



# A Literature Review of Discourses on Lifestyle as A Non-Pharmacological Intervention in Cancer Management!

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## Abstract

**Objective:** To review the literature on non-pharmacological interventions in cancer management

**Method:** A review of 55 identified papers that discussed cancer survivors, diet replacement, exercise as alternatives to pharmacological interventions was conducted. These review sought to address the following questions, what are the non-pharmacological interventions, what is the success in improving quality of life, are these sustainable for cancer management in the long-term.

**Results:** The synthesis produced these categories of interventions as the non-pharmacological interventions available to many cancer patients; increased need to maintain healthy behavior; the use of support group networks, the change adoption of military metaphors in speaking about cancer, the influence of lifestyle on cancer prevention and management, as well as whether having prior knowledge influences the health outcomes.

**Conclusion:** There is merit in considering these interventions, however, only as part to pharmacological interventions. Whilst some studies reported a general improvement in some Quality of life indicators, like feeling supported and adopting a para-military stance towards cancer management, in the long term, do not alter mortality or other general consequences of managing a cancer diagnosis in significant ways.

**Keywords:** *Cancer management; non-pharmacological interventions; literature review; quality of life*

## Background

In the past two decades, research has indicated that a change in behavior is more likely to achieve optimal health. Over time, correct dieting, physical activity and avoidance of substance abuse have been identified as necessary to maintain healthier lifestyles [1]. Consequently, the absence of disease, the adherence to treatment and successful treatment outcomes have also been attributed to the same behaviors. Various mechanisms have been suggested as means and ways to ameliorate the effects of cancer [2-4]. Many studies have looked at physical activity, diet, avoidance of tobacco, safe sexual practices as non-pharmacological interventions to combat the physiologic and psychologic effects of cancer. Cancer on the other hand, occurs as a result of a malfunction of cells, usually due to inconsistencies within the cell reproduction and consequently begs the question whether human actions can prevent the incidence of cancer.

There hasn't been consensus on whether developing cancer can be prevented, however, some researchers have argued that some human actions can either increase or decrease the susceptibility or risk of developing any cancer [2-4]. To this end, many researchers have emphasized the need for regular health-help-seeking practices that include general screening, improved diets and physical activity. Research done by [1,5-7] suggests that physical activity has positive health effects on cancer management especially during recovery. For example, a randomized trial of 45 women undergoing adjuvant chemotherapy for stage II breast cancer demonstrated that 10 weeks of interval-based, aerobic exercise not only improved functional capacity and body composition, but it also decreased chemotherapy-induced nausea [5].

In the last two decades, it has been more common in research articles that exercise plays a vital role in cancer prevention and control. There is evidence suggesting that exercise decreases the risk of many of cancers, and data to support the

premise that exercise may extend survival for breast and colon cancer as survivors are emerging [7-9]. However, the focus on many of these studies is on the influence of regular exercise on the health quality of life and psychosocial well-being of cancer survivors after diagnosis.

Studies reviewed herein have hypothesized that some of the psychological and physiological challenges faced by cancer survivors can be prevented, attenuated, treated, or rehabilitated through exercise. Physical activity has been increasingly researched as a non-pharmacological intervention to combat the physiologic and psychological effects of treatment in cancer patients [10]. However, there needs to be clarity in the evidence supporting whether a physical activity program will reduce the negative physiologic and psychological effects of treatment. Given the growing population of survivors and increased volume of literature on physical activity interventions for cancer survivors, there is a need to evaluate and determine the extent to which physical activity during and post treatment is appropriate and effective for health outcomes across the cancer control continuum [10].

Researchers such as [3,4] have argued that in finding coping mechanisms for cancer patients, there is need to evaluate cancer survivor's exercise tolerance and prescribe a safe and effective exercise program considerate of the cancer survivor's diagnosis and treatments received. Further, these effects will need to be understood in the context of existing health (premorbid conditions) and fitness level before cancer diagnosis. By understanding the treatments received, it may be possible to review the body systems adversely affected and that may have positive or negative implications for exercise tolerance and training. For instance, while it is important to consider exercise as respite to cancer treatment, such things need to be considered as, safety, aerobic fitness, muscular strength, flexibility, body size and composition.

