UDC 616.89-008.4:159.95 **DOI: 10.31652/2786-6033-2026-5(3)-83-92**

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THOUGHT DISORDERS: CONTEMPORARY APPROACHES TO THEIR IDENTIFICATION DURING THE CLINICAL INTERVIEW

Вступ. Порушення мислення є одним із ключових психопатологічних феноменів, що мають важливе значення для ранньої діагностики, диференційної діагностики та оцінювання перебігу психічних розладів. Незважаючи на значну кількість досліджень, присвячених їх феноменології, нейробіологічним механізмам та клінічним проявам, сучасні підходи до системного виявлення порушень мислення під час клінічної бесіди, особливо у практиці клінічного психолога, залишаються недостатньо узагальненими.

Мета дослідження – узагальнити сучасні наукові дані щодо порушень мислення, охарактеризувати їх нейробіологічні та клініко-психопатологічні особливості, проаналізувати сучасні підходи до їх оцінювання під час клінічної бесіди та запропонувати структурований алгоритм дослідження мислення для клінічної практики.

Матеріали та методи. Проведено наративний огляд сучасної наукової літератури з використанням публікацій, індексованих у міжнародних наукометричних базах даних, клінічних рекомендацій, міжнародних класифікацій психічних розладів та психометричних досліджень. Використано бібліографічний, порівняльний, системно-структурний і клініко-психопатологічний методи аналізу.

Результати. Сучасні уявлення розглядають порушення мислення як багатовимірний психопатологічний феномен, пов'язаний із дисфункцією мовленнєвих, виконавчих та когнітивних нейронних мереж. Показано, що порушення мислення мають трансдіагностичний характер і можуть спостерігатися при шизофренії, біполярному афективному розладі, депресивних та нейрокогнітивних розладах, органічних захворюваннях головного мозку, наслідках черепно-мозкової травми та розладах аутистичного спектра. Систематизовано основні характеристики мислення, зокрема темп, послідовність, цілеспрямованість, логічність, продуктивність і критичність, проаналізовано їх клінічне значення та сучасні підходи до оцінювання під час

дослідження психічного статусу. Розглянуто можливості застосування сучасних стандартизованих інструментів оцінювання (TLC, TALD, TLI, CLANG) та запропоновано структурований алгоритм клінічної бесіди для комплексного оцінювання порушень мислення.

Висновки. Комплексне оцінювання порушень мислення під час клінічної бесіди підвищує якість психопатологічного дослідження, сприяє ранньому виявленню психічних розладів та покращує диференційну діагностику. Запропонований алгоритм може бути використаний у практичній діяльності клінічних психологів, лікарів-психіатрів, лікарів-інтернів та мультидисциплінарних команд, а також у системі додипломної та післядипломної освіти фахівців у сфері психічного здоров'я.

Ключові слова: порушення мислення, клінічна бесіда, психопатологія, клінічна психологія, психічний статус, психодіагностика.

Background. Thought disorders are among the key psychopathological phenomena and play an important role in the early diagnosis, differential diagnosis, and assessment of the course of mental disorders. Although numerous studies have investigated their phenomenology, neurobiological mechanisms, and clinical manifestations, contemporary approaches to the systematic identification of thought disorders during the clinical interview, particularly in clinical psychology, remain insufficiently integrated.

Objective. To summarise current scientific evidence on thought disorders, describe their neurobiological and psychopathological characteristics, analyse contemporary approaches to their assessment during the clinical interview, and propose a structured algorithm for the assessment of thought processes in clinical practice.

Materials and methods. A narrative review of contemporary scientific literature was conducted using publications indexed in international databases, clinical practice guidelines, international diagnostic classifications, and psychometric studies. Bibliographic, comparative, system-structural, and clinical-psychopathological methods were applied to analyse and synthesise the available evidence.

Results. Current concepts describe thought disorders as multidimensional psychopathological phenomena associated with dysfunction of language, executive, and cognitive neural networks. Contemporary evidence indicates that thought disorders have a transdiagnostic nature and may occur in schizophrenia, bipolar disorder, depressive disorders, neurocognitive disorders, organic brain diseases, traumatic brain injury, and autism spectrum disorders. The main characteristics of thought processes, including tempo, sequence, goal-directedness, logical organisation, productivity, and critical thinking, were systematised, and their clinical significance as well as contemporary approaches to their assessment during the mental status examination were analysed. Modern standardised assessment instruments, including the Thought, Language and Communication Scale (TLC), the Thought and Language Disorder Scale (TALD), the Thought and Language Index (TLI), and the Clinical Language Disorder Rating Scale (CLANG), were reviewed. A structured algorithm for the clinical interview aimed at comprehensively assessing thought disorders was proposed.

