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Evolution of paradigms in the study of depression: from a unitary concept to a biopsychosocial model and interdisciplinary approaches

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ABSTRACT

The review is devoted to the consideration of the history of paradigms in the study of depressive disorders in terms of modern understanding of depression in psychiatry and clinical and medical psychology and its correlation with the biopsychosocial model in medicine. The review also contains works devoted to the study of the prevalence and comorbidity of depressive disorders and their relationship with suicidal behavior. The existing limitations in the study of depressive disorders in psychiatry and clinical psychology and the issues of interdisciplinary integration and interdisciplinary barriers are considered in detail.

The review includes publications indexed in the Web of Science, Scopus, Russian Science Citation Index, and PubMed databases. Depression is a major medical and psychological problem due to its widespread prevalence in the general population, in primary care, among patients with various chronic somatic symptom disorders who receive treatment in community and specialized hospitals and clinics, and among clients of psychological centers and social services. In 1996, the Harvard T.H. Chan School of Public Health, based on the materials of the World Health Organization (WHO) and the World Bank, published estimates and prognosis for the prevalence of depressive disorders around the world. According to their data, depression in 1990 was ranked 4th in terms of the severity of the leading causes of the burden of the disease, and according to the baseline scenario of development, by 2020 it should have been ranked 2nd after coronary artery disease.

The review is focused on the need to revise the baseline scenario of development and start a new discussion on the study of depressive disorders under new conditions, such as the psychological state of society during the COVID-19 pandemic and lockdown, as well as on the eve of healthcare transition to the 11th Revision of the International Classification of Diseases.

Keywords: depression, depressive disorders, biopsychosocial model, comorbidity of depression, depression concepts, depression diagnosis, depression classification

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Эволюция парадигм в изучении депрессии: от унитарной концепции к биопсихосоциальной модели и междисциплинарным подходам

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РЕЗЮМЕ

Настоящий обзор литературы посвящен рассмотрению истории парадигм в изучении депрессивных расстройств в аспекте современного понимания депрессии в психиатрии, клинической и медицинской психологии, ее соотнесения с биопсихосоциальной моделью в медицине. В обзоре также содержатся работы, предметом которых было изучение распространенности и коморбидности депрессивных расстройств, связь с суицидальным поведением. Отдельно рассмотрены существующие ограничения в изучении депрессивных расстройств, имеющиеся в психиатрии и клинической психологии, вопросы междисциплинарной интеграции и междисциплинарных барьеров.

В обзор включены публикации, индексируемые в Web of Science, Scopus и Russian Science Citation Index, а также в базе PubMed. Депрессия является важнейшей медицинской и психологической проблемой в связи с ее широким распространением в общей популяции, в первичной медицинской сети, среди пациентов, страдающих различными хроническими соматическими заболеваниями, которые получают лечение в больницах и клиниках общего и специализированного профиля, клиентов психологических центров и социальных служб. В 1996 г. Гарвардская школа здравоохранения, основываясь на материалах Всемирной организации здравоохранения и Всемирного банка, опубликовала расчеты и прогноз распространенности депрессивных расстройств в мире. Согласно приведенным данным, депрессия в 1990 г. по тяжести ведущих причин бремени болезни занимала 4-е место, а по базовому сценарию развития к 2020 г. должна была выйти на 2-е место после ишемической болезни сердца.

Обзор ориентирован на необходимость ревизии базового сценария развития и открытия новой дискуссии по проблемам изучения депрессивных расстройств в новых условиях – психологическое состояние общества в период пандемии COVID-19 и карантинных мер, а также накануне перехода здравоохранения на 11-й пересмотр международной классификации болезней.

Ключевые слова: депрессия, депрессивные расстройства, биопсихосоциальная модель, коморбидность депрессии, концепции депрессии, диагностика депрессии, классификация депрессии

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INTRODUCTION

Depression was systematized and described for the first time in the nosology by E. Kraepelin [1]. He noted that manic-depressive insanity, on the one hand, covers the entire area of the so-called periodic and circular psychoses and, on the other hand, includes simple mania, most of the clinical presentations referred to as melancholia, as well as a significant number of amentia cases. It should also definitely include a light, but long-lasting, painful mood, which should be considered either as a previous stage of severe disturbances, or as a transition without clear boundaries into the area of personal predisposition. He also noted that over time he became more convinced that these clinically diverse presentations are manifestations of a single process. In addition, E. Kraepelin suggested that later, new studies would result in a number of clinical subforms of circular psychosis or separate groups of nosologies, one way or another associated with depression [1]. He believed that, if this happens,

the signs that had hitherto been brought to the forefront could become a definite measure.

