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Theoretical Framework for Multiple Mental Disorder and the Biopsychopolitical Model of Mental Illnesses: Underscoring the Pressure of Politics on Citizens' SocialDeterminants of Mental Illnesses

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Abstract

From the inception of psychiatry and clinical psychology as specialties destined to deal with mental illnesses, there have been considerable advances in the search for their etiology; and their nosology and intervention guidelines are updated regularly. Different models that explain etiologic mechanisms of mental illnesses have been formulated and successfully guided and still guide their management but due to the ever-increasing prevalence of mental illnesses worldwide, the search for models to explain their etiology and guide interventions is still an open area for research and debate. Due to the shortcomings of comorbidity and multimorbidity concepts in explaining the co-occurrence of two or more mental disorders that share the same pathogenetic pathways and present overlapping symptoms, the theoretical framework for multiple mental disorder (MMD) as a single compound mental disorder is presented. This paper also takes the social aspect of mental disorders to the next level that emphasizes for the first time the contribution of political systems to the mental ill-health of their own citizens and proposes the biopsychopolitical (BPP) model that explains the etiology of multiple mental disorder and other mental illnesses and guide their management.

Introduction

Mental health and related illnesses can be traced back to antiquity when philosophers such as Socrates and Plato published writings on concepts such as pleasure, motivation, knowledge, and rationality (Farreras, 2022). Their insights on the origin of mental illnesses focused on their psychological origin with limited methodology based on intuition, observation, and logic (Abd El-Hay, 2020). Throughout the history of mental illnesses, their nosology and the search for their etiology were marked by considerable evolutional changes. The initial three approaches to etiology included supernatural, somatogenic, and psychogenic theories. The supernatural theory of mental illnesses attributed the diseases to the possession by demonic spirits, eclipses, planetary gravitation, curses, and sin; somatogenic theory attributed the illnesses to the physical functioning disturbances resulting from illness, genetics, and brain damage; while the psychogenic theory attributes the disorders to stressful and traumatic experiences, maladaptive learned associations and cognitions, and distorted perceptions (Farreras, 2022). And very important is that the care the ill person received depended on the

etiology perceived. With advances in medical and nonmedical sciences such as biology, biochemistry, molecular biology, neurology, medical history, genetics, evolution, endocrinology, philosophy, sociology, psychiatry, and psychology; and experimentaland instrumentation capabilities in addition; different theories were formulated to explain the etiology and shed light on the psycho -physiological mechanisms of either individual diseases or a group of diseases. The search for a unified theory that fully explains the mechanism and approaches to intervention is still an open subject of research. Engel (1977) argued that he cannot promise that psychiatry will soon embrace a definite biomedical model of disease and that even other fields of medicine are in the same crisis by adhering to the model that does not work in terms of current scientific tasks and social responsibilities. This is the case of noncommunicable diseases (NCD), which were found not to be efficiently controlled by the current model of medical practice. Dirk Richter and Jeremy Dixon (2022) conducted a quasi-systematic review of models of mental illnesses and identified 34 different models developed to explain their etiology. Among them, many are biological and psychological based approaches and their bridged versions such as biopsychosocial model. They concluded that mental healthcare has to acknowledge the diversity of the oretical models of mental health problems. Besides these different approaches to etiology; psychological, biomedical, and biopsychosocial models are the most important in guiding decisions for intervention in mental illnesses management. While the position of psychological andbiomedical models are undisputed mainly in treating personality disorders such as schizophrenia, borderline personality disorder, and obsessive -compulsive disorder via psychotherapy or psychopharmacology (Anthony W. Bateman & Peter Tyrer, 2004; Deakon, 2013; Kinderman, 2005; Rizeanu, 2015); they cannot stand alone in some other mental illnesses such as anxiety disorders and post-traumatic stress disorder (PTSD) that need to take into consideration the social aspect of the disorder hence combine the bio-, psycho-, and social aspects for effective intervention. This is the biopsychosocial model for mental disorders.

Medical model setbacks and the birth of the biopsychosocial model

Drawing from the available literature and his expertise, Engel (1977) used six arguments to show the shortcomings of the medical model not only for mental illnesses but also for other somatic diseases and showed that the exclusion of the psychosocial conditions will interfere with the care provided. First, the biomedical model heavily relies on changes in biochemical parameters as indicators of the disease; however, it is commonly acknowledged that any deviation does not necessarily indicate illness and in addition not all diseases are attributed to the change in biochemical parameters. Second, without clearly reported social and psychological data by the patient for reference, the validity of results of any causal relationship established between biochemical processes and clinical data of illness would be flawed. Apart from laboratory data; competence in interviewing skills, and the understanding of the social, cultural, and psychological determinants of a patient's communication of symptoms of a disease are necessary. Third, for mental illnesses like schizophrenia and somatic diseases like diabetes, their onset and course are affected by life and living conditions. Fourth, the biochemical abnormalities may be part of disease characteristics but do not determine when the person becomes ill or accepts the ill status hence social and psychological factors will be highly considered in determining if a person is ill. Fifth, the restoration of biochemical balance does not necessarily resolve the ill-health; there is a need to consider the implications of social and psychological factors. Sixth is the importance of psychological effects of the established physician-patient relationship on the biochemical recovery. From the above arguments, the social and psychological effects on the course of a disease cannot be undermined. This is corroborated by the WHO in collaboration with the Gulbenkian Mental Health Platform in their thematic paper on social determinants of mental health where they argue that "mental health and many common mental disorders are shaped to a great extent by the social, economic, and physical environments in which people live; social inequalities are associated with increased risk of many common mental disorder; and disadvantage starts before birth and

accumulates throughout life"(World Health Organisation & Calouste Gulbenkian Foundation, 2014). In order to fill the gap; Engel (1977) proposed the biopsychosocial model of mental illnesses that bridges the biological, psychological, and social factors that contribute to the development of mental illness.

