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Interconnection between Depressive Disorders and Persistent Diseases

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ABSTRACT

The interconnection between depressive disorders and persistent diseases reveals intricate biological, psychological, and behavioral mechanisms that exacerbate both conditions. Chronic inflammation, hormonal imbalances, neurotransmitter dysfunction, oxidative stress, and gut microbiota dysbiosis are key biological pathways linking depression with chronic illnesses such as cardiovascular disease, diabetes, and autoimmune disorders. Psychologically, chronic stress, negative thinking patterns, and emotional distress contribute to the onset and progression of both depressive disorders and persistent diseases. Behaviorally, poor diet, sedentary lifestyle, substance abuse, and non-adherence to medical treatments further compound health outcomes. Addressing this comorbidity is crucial for effective disease management, healthcare utilization, and overall public health. Integrated care models and multidisciplinary interventions can improve treatment adherence, self-care behaviors, and quality of life, while public health initiatives aimed at mental health promotion and early intervention can mitigate the burden of these conditions.

Keywords: Depressive Disorders, Persistent Diseases, Chronic Inflammation, Neurotransmitter Dysfunction, Chronic Stress, Behavioral Patterns, Integrated Care

INTRODUCTION

The interrelationship between depressive disorders and persistent diseases encompasses a multifaceted array of biological, psychological, and behavioral mechanisms that amplify the severity and complexity of both conditions [1]. Chronic inflammation, hormonal imbalances, neurotransmitter dysfunction, oxidative stress, and gut microbiota dysbiosis are pivotal biological pathways that link depression with chronic illnesses such as cardiovascular disease, diabetes, and autoimmune disorders. Psychologically, chronic stress, negative thinking patterns, and emotional distress contribute significantly to the onset and progression of both depressive disorders and persistent diseases. Additionally, behavioral factors like poor diet, sedentary lifestyle, substance abuse, and non-adherence to medical treatments further deteriorate health outcomes. Addressing this comorbidity is critical for effective disease management, optimized healthcare utilization, and improved public health. Integrated care models and multidisciplinary interventions can enhance treatment adherence, self-care behaviors, and quality of life. Public health initiatives that focus on mental health promotion and early intervention are vital for reducing the burden of these interconnected conditions [2].

Biological Mechanisms: The biological mechanisms linking depression and persistent diseases involve intricate interactions among various physiological systems in the body. Chronic inflammation is a key biological mechanism, with increased levels of pro-inflammatory cytokines in depression associated with alterations in the immune response, oxidative stress, and dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis. This is common in persistent diseases like cardiovascular disease, diabetes, and autoimmune disorders, which can exacerbate depressive symptoms through neuroinflammatory pathways. Hormonal imbalances, including abnormalities in the HPA and HPT axis, are implicated in both depressive disorders and persistent diseases. Hyperactivity of the HPA axis leads to increased cortisol secretion, disrupting neuroplasticity and impairing neurotransmitter function, contributing to mood disturbances. In contrast, conditions like diabetes and thyroid disorders can influence mood regulation and exacerbate depressive symptoms [3]. Neurotransmitter dysfunction, particularly serotonin, dopamine, and norepinephrine, is implicated in the pathophysiology of depressive disorders, disrupting communication within neural circuits involved in mood regulation, reward processing, and stress response. Neurotransmitter imbalances are also linked to the pathogenesis of persistent diseases like Parkinson's

disease and multiple sclerosis, leading to cognitive and emotional symptoms resembling depression [4]. Oxidative stress, resulting from an imbalance between reactive oxygen species (ROS) production and antioxidant defenses, contributes to neuronal damage, neuroinflammation, and synaptic dysfunction in depression and chronic conditions like cardiovascular disease, neurodegenerative disorders, and metabolic syndrome. Gut microbiota dysbiosis, a bidirectional relationship between gut microbiota composition and function, has been implicated in the pathogenesis of depression and chronic inflammatory diseases, such as inflammatory bowel disease and irritable bowel syndrome [5].

