

### Linking Onco-Genetics to Psycho-Management: Psycho-Art

Commentary

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#### Abstract

In this commentary, visions of Psycho-Oncogenetics, cultural inheritance, and the highlights are, briefly, provided. The triangle strategy including complementary/clustering/cascade is presented. The ethics through different elements including the Scientific and Clinical paradigms, Psycho-art, Psycho-Oncology, psychotherapy and Genetic counselling, is also reflected. Breast cancer metastasis, as a global and complicated apprehension, is considered as a major concern for lethality in these patients. Such condition requires the efficient personalized cancer management.

**Keywords:** Breast Cancer; Personalized; Pharmacogenetics; Psycho-Genomics; Psycho-Somatic; Psycho-Art; Pedigree.

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#### Introduction

The associating system through the cancer cells, by considering the psycho-oncogenetic and cultural heritage is provided in this commentary. This commentary is aimed to reflect the cascade/clustering/complementary (CCC) vision through the: 1) Ethics platform, 2) different elements of the Scientific and Clinical networks, 3) the Psycho-art, 4) Psycho - Oncology, 5) Psycho-therapy, 6) Cancer Genetics, 7) Genetic counselling, and 8) Pharmacogenetics [1-4], by considering the events in different organs, the innovative cancer drugs, and biostatistics. Furthermore, the alphabetical facts in cancer stem cells and the concerns regarding diagnostic and therapeutic application highlighted. Breast cancer metastasis, is considered as a systematic health care concern and the major/global cause of lethality in women [3]. The final target revealed to include the systematic /

personalized cancer management through the supportive cares (Figure 1).

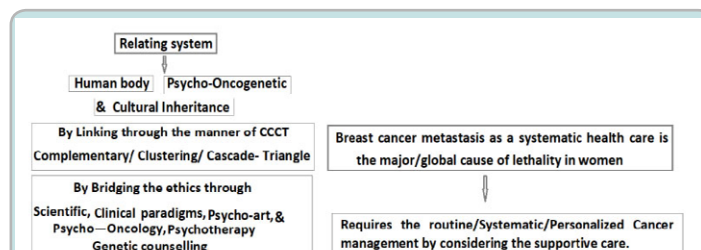
This commentary is adapted from chapter 26, entitles Horizon of Cancer Genetics and Psycho-Art [4]. The application of the ethics' alphabets is required for both healthy generations and cancer patients (Figure 1).

The metastatic patients with primary breast cancer require especial attention, the basic and well-defined care through the progressing period of the disease (Figure 2). The non-stop attention, by considering: 1) The bridging system between the scientific/clinical/ Psycho-art at diagnosis, through the progression of disease, 2) psycho-art and oncology, and 3) the pedigree-based genetic counselling.

#### The basic considerations in the ethics include:

- Traditional characteristics.
- Application of Medical Ethics in healthy individuals and patients.
- The role of life style under the protection of "alternative medicine".
- The patients' personality and their believes.
- The traditional characters.
- The characterized/ personalized configuration.
- Populations' diversity in cultural/social issues.

**Figure 1:** Basic concerns in ethics: the major bridge between the aims in translational Science and Medicine.



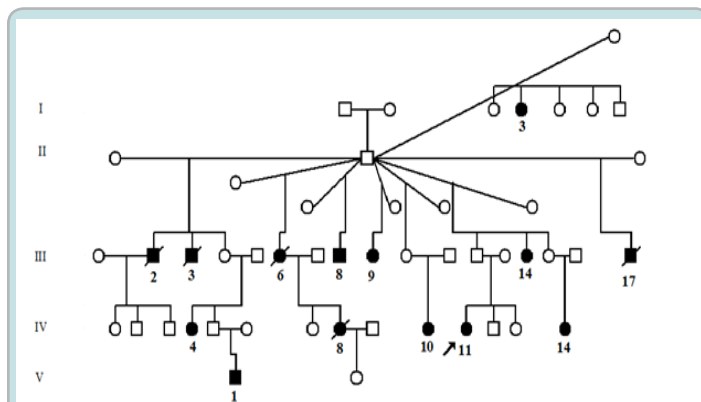
**Figure 2:** Systematic/ personalized cancer management through the supportive cares in breast cancer metastasis.