Even though the biomedical model attributes illnesses and healing primarily to a physiological framework with limited attention to behavioral, social, moral or political dimensions (Borrell-Carrió et al., 2004; Dogar, 2007; Hatala, 2012) and was proven successful in explaining the etiology and guiding interventions for almost all communicable somatic diseases; the psychological, behavioral and social factors interact with the pathological process in the development and course of the disease and have substantial effect on compliance to treatment and its success. They influence the prevention, causes, presentation, management, and outcomes of a disease (Dogar, 2007). According to Benning (2015), the biopsychosocial model with its emphasis on the tripartite biological, psychological and social components of mental illnesses was hailed by Pilgrim who described it as the established psychiatric orthodoxy while Ghaemi (2008) described it as the status quo of contemporary psychiatry. The model was argued by Ghaemi (2008) to be in accord with the Hippocratic medicine that emphasizes treating the disease, not the symptoms and the use of drugs as the last resort. In the case of mental illnesses, the author argues that contemporary psychopharmacology is an anti-Hippocratic approach since the overuse of psychotropic medications is contrary to the Hippocratic tradition. He also argues that while the psychopharmacology is dominant in psychiatric conditions like mood disorders, the best rationale is being aware of when to prescribe, when not to prescribe, and what to prescribe with emphasis on psychotherapies or lifestyle changes to spur on the natural healing process. Even though the contribution of psychosocial factors on mental illnesses is widely acknowledged, a review study on the BPS model conducted in 2004 by Suls and Rothman independently, found that 94% of the studies assessed psychological variables only, with minimal attention given to larger socio-cultural factors (Hatala, 2012). This simplistic approach towards social factors undermines their significant contribution to the etiology of mental illnesses hence their significance will be discussed and emphasized later.

According to Kusnanto et al. (2018), the biopsychosocial model of chronic pain describes the experience of pain as originating from the physiologic stimulus, nociception, and neuropathic, and modulated by the psychological and socioeconomic context of the patient hence the management of chronic pain, such as empowering patients to manage pain, improving pain-coping resources, and reducing disability, and emotional distress-related to pain could be implemented through a variety of effective self-regulatory, behavioral, and cognitive techniques. But how, by using the Hatala's terminology, "the social and behavioral factors enter the skin to cause physiological disturbances"? Baum and Poslunsny argue that social and behavioral factors affect health in three different and interrelated ways: they induce direct biological changes due to emotional reactions or specific behavior patterns; behaviors may convey risk or protection from disease, the case of eating habits and obesity; patterns or cultural narratives of and for illness behavior, such as interpretations of symptoms, decisions to seek care or surveillance methods, can exacerbate or impede the progression and manifestation of certain diseases (Hatala, 2012). In their study on the interaction between the somatic, psychic, and social processes, or the intercommunications among body, mind, and society as found in (Hatala, 2012); Arthur Kleinman and colleagues introduced the sociosomatic terminology to explain the social etiology of illnesses where the moral, cultural, political, economic and medical become interrelated in a complex web of significance. The Jenkins and Cofresi's Puerto Rican woman depression case led them to conclude that symptoms narrated link the disrupted social relationships and somatic presentation. Through the review analysis of epidemiological and anthropological evidence from different cultures, Kirmayer and Young found a number of ways in which somatic symptoms can reflect expressions of socio-cultural distress or moral wrongs depending on circumstances, where

somatisation can be conceptualized from an index of disease or disorder; symbolic expression of intrapsychic conflict; an idiomatic expression of distress; an act of positioning within a local social world; or a form of social commentary or protest (Hatala, 2012). For better understanding and confirmation of how social experiences affect the somatic side of a human life, sufficient scientific evidences were still needed, and this dilemma was solved by the intensive studies on neuroplasticity and psychological genomics also called psychogenomics. The neuroplasticity and psychosocial genomics based on the advances in imaging techniques like functional magnetic resonance imaging (fMRI) explain how the socio-cultural variables affect the somatic side of life. It was found that brain neurons are considerably more dynamic than was once thought and can develop novel synaptic connections in response to experience and learning across the entire life span including old age. The growth of new neural tissue or neurogenesis of the adult hippocampus was described by Eriksson and colleagues in 1998 and this neuroplasticity killed the adult brain's immutable fabric concept and since then neuroplasticity has been observed and documented in a variety of conditions and experiences. McGaugh observed that hippocampal changes can appear within adult brains only hours after challenging learning experiences. Processes of reconstructing memories of past trauma during psychotherapy or narrative interventions are supported by actual neurological reorganization and neurogenesis (Hatala, 2012).