Psychological Factors Depression is a psychological condition that can significantly impact the development and exacerbation of persistent diseases. Chronic stress, whether physiological, psychological, or environmental, activates the body's stress response system, leading to dysregulation of neuroendocrine pathways, immune dysfunction, and alterations in cardiovascular function. In depression, chronic stress is a major precipitating factor, contributing to hyperactivity of the HPA axis, increased cortisol secretion, and changes in neurotransmitter levels. Similarly, stress can exacerbate existing chronic conditions by promoting inflammation, oxidative stress, and dysregulation of physiological processes [6]. Negative thinking patterns are hallmark features of depression and can have profound effects on physical health outcomes. Individuals with depression often experience pessimism, hopelessness, self-criticism, and cognitive rigidity, which can amplify feelings of distress and impair coping mechanisms. These negative thinking patterns can exacerbate symptoms, reduce treatment adherence, and impede recovery. In the context of persistent diseases, negative thinking patterns may exacerbate symptoms, reduce treatment adherence, and impede recovery [7]. Emotional distress, including symptoms of anxiety, sadness, anger, and loneliness, is commonly experienced by individuals with depression and can influence the course of persistent diseases. Psychological distress can activate physiological stress responses, trigger inflammatory pathways, and compromise immune function, exacerbating disease progression and increasing susceptibility to infections. In depression, emotional distress is often accompanied by dysregulation of emotional processing, heightened reactivity to stressors, and impaired emotion regulation strategies. This cycle of emotional dysregulation, maladaptive coping, and exacerbation of depressive symptoms can exacerbate symptom severity, impair quality of life, and increase healthcare utilization.

Behavioral Patterns: Depression can lead to a range of behavioral patterns, including poor diet, sedentary lifestyle, substance abuse, and non-adherence to medical treatments. Poor diet can result in nutritional deficiencies, weight gain, obesity, metabolic disorders like diabetes and hypertension, and chronic inflammation. Sedentary lifestyle, on the other hand, can lead to decreased motivation, fatigue, and reduced interest in physical activities, which can contribute to chronic diseases such as obesity, type 2 diabetes, cardiovascular disease, and osteoporosis. Substance abuse is another significant issue in individuals with depression. They may resort to alcohol, illicit drugs, or prescription medications to cope with negative emotions and alleviate psychological distress. Substance abuse can exacerbate depressive symptoms, impair judgment, and interfere with adaptive coping mechanisms [8], leading to adverse health outcomes and increased risk of chronic diseases. Alcohol abuse is a leading cause of liver disease, cardiovascular complications, gastrointestinal disorders, and neurological impairments. Illicit drug use, such as cocaine, heroin, and methamphetamine, can result in cardiovascular complications, respiratory problems, infectious diseases, and psychiatric comorbidities. Misuse of prescription medications can lead to dependence, overdose, and medical complications, further worsening mental and physical health outcomes. Non-adherence to medical treatments can also be a challenge for individuals with depression. Non-adherence to antidepressant medications, psychotherapy appointments, and follow-up visits can compromise treatment efficacy, increase the risk of relapse, and worsen depressive symptoms. Non-adherence to medical treatments for chronic diseases, such as medication regimens, dietary restrictions, and lifestyle modifications, can lead to disease progression, complications, and poor health outcomes. Factors contributing to non-adherence may include cognitive deficits, lack of insight, stigma, medication side effects, and social/environmental barriers, all of which can exacerbate the interplay between depression and chronic illnesses.