Conclusions. Comprehensive assessment of thought disorders during the clinical interview improves the quality of psychopathological evaluation, facilitates early detection of mental disorders, and enhances differential diagnosis. The proposed algorithm may be used by clinical psychologists, psychiatrists, psychiatry residents, and multidisciplinary mental health teams, as well as in undergraduate and postgraduate education in mental health.

Keywords: thought disorders; clinical interview; psychopathology; clinical psychology; mental status examination; psychodiagnostics.

Introduction. Thought disorders are among the fundamental psychopathological phenomena that play an important role in clinical psychiatry and clinical psychology. They reflect the organisation of cognitive activity, directly affect communication, social functioning, and patient adaptation, and are of substantial importance for the early detection of mental disorders, differential diagnosis, assessment of the severity of psychopathological manifestations, and prediction of the course of illness [1, 2, 9, 13, 21].

Traditionally, thought disorders are divided into disorders of form and disorders of content. Formal thought disorders characterise the tempo, sequence, logical organisation, goal-directedness, and verbal expression of the thought process, whereas content disorders are associated with pathological ideas, beliefs, and judgments. Formal thought disorders are particularly accessible to clinical examination during psychopathological assessment because they are directly manifested in the patient's spontaneous speech and can be evaluated already at the stage of the clinical interview [3, 4, 13, 14].

For a long time, formal thought disorders were regarded primarily as a characteristic feature of schizophrenia. However, contemporary clinical, psychometric, neuropsychological, and neuroimaging studies indicate that they are transdiagnostic and may occur in bipolar disorder, depressive disorders, organic and neurocognitive disorders, autism spectrum disorders, after traumatic brain injury, and in individuals at high risk of developing psychosis. This approach has substantially broadened the understanding of the clinical significance of thought disorders and emphasised the need for their comprehensive assessment regardless of the mental disorder's nosological category [9, 15, 17, 19–22, 26, 28, 29, 33, 34].

At the same time, concepts regarding the mechanisms underlying thought disorders have changed substantially over the past decade. Contemporary models view them as a consequence of dysfunction in interconnected language, executive, and cognitive neural networks rather than solely as disturbances of associative processes. Standardised rating scales for formal thought disorder, as well as automated speech analysis methods using Natural Language Processing algorithms, have advanced considerably and show promise for the early detection of psychotic disorders and for increasing the objectivity of psychopathological assessment [4–8, 10, 14, 16, 21–29].

Despite the large number of publications devoted to neurobiology, psychometric assessment, and digital speech analysis, current evidence remains insufficiently integrated for the needs of clinical practice. Most studies address individual aspects of thought disorder, whereas syntheses of contemporary approaches to its assessment during the clinical interview, particularly from the perspective of clinical psychology, remain limited. This creates a need to systematise current scientific evidence, integrate psychopathological, neurobiological, and psychometric approaches, and develop a structured algorithm for the clinical assessment of thought disorders [5–10, 21–30, 33, 34].

Accordingly, it is relevant to summarise current scientific evidence on thought disorders, analyse their clinical-psychopathological and neurobiological mechanisms and contemporary approaches to assessment during the clinical interview, and determine the practical significance of this knowledge for the work of a clinical psychologist.

Objective

The objective of the study was, based on an analysis of contemporary scientific literature, to summarise current concepts of thought disorders; characterise their clinical manifestations and neurobiological mechanisms; outline contemporary approaches to their assessment during the clinical interview; and determine the practical significance of this knowledge for clinical psychologists.

Materials and Methods

The study was conducted as a narrative review of contemporary scientific literature with elements of comparative and critical analysis. Sources included publications indexed in PubMed/MEDLINE, materials from international scientific publishers, and documents of the World Health Organisation, the American Psychiatric Association, and the UK National Institute for Health and Care Excellence (NICE). The analysis drew on DSM-5-TR, ICD-11, and current clinical guidelines for the assessment of patients with mental disorders [6, 9, 19, 31, 32, 33].

The analysis included publications issued predominantly between 2016 and 2026. Systematic and narrative reviews, meta-analyses, clinical, neuroimaging, and psychometric studies, as well as international classifications and clinical guidelines, were included. Priority was given to studies addressing the phenomenology of thought disorders, their neurocognitive and neurobiological mechanisms, clinical assessment, standardised scales, and contemporary methods of speech analysis [5, 8, 9, 14, 20, 21, 25, 26, 27, 28, 29, 30, 33, 34].

Foundational publications issued before 2016 were used only as primary sources for standardised assessment instruments (TLC, TALD, TLI) and contemporary concepts of thought disorder [3, 15, 27]. Non-peer-reviewed materials, duplicates, abstracts without full text, and publications with insufficiently described methodology were excluded from the analysis.