The psychosocial genomics as he continued, supports the well-known gene-environment interactions where protein synthesis is not only affected by amino acids based mutations but also is highly vulnerable to socio-environmental signals, experience-dependent gene expression, which not only turns specific genes on or off that lead to alterations in protein synthesis but also modulate, steer or modify the manner in which basic organic molecules are organized into anatomy and physiology. In a large number of studies, it was found that individuals with more satisfying social relationships or confidants recover more quickly from already-diagnosed illnesses and reduce their risk of mortality from specific diseases when compared with those with less social support. Hence the recent calls for the promotion of social justice initiatives in health psychology that would impact broader socio-political domains known to affect health status such as poverty, social inequalities, social economic status, etc. (Hatala, 2012). The question here that comes to mind is how social are social factors? While social factors may be considered as natural processes resulting from the dynamics of relationships between people in a given society and between different societies through mutual understanding and respect and fair competitions, in authoritarian and oppressive political systems, all social interactions are dictated and monitored to fit the current political agenda. The following paragraphs discuss the politicization of social processes and its effects on the social determinants of health.

Politics, governability, political socialization, and the social determinants of mental health

According to Rocker (1991), the concept of governability is considered to be difficult to define; researchers from different fields of social science such as political science, anthropology, sociology, and psychology studied how people interact with societal concepts and their role in it based on their area of expertise. Regardless of the means, for governability to be guaranteed, people have to acquire certain social habits and political beliefs that make them capable of being governed. The question here is how people acquire these habits and beliefs; and this is the task of socialization where the most important is political socialization. In pluralistic societies, people are overloaded with political information that creates uncertainty and stress hence being unable to understand these diverse values and data lead to the rise in powerlessness, apathy, and alienation (Chien-Hong, 1989). Socialization according to Robertson as found in (Chien-Hong, 1989) is defined as "the process of social interaction through which people acquire personality and learn the way of life of their society". According to Siegel (1970) as reproduced in (Chien-Hong, 1989), political socialization refers to the process by which the political norms and behaviors acceptable to an ongoing political system are transmitted from generation to generation. Political socialization

Vol. 11 No. 2 July - December 2023 (31-44)

is achieved by training citizens and other means that will facilitate elites to maintain the status quo. Plato emphasized on making young into good citizens through state-run directed programs; Aristotle went further proposing legislation that ensures that young generations receive the education necessary to fulfill their roles as citizens; while Jean Jacques Rousseau in his social contract, argued that for a general will to be able to operate, it is necessary for people to be trained to accept the same values (Chien-Hong, 1989). He also argues that the premises of political socialization are based on the fact that the basic political orientation is acquired during childhood and adolescence and that earlier socialization will have a crucial impact on adult political choices. He reproduced the Greenstein argument that what is learned from socialization may be connected with citizen roles like partisan attachment, ideology, and motivation to participate; connected with subject roles like national royalty, orientations towards authority, conception of the legitimacy of institutions; and finally connected with recruitment to and performance of specialized roles, such as bureaucrat, party functionary, and legislator. Theories of political socialization are divided into individual level and system level theories. Individual level theory emphasizes the development process oriented toward how children learn political attitudes and behavior while system level theory looks at the effects of political socialization on the political system. Besides the systems theory applied to political socialization by Easton and Jennings which explains how the political system copes with stress, hegemony theory of political socialization is based on the fact that the current political system manipulates social institutions and uses propaganda and censorship to maintain their privileged positions. Here the government struggles to maintain the status quo instead of changing it and the political socialization approach is to make sure the political ideology is transmitted from the dominant group to the dominated groups in society (Chien-Hong, 1989). According to him, the most important hegemonic theory is the class hegemony where according to Marxist theorists the interests of one group are taken to represent the general interests of the nation. The state protects the domination of the ruling class and the ruling class uses the state powers either coercive or educative to preserve their control. In these societies; power, wealth, and prestige are always scarce and those in control will protect their interests at the expense of other people. They use two mechanisms to do this: first is to use force to coerce the rest of the population for conformity and compliance; and second is to educate the powerless so that they accept the status quo in terms of rules and values of the powerful.

According to Dawson et al (1977) as reproduced in (Chien-Hong, 1989), propaganda comes in different ways like the widespread use of political ceremonies and symbols; the content of school textbooks; the attempt to associate government personnel and actions with majesty; and the general speech making that celebrates the current political order. When the legitimacy of the state is in doubt and actively challenged this is where censorship comes into play hence the power of the state is used to manage the news, to quiet criticism, to deny a voice to groups challenging state authority, or to forbid public meetings or political demonstrations that aim at the overthrow of the government. Even though McLeod and Shah (2009) argue that political socialization is all about mechanisms to create and maintain democratic institutions and practices, this may be true in countries that respect the rule of law. Most authoritarian and oppressive governments rely on a hegemonic style of political socialization. Hegemonic political systems and governments in this context are the main actors in the destruction of social determinants of health that undermine the quality of life and living conditions that will also negatively affect people's mental health leading to mental illnesses. A large number of authors and organizations devoted efforts and time to studying these social determinants of mental health. Lund et al. (2013) argue that understanding the social determinants of mental health is essential in a number of ways such as establishing etiology of the disease not only from an individual perspective but also from a social perspective; this will open up the opportunity to address interventions at the population level; where they will be planned effectively and efficiently mainly since they require a multisectoral approach; finally it will help to integrate mental health in development

targets, nationally or internationally. It is important to note here that, this will be done when the same government recognizes its contribution and come up with good will to solve the consequences of its own doing. According to the WHO Commission on the Social Determinants of Health (CSDH), social determinants are defined as "circumstances, in which people are born, grow up, live, work and age, and the systems put in place to deal with illness". These circumstances are shaped by a wider set of forces: economics, social policies, and politics (Lund et al., 2013). According to Alegria et al. (2018) and Crick et al., (2018), with advances in social determinants of mental health, now two distinct types are acknowledged namely upstream social determinants like economic opportunities that act as fundamental causes that impact health through downstream social determinants like poor housing and these determinants are used to define poverty level.

