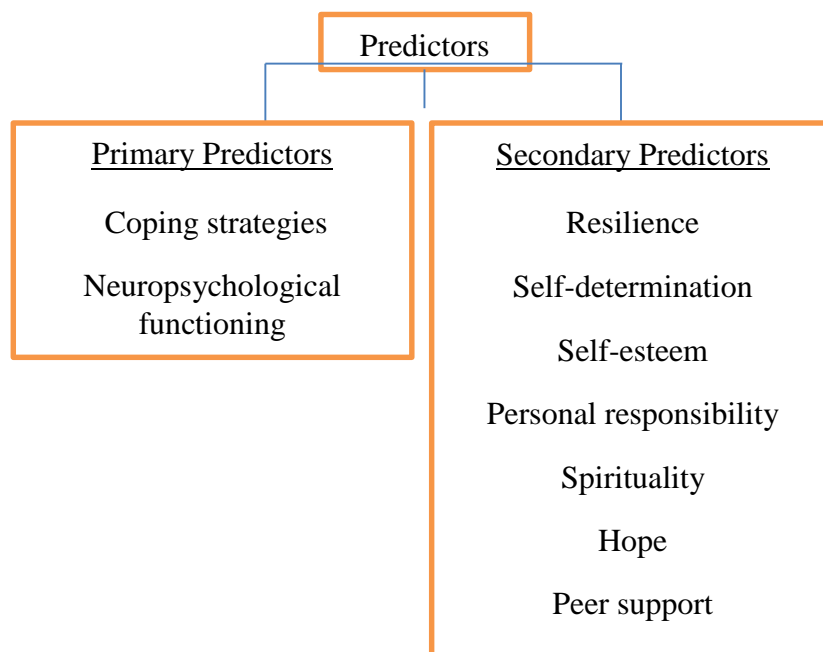


Author	Year	Country	Description
Mang Chek Wey et al	2015	Malaysia	Dental disease in people with schizophrenia deserves the same attention as other comorbid physical illnesses. The disparity in oral health is most marked for dental decay. Oral documentation is mandatory.
Andreea-Silvana Szalontay et al	2021	Romania	Functional habits and para-functional habits to be noted.
Bahaa Aldin Alhaffar et al	2018	Syria	Gingiva is more affected. Increased incidents of dental caries. More teeth were missing. Many tooth restorations were done.
Dennis Frederic et al	2016	France	Validation to be done both in psychiatry and dentistry ^{11,12,13,14,15,16,17,18,19,20} .

Discussion

The main domains are coherence, personal responsibility, religion, socialism, peer group, spirituality, self-confidence, stress, stigma, self-determination, hope, resilience, and neuropsychology. Future research has to be done on areas like neuropsychological functioning, interlinked with coping strategies in patients with schizophrenia, about oral health. There is an important relation between coping strategies and neuropsychology, which might result in flexible adaptive mannerism. The main determinants for a person with schizophrenia to cope with the stress are problem-solving skills, the ability to access stored knowledge, strategies, planning, and abstractive thinking. Emotionally focused coping style is a much more important traditional feature in the healthy population^{21,22,23,24,25}. Resilience is an important factor in the case of adaptive strategies, adverse events, and positive oral health. There is a direct proportional relation between sense of coherence and mental health, whereas an indirect proportional relation between sense of coherence and physical health. Excellent positive outcomes and good oral hygiene are seen in patients with a strong to moderate sense of coherence. Hope is defined as an expectation of a positive welcome and achievements and goals of people's own efforts. The main paradigm of hope includes cognition, motivation, behaviour, and

emotion. There is an interlink between self-determination, hope, and depression in patients with schizophrenia. There should not be social inclusion, exclusion, or discrimination. Exercise influences the risk of the disease even in the presence of high stress and can play a major role as a protective factor. In schizophrenia, the main key factor is powerlessness. This powerlessness can be overcome by decision-making, motivation, self-responsibility, coping strategy, and emotional well-being, which are all the features of empowerment^{26,27,28,29,30}. Loss of function, aesthetics, and occlusion can be restored by proper dental treatments. This leads to a positive social impact. Patients who are neurologically affected can have the ability to cope with the stress through two kinds of evaluations, such as threat and challenges, which are the successors of nature and degree of risk^{31,32,33,34,35}. The primary predictors of stress are coping mechanisms and neuropsychological function, whereas the secondary predictors are emotion, resilience, self-esteem, social support, and self-efficacy. In order to maintain resilience, coping, building, social support, or peer support depends entirely on a see-through network without discrimination and excellent social interaction. In such stressful situations, we can help out the people by encouraging and supporting them. Patients benefit and lead a better quality of life when joining a peer group rather than isolation. Negative aspects of stress can also be prevented with the help of religion and spirituality^{36,37,38,39,40}.