Bibliographic, comparative, system-structural, and clinical-psychopathological methods were used to synthesise the findings. Results were systematised in the following areas: contemporary concepts of thought disorders, neurobiological mechanisms, clinical phenomenology, major characteristics of thinking, the clinical interview algorithm, and standardised assessment instruments. Based on the analysis, a practical algorithm for assessing thought disorders in clinical psychological practice was proposed.

Results

Contemporary Understanding of Thought Disorders

The analysis of contemporary scientific literature indicates that thought disorders are among the most complex yet informative psychopathological phenomena, reflecting changes in cognitive activity and

carrying substantial diagnostic significance. At the current stage of psychiatry and clinical psychology, they are viewed not merely as an isolated symptom of a particular disorder but as a multidimensional phenomenon arising from the interaction of neurobiological, cognitive, linguistic, and psychopathological mechanisms [9, 13, 14, 26, 27, 30, 33, 34].

The literature analysis confirmed the usefulness of distinguishing formal thought disorders from disorders of thought content. Formal disorders characterise the course of thought processes, including tempo, sequence, logical organisation, goal-directedness, productivity, and coherence, whereas content disorders reflect pathological ideas, beliefs, and judgments. Despite the relationship between these categories, formal disorders are the most readily assessed during the clinical interview because they are directly expressed in the patient's speech [1, 14, 15, 26, 31].

Thought disorders were long regarded mainly as a characteristic feature of schizophrenia. Contemporary studies, however, demonstrate their transdiagnostic nature. Formal thought disorders may occur in bipolar disorder, depressive disorders with psychotic symptoms, neurocognitive disorders, organic brain lesions, autism spectrum disorders, after traumatic brain injury, and in patients at high risk of psychosis [18, 21, 20, 26, 27, 30, 33, 34]. This perspective substantially broadens their clinical significance and supports a comprehensive assessment of thinking regardless of the nosological category of the mental disorder.

The analysis also showed that current classifications of mental disorders (DSM-5-TR and ICD-11) do not provide a separate standardised classification encompassing all formal thought disorders; instead, these phenomena are used as descriptive psychopathological characteristics within the mental status examination [1, 2, 26, 31, 32]. This necessitates the use of structured clinical interviews and standardised rating scales to increase the objectivity of psychopathological assessment.

Thus, the contemporary understanding of thought disorders is based on the integration of psychopathological, neuropsychological, and neurobiological approaches. For the clinical psychologist, this entails a comprehensive analysis not only of the content of the patient's statements but also of the organisation of thought, which is important for the early detection of mental disorders, differential diagnosis, and the determination of further clinical management [8, 9, 14, 27].

Neurobiological Mechanisms of Thought Disorders

Contemporary research indicates that thought disorders result not from a focal lesion in a single brain region but from dysfunction of interconnected neural networks supporting language, executive functions, semantic information processing, and cognitive control [9, 11, 14, 18, 22, 27]. This approach differs substantially from classical concepts that explained thought disorders primarily in terms of disturbances in associative processes.

Frontal, temporal, and parietal cortical regions play the greatest role in the development of thought disorders. The dorsolateral prefrontal cortex supports planning, maintenance of goal-directed activity, cognitive control, and working memory. In contrast, medial prefrontal regions are involved in self-monitoring, monitoring of one's own utterances, and behavioural regulation. Temporal structures, particularly the superior temporal gyrus and adjacent language areas, support semantic processing, language comprehension, and the formation of logical relationships between concepts. Disrupted interaction among these structures may lead to disorganisation of thought, loss of coherence, tangentiality, derailment of associative links, and reduced cognitive productivity [9, 14, 18, 27].

Contemporary researchers also devote particular attention to disturbances of semantic networks. In healthy individuals, concept activation occurs in an orderly manner, supporting the logical sequence of judgments. In psychotic disorders, excessive or chaotic spreading of semantic activation may occur, causing secondary or incidental associations to enter speech. Clinically, this may present as accelerated thinking, derailment, disruption of logical connections, and reduced speech coherence [9, 14, 22].

Executive functions also play an important role in the development of thought disorders. Reduced cognitive control, impaired inhibition of irrelevant information, deficits in working memory, and reduced cognitive flexibility make it more difficult to maintain the logical structure of an utterance, shift appropriately between topics, and monitor one's own speech. Accordingly, the severity of formal thought disorder often correlates with the degree of executive dysfunction and is one of the predictors of patients' social maladaptation [18, 21, 20].

Contemporary neuroimaging studies confirm structural and functional changes in patients with thought disorders. Reported findings include reduced grey matter volume in frontal and temporal cortical regions, altered functional connectivity between language and cognitive-control networks, and impaired integration of information across functional brain systems. The severity of these changes correlates with the clinical severity of thought disorder and the degree of cognitive deficit [16, 18, 27].