The entire subsequent history of the study of depression has shown that these statements very accurately anticipated the identification of various subtypes of depression on the basis of the clinical presentations that form its symptom complexes.

CHANGES IN THE CLASSIFICATIONS OF MENTAL AND BEHAVIORAL DISORDERS

This unitary concept dominated for more than fifty years and began to be revised only in the second half of the XX century. The most significant innovations were made by K. Leonhard [2] and, somewhat later, by J. Angst and C. Perris [3] based on the study of hereditary and constitutional factors in patients with depression. Their aim was to correlate heredity and premorbid personality traits with the clinical presentation, course, and outcome of depression. These works and further changes in the taxonomy of mood disorders classified manic-depressive psychosis into a proper bipolar variant and recurrent depression. Despite this, in a later revision of the International Classification of Diseases ICD-9 [4], they were still considered as different types of the course of manic-depressive psychosis, that is, they were still assigned to the same nosology.

Large-scale changes in the classifications of mental and behavioral disorders at the end of the XX century most profoundly affected the cluster of mood disorders. Avoiding the nosological principle of building a taxonomy while maintaining the categorical approach became a compromise between the progress in clinical psychiatry and the difficulties in finding the etiology and pathogenesis of affective disorders. Thus, the era of manic-depressive psychosis was replaced by the time of the "depressive episode" [5] or "major depression" [6–10]. After fundamental changes in psychiatric classifications, their authors began to develop adapted versions for other specialties, including nursing. It contributed to closer integration with psychosomatic medicine and marked the beginning of a new milestone in psychiatry, which can be described as "general medical".

In parallel with this process, psychopharmacology of antidepressants saw a breakthrough. It was primarily associated with the emergence of drugs with a selective effect on certain neurotransmitters. The breakthrough not only tangibly changed the quality of depression therapy, but also increased the treatment effectiveness of concomitant chronic somatic symptom disorders [11]. Being a mental disorder, depression manifests itself through a number of symptoms, including a somatic component. It leads to the formation of symptoms similar to those that occur in various lesions of organs and systems, which makes diagnosis quite difficult. Meanwhile, the development of information systems to support clinical decision-making based on machine learning and knowledge in the field of diagnosis and treatment of depressive disorders has by now reached the level that can algorithmize the entire diagnostic and treatment process [12, 13]. This makes it accessible not only to psychiatrists, but to all medical and non-medical specialties and specializations involved in the diagnosis and treatment of depression. The exceptions here are cases of severe and resistant conditions, which require psychiatric qualifications and proper experience. As a rule, such patients need inpatient treatment in specialized facilities.

At the same time, information technologies remain dependent on existing clinical concepts, classification approaches, therapy standards, and clinical protocols. In this regard, the remark of I.V. Davydovsky [14] made in the middle of the XX century is still relevant. He insisted that a medical thought has a risk of drowning in particulars, getting lost in details, and, therefore, it is time to look for new concepts and new generalizing theories and ideas based on the accumulated facts. In relation to depressive disorders as very common ones, this means that the continuous search for their biological markers as an alternative for clinical diagnosis can lead to the fact that non-specific and unstable biological parameters can be introduced into diagnostic criteria. It will make refinement of the clinical classification difficult. However, limiting such a search is categorically unacceptable, since it is the introduction of laboratory and instrumental parameters into diagnostic criteria. It is one of the best opportunities to overcome the psychosomatic dualism that still exists and the psychiatric stigma that follows it, existing both in the society and medical community. These two factors continue to prevent patients from seeking psychiatric care, which results in their not receiving proper treatment. On the contrary, timely diagnosis and treatment of depression is the key to success in helping people suffering from this disorder.