Study limitations

This study deals with patients with schizophrenia and oral health, thereby improving their quality of life. There is a strong relationship between dental health behaviour and psychology, symptomatology, self-determination, resilience, sense of coherence, neuropsychological functions, self-esteem, and self-stigma. Poor dental environment can be overcome by using peer support and rehabilitation programmes^{41,42,43,44,45}. Main important factor to cope with the oral health problems for a patient with psychiatry disorder is the coping strategies. Coping strategies refer to efforts that are made in a conscious manner to solve problems and fulfil daily life needs. Subjective coping strategies refer to self-esteem and hopelessness, whereas objective coping strategies refer to symptom severity. In case of increased stress, concentration, an effective coping strategy depends on independent decision making, motivation, and emotional well-being. To date, literature is scarce among the scientific community^{46,47,48,49,50}. Usually, patients with schizophrenia have negligence over their self-care, both physical and oral hygiene, cleanliness, lifestyle, dietary habits, use of psycho active substances, etc. Sufficient care can be provided to patients with schizophrenia by clearing the obstacles, which are the fear of mental illness, deficient training, cost, and environment. Promotional programmes can be done via social support groups or peer groups and learning programmes^{51,52,53,54,55}. Motivational programmes focus on self-stimulation, better dental hygiene, clock index scores, and oral prophylaxis, which include the most important factors like tooth brushing and mouth washing^{56,57,58,59}.

The included studies demonstrated substantial heterogeneity in psychological assessment tools, oral health outcome measures, and study designs. Most investigations were cross-sectional with relatively small sample sizes, which limits causal inference and restricts quantitative synthesis. Differences in socioeconomic status, smoking habits, and medication exposure were not consistently controlled across studies.

Implications for future research

Future studies should employ longitudinal designs to clarify causal relationships between neuropsychological functioning, coping behaviour, and oral health outcomes in schizophrenia. Standardized psychological and oral health assessment tools would improve comparability across studies. Randomized clinical trials evaluating integrated psychiatric-dental care models and rehabilitation-based oral health promotion programmes are required to determine effective strategies for improving oral health-related quality of life in this population.

Conclusion

This is the first and foremost study that explains the interlink between psychiatry and dentistry. Our study highlights coping strategies that are the most important primary indicators to deal with stressful conditions. This may ultimately result in a good quality of life, thereby



fulfilling the daily needs of the patients. Moreover, oral health programmes can be done in the multi-scale or large-scale priorities to focus on oral and maxillofacial pathologies as well.

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Registration protocol

This systematic review was not registered in PROSPERO or any other international prospective register before commencement of the study.

List of abbreviations

DSM – Diagnostic and Statistical Manual of Mental Disorders

DMFT – Decayed, Missing, and Filled Teeth Index

ICD – International Classification of Diseases

OHRQoL – Oral Health-Related Quality of Life

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

SOHP – Schizophrenia Oral Health Profile

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This research received no external funding and was conducted without financial support from governmental, commercial, or non-profit organizations.

Competing interests

The authors declare that there are no competing interests related to this study.

Data availability

All data analyzed during this study are derived from previously published articles cited in the reference list. No new primary datasets were generated. Extracted data are available from the corresponding author upon reasonable request.

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Author contributions

Dr. Vijay S contributed to conceptualization, psychiatric framework development, and critical revision of intellectual content.

Dr. Karthik Shunmugavelu contributed to study design, literature search strategy development, data extraction, synthesis, manuscript drafting, and final approval of the manuscript.

Vaishnavi M contributed to literature screening, data extraction, tabulation of included studies, and manuscript formatting.

All authors reviewed and approved the final version of the manuscript.

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