Healthcare Utilization: Depression significantly impacts healthcare utilization among individuals with persistent diseases, affecting treatment adherence, frequency of medical appointments, and engagement in preventive care [9]. Depressive symptoms can lead to missed doses, inconsistent treatment regimens, and treatment discontinuation, which can result in disease progression and increased healthcare utilization. Individuals with depression may perceive treatment adherence as burdensome or futile, leading to intentional non-compliance. Addressing underlying depression and providing support for mental health management are crucial for improving treatment adherence and optimizing health outcomes. Depression can also influence the frequency of medical appointments. Some may avoid seeking medical care due to feelings of hopelessness, apathy, or social withdrawal, leading to delayed diagnosis and increased healthcare utilization. Others may exhibit heightened healthcare utilization patterns characterized by frequent visits to healthcare providers, emergency departments, or urgent care facilities. Understanding the motivations for healthcare-seeking behaviors in individuals with depression is essential for tailoring interventions to promote appropriate healthcare utilization and prevent unnecessary

expenditures. Depression can also influence engagement in preventive care, impacting health maintenance activities such as regular screenings, vaccinations, and health behavior counseling. Individuals with depression may be less likely to prioritize preventive care due to competing demands, decreased self-care motivation, or reduced health literacy. This can result in missed screenings for conditions like cancer, cardiovascular disease, or infectious diseases, leading to delayed detection and diagnosis of preventable health problems. Additionally, depression may undermine efforts to adopt healthy lifestyle behaviors, increasing the risk of chronic disease development or progression. Integrating mental health screening and intervention into primary care settings, providing tailored health education materials, and offering support for behavior change are essential strategies for promoting preventive care engagement among individuals with comorbid depression and persistent diseases [10].

Medication Side Effects: Antidepressants, including SSRIs, SNRIs, TCAs, and MAOIs, can have various effects on the development or management of persistent diseases. These medications can increase the risk of metabolic syndrome, a cluster of metabolic abnormalities including central obesity, dyslipidemia, hypertension, and insulin resistance. These medications may contribute to weight gain, dysregulation of glucose metabolism, and alterations in lipid profiles, predisposing individuals to metabolic disturbances. Healthcare providers should monitor metabolic parameters, consider alternative treatment options, and implement lifestyle interventions to mitigate metabolic risks. Antidepressants have been implicated in the development or exacerbation of cardiovascular disease (CVD) through various mechanisms, including effects on cardiac conduction, platelet aggregation, and sympathetic tone. TCAs and some newer antidepressants may prolong the QT interval, potentially leading to arrhythmias and sudden cardiac death. Antidepressants that inhibit the reuptake of serotonin have been associated with an increased risk of bleeding events due to their effects on platelet function. Immune dysfunction is another potential impact of antidepressants. SSRIs and SNRIs can affect cytokine levels, inflammatory signaling pathways, and immune cell function. Healthcare providers should consider the immunomodulatory effects of antidepressants when managing individuals with comorbid depression and immune dysfunction, monitor disease activity closely, and collaborate with specialists to optimize treatment outcomes [11].

Social Determinants: Social determinants of health significantly influence the prevalence, course, and outcomes of depressive disorders and persistent diseases. Socioeconomic status, including income, education, and occupation, significantly impacts individuals' access to resources and opportunities that impact their health. Low socioeconomic status is associated with higher prevalence of depression and persistent diseases due to factors such as limited healthcare access, inadequate housing, food insecurity, and environmental stressors. Economic instability and unemployment can exacerbate existing chronic conditions, leading to delayed diagnosis and treatment. Addressing socioeconomic disparities through policies aimed at improving education, employment opportunities, and social safety nets can help mitigate the burden of depression and chronic diseases among marginalized populations [12]. Access to healthcare services also contributes to disparities in the diagnosis, treatment, and management of depression and persistent diseases. Limited access to healthcare, including those without health insurance or residing in medically underserved areas, can lead to unmet health needs and poorer health outcomes. Integrating mental health services into primary care settings and expanding access to affordable mental health services can improve early detection and treatment of depression and comorbid conditions. Stigma associated with mental illness and chronic diseases can contribute to delays in seeking help, treatment non-adherence, and social withdrawal, exacerbating the burden of these conditions. Addressing stigma through public education campaigns, anti-discrimination policies, and advocacy efforts can help reduce barriers to accessing mental health services and chronic disease management programs.