Mental health services in different countries sometimes have fundamentally different organization. This concerns the issues of deinstitutionalization of mental healthcare, the number of days patients spend in hospitals, the degree of integration with psychosomatic medicine, the presence or absence of sectoral services,

and the presence or absence of general practitioners or family doctors. However, if we do not take into account population-based epidemiological studies, which are extremely few, we have some understanding of mental disorders, including depression, only from the data of requests for care. It means that the population scale of the mental health problem is either not known or is known for major mental disorders. Data on a group and risk factors are generally contradictory [15]. This fact resulted in four negative trends.

1. Lack of complete information on the number of new cases and the number of people in need of therapy.

2. Uncertainty in the outcome of cases in which patients disappeared from the sight of mental health services during treatment.

3. Impossibility to assess psychosocial impacts and adaptation of patients.

4. Self-treatment.

Similar generalizations were made somewhat earlier by G. Thornicroft et al. [16]. They focused on possible prospects for changing the current situation. For instance, the need for further transition of psychiatry in the field of general medicine was emphasized. Among other things, it would increase the availability of care to people suffering from depressive disorders, especially since they have a high level of comorbidity with somatic symptom disorders. W. Rutz et al. [17] compared the prevalence of depression, as well as the severity of symptoms in people suffering from it, with an epidemic requiring immediate intervention.

In addition to these factors, the evolution of paradigms in the study of depression was influenced by the increase in its prevalence [18], the emergence of antidepressants, their improvement with subsequent psychopharmacological research [19], reforms in mental health services [20], the integration of psychiatry with psychosomatic medicine [21], and breakthroughs in biological psychiatry [22], clinical psychology [23], and suicidology [24].

Thus, we participate in the events in which depressive disorders are studied from many different angles. It turned out that its clinical presentation in patients of mental hospitals is mostly manifested as vital depression [25], which, in turn, is a depressive syndrome in the classical sense [1]. For many decades of the last century, it was considered a manifestation of endogenous depression, but after fundamental changes in psychiatric taxonomies, primarily in the United States [6–10], the depressive syndrome was verified as major depression and considered independently. In patients who do not seek psychiatric care, the clinical presentation of depressive disorders is more variable.

Therefore, gradual departure from the unitary paradigm in understanding the clinical features of depression has made room for other concepts. Back in the 1970–80s, a number of researchers [26–29] began to differentiate depressive spectrum disorders, which, in addition to depression and its clinical variants, included mixed anxiety – depressive disorder, brief and prolonged depressive reactions, etc. Symptoms and clinical polymorphism of depression are reflected in the following concepts: the "simple depression – complex depression" ratio [30], depressive affect modality [31], a binary (two-level) typological model of depression [32] or its clinical dynamics: the concept of depressive affect evolution by stages [33]. In addition to clinical concepts, psychological concepts appeared throughout the XX century, some of which have experimental confirmation. The most well-known concepts among them are psychodynamic [34], behavioral [35], and cognitive [36], which have made an important contribution both to the understanding of the psychological mechanisms of depression development and to its non-drug therapy. Drug treatment of depressive disorders also resulted in the emergence of new paradigms. Here it is necessary to single out monoamine [37], cytokine [38], and neurotrophin [39] hypotheses, which gave impetus to the study of depression pathogenesis. The concept of responding to psychopharmacotherapy of depression [40] has become the basis for improving the quality of evaluating treatment effectiveness. The study of depression epidemiology also provides opportunities for expanding its concepts. In this regard, the theory of lower rates of depression in large urban areas of the United States [41] is of interest, which makes early studies of its prevalence in different populations relevant.

Taking the above into consideration, it becomes clear that the epidemiological rates of depression obtained in studies may differ depending on the concept that the researchers adhered to and the methodology used. Therefore, these parameters noticeably differ. At the same time, the accumulation of data on the prevalence of depressive disorders in differentiated populations provides opportunities for the emergence of more complete paradigms.

In the USA, 50% of people with major depression are managed by general practitioners and only 20% – by psychiatrists [42]. In the United Kingdom, only 10% of patients end up in a psychiatrist's office [43]. In Greece, this figure is lower than 5% [44].