In its complexity, approaches to defining poverty have been established including absolute poverty, relative poverty, and the current multi -dimensional approach to poverty that use multiple deprivation indices that include a number of indicators of social and economic deprivation and exclusion like income, education, housing, assets, and food insecurity. These factors interact in a complex way to determine the socio-economic status (SES) or socio-economic position (SEP) of an individual or a group of individuals. This is very important in psychiatric epidemiology since studies have shown that a large number of mental disorders are associated with less advantaged socio-economic positions (Lund et al., 2013). According to Shim et al. (2014), in recent years the social underpinnings of mental disorders are increasingly recognized by societies but grossly understudied, this has as consequences their neglect in interventions targeting the management of mental illnesses. Even though a one-on-one intervention by psychiatrists and other mental health professionals like counseling and education can still be used, it yields less impact on overall population health and in the same context, addressing social determinants of mental health will meet the same ending fate hence the best way to make an impact on the social determinants of mental health is through action at the policy level. Authoritarian and oppressive political systems based on regionalism, favoritism, and different forms of discrimination including racism are growing in number mainly in developing countries. Paradies et al. (2015) in their systematic review of literature and meta-analysis defined racism as "organized systems within societies that cause avoidable and unfair inequalities in power, resources, capacities and opportunities across racial or ethnic groups". It can manifest through beliefs, stereotypes, prejudices or discrimination. The most important level of discrimination is systemic discrimination in the form of control of and access to labor, material, and symbolic resources within a society. A number of mechanisms by which it affects life were elucidated by Paradies et al. (2015) as reduced access to employment, housing, and education and or increased exposure to risk factors; adverse cognitive and emotional processes and associated psycho pathology; allostatic load and concomitant patho -physiological processes; diminished participation in healthy behaviors and or increased engagement in unhealthy behaviors either directly as stress coping, or indirectly, via reduced self-regulation; and physical injury as a result of racially-motivated violence. All of these lead to deteriorated mental health and aggravate or cause mental illnesses.

Rwandan mental illness burden and the hypothetical scenario

Rwanda faced a number of episodes of social fabric destruction throughout its history, from the oppressive and authoritarian kingship, through the 1959 social revolution to the darkest page in the history of humanity in the twentieth century, the 1994 Tutsi genocide and war. About a million people mostly Tutsi lost their lives and a large number left with deeply wounded physical and mental health. A year after the genocide the Rwandan mental health policy was introduced together with responsible institutions. Unfortunately unless isolated cases of researches done by national and international postgraduate students and some academics, there are no official statistics or prevalence data available regardless of the recognition of mental illnesses as a burden to Rwandan public health by the Ministry of Health and the Rwandan biomedical centre through radios and

local newspapers interviews.

All studies conducted are grounded on the genocide and its consequences and little is known about the subsequent generations but while the connections are not clear, studies showed that children of parents with PTSD are more likely to develop mental or behavioral disorders and it is theorized that influence and epigenetics play a role (Johnsson, 2014) as collaborated with the sociomatic theory and psycho genetics. While we are not going dig deep into this issue here, post-genocide Rwanda is characterized as an authoritarian and oppressive regime, corrupt in most of its institutions including the judicial system, with favoritism in the labor market, and above all disguised ethnic discrimination and ethnic supremacism (Buckley-Zistel, 2009; Reyntjens, 2021) and occupy one of the least places in global happiness index. This led the majority of the population into extreme poverty and engaging in unhealthy behaviors such as the increased use of drugs and alcohol; increased family violence and abuse; increased levels of divorce and street children. Considering the effects of social determinants of mental health, this undoubtedly is the origin of the ever-increasing number of mental health illnesses among Rwandans. Most frequently assessed mental illnesses include major depressive syndrome, depression, post-traumatic stress disorder, anxiety, drug abuse and addiction, and suicidal attempts. A study by Ngwino Sengesho et al. (2021) among Rwandan university students, mainly born after the 1994 genocide and war, showed that among 247 participants, significant levels of PTSD were found (28%), anxiety 29%, depression 9% and substance abuse 28%. The study showed that substance abuse was significantly correlated with PTSD, anxiety, depression, and interpersonal violence. Cases of mental illnesses in Rwanda are more complex than they appear in the context related to current genocide narratives, let’s consider the hypothetical case presented in the following paragraphs.The following hypothetical case was constructed based on ethnic terminologies already outlawed in Rwanda for better understanding of the context with no intention on the side of the author to discuss the current ethnicity policy. Mugabo was five years old boy when the war and genocide started in Rwanda in 1994 and lived in the Southern province of Rwanda. He was born the third in a family of four children and his father was a Hutu while his mother was a Tutsi and both parents were teachers. The mother was killed in the genocide by the genocidal government and the rest of the family went to Kibeho camp, a camp for internally displaced people, which was subsequently bombed by the Rwandan Patriotic Army (RPA) soldiers as retribution after winning the war and seizing power. In the bombing of the camp he witnessed the death of his two older brothers and survived together with his father and little sister who was badly shot and taken care of by doctors without borders. Soon after his father was jailed after conviction with genocide crimes due to false accusations and testimony that systematically targeted Hutu intellectuals and former government officials. He could not get any help from the fund for genocide survivors as a survivor who lost his Tutsi mother instead he is known as a son of a genocidaire due to his jailed Hutu father, this head of a household of two could not go to school, he is now 33 years old and lives in extreme poverty and due to economic hardship and social injustice his life deteriorated, he never attend any social event, and lives on drugs. From the professional psychologist's perspective, he is qualified as having diseases of despair characterized by losing hope for the future, becoming an alcohol and drug addict, and suicidal attempts. Diseases of despair caused mainly by economic hardships may themselves trigger physical, emotional, cognitive, and behavioral changes such as chronic pain, anxiety, or depression (George et al., 2021). With reference to past traumatizing events, he is qualified as having post-traumatic stress disorder (PTSD), and his current socio-economic status caused symptoms of major depressive disorder. His perceived social exclusion, discrimination, and stigmatization triggered symptoms of generalized anxiety disorder (GAD) including social anxiety. Important to note is that many symptoms for these individual conditions overlap.

