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The role of the bio-psychosocial model in public health

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Abstract

It is pertinent to understand the role of factors in the development of the diseases. After careful recognition a healthcare worker can better direct an appropriate treatment response. The bio-psychosocial model showed how biology, psychology and socio-environmental factors play a role in health. In contrast, biomedical model assumed that each occurrence of the disease was a result of deviation of biological molecules inside the body. The bio-psychosocial model is a stronger model focusing more on the person as a whole rather on the illness alone. It has generated a new perception to see the health of the population. It has broadened the horizon of public health agencies to see and examine the illness with a different approach and to provide better results in the preventative approaches. This review highlights the importance of the bio-psychosocial model in public health.

Keywords: Public health, Problem of living, Bio-psychosocial model.

INTRODUCTION

George L. Engel employed his multifaceted and critical thinking in 1977 to develop the bio-psychosocial model. It was pivotal to just not psychology but to health, medicine and human development as well. The bio-psychosocial model scrutinised how biology, psychology and socio-environmental factors play a role in health. George L. Engel along with Jon Romano of Rochester University proposed a more holistic approach to frame this model for illness and psychological problems both. The authors pointed out that the new approach will be responsible for the re-education of the people with "problem of living".

The diseases were seen with the lens of biomedical models having molecular biology as its pillar. The biomedical model assumed that each occurrence of the disease was a result of deviation of biological molecules inside the body. It excluded the importance of social, psychological and behavioural dimensions of the illnesses and forced the health care workers to analyse the behavioural aberrations as a result of abnormal biochemical or neuro-physiological processes. It also amalgamated reductionism and mind-body dualism [1].

Review

In the society, people have different perceptions of health. The general perception of the health is the absence of any objective signs or symptoms of the disease relating to improper functioning of the body, like pain or distress. This cannot be shared as an ideology amongst health care givers. It is not merely the absence of any disease which defines health rather it is a dynamic process of well-being. An individual's well-being is largely determined by his/her psychological state and social harmony. Psychological trauma plays a significant role in the development of mental illnesses. Post-traumatic stress disorder (PTSD) is a characteristic clinical picture resulting from psychological trauma. It is found that people experiencing stressful life has more frequent symptoms of PTSD [2]. It is thus worthwhile to note the importance of psychosocial factors in the development of an illness.

George L. Engel quoted "We are now faced with the necessity and the challenge to broaden the approach to disease to include the psychosocial without sacrificing the enormous advantages of the biomedical approach" [1, 3]. This is a more realistic approach as lifestyle factors play a significant role since the society has entered the new millennium. The author mentioned in his article that psychological, social and biological factors were in play in the development of disease in all strata of societies; ancient or modern, pre-literate or literate. To determine whether a person is sick, the author mentioned, the verbal and behavioural demonstration of an individual are the first to be noticed to make a judgement [1].

The biomedical model puts forth a view that a person who is feeling sick but has normal laboratory findings is healthy and a person feeling well having abnormal laboratory findings is unhealthy. This discrepancy can never be explained with the biomedical model of the disease. The bio-psychosocial model

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weighs the relative contribution of social and psychological as well as biological factors in the status of patient-hood. It can be understood by an example of a man acquiring diabetes at the age of 40 years. The clinical manifestation of the disease might have presented at the age of 40 years but the pathological processes already started at earlier stage because of stress and poor eating habits of excess carbohydrates and refined foods, which lead to insulin resistance and which ultimately resulted in the apparent disease [4]. It takes a long time for insulin resistance to manifest as diabetes, which is a result of chronic stress and prolong unhealthy behaviour. Patient with diabetes requires a holistic approach for their treatment. Such patients are required to address all of the factors responsible for the development of disease and not just one. It will be futile to only correct his blood glucose levels by a medicine and not thinking about the major contributing factors at all.

The bio-psychosocial model helps a health care giver to understand better the role of various factors responsible for the development of the disease and provide more comprehensive preventative information to the patients in the society about how they should adjust their lifestyles to have a better quality of life. The diseases of modern age like coronary heart disease and cancers are associated with established psychological and social components to their causation. The psychological factors such as high self-esteem and perceived control of life have been attributed to many health promoting behaviours like exercise, balanced diet, avoiding excess alcohol and avoiding smoking. All of them prevent having coronary heart disease [3]. Tobacco use is an established cause of cancer which relies heavily on behavioural and psychological aspects of a person. Similarly, gastrointestinal cancers have been found to have dietary factors associated with them [5].

The role of burden of stress in the development of diseases is well known. Many individuals are faced with various environmental, social and psychological demands which exceed their ability to cope. Such individuals ultimately produce adverse physiological changes in the body and thus are responsible for the disease outcome [6]. It implies that a patient should never be only looked at as a diseased body. The psychological and social factors should always be included for a proper intervention. It is necessary to address the beliefs, perception and attributes of an individual about their health and illness. It would have been difficult to accomplish a holistic approach to increase the status of the society had we been considering biomedical models alone.