Other studies have found out that after diagnosis, most cancer patients will receive surgery [1,6]. This surgery could be minor (e.g., removal of a mole) or major (e.g., removal of a large section of the colon). About half of cancer patients undergo ionizing radiation treatments [1,11]. Radiotherapy may be delivered before or after surgery, alone or with concomitant chemotherapy. The mode of delivery, schedule, and frequency are unique to a particular cancer but often includes frequent appointments during a defined period (e.g., five appointments per week for 6 weeks) [11,12]. The majority of cancer patients also receive chemotherapy, which is prescribed orally or delivered intravenously on defined schedules that are cyclical in nature [6,13].

It is therefore valuable to understand the most common toxicities associated with cancer treatments, including increased risk for fractures and cardiovascular complications with hormonal therapies, neuropathies related to certain types of chemotherapy, musculoskeletal morbidities secondary to treatment, and treatment-related cardio toxicity [10, 14]. Survivors with metastatic disease to the bone will require modification of their exercise program (e.g., reduced impact, intensity, volume) given the increased risk of bone fragility and fractures. Therefore when physical activity is prescribed, it should be controlled, paying particular attention to a cancer patient's pretreatment aerobic fitness, medical comorbidities, response to treatment, and the immediate or persistent negative effects of treatment that are experienced at any given time [4].

## **Methods**

To review the available literature on the subject matter, a search protocol was developed. The protocol identified search terms, protocol based databases and web based literature sources [15,16]. The searches were conducted in English language and from documents published in the between 1990-2015 except where search options did not permit these restrictions

Search strategies were thus developed for PsychInfo, PubMed and AJOL which are accessible through the university library database. These databases identified peer reviewed journal articles as well as dissertations that may not have been peer reviewed [17,18]. These database searches were supplemented with web-based searches through Google Scholar as well as published books, reports and where accessible, grey literature. Grey literature in this case refers to all the literature relevant to the subject that was consulted which may not be academically rigorous, such as newspaper articles, magazines, and opinion pieces.

The object of this review was to identify literature on behavior as a non-pharmacological intervention to cancer reviewing articles that focused on physical activity and its role in cancer recovery, as well as diet and health-promoting behavior such as the avoidance of smoking/ inhalation of tobacco. In reviewing this literature on behavior as an intervention, it was thus important to look at notions of healthy behavior across the different perspectives to find ways of defining healthy behavior and its implications. It was essential to fully understand these arguments in so far as defining coping strategies or lack of, in the quest to unpack the requirements of the research question.

Whilst reviewing articles that focus on the role of physical activity and diet in managing cancer diagnosis, articles consulted reflect both clinical trials and cohort studies. The available data from clinical studies on physical activity gave insight into whether there was any contribution of physical activity and diet in managing cancer diagnosis. The cancer site did not have to be specific and where it was specific, those articles cited them as controlled studies. On the other hand, cohort studies looked at physical activity and diet from a number of people that may have existed at the same time with similar or different circumstances. For instance, among former college students that had cancer, long-after college, the studies looked at whether these people participated in physical activity, as in sports competitions and had well managed diet plans or not.

Review of these articles is an important step in questioning what therefore constitutes healthy behavior, and if healthy behavior does actually influence cancer survival outcomes. Akin to this inquiry was also the need to interrogate the incidence of psychological challenges among patients especially where it involves whose responsibility it is to avoid cancer or where cancer has been diagnosed, to recover. Interestingly, the inquiry thus looked at the discourse in that surrounds cancer care. It was important for this article to understand such discourse as used in academic writing as a platform to analyze what then constitutes health behavior. Questions that this article tries to answer therefore stem from the viewpoint that in some instances popular discourses, particularly in cancer care, seem to suggest ways of behavior, whether or not these behaviors influence positive survival outcomes.