Chronic Pain: Chronic pain conditions can significantly impact an individual's physical and mental well-being, leading to a cycle of worsening health outcomes. This relationship involves a complex interplay of biological, psychological, and social factors. Chronic pain can cause physical distress, sleep disturbances, functional impairment, and psychological distress. Physical distress can lead to feelings of frustration, irritability, and helplessness, while sleep disturbances can exacerbate mood disturbances and impair cognitive function. Functional impairment can result in feelings of isolation, worthlessness, and hopelessness. Psychological distress can result from the constant focus on pain sensations and the perceived lack of control over symptoms. Depression can heighten the perception of pain intensity and unpleasantness, amplifying the subjective experience of chronic pain [13]. Maladaptive pain coping strategies, such as avoidance behaviors or self-medication, can exacerbate pain symptoms and prolong the duration of pain episodes. Neurobiological mechanisms, such as alterations in neurotransmitter systems and dysregulation of the hypothalamic-pituitary-adrenal axis, can contribute to the maintenance of both depression and chronic pain. Depressive symptoms can lead to changes in health behaviors, such as poor diet, sedentary lifestyle, or medication non-adherence, which can exacerbate underlying chronic health conditions and increase susceptibility to pain.

Comorbidity Patterns: Comorbidity refers to the co-occurrence of two or more disorders within the same individual, which is essential for effective clinical management and intervention strategies. Major Depressive Disorder (MDD) is associated with cardiovascular diseases, diabetes mellitus, chronic respiratory diseases,

autoimmune disorders, and dysthymia. MDD is associated with a higher risk of developing cardiovascular diseases, such as coronary artery disease, heart failure, and stroke, due to shared risk factors such as inflammation, dysregulation of the autonomic nervous system, and unhealthy lifestyle behaviors. Diabetes mellitus is associated with an increased risk of depressive symptoms, due to the complex interplay of biological factors, psychosocial stressors, and health behaviors [14]. Chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease, are commonly comorbid with MDD, exacerbated by symptoms, functional impairment, and decreased quality of life. Autoimmune disorders, such as rheumatoid arthritis and inflammatory bowel disease, have been linked to an increased risk of MDD. Dysthymia, characterized by persistent depressive symptoms lasting for at least two years, is associated with an increased risk of hypertension, obesity, and chronic pain syndromes. The bidirectional relationship between dysthymia and obesity involves complex interactions between neuroendocrine pathways, emotional eating behaviors, and disruptions in appetite regulation.

Impact on Disease Management: Depression significantly impacts the management and outcomes of persistent diseases, affecting treatment adherence, self-care behaviors, and overall quality of life. Depression often leads to decreased adherence to medical treatments, as individuals struggle to follow prescribed regimens, attend appointments, and engage in lifestyle modifications. Factors contributing to poor treatment adherence include cognitive impairments, lack of motivation, fatigue, and feelings of hopelessness. Depression can also negatively impact self-care behaviors, as individuals with comorbid depression may neglect essential activities like nutrition, physical activity, and monitoring symptoms. Negative thinking patterns and low self-esteem can undermine confidence in managing health effectively [5]. Depression has been linked to accelerated disease progression and poorer clinical outcomes in individuals with persistent diseases. The physiological and behavioral effects of depression, such as inflammation, hormonal imbalances, unhealthy lifestyle behaviors, and impaired immune function, can exacerbate underlying disease processes and increase the risk of complications. The quality of life of individuals with persistent diseases is significantly impaired by emotional distress, functional impairment, and social isolation. Chronic pain, fatigue, sleep disturbances, and cognitive impairments further diminish the quality of life and hinder daily functioning.

