

The Integration of Bio-Psycho-Social Diagnosis and Its Effectiveness in Improving the Quality of Treatment for Cancer Patients (A Clinical Study of Six Cases - Adrar Cancer Control Center)

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Received : 12/06/2024 ; Accepted : 27/09/2024 ; Published : 16/10/2024

Abstract :

The factors contributing to the diagnosis and onset of cancer have become increasingly diverse and widespread. It is no longer viewed solely from a biological perspective, as was previously believed. Science and knowledge are constantly evolving, and studies have shown that other factors interplay in the diagnosis of cancer. This is highlighted by the modern model in health psychology, which views health and illness through three primary dimensions. In this research paper, we will address these dimensions and explore how biological, psychological, and social factors interact in the diagnosis of cancer. We will also assess the level of awareness among patients regarding the causes of their illness. This will be done through a case study of six cancer patients at the Adrar Cancer Control Center, using clinical observation, personal interviews, and open-ended questions. The research findings indicate that the integration of the three dimensions contributes to improving the effectiveness and quality of treatment for these patients.

Keywords: Bio-Psycho-Social Diagnosis – Cancer – Treatment Effectiveness.

Introduction:

The bio-psycho-social diagnosis of cancer is a comprehensive approach that seeks to understand cancer from biological, psychological, and social perspectives. This model acknowledges that cancer is not merely a physical disease confined to cells and tissues, but also a condition that affects an individual's mental and social well-being. Thus, psychological empowerment and social support are critical factors in improving the patient's quality of life and ability to cope with the illness. To grasp the holistic impact of the disease, the concept of bio-psycho-social diagnosis has emerged, which views cancer as an integrated experience that requires addressing various psychological, biological, and social aspects.

The term "cancer" refers to a heterogeneous group of malignant tumors characterized by rapid growth, the potential to invade tissues, and the ability to spread to new areas. Types of cancer vary significantly, particularly in relation to different causes, disease progression, and treatment options. Therefore, identifying specific factors that increase the risk of death is challenging. Nevertheless, a number of factors that influence disease outcomes—from diagnosis and treatment to death have been identified. Cancer, being a complex disease that affects millions of people worldwide without discrimination or warning, demands a diagnostic and treatment approach based on the holistic bio-psycho-social model. This paper will explore how this model can be applied to cancer care, beginning with the following question: How can an effective integration of biological, psychological, and social diagnosis be achieved to ensure comprehensive care that enhances treatment efficacy and improves quality of life?

Based on this question, the following hypotheses have been formulated:

- The integration of biological, psychological, and social aspects contributes to improving the effectiveness of medical treatment for cancer patients compared to biological treatment alone.

- Treatment that combines biological, psychological, and social aspects can enhance the quality of care for cancer patients.

Study Objectives:

- To understand the interaction between biological, psychological, and social factors, specifically how they affect the cancer experience.
- To propose psychological and social interventions that complement medical treatment, such as behavioral therapy and group support.
- To improve the quality of life for cancer patients by exploring ways to reduce stress and psychological pressures during and after treatment.

Operational Definitions of Research Concepts:

- **Bio-Psycho-Social Diagnosis:** A comprehensive approach to cancer diagnosis that involves the interaction of biological, psychological, and social factors to study a health phenomenon related to the human being.
- **Cancer:** A malignant disease in which a normal cell, for relatively unknown reasons, transforms into a disordered cell that grows abnormally and proliferates rapidly, unless it is removed or destroyed.

Theoretical Framework:

- **Overview of the Bio-Psycho-Social (BPS) Model:**

Since the first theories of this model emerged in 1980 by Engel, significant advancements have been made, particularly with the development of neuroimmunology. Numerous theories have attempted to provide scientific explanations for health and illness, all of which converge on the social conditions in which the individual was raised, in addition to their physical history and certain personal traits such as aggression, helplessness, depression, and negative emotions. These traits, especially when combined with ongoing negative circumstances, can activate the corticotropin-releasing axis, increasing the level of stress hormones in the body. This, in turn, triggers a feedback loop that stimulates the endocrine system and various neuroendocrine-immune functions, which can cause physiological responses like inflammation and visceral mood disorders, including irritability, excitement, and depression. These interactions can accelerate the onset of cancerous tumors. Furthermore, social conditions interact with psychological factors, resulting in hyperactivity of the glands and hormonal secretions, leading to immune system exhaustion, thereby hastening the onset or rapid progression of certain diseases. This model posits that illness results from a complex system of interacting factors rather than a single cause. Therefore, we cannot speak of disease causality or a linear relationship between a disease and its cause, but rather a set of variables combining biological factors (such as viruses), psychological factors (such as behaviors and beliefs), and social factors (such as work and others). (Sarah Bakhouch, 2021, p. 7)