### **Findings (Analysis)**

The result of the search provided many argument-worth categories. In its vastness, however, only a few seem to be relevant for this particular paper. Of the categories or themes to be discussed in later sections, the most common are the following, a discussion on notions of healthy behavior; the use of metaphors in cancer care, the influence of lifestyle on cancer prevention and management, as well as whether having prior knowledge influences the health outcomes.

Whilst it can be argued that many other themes could be arrived at, the decision to only focus on these four is that they are the most commonly recurring themes in various literature sources. This article aims to provide criticism of the available literature to question the discourses created by dominant narratives, that sometimes unintentionally reinforce otherwise detrimental behavior, or supports agendas that do not primarily represent the interest of people that participate in these studies, often times, voluntarily.

### **Notions of Healthy Behavior**

There are widespread engagements among scholars on defining notions of healthy behavior. Within these engagements two main viewpoints tend to feature more prominently in defining notions of healthy behavior. On the one hand proponents of notions of healthy behavior, from a western perspective have defined healthy behavior as ‘an action taken by a person to maintain, attain, or regain good health and to prevent illness. Health behavior reflects a person's health beliefs. Some common health behaviors are exercising regularly, eating a balanced diet, and obtaining necessary inoculations’ [19]. Proponents of this view go a step further to say that ‘daily habits like the foods you eat, the time you go to sleep and how much activity you get throughout the day have a significant influence on your health. Each of these behaviors positively or negatively affects you and dictates the overall state of your health’ [19, 20]. By saying this the proponents of this view argue that there several aspects of lifestyles that influence healthy behavior and these include; Nutrition habits, Hydration habits, Physical activity, Stress management, Sleeping habits and Daily supplements. The overarching perspective is therefore that adherence to such habits would constitute healthy behavior demonstrated by an individual's ability to maintain healthier weight level, managing the aging process and reducing the risk of developing chronic diseases.

Instead of offering a definition of healthy behavior, those who adopt an anti-western definition of healthy behavior argue that implications of such definition assumes the universality of the human race to western conditions thereby creating a homogenous entity [21]. One of the challenges pointed out in this view holds that by making such an assumption, it would appear that what's healthy in one country would be the same standard in another, even where the living conditions widely differ. Also, the definition would assume that beyond the racial differences and various adaptations, humans from different parts of the world would ideally be the same. Consequently, proponents of this view uphold that what's healthy behavior is context defined and therefore cannot be universalized.

The two viewpoints bring about interesting debates on the content matter however, the implications of each view should be unpacked to see the value. Where proponents of a western perspective of healthy behavior argue for a change in psychology, behavior and diet, the implication would be the reduction of the risk of developing chronic illness, maintenance of a healthy weight level and possibly the aging process. Ideally, this would mean that people who strictly

adhere to such prescriptions would less likely develop chronic condition or be overweight. Sports personalities would be the nearest example. This view is thus quite problematic considering that often than not, [2,4] argue that stories of sports personalities being overweight despite a controlled diet and physical activity plan, also developing chronic illness and dying at almost similar rates as the non-sports personalities [2]. In studies looking at cancer and physical activity for former college sportsmen, there isn't much difference in the development of cancer between the former sportsmen and their counterparts [2,4,7,10,11,22].

On the other hand, dismissing the definition with an anti-western bias has its implications. For public health prevention mechanisms across the population, similar messages should be conveyed so as to ensure a basic minimum standard. Fragmenting this mechanism into different components runs the risk of misinterpretation especially among low income status individuals. However, considering that they do not already receive mainstream services, the definition would greatly exclude them. To therefore find mid-ground would be a challenge, despite such individuals being of vulnerable to behavioral and dietary deficient diseases, with a net effect on increased mortality from preventable or manageable cancer.