These data indicate that depression is a general medical problem, not only a psychiatric one. The abovementioned does not diminish the role of psychiatry in the study of this phenomenon [45], treatment of severe [46] and resistant [47] cases, and educational activities [48]. This is one of the world's health priorities, as primary care physicians are interested in making depression screening and diagnosis as short as possible.

According to B.C. Montano [49], about one third of 20–30 patients that a doctor may see on a weekday will have depressive symptoms, and 2–3 of them will have clinical major depression. At the same time, the practice of a family doctor includes measuring blood pressure, but does not include screening for depression, even though it is as common as hypertension. The screening method involves filling out a questionnaire by the patient, which can be done while waiting for a doctor's appointment. Therefore, all patients should be screened, even if it is obvious that there is a somatic symptom disorder in the foreground.

Suffering caused by depressive disorders and somatic symptom disorders is quite pronounced and often causes psychological pain. This is a long-term unpleasant and unstable feeling, characterized by a perception of oneself as incapable and inferior, as well as by unmet psychological needs and social isolation. Psychological pain is an important aspect of depressive disorder and is associated with a higher risk of suicidal thoughts and suicidal behavior. Depression increases sensitivity to psychological and physical pain. Conversely, higher tolerance for physical pain is associated with suicidal behavior [50]. Therefore, the earliest possible diagnosis of depression is crucial to prevent suicidal behavior through timely initiation of depression therapy. It is common knowledge that depression and suicidal behavior, along with a genetic link, have a number of common psychosocial factors: low education level, low-paid work or unemployment, unstable socio-psychological situation, frustration of basic needs, losses, etc. [51]. It should also be underlined that more than 90% of people who committed suicide, had suffered from at least one mental disorder related to major psychiatry, with major depressive disorder being the most common – 56–87% [52]. It is one of the leading causes of chronic disability [53] and affects 350 million people worldwide [54].

Before moving on to the question of depression prevalence in general medicine, we will focus on the prevalence of depressive disorders in the general population, showing the baseline scenario of the problem.

PREVALENCE OF DEPRESSIVE DISORDERS IN THE WORLD

The most famous international large-scale multicenter study, which was carried out in different countries on all continents, showed the average prevalence of depression within 1 month. It amounted to 5.8% [55]. At the same time, another major prospective epidemiological study (Epidemiologic Catchment Area) of the US National Institute of Mental Health was published. According to its data, 9.5% of the US population over 18 years suffered a mood disorder within one year [56]. Another epidemiological study (National Comorbidity Survey) found that within one year, the incidence of affective disorders in US residents was equal to 11.3% [57]. On the European continent, the level of major depression was approximately 7% [58]. In 1996, the Harvard T.H. Chan School of Public Health published estimates and forecasts for the prevalence of depressive disorders around the world, based on materials from WHO and the World Bank. According to their data, in 1990, depression was ranked 4th in terms of severity of the leading causes of the disease burden, and according to the baseline development scenario, it should have been ranked 2nd after coronary artery disease by 2020 [59]. Currently, there is a need to revise the baseline scenario of development and start a new discussion on the problems of studying depressive disorders under new conditions, such as the psychological state of society during the COVID-19 pandemic and lockdown, as well as on the eve of healthcare transition to the 11th Revision of the International Classification of Diseases.

Epidemiological studies in psychiatry are considered some of its scientific foundations [60] and are traditionally extremely relevant due to high prevalence of mental and behavioral disorders, the emergence of new assessment tools, and changes in approaches, for example, a gradual transition from the categorical diagnostic approach to the dimensional one. The data obtained in epidemiological studies outline the priority tasks of psychiatry, which determines the leading research areas aimed at improving diagnosis, quality of care, and its organization. Epidemiology in psychiatry is contributing to the progressive growth of the evidence base needed to determine the cost-effectiveness of such initiatives and measures [61]. The large epidemiological studies mentioned above and many others not included in this review have marked a steady increase in the prevalence of depressive disorders. Moreover, they established the importance of

interdisciplinary research on mood disorders and created a platform for the development and integration of methods of care for patients with depression based on biological, psychological, and social approaches. It is also epidemiological studies that emphasize that there are fewer patients with depressive disorders in mental health services. This showed the need to introduce standards for their diagnosis and treatment into somatic healthcare, including primary healthcare [62].