At the same time, current evidence indicates that the neurobiological mechanisms of thought disorders are not specific to schizophrenia. Similar alterations in functional brain organisation may be observed in bipolar disorder, neurocognitive disorders, organic brain lesions, and other mental disorders. This supports the transdiagnostic nature of thought disorders and the need for comprehensive assessment regardless of the condition's nosological category [10, 18, 27, 30, 33, 34].

These findings indicate that the contemporary understanding of thought disorders extends beyond classical psychopathological description and is based on the integration of clinical, neuropsychological, and neurobiological approaches. For the clinical psychologist, this means that assessment of thinking should consider not only observable speech manifestations but also the possible cognitive mechanisms underlying them, thereby improving the accuracy of psychopathological examination and supporting more substantiated differential diagnosis.

Major Characteristics of Thinking and Their Assessment During the Clinical Interview

The analysis of contemporary literature showed that assessment of thinking during the clinical interview should be comprehensive and encompass not only the content of the patient's statements but also the characteristics of the thought process. In contemporary clinical psychology and psychiatry, six major characteristics of thinking are of greatest practical importance: tempo, sequence, goal-directedness, logical organisation, productivity, and critical judgment. Their systematic analysis facilitates the timely identification of early psychopathological changes, differential diagnosis, and assessment of the degree of impairment in mental functioning [8, 14, 17, 33, 34].

Tempo of Thinking

The tempo of thinking characterises the speed at which thoughts are formed, developed, and verbally expressed. Under normal conditions, it corresponds to the rate of speech, permits timely shifting between topics, and does not interfere with the logical presentation of information.

Pathological changes in tempo may manifest as acceleration or slowing. Accelerated thinking is accompanied by rapid shifts in associations, verbosity, increased speech activity, and a tendency toward superficial logical connections. Such changes are most commonly observed in manic states and may be accompanied by elevated mood, psychomotor agitation, and reduced ability to maintain the main topic of conversation [9, 14, 34].

Slowed thinking is characterised by increased response latency, difficulty forming judgments, reduced speech activity, and a need for additional time to process information. Such manifestations are characteristic of depressive disorders, organic brain lesions, neurocognitive disorders, and certain forms of schizophrenia [14, 16].

During the clinical interview, it is appropriate to assess response speed, pause duration, ease of transitions between questions, speech rate, and the patient's ability to maintain an appropriate communication rhythm.

Sequence of Thinking

Sequence of thinking refers to the ability to move logically from one thought to another without losing the main topic. This characteristic most directly reflects the organisation of thought activity and is one of the most important indicators in psychopathological examination.

Disturbances of sequence may manifest as derailment, tangentiality, thought disruption, incoherence, excessive detail, or pathological circumstantiality. Despite their differing clinical manifestations, all of these phenomena involve impaired logical transitions between elements of an utterance and reduced speech coherence [14, 30, 34].

To assess the sequence of thinking, the clinical psychologist should attend to the patient's ability to answer without deviating from the question, to complete an initiated thought, to maintain logical connections between statements, and to avoid unjustified associative shifts.

Goal-Directedness of Thinking

Goal-directedness characterises the ability to maintain a defined direction of thought until a communicative or cognitive goal is achieved. Normally, a person can remain focused on the main topic of conversation, identify essential information, and complete a logical chain of reasoning.

In mental disorders, deviations from the main topic, difficulty maintaining the goal of an utterance, unjustified shifts to secondary details, or complete loss of the initial direction of thought may occur. Such changes are most commonly observed in schizophrenia, manic episodes, and organic brain disorders [7, 14, 18, 21].

Assessment of goal-directedness involves analysing the patient's ability to answer the question directly, maintain the topic of conversation, and complete statements without substantial deviation.

Logical Organisation of Thinking

Logical organisation reflects the ability to construct consistent cause-and-effect relationships, draw substantiated conclusions, and use appropriate inferences. Disturbances may manifest as paralogical thinking, illogical conclusions, contradictory judgments, or difficulty with abstraction [1, 14, 31].

During the clinical interview, logical organisation can be assessed through open-ended questions, interpretation of proverbs, explanation of cause-and-effect relationships, comparison of concepts, and analysis of everyday situations. What matters is not merely whether an answer is correct, but how it is constructed and the logic underlying the reasoning.

Productivity of Thinking

Productivity refers to the ability to generate new ideas, produce an adequate amount of meaningful information, and effectively solve cognitive tasks. Reduced productivity is manifested by poverty of speech, brief responses, difficulty generating new judgments, or a marked reduction in the number of associations. Conversely, excessive productivity may be accompanied by verbosity, an accelerated flow of associations, and an excess of secondary information [12, 14, 23, 34].