### **The Use of Metaphors in Cancer Care**

Metaphors have been used in literature often to describe situations and events in such a way that they elicit a relatable response. Put simply, metaphors are expressions that suggest some kind of similarity between essentially dissimilar terms. They can be used to embellish language or in moments when words are hard to come by. Researchers and the general public alike have used metaphors to describe cancer as an alien invasion of the body and these metaphors have been naturalized in cancer management discourse. In both research publications and in media, military metaphors have been adopted to refer to cancer management. These include terms like 'fight', 'battle', 'survivors', 'crusade', 'victims', 'victory' and 'the war against cancer' [23]. The effect of these dominant military war metaphors is that for many people cancer is experienced as a ruthless secret invasion in which cancer cells colonize a body whose defenses are invoked, and a war waged. The imagery of war demands that one be strong and fight hard to be victorious and thus it may leave those who have an incurable disease feeling like losers who have not done enough and must die defeated [24]. The metaphors offer an imaginative scope and open-endedness that is therapeutic to some, but disturbing to others who resist the violence implied.

In the literature there is an assumption that being physically fit is an important requirement for managing cancer [10,11]. The military metaphor is taken further in the physical fitness discourse with cancer patients being constructed as warriors who will fight cancer and be victorious. The adoption of terms like, 'victory', and 'won the battle against cancer' suggest a certain level of competitiveness against the disease, with the strongest eventually winning the battle. The ability to endure difficult physical activity is usually oversimplified as an innate ability to rid the body of illness and hence the pressure to return to fitness when diagnosed with cancer [2,4,7,10,11,25].

The development of metaphors can also be linked to the collaboration of pharmaceutical companies and medical professionals in using a particular language to refer to treatment of cancer. This language has been used in doctors' rooms, in drug promotion campaigns and in cancer prevention campaigns. Arguably, this language has been developed to lessen the shock of disclosure or in some instances, to motivate people to undertake aggressive treatment. However, the metaphors tend to reduce different people's experiences to a single commonly used metaphor. Examples include the use of the metaphor, 'survivor'. Cancer patients are encouraged to be 'brave' in the 'battle' against cancer, to win the 'fight' and thus to survive [2].

Inherent in these metaphors is the belief that by adopting a 'fighting spirit', cancer patients improve their chances for survival. [26] argue that, if true, the idea epitomizes the triumph of character and attitude over biology. Fighting spirit is characterized by patients optimistically viewing cancer as a challenge and being determined to fight the disease and not allow it to disrupt their lives. Claims about the importance of a 'fighting spirit' warrant scrutiny because they fuel existing beliefs that psychological variables influence the progression and outcomes of cancer. [26] together with [27] argue that 'fighting spirit' lacks value as a prognostic factor in cancer and much less as a causal factor. Such interpretations are also strongly consonant with popular beliefs in the benefits of improving immune functioning as a way of fighting cancer. For example, [26] have argued that many breast cancer patients come to support groups and group therapy with the explicit expectation that they are improving their chances for slowed progression and longer survival.

In accepting this as norm, the association between some behavior the development of cancer, may be wrongfully interpreted to mean that individuals should avoid such behavior. The implication of such normalization it blames the individual that smokes that has cancer for 'bringing the cancer upon self'. [28] argued that intention does not always have the desired results in health. They further argue that where intentions meet the expected health outcomes, the coincidence

is almost too fortunate. It is imperative therefore to avoid blaming the individuals for their contraction of the disease or failure to recover once diagnosed. Adopting this perspective sanctions people to accept that there may be more than one cause of disease. This allows people to investigate the cause of disease and not necessarily self-loathe for bringing cancer upon themselves.

Blaming the individual for smoking and developing cancer has the potential to reinforce certain beliefs systems prevent such individuals from accessing appropriate treatment. Furthermore, where people work with substances as a way of subsistence, like farmers, an ethical question about trashing people's livelihoods without sufficient proof makes it an unfortunate scenario. Where people work for instance with tobacco, more studies need to be done especially on farmworkers and the development of lung cancer to see if such assertions can hold as true. Without dismissing the already existing evidence that points out the link between smoking tobacco and lung cancer, it is necessary to avoid making sweeping statements.