Over the past three decades, many countries have made enough changes to provide patients in the primary care setting with access to affordable diagnosis and treatment of depression, including screening for depression and evaluation of the effectiveness and safety of ongoing therapy. Besides, due to breakthroughs in psychopharmacology, psychotherapy, and engineering technologies, the range of effective psychotropic and non-pharmacological treatment options has expanded significantly. There have been dozens of trials showing the benefits as well as cost-effectiveness of treating depression in the primary care setting and some attempts to destigmatize the mental disorder. Depression has become a medical priority along with such somatic symptom disorders as hypertension and diabetes [63].

Among patients in somatic healthcare, the prevalence of depressive disorders ranges from 9 to 66%. On the one hand, this variation is due to different frequency of depression associated with certain diseases and, on the other hand, due to different research methodologies [64]. It is illustrated by the data obtained in comorbidity studies on depression and somatic symptom disorders in different years (Table).

Table

Prevalence of depression in somatic inpatients

Diseases	Depression prevalence, %	Study
Post-stroke period	47–50	Carota, J. Bogousslavsky [65]
Traumatic brain injury	≈20	G.P. Prigatano [66]
Epilepsy	23	A.C. Viguera et al. [67]
Huntington's disease	38	A.M. Codori et al. [68]
Multiple sclerosis	18–27	R.M. Sobel et al. [69]
Postinfarction period	≈9–≈66	L. Feng et al. [70]
Coronary artery disease requiring coronary artery bypass grafting	40–50	E. Hayes et al. [71]
Coronary artery disease at an early stage	17	W. Jiang, J.R. Davidson [72]
Diabetes	9–27	N. Hermanns et al. [73]
Addison's disease	50	M. Fornaro et al. [74]
Hyperthyroidism	30	A. Suwalska et al. [75]

Table

Diseases	Depression prevalence, %	Study
Chronic pain associated with cancers	>15	M.E. Geisser et al. [76]
Pancreatic cancer	50	C.P. Carney et al. [77]
Cancer of the mouth and throat	22–40	S. Reisine et al. [78]
Colon cancer	13–25	M. Stommel et al. [79]

Based on the meta-analysis data [70], with the greatest dispersion, it can be stated that the cumulative prevalence of depression in the postinfarction period varies significantly by region, instruments used to define depression, study quality, sex, race, extent of myocardial damage, and diabetic status. Thus, this study showed that depression prevalence in any pathology can be influenced by a third disease or a number of concomitant diseases. The same study shows overall prevalence of depression in patients with myocardial infarction, which is 28.7%. In total, it is estimated that 50% of patients with cardiovascular diseases are diagnosed with mood disorders [80]. Moreover, there is evidence that depression can contribute to the development and progression of heart disease [81].

Data on depression prevalence among patients in somatic inpatient hospitals clearly show that it occurs quite often in somatic symptom disorders. Taking into account the above trends in the burden of the disease [59], there is a good reason for developing and taking urgent measures of specific psychoprophylaxis for both somatic symptom disorders and depressive disorders. This also applies to treatment of such comorbidity cases. The challenges that healthcare faces today affect not only purely clinical problems, but also raise questions of economic and humanitarian significance. This is primarily due to the COVID-19 pandemic, which has had a serious impact on the mental health of the world's population, exacerbated the course of somatic symptom disorders, and led to implementation of lockdown measures that contributed to the deterioration of mobility and accumulation of stressful experiences including those associated with a loss of beloved people, narrowed the circle of contacts, and deteriorated the availability of medical care [82].

The comorbidity of depression and somatic symptom disorders is not a homogeneous phenomenon. There are dependent and independent cases. But modern classifications [5, 10] divide them into different clinical categories. For example, depression is not considered as a reaction to a somatic symptom disorder, and symptoms typical of depression, such as poor

mood, anergy, anhedonia, insomnia, melancholy, and anxiety, are not symptoms of somatic symptom disorders [49]. The presence of somatic symptom disorders in patients with depression can be explained by mediating mechanisms, such as unhealthy lifestyle and adverse pathophysiological disorders [83]. There are alternative explanations for somatic comorbidity in people with depression: genetic pleiotropy, iatrogenic effects, and the "somatic depression" phenomenon. In the latter, the symptoms of depression are the result of clinical or subclinical somatic symptom disorders [84].