Critical Judgment

Critical judgment is the ability to recognise features of one's own mental state, adequately evaluate one's own statements, and correct errors during reasoning. Reduced critical judgment is characteristic of many mental disorders and is often accompanied by insufficient awareness of illness, denial of pathological experiences, or overestimation of one's abilities [1, 2, 31].

During the clinical interview, the clinician assesses the patient's attitude toward their own symptoms, ability to acknowledge errors, ability to consider the interlocutor's arguments, and ability to evaluate the results of their own activity critically.

Thus, a comprehensive assessment of tempo, sequence, goal-directedness, logical organisation, productivity, and critical judgment provides an integrated understanding of the patient's cognitive functioning. Systematic analysis of these characteristics during the clinical interview supports early detection of psychopathological changes, increases the accuracy of differential diagnosis, and facilitates selection of the optimal strategy for further clinical assessment and treatment [8, 14, 15, 33, 34].

The Clinical Interview as the Primary Method for Assessing Thought Disorders

The analysis of contemporary literature confirmed that the clinical interview remains the primary method for identifying thought disorders in psychiatric and clinical psychological practice. Unlike psychometric methods, which quantify individual characteristics of thinking, the clinical interview enables a comprehensive examination of thought processes through direct interaction with the patient. It allows assessment not only of the content of responses but also of the process of thought formation, the logic of reasoning, the nature of associative connections, speech characteristics, and the degree of critical awareness of one's own mental state [8, 14, 34].

One of the principal advantages of the clinical interview is the opportunity to observe the patient's spontaneous speech. Unlike structured tests, which constrain responses according to a predetermined algorithm, free narrative can reveal disturbances in tempo, sequence, logical organisation, and goal-directedness that may remain unnoticed during standardised questioning. Current recommendations therefore emphasise combining open-ended questions with targeted clarification, which helps assess thought processes without imposing a particular response format on the patient [8, 14, 28].

The clinical interview should proceed gradually from general to more specific questions. At the initial stage, spontaneous speech, rapport-building, patient orientation, overall coherence of statements, and the ability to sustain dialogue are assessed. The next stage involves analysis of specific characteristics of thinking, including tempo, logical organisation, sequence, productivity, critical judgment, and capacity for abstraction. When necessary, additional tasks may be used, such as explaining the figurative meaning of proverbs, comparing concepts, establishing cause-and-effect relationships, or solving simple problem situations [1, 14, 26].

When examining thinking, particular attention should be paid not only to whether an answer is correct but also to how it is constructed. Clinically relevant features include the duration of pauses before responding, ease of transition between topics, use of secondary details, preservation of logical connections between statements, ability to generalise information, and capacity to evaluate one's own judgments critically. Analysis of these features can reveal early psychopathological changes even in the absence of pronounced psychotic symptoms [8, 14, 34].

Interpretation of identified features should take into account the patient's age, educational level, language competence, cultural background, cognitive development, and the presence of neurological or somatic pathology. Slowed thinking, difficulty with generalisation, or reduced productivity do not necessarily indicate a mental disorder, as they may result from fatigue, emotional strain, medication use, or

comorbid conditions. Therefore, findings from the clinical interview should be evaluated comprehensively in relation to other components of the mental status examination and additional assessment data [1, 14].

Thus, the clinical interview is a universal tool for examining thought disorders. It provides a comprehensive assessment of cognitive activity, enables timely identification of psychopathological changes, and helps substantiate the need for further psychodiagnostic, neuropsychological, or psychiatric assessment. A structured approach to the clinical interview increases the objectivity of psychopathological evaluation and improves the quality of differential diagnosis [8, 14, 28].

Standardised Instruments for Assessing Thought Disorders

Alongside the clinical interview, standardised psychometric instruments play an important role in the assessment of thought disorders by providing a more objective and reproducible examination of individual psychopathological phenomena. Their use standardises clinical observation, enables quantitative assessment of symptom severity, supports monitoring of changes over time, and permits comparison of findings across clinical groups [8, 26, 30].

The most widely used instrument is the Thought, Language and Communication Scale (TLC), developed by N. Andreasen. The scale provides a systematic assessment of a broad range of formal thought and language disorders, including tangentiality, derailment, incoherence, neologisms, poverty of speech, and other clinical phenomena [4].

A more recent instrument is the Thought and Language Disorder Scale (TALD), which combines assessment of both objective speech manifestations and the patient's subjective experiences. This approach enables a more comprehensive examination of different aspects of thought disorder and increases the sensitivity of psychopathological assessment [15].