- **Definition of the Bio-Psycho-Social Model:**

According to George Engel, the bio-psycho-social model emerged as a reaction to the propositions of the biomedical model, which explained illness from a single dimension—namely, the biological aspect. The bio-psycho-social model, in contrast, is a systemic approach that interprets illness through a holistic system encompassing psychological, biological, and social dimensions. (ZohirBaghoul, Mohamed Amine Daïch, 2014, p. 146)

- **The Bio-Psycho-Social Model as an Alternative to the Biomedical Model:**

The best way to understand the bio-psycho-social (BPS) model is by comparing it to the biomedical model, as Taylor discussed in an attempt to define the BPS model through comparison. This approach is a sound method for establishing a definition and concept for the BPS model, considering that the biomedical model was, for a long time, the only model whose propositions were accepted by researchers and specialists in the field of health. At that time, George Engel, in his 1977 article, argued that the dominant model was the biomedical model, which assumes that illness is entirely related to measurable biological deviations. This model does not allow for the inclusion of social, psychological, or behavioral aspects of illness. (ZohirBaghoul, 2014, p. 144)

Cancer is one of the greatest threats to human life in our time. Its danger does not lie only in the difficulty of curing it, but also in the increasing incidence rates worldwide. As one of the chronic diseases, cancer has attracted the attention of many researchers and specialists, particularly in the field of psychology. Cancer patients suffer from physical, psychological, and social pressures, and they are unable to continue living as they did before. All these changes lead to a decline in quality of life throughout all stages of the disease, from diagnosis and treatment to follow-up care. (JoukhaSouafia, Huda Al Busaidi, 2023, p. 338)

- **Definition of Cancer:**

- Cancer is a tumor caused by cells that have escaped the body's control mechanisms and have begun to grow irregularly and chaotically without any need, colonizing and threatening surrounding tissues while spreading to other parts of the body, forming cancerous colonies. (ZloufMounira, p. 20)
- The Arab Encyclopedia of Cancer (1986) defines cancer as a malignant tumor resulting from a malignant transformation that affects human cells. The exact cause of this change in cell growth and multiplication is not known. What happens in this disease is that human cells undergo a pathological change, causing them to grow and multiply rapidly and in an unorganized manner, invading adjacent or surrounding tissues, and then spreading through blood vessels and lymphatic vessels to the lymph nodes and various organs of the body. (Mansouri Laila, p. 279)

- **Cancer Diagnosis According to the Bio-Psycho-Social Model:**

To study the bio-psycho-social diagnosis of cancer, the importance of the results relies on the collection and analysis of data related to the biological, psychological, and social aspects, which are:

- 1. Biological Factors:**

These include medical history, which provides information about the cancer diagnosis, its type, and stage of development. Additionally, genetic mutations, such as gene analysis to identify cancer-related mutations, and biomarkers like specific cancer protein levels (PSA, CA125) are considered. Medical examination results, including imaging, laboratory tests, MRI scans, and ultrasound examinations, are also crucial.

Scientists have found that genetic predisposition plays a role in increasing the risk of cancer, due to genetic abnormalities. Although most common cancers are not inherited, research has demonstrated the role of genetics in some tumors. (ZloufMounira, 2014, p. 26)

- 2. Psychological Factors:**

These include emotional expression deficits. Many studies have indicated that cancer patients generally tend to refrain from expressing their emotions. Additionally, life stress events have been shown to play a role, as studies have found that women with malignant tumors experienced more stressful events than others. Personality also plays a significant role in determining certain psychosomatic illnesses. Other psychological disorders, such as anxiety and depression, also contribute to the onset and progression of diseases in today's world.