Biopsychosocial Model: The biopsychosocial model is a framework that explains the complex interplay between biological, psychological, and social factors in the relationship between depressive disorders and persistent diseases. It emphasizes the importance of understanding how these biological factors interact with psychological and social factors to impact health outcomes. Biological factors, such as neurotransmitter dysregulation, hormonal imbalances, genetic predispositions, and alterations in brain structure and function, contribute to the onset and maintenance of depressive symptoms. In contrast, persistent diseases, such as inflammation, immune dysfunction, metabolic abnormalities, and genetic susceptibility, influence disease pathophysiology and progression. Psychological factors, such as stress, negative thinking patterns, emotional distress, and maladaptive coping strategies, are crucial in the development, course, and management of both disorders [9]. These factors can exacerbate depressive symptoms and contribute to the onset or exacerbation of persistent diseases through mechanisms such as dysregulation of the hypothalamic-pituitary-adrenal axis, immune suppression, and unhealthy lifestyle behaviors. Social determinants of health, such as socioeconomic status, access to healthcare, social support networks, and environmental stressors, significantly influence both disorders and diseases. Socioeconomic disparities in healthcare and resources can contribute to the prevalence and management of depressive disorders and persistent diseases. Social support networks and community resources can protect against depression and enhance resilience in individuals with persistent diseases. Addressing these social determinants is essential for promoting holistic well-being and improving health outcomes.

Interventions and Treatment Approaches: Depression and persistent diseases are often coexisting conditions that can exacerbate each other. To address these conditions, various interventions and treatment approaches are necessary. Integrated care models involve coordinating physical and mental health services within one setting, involving healthcare providers from different disciplines. Multidisciplinary interventions involve a team of healthcare professionals working together to address the complex needs of patients with depression and persistent diseases [11]. These interventions may include psychotherapy, medication management, health behavior interventions, self-management strategies, and social support networks. Psychotherapy, such as cognitive-behavioral therapy (CBT), interpersonal therapy (IPT), and mindfulness-based therapies, can help patients develop coping strategies, improve mood regulation, and enhance overall well-being. Integrated care models ensure that medication management is coordinated between mental health and primary care providers to minimize potential interactions and optimize treatment outcomes. Health behavior interventions, such as diet and exercise programs, smoking cessation support, and stress management techniques, can complement medical treatment and improve overall health outcomes. Empowering patients to take an active role in managing their conditions can be effective, involving education, self-monitoring techniques, and resources for self-care and symptom management. Social support networks and community resources can provide emotional support, practical assistance, and opportunities for social engagement.

Health Disparities: Health disparities refer to disparities in health outcomes and access to healthcare services among different demographic groups. These disparities can be attributed to various factors, including race and ethnicity, gender, socioeconomic status, and geographic location. Race and ethnicity are often associated with higher rates of certain persistent diseases like diabetes, hypertension, and obesity compared to white populations. Factors such as socioeconomic status, cultural beliefs, access to healthcare, discrimination, and structural inequities in healthcare systems contribute to these disparities [3]. Racial and ethnic minorities may also face barriers to accessing mental health services, such as stigma, language barriers, and lack of culturally competent care. Gender disparities also exist in the prevalence, diagnosis, and management of depression and persistent diseases. Women are more likely to be diagnosed with depression, while men may be less likely to seek mental health treatment. Certain persistent diseases, such as cardiovascular disease, may manifest differently in men and women, leading to disparities in diagnosis and treatment. Socioeconomic status, including income, education, and employment, also plays a significant role in health disparities. Individuals from lower socioeconomic backgrounds are more likely to experience depression and chronic diseases and have poorer health outcomes. Geographic location also contributes to health disparities, with rural communities often facing challenges such as limited access to healthcare facilities and transportation barriers.