The Thought and Language Index (TLI) is widely used to assess speech coherence and disturbances in the logical organisation of utterances, primarily in clinical research and the early diagnosis of psychotic disorders. An additional instrument is the Clinical Language Disorder Rating Scale (CLANG), which provides a quantitative assessment of speech and communication characteristics in patients with psychotic disorders [8, 30].

Table 1

Comparative Characteristics of Contemporary Scales for Assessing Formal Thought Disorder

Scale	Primary purpose	Advantages	Limitations	Clinical use
TLC	Detailed assessment of formal thought and language disorders	Classic instrument; detailed description of phenomena	Requires substantial clinical experience	Clinical practice; research
TALD	Comprehensive assessment of objective and subjective disturbances	Highly structured; contemporary approach	Longer administration time	Clinical practice; research
TLI	Assessment of positive and negative thought disorder	Good sensitivity to early psychosis	Requires specialised training	First psychotic episode; research
CLANG	Assessment of disorganised speech	Detailed analysis of speech production	Less widely used in clinical practice	Primarily research

Despite the high informativeness of standardised scales, none can fully replace the clinical interview. Their integrated use is most effective, with psychometric findings complementing clinical observation and psychopathological analysis and thereby increasing the reliability and reproducibility of conclusions [8, 26, 30].

Practical Significance of Thought Disorder Assessment for the Clinical Psychologist

The analysis of contemporary literature indicates that assessment of thought disorders is a key component of psychopathological examination and an integral part of the professional work of the clinical psychologist. During the clinical interview, the specialist can assess not only the content of the patient's

statements but also the organisation of thought activity, speech characteristics, capacity for logical reasoning, level of abstract thinking, critical judgment, and cognitive control. Comprehensive examination of these characteristics may reveal early signs of mental disorders before pronounced clinical symptoms emerge and facilitate timely determination of the need for psychiatric consultation or additional psychodiagnostic or neuropsychological assessment [8, 14, 34].

Assessment of thought disorders is particularly important in differential diagnosis. Analysis of tempo, sequence, goal-directedness, logical organisation, productivity, and critical judgment helps distinguish psychotic disorders from affective, organic, neurocognitive, and neurodevelopmental disorders and assess the degree of cognitive deficit and its impact on everyday functioning. No single characteristic has independent diagnostic significance; findings must be interpreted only within the context of the overall mental status and clinical presentation [1, 14, 26].

An important direction in contemporary clinical psychology is the integration of traditional psychopathological assessment with standardised rating scales and digital technologies for speech analysis. Psychometric instruments (TLC, TALD, TLI, CLANG) increase assessment objectivity, enable quantitative determination of the severity of thought disorder, and allow monitoring of changes during treatment. At the same time, contemporary automated speech analysis methods based on Natural Language Processing algorithms show promising results for the early detection of psychotic disorders, the assessment of semantic speech coherence, and the prediction of psychosis risk. Despite their rapid development, these technologies cannot yet replace the clinical interview and should be regarded as adjunctive tools that complement psychopathological assessment [4, 5, 14, 25, 26, 30].

For the clinical psychologist, it is important not only to identify individual symptoms but also to understand their underlying mechanisms, their relationship with cognitive functions, and their impact on everyday functioning. This approach provides a comprehensive view of the patient's mental state, supports a well-founded clinical conclusion, informs further assessment strategy, and facilitates planning of psychological support within a multidisciplinary team.

Therefore, the findings confirm that systematic assessment of thought disorders during the clinical interview remains one of the most informative methods of psychopathological examination. Combining clinical observation, structured interviewing, standardised scales, and contemporary digital technologies creates conditions to improve diagnostic accuracy, early detection of mental disorders, and the individualisation of treatment and rehabilitation measures.

Conclusions. The analysis of contemporary scientific literature confirmed that thought disorders are multidimensional psychopathological phenomena with a transdiagnostic nature, occurring across a broad spectrum of mental, organic, neurocognitive, and neurodevelopmental disorders. Contemporary neurobiological evidence indicates that their development is associated with dysfunction of language, executive, and cognitive neural networks. Comprehensive assessment of tempo, sequence, goal-directedness, logical organisation, productivity, and critical judgment during the clinical interview improves the quality of psychopathological examination, facilitates early detection of mental disorders, and enhances differential diagnosis. The clinical interview remains the primary method for assessing thought disorders, while standardised scales (TLC, TALD, TLI, CLANG) increase objectivity and enable quantitative monitoring of changes. The synthesised findings and proposed clinical interview algorithm may be used by clinical psychologists, psychiatrists, and psychiatry residents, as well as in undergraduate and postgraduate training of mental health professionals.