Comorbidity and multimorbidity or Multiple Mental Disorder (MMD)?

Comorbidity definitions in the literature are not

always consistent. In 1970, the term comorbidity was coined by Feinstein and defined it as "any distinct additional entity that has existed or may occur during the clinical course of a patient who has the index disease under study" and six years later the term multimorbidity emerged in the literature mainly to describe patients with multiple chronic conditions (Harrison et al., 2021). While the Feinstein definition emphasized the occurrence of additional conditions in the patient with an ongoing primary disease, Jakovljević and Ostojić (2013) argued that there is no consensus about the definition of comorbidity and proposed three versions of it. Comorbidity is defined as "two or more medical conditions existing simultaneously but independently with each other" or "two or more medical conditions existing simultaneously and interdependently with each other which means that one medical condition causes, is caused, or is otherwise related to another condition in the same individual" or "two or more medical conditions existing simultaneously regard less of their causal relationship".

While some authors define comorbidity as the occurrence of two or more diseases that are interrelated through their pathogenic mechanisms and multimorbidity as the simultaneous appearance of two or more diseases without any relation in their pathogenesis (Jakovljević & Ostojić, 2013); due to ambiguity in the use of the two terms in 1996 van den Akker et al. suggested retaining the original definition of comorbidity by Feinstein and defined multimor bidity as "the co-occurrence of multiple chronic or acute diseases and medical conditions within one person" (Harrison et al., 2021).The application of these definitions in mental illnesses sounds problematic. Comorbidity is clear in cases of mental-mental illnesses co-occurrence such as depression and drug abuse and somatic-mental illnesses such as chronic disease like diabetes and anxiety. Multimorbidity on the other hand is pronounced in cases such as multiple chronic conditions that are not pathogenically interrelated, mental and somatic illnesses like a personality disorder and an infectious disease, and in the case of co-occurrence of many mental illnesses that do not share their pathogenesis like in multiple personality disorder (MPD). According to Borsboom (2017), in psychiatry, instead of the effect of the same cause, symptoms cause each other. Symptoms are considered as nodes and causal interactions as connections between nodes; the nodes for symptoms that activate each other are connected while those that do not are not connected, this is the so called the network approach to psychopathology. Symptoms may be triggered by external factors to the psychopathological network not necessarily out of the physical human boundaries. The four principles of network theory are complexity where the disorder results from complex interactions between components of the psychopathology network; symptom-component correspondence; direct causal connections; and mental disorders follow network structure. Hence, the etiology of mental disorders can be thought of in terms of a process of spreading activation in a symptom network. If a symptom arises, this will influence the probability that a connected symptom arises as well. Thus, coupled sets of symptoms, which are close in the network structure, will tend to synchronize. Mental disorders then arise when groups of tightly coupled symptoms actively maintain each other, leading to a cluster of psychopathology symptoms that becomes self-sus taining. For instance, if a person develops insomnia in the context of post-traumatic stress disorder, this may cause fatigue and concentration problems, bridge symptoms that also belong to networks associated with major depressive episode and generalized anxiety disorder, and as a result comorbid patterns of symptom interactions will arise in the major depressive episode/generalized anxiety disorder network. Thus, instead of a nuisance that will go away once we have better measurement equipment, more insight into the biology of the brain, or more knowledge of the genetic structure of disorders, he argues, comorbidity should be seen as part of the flesh and bones of psychopathology (Borsboom, 2017).He also states that if the diagnosis involves identifying a symptom network, then treatment must involve changing or manipulating that network. Due to the simplicity of networks, such manipulations can be organized into just three categories: symptom interventions, which directly change the state of one or more symptoms, interventions in the external field, which remove one or more triggering