Longitudinal Studies: Longitudinal studies are research designs that observe the same subjects over an extended period to examine changes and trends over time. They are valuable for understanding the temporal relationship between depressive symptoms and the onset, progression, or exacerbation of persistent diseases. These studies help establish the temporal sequence between depressive symptoms and the development or worsening of persistent diseases, determining whether depressive symptoms precede the onset of chronic conditions, occur concurrently, or follow the diagnosis of persistent diseases. Longitudinal studies identify risk factors and predictors of both depression and persistent diseases, such as genetic predisposition, physiological processes, lifestyle factors, psychosocial stressors, and environmental exposures. Factors such as chronic stress, inflammation, unhealthy behaviors, and social isolation contribute to the development of both depression and persistent diseases. Longitudinal studies provide insights into how depressive symptoms influence the progression and prognosis of persistent diseases over time [8]. Effective management of depression can lead to improvements in disease management, quality of life, and overall health outcomes. Longitudinal research helps elucidate the impact of depression on disease progression and the effectiveness of interventions targeting both mental and physical health. Mediating and moderating factors that influence the relationship between depression and persistent diseases include biological processes, psychological mechanisms, social support networks, and healthcare utilization patterns. Understanding these factors can inform the development of tailored interventions that address the specific needs of individuals with comorbid depression and persistent diseases, improving overall health outcomes.

Primary Prevention Strategies: Primary prevention strategies are proactive measures designed to prevent the onset of diseases or health conditions before they occur. These strategies include lifestyle modifications, early identification of risk factors, and mental health promotion initiatives. A healthy diet rich in nutrients, limit processed foods, and engage in regular physical activity can help maintain both physical and mental health. Regular sleep hygiene is essential for overall well-being and can reduce symptoms of depression and anxiety. Stress management involves relaxation techniques like mindfulness, meditation, deep breathing exercises, and progressive muscle relaxation [4]. Time management and setting realistic goals can also help reduce stress levels. Early identification of risk factors involves routine medical check-ups, mental health screening, understanding one's genetic and family history, and behavioral monitoring. Mental health promotion initiatives include public health campaigns, workplace programs, community support systems, access to mental health services, and policies promoting a healthy work-life balance. Public health campaigns can reduce stigma and encourage individuals to seek help early. Workplace programs can create a supportive environment and provide resources for employees. Community support systems, such as support groups and peer support networks, can provide emotional support and emotional support. Access to mental health services, such as counseling and therapy, and crisis intervention, can help manage and prevent depression. Policies that promote a healthy work-life balance can reduce the risk of burnout and depression. Combining these primary prevention strategies in a holistic approach can significantly reduce the risk of developing depression and persistent diseases.

Public Health Implications: The link between depressive disorders and persistent diseases has significant public health implications. Integrating strategies to manage both conditions can reduce healthcare costs, improve population health outcomes, and enhance overall well-being. Investing in preventive care for mental health can lower the incidence of depression and its exacerbating effects on chronic diseases, leading to significant healthcare savings. Efficiency in treatment can be improved through integrated care models, where mental health and primary care services are coordinated. Better management of chronic diseases can be achieved through adherence to treatment, holistic care, early detection and intervention, symptom relief, and reduced disability [12]. Enhancing overall well-being can be achieved through public awareness campaigns, community programs,

addressing social determinants of health, creating supportive environments, promoting work-life balance, and employee assistance programs. Long-term public health benefits include sustainable health improvements, resilience building, health equity, accessible care, inclusive policies, population-level interventions, and comprehensive programs. Shifting the focus to preventive care for both mental and physical health can lead to sustainable improvements in public health. Programs aimed at building resilience and coping skills can reduce the long-term prevalence of depression and improve overall health outcomes.