Consideration of social factors is deemed necessary to address an illness. Factors such as loneliness, lack of social participation, the effects of unemployment are all related to poor health outcomes [3]. It will help to address the public health agencies to intervene in poverty, unemployment and loneliness in society through proper channels. It is a revolutionary approach. The public health agencies will be able to provide enormous data associated with these adverse social conditions to the government to implement changes at political level. In an article by Buckner *et al* in 2013, the authors mentioned that the relationship between substance use disorder and social anxiety disorder could be very well explained using the bio-psychosocial model. The authors explained that socially anxious individuals manage their unpleasant affective states by using substances thereby increasing positive affect and avoiding social scrutiny [7]. Social anxiety is also related to tobacco smoking and nicotine dependence and thus it is important to address substance-use behaviours in people with social anxiety. It is also imperative to find the reason behind the substance use or else all efforts to treat a person will go in vain.

The general practitioners and hospital doctors should be able to accept the role of psychological techniques to address the issues related to illnesses. The psychological, social and biological aspects of a disease are inseparable and should be seen together. It is beneficial to train new doctors and health care givers keeping the fundamental teachings of the bio-psychosocial model. Such trained healthcare givers will be able to see a patient effectively and be able to divide their resources efficiently. All of this will lead to better outcomes for public health.

In a study conducted by Alonso in 2004, the author pointed out that physicians were reluctant to incorporate the bio-psychosocial model and were more focussing on traditional methods for treating the patients [8]. On the contrary, there are studies which showed adoption of the bio-psychosocial model in the treatment of schizophrenia [9], chronic fatigue [10], antisocial behaviour [11], gastrointestinal illnesses [12], spinal cord injury [13] and pain management [14]. It is also essential to understand that this model is not only concerned with the curing of the lesion, but also helping an ailing patient to regain his normal life activities. A study done by Ashar *et al* in 2007 showed that neural pathways which were associated with pain detection and those that link pain with negative emotions became relatively less active after having a prior knowledge about the success of a medical intervention [15].

Although, the agents causing an illness are mainly biological, psychological and social, the individual should be centred while treating the disease and thus he or she is responsible for their treatment. For example, taking medication, changing lifestyle and avoiding unhealthy food items are responsibility of the individual. Health and illness exist on a continuum and the person progresses along this continuum. In contrast to this, the biomedical model states that individuals are regarded as victims of some external agents causing unhealthy internal changes and these individuals are not seen responsible for their own health. The onus lies on the treating physician himself, and health and illness are seen qualitatively different from each other. The biomedical model also wrongly states that the illness may have psychological consequences, but not psychological agents. For example, cancer may lead to sadness and depression and not the vice versa.

The bio-psychosocial model guides the availability of medical wisdom for the benefit of each patient individually which leads to improved satisfaction and better adherence to the treatment plan. This applies to any disease in the society and with improved health outcomes of everyone we can uplift the health status of the society. It is easier to reduce unnecessary utilisation of available resources and strengthen the efficiency of the health care framework in the society by using the bio-psychosocial model. Public health agencies can use this model to predict various outcomes of psychological and social factors into preventing appropriate preventative and intervention strategies. It leads to significant understanding of mental health difficulties and helps in the development of application of psychological support for mentally ill.

There have been critical views of the bio-psychosocial models. Experts state that it is time consuming and expensive to apply. It lacks the theoretical basis and the evidence to support it is not many. It was also suggested that it is difficult to gauge which factor is more responsible for the outcome of disease and thus lead to an unequal measure for the treatment. There are many poorly equipped countries with lack of adequate resources to implement such a model. Also, there is a lack of straightforward guidelines to treat a disease, under this model, in clinical practice. There are authors who have put an objection on this model and called it “vague”. The authors proposed that predictions cannot be measured or tested to evaluate this model [16]. Also, it was mentioned that it represents an inefficient and time-consuming process which cannot be applied for individual patients on a daily basis. From the perspective of a health psychologist, the dynamic swaying between health and illness has multi-factorial causes. It is naïve to attribute the psychological and social causes alone for the causation of disease [17].

Nonetheless, the incorporation of the bio-psychosocial model in public health leads to ideal practice of modern medicine. It leads to better and improved patient care, compliance and satisfaction. The fact that

there is a dire need for more research in this model and thus cannot be ignored to help identify its clear role in public health.

There are many evidences showing that health disparities and social determinants play a significant role in the health outcomes such as illness, wellness, disability and death [17]. Leading causes of death i.e. heart diseases, stroke and chronic obstructive pulmonary diseases are all preventable through lifestyle choices [18]. It challenges and demands us to shift our outlook of the diseases in the current times. We are failing as healthcare givers if we are ignoring the impact of the most crucial aspect of psychological and social factors on our health. We need to accept the issues such as multi-morbidity and we need to integrate patient-oriented and recovery-oriented care into the current medical practices [19]. A better part of any prescription should include behavioural components like weight loss, smoking cessation and regular exercises to reduce the risk.

CONCLUSION

The bio-psychosocial model has indeed revolutionised the way the health care sector approaches a patient of the 21st century and has been hugely successful in cutting short the gap between actual health and a sense of being healthy. The bio-psychosocial model is a strong model that draws heavy attention on the person as whole rather on the illness alone. It has generated a new perception to see the health of the population. It has broadened the horizon of public health agencies to see and examine the illness with a different approach and to provide better results in the preventative approaches.

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