causes, and network interventions, which change the network structure itself by modifying symptom -symptom connections. The network model to mental illnesses shows clearly that in complex cases with many co-occurring mental illnesses at the same time in the same person, the concept of comorbidity would be a simplistic approach to explaining what is happening. This is also true for multimorbidity, a concept primarily developed to explain the co-occurrence of multiple somatic diseases, which undermine the complex causal interrelationship between symptoms. In these complex scenarios where different diseases that are linked in their pathogenetic pathways co-occur in the same person at the same time, considering the fact that many of their symptoms overlap, and considering the need for complex biomedical-psychosocial interventions that target all nodes in the diseases networks; considering this person as having comorbid or multimorbid conditions would be undermining the complexity of the situation that would reduce effort and creativity to invest in that case management. The recognition of the existence of compound mental disorder or the co-existence of interrelated multiple mental illnesses appeared passively in a limited number of publications. Contreras et al. (2019) argue that "network model recognizes that symptoms can cause other symptoms, resulting in consistent profiles or syndromes" while Ghaemi (2008) said that "my own view is that such complex conditions are not discrete, valid disease entities, but either conglomeration of multiple diseases or not diseases at all but rather problems of living". In the cases of co-occurrence of multiple mental illnesses sharing the same pathogenetic origin, mainly originating in the politically driven social processes; for better intervention formulation, the person has to be considered having Multiple Mental Disorder (MMD).

The biopsychopolitical model of mental illnesses

Besides the success of the biopsychosocial model in psychiatry, critics have their place. Ghaemi (2008) and Németh et al. (2021) argue that the BPS model became eclectic with difficulty in the co-implemen tation of its biological, psychological, and social components; leaving psychiatrists and other professionals with a dilemma of which component to prioritize.

The other criticism of the BPS model is based on its claim to derive from the general systems theory of biology while ignoring or undermining the openness to the influence of unidentified factors and complexity of the mind and its influence on health and diseases; and the failed conceptualization of psychopathology of large social units such as community, culture, subculture, and nation-state (Benning, 2015). He also criticizes the failure to acknowledge the subjective matters such as personal meaning and spirituality and the failure to explain the medically unexplained symptoms. On the other side however, the introduction of a multisectoral approach to psychiatric interventions is recognized as an invaluable contribution of the BPS model (Benning, 2015); and according to Babalola et al. (2017) the WHO through the Global Mental Health (GMH) initiatives, support the BPS model in such a way that multisectoral approaches such as health, education, employment, judicial, housing, etc. are required for tackling mental health issues. Regardless of the undisputed role of the social determinants of mental health, Pilgrim argues that the model did not dominate the biomedical reductionistic psychiatric practice and Ghaemi asserts that it is unavoidable (Benning, 2015). According to Németh et al. (2021), the failure of the BPS model is due to the fact that the social component lacks the channeling mechanism into interventions hence making it lingering in the background of therapeutic discourses; and this is corroborated by Babalola et al. (2017) who argues that this issue may result from either the practitioners unwilling to change or the weakness of the model itself where the proponents of the biomedical model take the psychological and social factors as triggers of an underlying genetic time bomb.The issues of environmental factors, social factors, and the search for a common latent cause also have been subjects of debate among proponents of the network theory of mental illnesses. Fonseca-Pedrero (2018) argued that symptoms do not reflect the cause but are constitutive of it; psychopathological symptoms and signs are not the emerging manifestations of an underlying mental disorder but rather they are networks of symptoms,

dynamic complex systems or dynamic constellations of symptoms and signs that are causally interrelated. Contrary to the position of Oude Maatman (2020) that "if we believe that mental disorders are symptom networks that cause themselves, searching for a single underlying pathogen or cause is misguided and this position places network theory in direct conflict with the commonly adhered to the disease model of mental disorders, which does hypothesize the existence of unifying underlying causes for specific diagnoses". Retaining the argument of Bringmann and Eronen (2018) that "the latent variable or cause model is plausible for medical diseases but unrealistic for mental disorders"; and De Boer et al. (2021) who argues with the consideration of environmental factors as typically presented as catalysts or background elements of the symptom network. I stand by the side of the network theory that after causal activation, symptoms continue to activate each other even when the external trigger event has disappeared (Fonseca -Pedrero, 2018) but the external activator or cause is a sine qua non. Environmental factors, social factors, circumstantial factors, and biological factors are not mere members of the network but the causes that trigger or activate one or more nodes of the network that will subsequently activate others and sustain themselves even after the switch off of the trigger. I argue also that the continuity of those stimuli such as social stressors will continue to activate the network to the extent that the biomedical and psychological interventions that ignore the source of the stimuli are destined to fail.