CONCLUSION

The connection between depressive disorders and persistent diseases underscores the need for a holistic approach to healthcare that addresses both mental and physical health. Biological mechanisms such as chronic inflammation, neurotransmitter dysfunction, and hormonal imbalances play significant roles in linking these conditions. Psychological factors, including chronic stress and negative thinking patterns, and behavioral patterns like poor diet and sedentary lifestyle, further exacerbate this comorbidity. Effective management requires integrated care models that coordinate mental and physical health services, multidisciplinary interventions that address the complex needs of patients, and public health strategies that promote mental health and early identification of risk factors. By implementing these strategies, healthcare systems can reduce costs, improve population health outcomes, and enhance overall well-being. Public health initiatives that focus on mental health promotion, early intervention, and addressing social determinants of health are essential for mitigating the burden of depression and chronic diseases, ultimately leading to sustainable health improvements and health equity.

REFERENCES

1. Dowlati, Y., Herrmann, N., Swardfager, W., Liu, H., Sham, L., Reim, E.K., & Lanctôt, K.L. (2010). A meta-analysis of cytokines in major depression. *Biological Psychiatry*, *67*(5), 446-457. doi:10.1016/j.biopsych.2009.09.033
2. Gold, P.W., & Chrousos, G.P. (2002). Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states. *Molecular Psychiatry*, *7*(3), 254-275. doi:10.1038/sj.mp.4001032
3. Schildkraut, J.J. (1965). The catecholamine hypothesis of affective disorders: a review of supporting evidence. *American Journal of Psychiatry*, *122*(5), 509-522. doi:10.1176/ajp.122.5.509
4. Ng, F., Berk, M., Dean, O., & Bush, A.I. (2008). Oxidative stress in psychiatric disorders: evidence base and therapeutic implications. *International Journal of Neuropsychopharmacology*, *11*(6), 851-876. doi:10.1017/S1461145707008401
5. Foster, J.A., & McVey Neufeld, K.A. (2013). Gut–brain axis: how the microbiome influences anxiety and depression. *Trends in Neurosciences*, *36*(5), 305-312. doi:10.1016/j.tins.2013.01.005
6. Cohen, S., Janicki-Deverts, D., & Miller, G.E. (2007). Psychological stress and disease. *JAMA*, *298*(14), 1685-1687. doi:10.1001/jama.298.14.1685
7. Luppino, F.S., de Wit, L.M., Bouvy, P.F., Stijnen, T., Cuijpers, P., Penninx, B.W., & Zitman, F.G. (2010). Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. *Archives of General Psychiatry*, *67*(3), 220-229. doi:10.1001/archgenpsychiatry.2010.2
8. Katon, W.J. (2003). Clinical and health services relationships between major depression, depressive symptoms, and general medical illness. *Biological Psychiatry*, *54*(3), 216-226. doi:10.1016/S0006-3223(03)00273-7
9. Serretti, A., & Mandelli, L. (2010). Antidepressants and body weight: a comprehensive review and meta-analysis. *Journal of Clinical Psychiatry*, *71*(10), 1259-1272. doi:10.4088/JCP.09r05346blu
10. Marmot, M., Friel, S., Bell, R., Houweling, T.A.J., Taylor, S., & Commission on Social Determinants of Health. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. *The Lancet*, *372*(9650), 1661-1669. doi:10.1016/S0140-6736(08)61690-6
11. Bair, M.J., Robinson, R.L., Katon, W., & Kroenke, K. (2003). Depression and pain comorbidity: a literature review. *Archives of Internal Medicine*, *163*(20), 2433-2445. doi:10.1001/archinte.163.20.2433
12. Kates, N., Mazowita, G., Lemire, F., Jayabarathan, A., Bland, R., & Selby, P. (2011). The evolution of collaborative mental health care in Canada: a shared vision for the future. *Canadian Journal of Psychiatry*, *56*(5), 1-10. doi:10.1177/070674371105600504
13. Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M.R., & Rahman, A. (2007). No health without mental health. *The Lancet*, *370*(9590), 859-877. doi:10.1016/S0140-6736(07)61238-0
14. World Health Organization. (2013). Investing in mental health: evidence for action. World Health Organization. Available from: https://apps.who.int/iris/handle/10665/87232

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