**Ligand:** This figure is adapted from reference 4.

**The “psychological aspects of breast cancer include [3]:**

1. Epidemiology and clinical aspects.
2. Cosmetic surgery.
3. Impact of depression on the clinical managements of BC patients. The teamwork therapy for the patients with psychological disorder.
4. Interaction between psychiatric and hormone based therapy and cognitive behavioral therapy.
5. Therapeutic highlights include the suitable clinical/ social management to improve the “patients’ health and life style.

An informative pedigree is provided for scheming a scientific and clinical management (Figure 3) [4]: The affected 6 patients with BC through three generations is considered as the guide to offer the performance of the genetic test for BRCA1 and/or BRCA2 genes.



**Figure 3:** A high-risk pedigree with a BC proband and multi –cancers family history. An informative pedigree to highlight scheming the scientific and clinical management.

**Ligands:**

This figure is adapted from reference 4.

BC: breast cancer

I/3: Affected with breast cancer

III/2: Affected with acute leukemia

III/3, 17: Affected with prostate cancer

III/6, 9, 14: Affected with breast cancer

III/8: Affected with colorectal cancer

IV/4, 8, 10, 11, 14: Affected with breast cancer

V/1: affected with lymphoma

Arrow is indicative of proband.

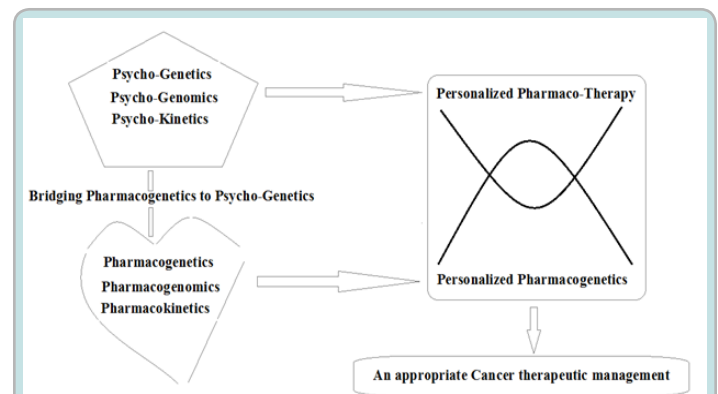
This figure is adopted from Parvin Mehdipour’s archive

Moreover, the therapeutic strategy may be affected by the patients’ life style and the optimistic attitude. Briefly, the outcome of Onco–psychotherapy depends on the involved factors in the patients. However, the harmonized bridging system between oncology/psychology, through an interactive manner between the body and soul is essential. Briefly, the systematic approaches including the target–based, balanced, and harmonized platforms are required (Figures 4 & 5) [4].

By considering the key roles of genomics and kinetic in the field of Genetics, the bridging system between psycho–Genetics and Pharmacogenetics would be possible. Through such strategy, the translational approach to the personalized pharmaco–therapy and pharmacogenetics is achievable (Figure 4).

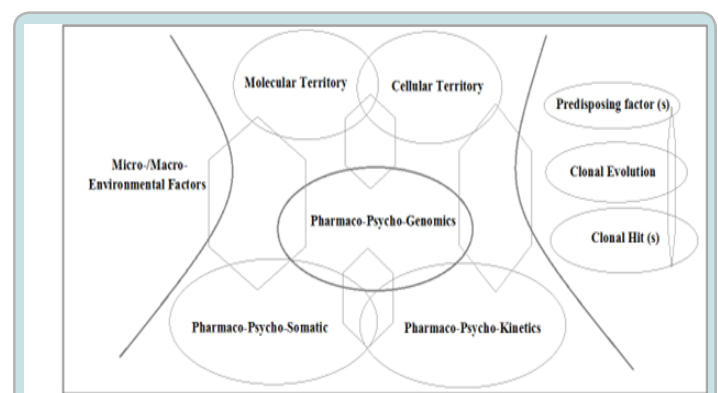
In addition, the systematic methodology, by considering the personalized/target–based/harmonized triangle, the Onco–psychotherapy would be a reliable choice (Figure 5).