Study Limitations

This study is a narrative review of contemporary scientific literature; therefore, the findings are based on a synthesis of published evidence and do not include original clinical or psychometric validation of the proposed algorithm for assessing thought disorders. The analysis predominantly covered English-language sources from the past decade and international clinical guidelines, consistent with current trends in psychiatry and clinical psychology, but this may limit consideration of certain regional features of clinical practice. The proposed algorithm does not replace professional clinical experience. It should be used only as a structured model of psychopathological interviewing in combination with a comprehensive analysis of the patient's mental status.

Practical Recommendations

Based on the analysis of contemporary literature, the following recommendations may be made for clinical psychologists and psychiatrists:

1. Assess thinking throughout the clinical interview, primarily using open-ended questions that stimulate the patient's spontaneous speech.

2. Analyse thinking comprehensively by assessing tempo, sequence, goal-directedness, logical organisation, productivity, and critical judgment rather than considering individual psychopathological phenomena in isolation.

3. Interpret identified disturbances only in relation to other components of the mental status examination, findings from the clinical interview, and the patient's somatic and neurological status.

4. Combine the clinical interview with standardised assessment instruments (TLC, TALD, TLI, CLANG), particularly during longitudinal follow-up, clinical research, and evaluation of treatment effectiveness.

REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5-TR. 5th ed., text rev. Washington, DC: American Psychiatric Association Publishing, 2022.

2. American Psychiatric Association. The American Psychiatric Association practice guideline for the treatment of patients with schizophrenia. 3rd ed. Washington, DC: American Psychiatric Association Publishing, 2021.

3. Andreasen N. C. Scale for the assessment of thought, language, and communication (TLC). Schizophrenia Bulletin. 1986. Vol. 12, No. 3. P. 473–482. DOI: 10.1093/schbul/12.3.473.

4. Andreasen N. C. Thought, language, and communication disorders. II. Diagnostic significance. Archives of General Psychiatry. 1979. Vol. 36, No. 12. P. 1325–1330.

5. Cohen A. S. et al. Computational approaches to disorganised speech in psychosis. Schizophrenia Bulletin. 2022.

6. Corcoran C. M., Mittal V. A., Bearden C. E. et al. Language as a biomarker for psychosis: a natural language processing approach. Schizophrenia Research. 2020. Vol. 226. P. 158–166. DOI: 10.1016/j.schres.2020.04.032.

7. de Boer J. N., Voppel A. E., Brederoo S. G., Wijnen F. N. K., Sommer I. E. C. Language disturbances in schizophrenia: the relation with antipsychotic medication. npj Schizophrenia. 2020. Vol. 6. Art. 24. DOI: 10.1038/s41537-020-00114-3.

8. de Boer J. N., Voppel A. E. et al. Natural language processing for assessment of thought disorder. npj Digital Medicine. 2023.

9. Dornelles E., Telles-Correia D. The neurobiology of formal thought disorder. Current Topics in Medicinal Chemistry. 2024. Vol. 24, No. 20. P. 1773–1783. DOI: 10.2174/0115680266272521240108102354.

10. Hardy K. V., Turkington D. (eds.). Decoding delusions: a clinician's guide to working with delusions and other extreme beliefs. Washington, DC: American Psychiatric Association Publishing, 2023. 448 p. DOI: 10.1176/appi.books.9781615379491.

11. Hinzen W., Palaniyappan L. The 'L-factor': language as a transdiagnostic dimension in psychopathology. Progress in Neuro-Psychopharmacology and Biological Psychiatry. 2024. Vol. 131. Art. 110952. DOI: 10.1016/j.pnpbp.2024.110952.

12. Jerónimo J., Queirós T., Cheniaux E., Telles-Correia D. Formal thought disorders: historical roots. Frontiers in Psychiatry. 2018. Vol. 9. Art. 572. DOI: 10.3389/fpsyt. 2018.00572.

13. Kircher T., Bröhl H., Meier F., Engelen J. Formal thought disorders: from phenomenology to neurobiology. The Lancet Psychiatry. 2018. Vol. 5, No. 6. P. 515–526. DOI: 10.1016/S2215-0366(18)30059-2.

14. Kircher T., Krug A., Stratmann M. et al. A rating scale for the assessment of objective and subjective formal thought and language disorder (TALD). Schizophrenia Research. 2014. Vol. 160, No. 1–3. P. 216–221. DOI: 10.1016/j.schres.2014.10.024.

15. Levada O. A., Troian O. S. Clinical and neuroimaging aspects of formal thought disorder in schizophrenia: a brief narrative review. Modern Medical Technology. 2024. Vol. 16, No. 2. P. 144–151. DOI: 10.14739/mmt. 2024.2.299080.