- 3. Social Factors:**

These include social stressors, whether from work or other sources, family neglect, alcohol and drug use, exposure to hazardous radiation, and toxic substances, among others. A study by Garsen and Goodkin (1999) analyzed 38 studies examining psychological and social factors as risk factors for cancer development. The study found that the suppression of negative emotions is a factor that promotes cancer progression. (Amina Ben Gouider, p. 177)

- **Cancer Treatments According to the Bio-Psycho-Social Model:**

- 1. Chemotherapy:**

This treatment involves the use of drugs that target cancer cells. Both healthy and cancerous cells are affected by this treatment. The medication is prescribed based on the patient's condition,

medical history, and the type and stage of the cancer. It is administered intravenously, intramuscularly, or orally, and is given over various periods.

2. Surgical Treatment:

Surgery usually follows chemotherapy. In rare and exceptional cases, surgery may come first when the tumor is very small, and the chances of recovery are very high. Surgery is most effective when the tumor is localized, meaning it has not spread to other parts of the body.

3. Radiation Therapy:

This therapy involves directing high-energy X-rays directly at cancer cells in the affected area of the body. There are two methods: the first involves targeting the affected area with direct radiation, and the second involves the temporary implantation of radioactive seeds in the cancerous cells. Radiation therapy may be used before surgery to shrink the tumor and relieve pain, or after surgery to kill any remaining cancer cells. (Fadhila Arouj, 2017, p. 130)

4. Hormone Therapy:

This treatment is used when the cancerous tumor has receptors for estrogen and progesterone hormones, which help the cancer grow and spread. Anti-hormonal treatments are administered to combat the cancer. (Aziza Anou, p. 409)

5. Psychological and Social Support:

Psychological care for the patient is extremely important and should not be neglected. This is emphasized by the holistic cancer model. Given the psychological disorders and severe pain caused by the disease, it is essential to alleviate the patient's stress. Additionally, the role of family, friends, and community support should not be overlooked, providing relief through entertainment, play, and encouragement.

Applied Framework:

• **Study Methodology:**

In this research, we adopted a case study approach. We employed clinical techniques, including clinical observation and patient interviews, with the aim of understanding the key factors whether medical, psychological, or social—that contribute to cancer. We also used open-ended questions related to the disease, prepared by the researchers.

• **Temporal and Spatial Boundaries:**

- The study was conducted in the field during the period from 11/08/2024 to 06/10/2024.
- The research was carried out at the Cancer Department of the Adrar Cancer Control Center.
- **Data Collection:**Data were collected through direct observation and personal interviews, along with the use of an information form covering aspects such as age, marital status, profession, and educational level. Another form with open-ended questions was also provided for participants to respond freely.
- **Study Sample:**The study sample consisted of six mixed cases (male and female) from the same department.

Table 1:Presents the concept of cancer according to their views:

Cases	Their Concept of Cancer
1,2	They consider cancer to be the disease of the era, similar to other diseases like diabetes and hypertension, and see it as a test from God, with no human influence over it.
3,4	That awful disease, may God protect us. I don't even like to mention its name. If I had any other illness, it wouldn't be as frightening as this one, truly.
5,6	A trial, destiny, and fate. This malignant disease is merciless. We will suffer from it, but only God can heal and lift this affliction.

Through our analysis of the clinical observation and the initial clinical interview, based on the table mentioned above and after asking some questions, it was found that their concept of cancer was as follows:

➤ **Case (1) and (2):**

They consider cancer to be a disease like any other and view it as a trial from God, entrusting their fate to Him alone. Their behavior appears normal, showing no signs or actions that contradict their words. They seem content with God's will, expressing that "we are neither the first nor the last to go through this, and we hope for healing for ourselves and others."

➤ **Case (3) and (4):**

They describe cancer as a merciless, malignant disease, looking at it with a pessimistic view. They avoid even mentioning its name, which suggests a rejection of God's will, and they are not content with their health condition. This negatively impacts their treatment outcomes, and some behaviors indicate that they are struggling to accept the disease and are in denial of their condition.

➤ **Case (5) and (6):**

According to their statements, they view cancer as the disease of the era and a trial, hoping for recovery. However, through observation and the interview, it became clear that their statements were superficial, as they seem to be hiding something deeper. We will attempt to uncover this through a second interview by asking specific questions to understand how they truly perceive the disease, how they diagnose it, and to identify the key factors contributing to the onset of cancer.