Furthermore, music is considered as a supportive care in the cancer management (Figures 6 & 7). Finally, a supportive care is provided as a complementary informative guide from diagnosis to the therapy (Figure 8) [4].



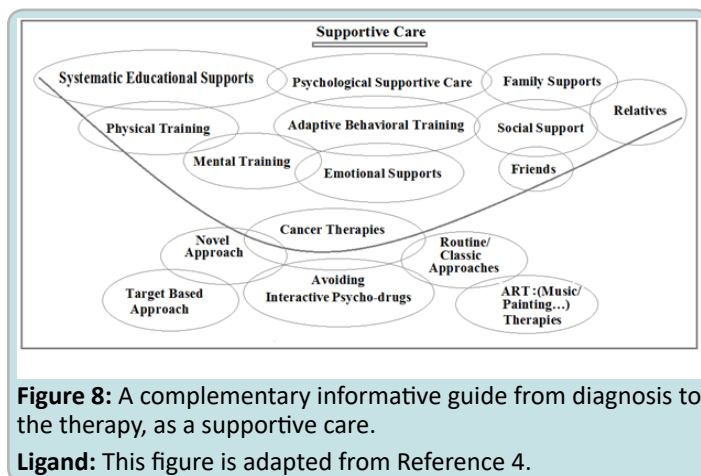
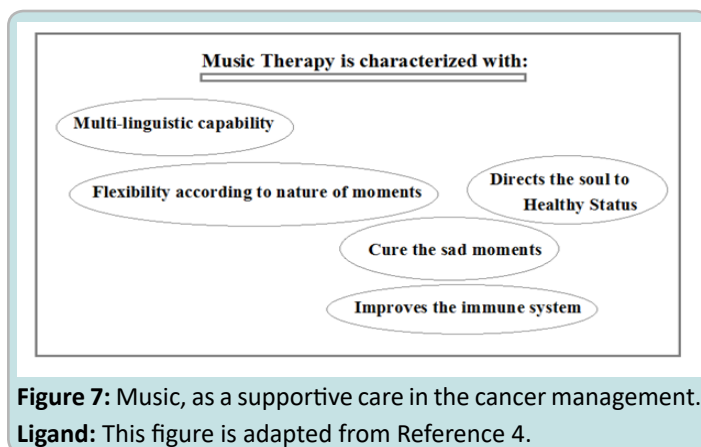
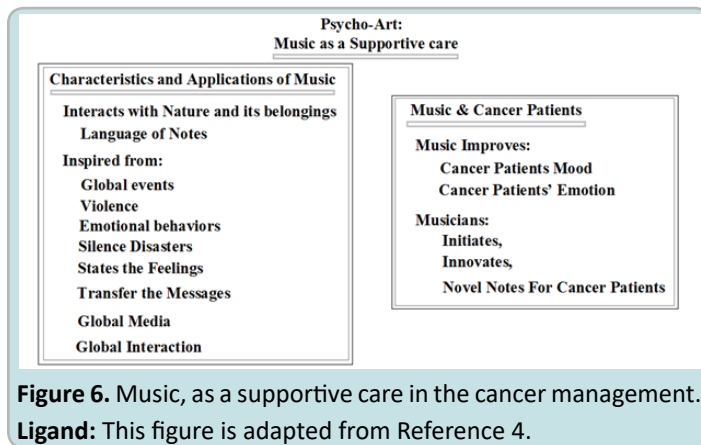
**Figure 4:** Bridging Pharmacogenetics to Psycho–Genetics.

**Ligand:** This figure is adapted from Reference 4.



**Figure 5:** Systematic approaches including the target–based, balanced, and harmonized manner is required in Onco– psychotherapy.