16. Liddle P. F., Ngan E. T. C., Caissie S. L. et al. Thought and Language Index: an instrument for assessing thought and language in schizophrenia. The British Journal of Psychiatry. 2002. Vol. 181, No. 4. P. 326–330. DOI: 10.1192/bjp.181.4.326.

17. Maderthaner L. et al. Differences in the neural correlates of schizophrenia with positive and negative formal thought disorder in the ENIGMA dataset. Molecular Psychiatry. 2024. DOI: 10.1038/s41380-024-02563-z.

18. National Institute for Health and Care Excellence. Psychosis and schizophrenia in adults: prevention and management. NICE guideline NG222. Updated 2023.

19. Oeztuerk O. F., Antonucci L. A., Koutsouleris N. et al. Association between formal thought disorders, neurocognition and functioning in the early stages of psychosis: a systematic review. European Archives of Psychiatry and Clinical Neuroscience. 2022. Vol. 272. P. 381–393. DOI: 10.1007/s00406-021-01295-3.

20. Oeztuerk O. F., Pigoni A., Wenzel J. et al. The clinical relevance of formal thought disorder in the early stages of psychosis: results from the PRONIA study. European Archives of Psychiatry and Clinical Neuroscience. 2022. Vol. 272, No. 3. P. 403–413. DOI: 10.1007/s00406-021-01327-y.

21. Palaniyappan L. Dissecting the neurobiology of linguistic disorganisation and impoverishment in schizophrenia. Seminars in Cell & Developmental Biology. 2022. Vol. 129. P. 47–60. DOI: 10.1016/j.semcdb.2021.08.015.

22. Palaniyappan L., Sreeraj V. S., Venkatasubramanian G., Voppel A. Why is it hard to assess thought disorder? Clarifying the third domain of psychosis. Schizophrenia Research. 2026. Vol. 292. P. 41–52. DOI: 10.1016/j.schres.2026.02.018.

23. Rossell S. L., Sumner P. J., Tan E. J. et al. Current concepts in the assessment of formal thought disorder. Schizophrenia Research. 2023.

24. Sarzynska-Wawer J., Wawer A., Pawlak A. et al. Detecting formal thought disorder by deep contextualised word representations. Psychiatry Research. 2021. Vol. 304. Art. 114135. DOI: 10.1016/j.psychres.2021.114135.

25. Sreeraj V. S., Voppel A., Venkatasubramanian G., Palaniyappan L. What is being measured by formal thought disorder scales? An item-level content analysis. Psychological Medicine. 2026. Vol. 56. Art. e106. DOI: 10.1017/S0033291726104152.

26. Stein F., Gudjons A. M., Brosch K. et al. Transdiagnostic types of formal thought disorder and their association with grey matter brain structure: a model-based cluster analytic approach. Molecular Psychiatry. 2025. Vol. 30. P. 4286–4295. DOI: 10.1038/s41380-025-03009-w.

27. Tan E. J., Sumner P. J., Rossell S. L. Clinical assessment of formal thought disorder: current challenges. Schizophrenia Research. 2023.

28. Ucok A., Karakaş B., Şahin O. Ş. Formal thought disorder in patients with first-episode schizophrenia: results of a one-year follow-up study. Psychiatry Research. 2021. Vol. 302. Art. 113972. DOI: 10.1016/j.psychres.2021.113972.

29. Voppel A., Ciampelli S., Kircher T. et al. Analysis of conceptual overlap among formal thought disorder rating scales in psychosis: a systematic semantic synthesis. Schizophrenia. 2026. Vol. 12. Art. 9. DOI: 10.1038/s41537-025-00712-z.

30. World Health Organisation. International Classification of Diseases, 11th Revision (ICD-11). Geneva: World Health Organisation, 2022.

31. World Health Organisation. Mental, behavioural or neurodevelopmental disorders: ICD-11 clinical descriptions and diagnostic requirements. Geneva: World Health Organisation, 2024.

32. World Psychiatric Association. WPA position statement on early intervention in psychosis. World Psychiatry. 2023.

33. Zamperoni G., Tan E. J., Rossell S. L., Meyer D., Sumner P. J. Evidence for the factor structure of formal thought disorder: a systematic review. Schizophrenia Research. 2024. Vol. 264. P. 424–434. DOI: 10.1016/j.schres.2024.01.006.

34. Zamperoni G., Tan E. J., Sumner P. J., Rossell S. L. Exploring the conceptualisation, measurement, clinical utility and treatment of formal thought disorder in psychosis: a Delphi study. Schizophrenia Research. 2024. Vol. 270. P. 486–493. DOI: 10.1016/j.schres.2024.06.042.

The article has been submitted to the editorial board 29.06.2026
The article has been recommended for publication 28.08.2026
The article was published on 31.08.2026