Since a model in mental health and disease explains the etiology and mechanisms and further guide preventive and curative interventions; the biopsychopolitical model of etiology of Multiple Mental Disorder (MMD) and other mental illnesses

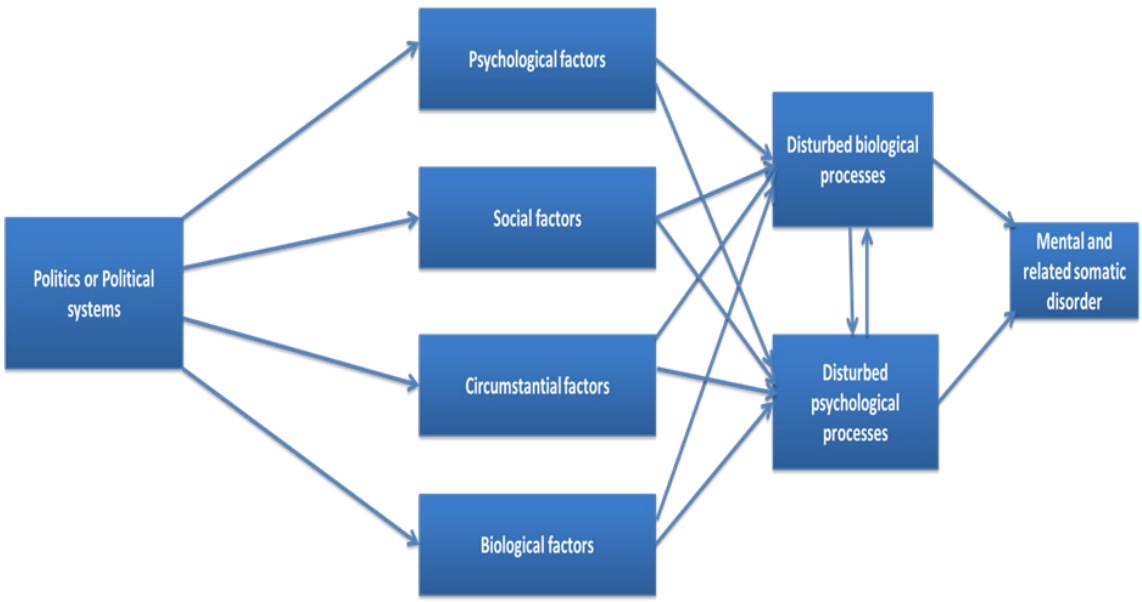

Figure 1: The biopsychopolitical model of etiology of Multiple Mental Disorder (MMD)

and related somatic diseases is depicted as follows: Political systems through political socialization influence every aspect of social, psychological and economic statuses of the population. It is also important to recall that there is also a complex interrelationship between the psychological factors, social factors, circumstantial factors, and biological factors. The rise in authoritarian and oppressive regimes and their use of hegemonization as a tool to sustain their power decreases the socio-economic

status of a large fragment of its citizens, and these poor social and economic statuses through complex somato-psycho-social interactions, as explained by sociomatics, neuroplasticity, and psychogenetics, lead to disturbed biological and or psychological processes that cause mental illnesses. Political systems also create environmental conditions such as industrial parks near poor neighborhoods that produce wastes that may trigger changes in biological systems such as DNA or disrupt endocrinological systems that can cause disturbed biological processes and psychological processes hence causing mental illnesses. The contemporary widely used biopsychosocial model's shortsightedness is based on taking the social side of mental disorders as a natural phenomenon and engages in interventions that do not target the causal stressors embedded in the political system. This cannot improve the symptoms. The new biopsychopolitical model emphasizes the causal agents of mental illnesses as of political origins where the biopsychosocial interventions, which would be implemented in partnership with the same authoritarian and oppressive political systems, cannot succeed and long lasting improved mental health for individuals and the whole population cannot be attained without removing the causative agents associated with lower socio-economic status that only those same political systems have the power and means to deal with.The diagram below represents an integrative approach to multiple mental disorder (MMD) and other mental illnesses using the biopsychopolitical model. The deteriorated upstream social determinants of life negatively affect the downstream social determinants of mental health that also cause mental illnesses.

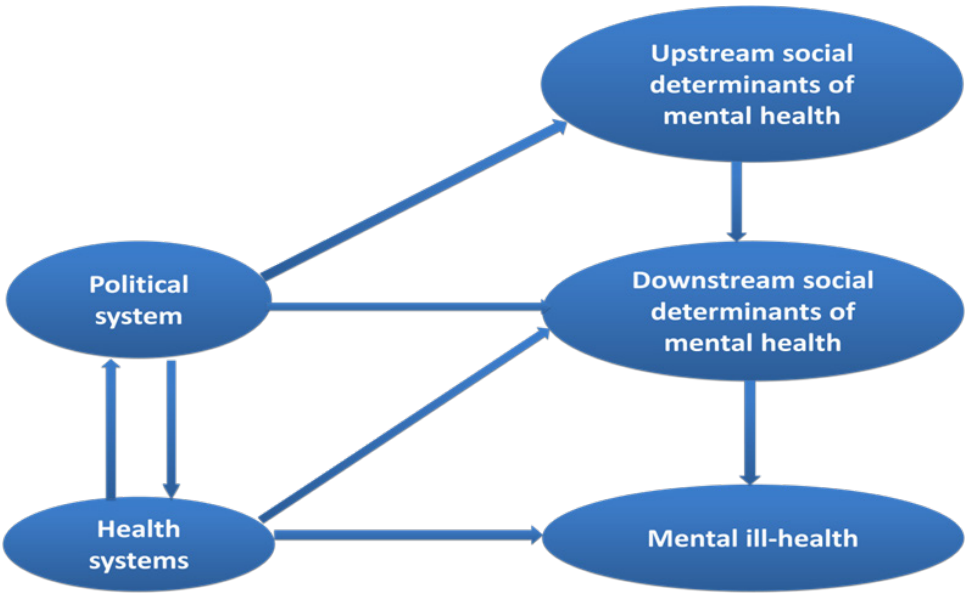

Figure 2: The biopsychopolitical model of etiology of Multiple Mental Disorder (MMD)

Besides the curative biomedical and psychological models of intervention targeting mental ill-health and the preventive approaches towards downstream social determinants of mental health, healthcare professionals (psychiatrists and clinical psychologists) will engage in advocacy to the government and non-governmental organizations to respond by intervening mainly upon the upstream social determinants of mental health and downstream social determinants where deemed necessary.