**Ligand:** This figure is adapted from Reference 4.

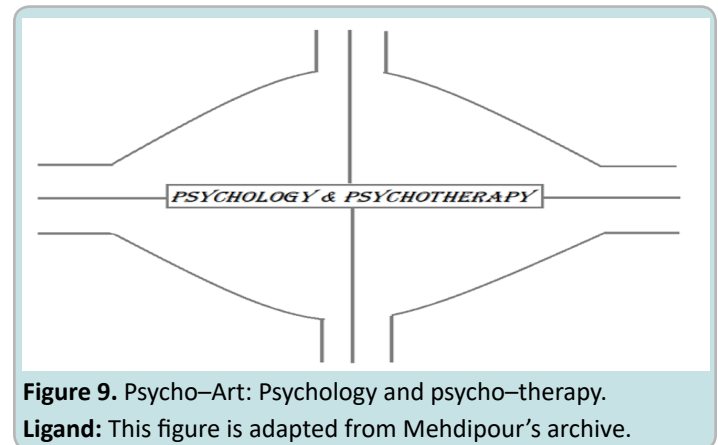


### Psycho–Art

Art has a multi–quadrant and attractive architecture through which enables itself to coo–prate with all existing elements, creatures, and so easily, with the whole nature. Art is beyond our imaginations and observations. **ART** itself is, simply, just **A+R+T**, which gradually grows until the eternity and beyond.

Psychology is the director of human health and beyond our imagination; Psycho–therapy is the Perpetual key and alphabetic destination for the health remedies. Status of Psychology is the natural essence of life and as an aim for the psycho–therapy.

Psychology is rather a fine art, which deals with the most dedicated functions of the body and soul (Figure 9).



As example three different group of patients affected with CNS lymphoma, breast cancer, and a complicated case with lung cancer metastasis to the skull. In order to explore the application of Psycho–Art, three cases affected with different cancers are presented:

### The first patient affected with the CNS lymphoma

Primary CNS lymphoma without systematic involvement is detectable in the patients with Immunocompeten, immunosuppressed and aids problems. Therefore, it is a complicated disease, with a negative influence on the patients' quality of psychological status with neuropsychiatric symptoms [5]. Therefore, especial psychological care is essential in these patients. The key consideration is required to harmonize the positive influential capacities in therapy in direction of the patints' body and soul. In fact, the Psycho–Art is a bridge between the clinical management of body and the psycho–status of the patients.

### The second patient affected with lung cancer metastasis to the skull

A rare case of bony metastasis and a soft–tissue component as stage IV requires especial strategy for Clinical management, including therapy [6]. In addition, excision via craniotomy and further therapy of adenocarcinoma provide a complicated psychological for the patients and the family. The impact of such a severe event is very harmful for the patients, the relatives and of course for the society and the related medical organizations,

### The third report presents breast cancer patients with brain metastasis:

Ten to 15% of breast cancer patients are predisposed to develop brain metastasis with poor overall survival. The complications include headaches, seizures, cranial nerve deficits, and confusion [9]. Such problems has, psychologically, serious concern for the patients and their family.

The major reason for referring to three cases is to highlight the importance of an early detection of cancer to avoid the unpleasant side effects including psychological complications, suffer, pain, the un–necessary /early surgery and bypass, at least, the early occurrence of metastasis. These aims require the following strategies:

**A. Genetic counselling**

- 1) Drawing the patient's (proband) pedigree at the first visit, by archiving the available and complete information including the affected relatives with benign, and/or cancer, age of onset, age of decease, at least for 3 to 4 generations.
- 2) Questioning about any history of non-cancerous cases in pedigree.
- 3) Additional information on the consanguinity.
- 4) Reporting any hazard due to the environmental (macro- and micro-) factors, including nutrition, etc. from the period of pregnancy and through the patient's life.

**B. Early detection of cancer**

Early detection is an essential and unique approach to control cancer incidence. The available message is Predisposing, Prognosis, Prediction, and Prevention (4xP) – strategy for cancer after control. The predisposing factor of 3xP marker, in ATM gene has been previously reported [7].