Table 2: Represents the characteristics of the studied sample

Case	Age	Marital Status	Educational Level	Occupation	Geographical Location	Housing Type
First	67	Married	University	Retired	City	Family
Second	55	Married	High School	Employee	City	Individual
Third	43	Married	Middle School	Employee	Semi-Urban	Individual
Fourth	39	Single	Primary School	Housewife	Rural	Family
Fifth	64	Married	High School	Retired	City	Individual
Sixth	48	Widow	Middle School	Housewife	Semi-Urban	Individual

From our analysis of the table representing the characteristics of the sample, we observe that:

- The ages of the studied cases range from 39 to 67 years.
- The majority of cases were middle-aged.
- Cancer is more prevalent among women compared to men.
- All cases are married, except for one.
- Most cases have a fairly good educational and cultural level.
- The majority of the patients reside in urban areas.

From our analysis of the interview content conducted with the cases and its study from various aspects, the following was observed:

• **Biological Aspect:**

Case number (4) believed that the cause of her cancer was genetic, as her grandmother, aunt, and mother had also suffered from the disease. According to her, she did not know that this disease could be inherited until after an interview with the doctor, during which her medical file was reviewed, and information was gathered by asking questions related to the disease. In contrast, the other cases (1), (2), (3), (5), and (6) were aware of the severity of this deadly disease, according to their statements.

• **Psychological Aspect:**

Cases (1), (2), and (4) attribute their cancer to work-related stress. Cases (1) and (2) were engaged in strenuous work, specifically in the field of education, along with household responsibilities and family demands. In contrast, case (4) was under pressure from her family, feeling neglected, as she

was responsible for housework and farming. She blamed herself for not completing her education and for everything that had happened to her. This was evident in her expressions of regret, hopelessness, and emotional numbness. Case (6) exhibited signs of sadness and depression, which she attributed to the loss of her husband and the responsibility of caring for her young children. She was under great pressure and received only occasional support from neighbors and relatives, as everyone was preoccupied with their own lives, which had a significant impact on her mental state. On the other hand, cases (3) and (5) did not experience significant psychological pressure, except in isolated instances, as observed during our interviews with them.

• **Social Aspect:**

Cases (4) and (6) suffered from harsh social conditions, including neglect from their families. Their families did not show sufficient concern, even for their basic needs, such as clothing and healthcare. They were also restricted from going to the market to buy personal necessities unless accompanied by a married sister. As case (4) stated, her family did not trust her, despite her age. In contrast, cases (1), (2), (3), and (5) had balanced social conditions, with good family relationships and no significant social problems, as we observed during the interviews with them.

Table 3: Shows the causes and factors of cancer according to their views.

Cases	Causes and Factors of Cancer According to Their Views
First	Psychological stress, smoking, genetics, exposure to toxic and hazardous substances, use of stimulants and medications without a prescription, family problems.
Second	Secondhand smoke, drug use, psychological and social problems, poor nutrition, genetic factors, repeated trauma.
Third	Excessive consumption of canned foods, birth control pills, repeated abortions, numerous problems, and pressures.
Fourth	Family problems, repeated psychological stress, genetics.
Fifth	Significant psychological and social problems, genetics, repeated exposure to radiation.
Sixth	Psychological and family pressures, nutrition, obesity.

From Table 3, it is evident that the causes and factors of cancer according to their perspectives varied among them. This variation is attributed to differences in their knowledge and educational and cultural levels. However, they shared some common causes, such as genetic factors and psychological and social pressures, which depend on each individual's experience with the disease.

• **Presentation and Discussion of Results:**

➤ **Text of Hypothesis One:**

The integration of biological, psychological, and social aspects contributes to improving the effectiveness of medical treatment for cancer patients compared to biological treatment alone. Historically, illness was viewed solely as a result of biological factors, such as exposure to infections, viruses, and biochemical imbalances, while completely neglecting other causative factors of diseases in general, and our specific research topic. This was evident during our interviews with the cases, as well as in our conversation with the doctor, who explained from her experience that the causes of illnesses are not merely organic. Other factors, as previously mentioned, also intertwine. In fact, the diagnosis of the disease and the nature of biological treatments alone are insufficient to mitigate the side effects of treatment. No aspect should be overlooked, whether psychological, social, or cultural, as each plays a crucial role in our lives. It is essential to consider medical, psychological, social, and even cultural aspects, which supports our research. This conclusion was drawn from what the patients and the specialized oncologist shared, based on her expertise in this field. Thus, studies and the findings of the researchers confirm the hypothesis under study, seeking to demonstrate that the integration of biological, psychological, and social factors contributes to enhancing the effectiveness of medical treatment for cancer patients compared to biological treatment alone. We observed this in patients receiving chemotherapy,