Clinical epidemiology has made a significant contribution to the understanding of comorbidity, but has not yet resulted in a common research methodology. On the one hand, this is due to a constant shift in paradigms. On the other hand, it can be explained by the diagnostic traditions adopted in different countries. This applies not only to duplicating classifications [5, 10], but also to psychometry, which in some cases is used in the form of questionnaires, in others – in the form of rating scale scores.

Disunity in diagnostic approaches also applies to medical specialties, including clinical and medical psychology, which are not in adequate demand in public health. However, it was psychology that gave impetus to the development and progress of psychological counseling and psychotherapy, including depressive disorders [85]. Medicine, for its part, has limitations in the interaction in the "doctor – patient" system. This is due to implementation of high technologies into medicine, including artificial intelligence, which depersonalizes both medical care and patients themselves [86].

Based on the presented data, it can be stated that depression is an extremely common and severe disease, often leading to disability in patients. In addition, depressive disorders tend to be chronic and recurrent [87] and occur in all age groups [88]. At the same time, the level of depression is higher in people with various types of physical [89], psychological [90] and social [91] problems. In addition, high prevalence of depressive disorders and understanding of limitations of mental health service coverage contributed to transfer of psychiatric approaches into physical medicine [92]. Therapy of depression outside traditional psychiatric services is also possible due to the emergence of new generations of antidepressants. They cause less adverse events in the course of therapy, which allows for treatment of mild depression in the outpatient setting [40].

THERAPY FOR DEPRESSION

It is also necessary to mention the opportunities for non-drug treatment of depression in the primary care. Here we are talking primarily about psychotherapy [93] and social counseling [94]. In this regard, improving the organization of care models used in general medicine for depression treatment is becoming a topical issue [95]. Summarizing the above, there is a steady trend – medical and clinical psychologists are interested in studying the conditions resulting in depressive disorders, their psychodiagnostics, as well as development and improvement of standards for psychological counseling and therapy. In turn, social workers provide necessary assistance to restore lost skills and work capacity and help in adaptation. Thus, depression is a kind of model of movement into an interdisciplinary space.

This movement is most fully reflected in the biopsychosocial model, which turned out to be relevant for depression as well [96]. The system of care within this model is much broader than the conventional approaches adopted in institutional psychiatry, where drug treatment dominates. Therefore, approaches to the organization of care for depression cannot be the only field of activity in biomedical psychiatry. This process of interdisciplinary integration has a positive effect, which is to increase availability of mental healthcare for the population. The development of a high-quality interdisciplinary approach and integrative medicine can play a serious role in creating a common understanding of a person in their somatopsychic integrity at different levels of the hierarchical organization with multiple-valued correlates.

Therefore, studying depression, conditions for its initiation, clinical course, and comorbidity is of paramount importance for modern development of public healthcare. The transition from a unitary concept of depression to a biopsychosocial model and interdisciplinary approaches both provides great opportunities for understanding it and expands the arsenal of methods for helping patients.

CONCLUSION

This review examines the background and evolution of views on the understanding of depression, its biological nature, psychological determinants, social causes, and changes in classification approaches and basic concepts. Despite the clinicians' clear understanding of significant psychological experiences and problems in their patients that meet the diagnostic criteria for clinical depression, it is not yet well recog-

nized in somatic medicine. For this reason, patients with depressive disorders often endure long-term suffering that places a heavy burden on them, their loved ones, relatives, social environment, health systems, and society. Currently, there are significant achievements in the recognition, pharmaco- and psychotherapy of depressive disorders, and the study of their etiology, pathogenesis, clinical presentation, course, and prognosis. Therefore, the most important task for specialists is to transfer the knowledge and experience accumulated on this issue by researchers in the field of mental healthcare to somatic healthcare and psychosocial rehabilitation centers in order to increase the effectiveness of these services for clients suffering from depressive disorders.

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