The available technique for early detection is exploring the circulated tumor cells (CTCs) as early as possible, which requires only 2–3 ml peripheral blood at any age [8,9].

In an overview article [10], a question was proposed as “regarding brain metastasis, how Circulating Tumor Cells (CTC) penetrates the blood–brain–barrier (BBB) to deposit in brain capillaries?” in fact, there is no problem in this regard. The fact is that delivery of drugs through BBB is problematic. However, the migration of CTC is provided in Figure 10 [8].

**Conclusions**

The triangle complexity of human body and interaction between psychological sciences and different organs have not been, precisely, defined. The culture and Psycho-Art are the basic and required route in cancer management. Cancer, mislead the individuals' soul and body. However, culture harmonizes the cancer patients' life, and psycho-art provides the required balance in the soul of the cancer patients. Furthermore, degree of the strength is the individualized bridge between the patients' soul and body. Cancer has its own rules and is impossible to provide a global classification in this regard. In addition, cancer as a systematic event has its own rules and regulations. Furthermore, cancer is rather heterogenic/ diverse and ignore natural rules. However, cancer is full of surprising puzzles, which escapes from the available medical managements.

Psycho-Oncogenetics is a vision for the translational cancer research that leads to an individualized management for cancer patients.

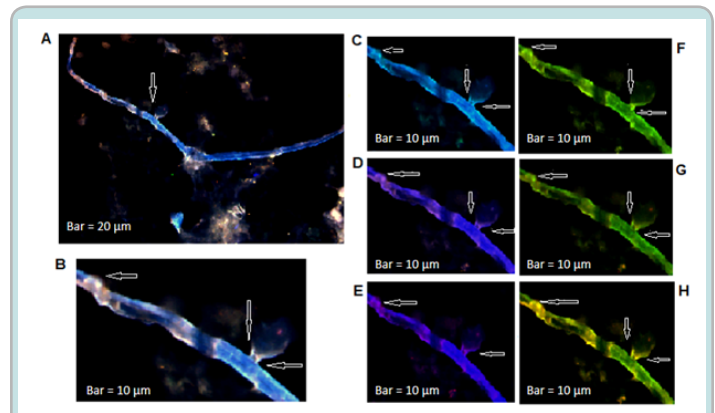
The initial concern is to link the Cancer Genetics to Psychotherapy. In fact, ethics, as a directory road, is the major bridge between the aims in translational Science and Medicine. Furthermore, the basic concerns in ethics provided (Figure 1).

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**Conflict of interest**

The author has no conflict of interest.



**Figure 10:** Status of protein expression and co-expression of C-C chemokine ligand 2/vascular endothelial growth factor/epidermal growth factor through migration of circulating tumor cells within tumor territory to the blood stream in a patient with the lung metastatic carcinoma.

**Ligands:**

C-C chemokine ligand 2 (CCL2), vascular endothelial growth factor (VEGF) and epidermal growth factor (EGF) are conjugated with fluorescein isothiocyanate; R-phycoerythrin, and phycoerythrin-indodicyanine, respectively, in patient 15. A: Merged of 4',6-diamidino-2-phenylindole (DAPI)/CCL2/EGF/VEGF; B: Cropped section of image a; C: Merged of DAPI/CCL2; D: Merged of DAPI/VEGF; E: Merged of DAPI/EGF; F: Co-expression of CCL2/Veg; G: Co-expression of CCL2/EGF; H: Co-expression of CCL2/VEGF/EGF. Merged of DAPI/CCL2/VEGF/EGF is reflective of co-expression between three proteins; B, F–H: Reflect co-expression of CCL2/VEGF/EGF according to the selected of cropped section from images a (arrow on the top/left). The arrows on the left side of images are referred to the migration of tumor cells from tumor to the blood stream destination through a bubble like channel.

This figure is adapted from Reference 8. Mehdipour's archive).

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