complemented by psychological support from the psychologist working in the same department, as well as familial and social support from their relatives, whom we witnessed beside them. All of this positively reflects on the patient's health, fosters self-esteem, and alleviates psychological suffering, reduces the side effects of medication, and helps confront the disease, potentially leading to complete recovery.

➤ **Text of Hypothesis Two:**

Treatment that combines biological, psychological, and social factors can improve the quality of care for cancer patients. This was evident in our study, through the presentation of cases, medical follow-up by the treating physician, psychological support from the psychologist, and social support from family and those around them. This support manifested in their positive response to chemotherapy, improved mood, reduced side effects of medication, and acceptance of the illness. Additionally, this helped to eliminate the negative thoughts that were affecting them from society and negative individuals. Through all of this, the field remains open for researchers and specialists to delve deeper into this area and provide more information that benefits researchers and students in enriching their knowledge.

• **Recommendations and Suggestions:**

Based on the findings of this research paper, we would like to present some recommendations and suggestions as follows:

- Develop a therapeutic strategy to help patients reduce the side effects of medications that have burdened their bodies.
- Create a comprehensive plan by the psychologists in the oncology department to help patients correct some misconceptions about the disease.
- Organize awareness days about cancer that are regular rather than seasonal, providing medical and psychological guidance.
- Promote health awareness regarding the factors and risks of cancer, through hospitals, radio, audiovisual media, social media, and other platforms.
- Provide necessary medical supplies and equipment for diagnosis and treatment.
- Strengthen partnerships and cooperation between health institutions to facilitate the treatment process and care for patients.
- Offer therapeutic programs, including cognitive behavioral therapy and group therapy.
- Introduce effective therapeutic methods to enhance and improve the quality of life for cancer patients.

Conclusion:

Undoubtedly, there is currently no single cause or direct factor that determines the onset of cancer. Instead, there are multiple interrelated factors involved in the diagnosis of cancer. Historically, it was viewed that biological factors alone were responsible for cancer, which is what recent models have sought to explain regarding health and illness. This is what we aimed to study and understand in this research paper through the bio-psycho-social model, which posits that the three dimensions—biological, psychological, and social—interact with and influence each other in the diagnosis and emergence of cancer.

List of Sources and References:

1. Aziza Anou (2021): Psychosomatic Disorders and Physical Health, Algeria, Dar Al-Halzounia.
2. Mounira Zlouf (2014): An Analytical Study of Depressive Responses in Women with Cancer, Algeria, Dar Homa for Printing, Publishing, and Distribution.
3. Fadhila Arouj (2016/2017): A Clinical Psychological Study of Post-Traumatic Stress in Unmarried Women with Breast Amputations Due to Cancer, Doctoral Thesis in Clinical Psychology, Social Sciences Department, Faculty of Social Sciences and Humanities, Arab Ben Mehidi University, Oum El Bouaghi.

4. Sarah Bakhouch, LubnaAhmoun (2021): The Bio-Psycho-Social Model of Cancer-Related Pain: From Causes to Management, *Journal of Human Sciences*, Volume 8, Issue 2, Pages 604-619.
5. ZohirBaghou, Mohamed Amine Daïch (2014): A Systemic Paradigm in Health Psychology: A Structural Introduction to the Bio-Psycho-Social Model, *Journal of Human Sciences*, Issue 41, Volume A, Pages 137-151.
6. JoukhaSouafia, Huda Al Busaidi (2023): Psychological and Social Adjustment among a Sample of Cancer Patients in Light of Certain Variables, *Journal of Social and Human Sciences*, Batna 1 University, Volume 24, Issue 01, Pages 337-350.
7. Amina Ben Gouider, FatihaKarkouch (2018): A Study of Psychological Risk Factors for Cancer: Issues and Challenges, *Mediterranean Thought Journal for Research and Studies in Interfaith and Civilizational Dialogue*, Volume 7, Issue 2, Pages 174-185.