Results

The advances in imaging techniques such as

functional magnetic resonance imaging (fMRI) have allowed researchers to visualize the brain in unprecedented detail. Their coupling with advanced studies such as sociomatics, neuroplasticity and psychosocial genomics; new windows were opened towards understanding how the biological, psychological and social aspects of life interact to trigger mental disorders. The network model of mental disorder explains the causal interrelationship of mental illnesses through their pathogenesis while comorbidity and multimorbidity are mainly considered as probabilistic co-occurrence of more than one mental disorder. The network model of mental disorders proposes that mental illnesses are not discrete entities, but rather are interconnected nodes in a complex network i.e. they cause each other and maintain each other. Due to the simplistic tendency of co-morbidity and multimorbidity concepts; the concept of Multiple Mental Disorder (MMD) was proposed. This is a condition where two or more mental disorders that share the same pathogenetic pathway and with overlapping symptoms are present in the same person at the same time. The biopsychopolitical (BPP) model was developed in order to fully describe how mental health is influenced by biological, psychological, and politically driven social factors; and guide interventional endeavors. The increasing prevalence of mental disorders in authoritarian, oligarchic and oppressive political systems mainly in poor and developing countries is better explained by the biopsychopolitical (BPP) model that also recommend that successful interventions have to focus on collective improvement of the population's mental health.

Results

The advances in imaging techniques such as functional magnetic resonance imaging (fMRI) have allowed researchers to visualize the brain in unprecedented detail. Their coupling with advanced studies such as sociomatics, neuroplasticity and psychosocial genomics; new windows were opened towards understanding how the biological, psychological and social aspects of life interact to trigger mental disorders. The network model of mental disorder explains the causal interrelationship of mental illnesses through their pathogenesis while comorbidity and multimorbidity are mainly considered as probabilistic co-occurrence of more than one mental disorder. The network model of mental disorders proposes that mental illnesses are not discrete entities, but rather are interconnected nodes in a complex network i.e. they cause each other and maintain each other. Due to the simplistic tendency of co-morbidity and multimorbidity concepts; the concept of Multiple Mental Disorder (MMD) was proposed. This is a condition where two or more mental disorders that share the same pathogenetic pathway and with overlapping symptoms are present in the same person at the same time. The biopsychopolitical (BPP) model was developed in order to fully describe how mental health is influenced by biological, psychological, and politically driven social factors; and guide interventional endeavors. The increasing prevalence of mental disorders in authoritarian, oligarchic and oppressive political systems mainly in poor and developing countries is better explained by the biopsychopolitical (BPP) model that also recommend that successful interventions have to focus on collective improvement of the population's mental health.

Recommendations

The biopsychopolitical (BPP) model suggests that successful interventions to improve population mental health must be holistic and address the underlying social and political determinants of mental health and disorders. This may involve initiatives to reduce poverty and inequality, promote social justice, and protect human rights. For example, governments can invest in social programs that provide people with access to essential resources, such as food, housing, and healthcare. Governments can also promote social justice by enacting policies that protect the rights of all people, regardless of their race, ethnicity, gender, or sexual orientation. In addition to government-led initiatives, individuals and communities can also play a role in improving population's mental health by

advocating for social change and supporting mental health awareness and education initiatives.

The biopsychopolitical model of mental health and diseases provides a valuable framework for psychiatrists and mental health professionals to understand and treat mental disorders. This model recognizes the complex interplay of biological, psychological, social, and political factors in the development and maintenance of mental disorders. Based on the biopsychopolitical model, psychiatrists and mental health professionals should: take a holistic approach to assessment and treatment. This means considering both the patient's biological, psychological, social, and political factors (effect of the present and past political systems and policies on the patient's living conditions) when making a diagnosis and developing a treatment plan. Be aware of the social and political determinants of mental health. This includes understanding how factors such as poverty, inequality, discrimination, and violence can impact mental health. Advocate for social change: psychiatrists and mental health professionals can play a role in improving population's mental health by advocating for policies and programs that address the social and political determinants of mental health. Here are some specific recommendations for psychiatrists and mental health professionals: during assessment, ask patients about their social and political experiences. This could include questions about their socioeconomic status, housing situation, access to healthcare, and experiences with discrimination. Incorporate social and political factors into treatment plans: this could involve providing patients with resources to address social and economic challenges, connecting patients with social support networks, and advocating for patients' rights. Collaborate with other professionals: psychiatrists and mental health professionals can work with social workers, community organizers, and policymakers to address the social and political determinants of mental health. Educate the public about the social and political determinants of mental health such as giving talks and presentations, writing articles and blog posts, and using social media to raise awareness.

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