### **Knowledge, Attitude and Behavior**

In different research writing in psychology, questions have been raised about whether having prior knowledge of a disease facilitates the adoption of appropriate attitudes and required behavior towards the management of the disease. Applied to cancer, the same question is also asked, whether having prior knowledge of cancer will make the diagnosis and treatment accepted much easier. Several authors, [9,29,30] seem to suggest that with increased knowledge, attitude and behavior towards illness, in particular cancer seem to change. In a study of masculine identities when men have cancer [31] seems to suggest that where knowledge is optimal, the attitude and behavior tend to lean towards health help-seeking and health-maintenance.

From the field of personality studies, several authors argue that personality, rather than knowledge affects cancer progression and or acceptance of the diagnosis. Researchers such as [9,12,30,32] seem to agree that in the area of individual differences, personality characteristics reflecting emotional suppression, helplessness, fatalism, and a constellation including stoicism, perfectionism, and over-agreeableness are risk factors for the initiation and progression of. Individual differences therefore have an important role in modulating the relationship between environmental events such as stressors and the immune system, and stable individual differences such as personality may have an important influence on immunity and the progression of cancer.

The argument seems to suggest that personality affects immune function, particularly in response to stressful life circumstances, and those changes in immune function lead to greater vulnerability to cancer initiation or progression. [12] argued that there is evidence that personality is associated with immune parameters both on an ongoing basis and in response to stressors. For instance, there is evidence that the immune system can be active in fighting cancer: Immunotherapy is successful in treating some types of cancers, including melanoma and B cell malignancies, and natural killer cells may play a role in immune-surveillance and cytotoxicity against metastatic disease. While this research tends to support such a relationship, [33] the evidence is not incontrovertible, and some investigators have countered that psychosocial effects are negligible. For instance, where there haven't been direct studies on personality and cancer, it is difficult to reach any generalizable conclusion.

Whilst the above argument is controversial, theorists on behavioral change tend to support the view that increased knowledge makes acceptance of cancer much easier. Simplistic analyses would seem to favor such a linear pathway. For instance, [21] argue that studies in health behavior, such simplistic analysis takes for granted the emotional component and the resultant complexities. Consequently, where knowledge of disease may improve the choices a patient has, it also exposes the same patient to side effects of treatment. Whilst this might be beneficial or other diseases, where treatment improves quality of life, it is difficult for cancer considering the range of side effects of treatment, of which some are permanent [31,33] emphasizes that men who have knowledge of prostate cancer side effects, like incontinence and erectile dysfunction may find treatment emotionally overwhelming, therefore, choosing watchful waiting and surveillance, as a means to accommodate their emotional attachment to their body organs.

### **Conclusion**

In conclusion, a review of dominant literature in cancer seems to create, maintain, and perpetuate different discourses that affect the cancer patients. The literature on lifestyle adjustment as a non-pharmacological intervention to cancer management as a sole intervention or in combination with pharmacology seems to perpetuate discourses that are problematic. For instance, in defining notions of healthy behavior, the dominant definitions and prescriptions seem to only accommodate a universal interpretation. The challenge with such universalism is that, it ignores the experiences of

minorities. The use of metaphors in cancer management has been a controversial issue among many scholars, with the general consensus among scholars that the use of military metaphors may cause psychological problems for people that fail to find a cure. Linked to these two is the lifestyle change discourse that seems to prescribe physical activity and dieting for cancer patients as a single or part of a treatment regimen. This discourse seems to induce blame to individuals who lead lifestyles that are regarded as cancer-causing, like smoking, and where individuals are healthier, the development of cancer is attributed to other factors. This double-tongue discourse is particularly used for subtle surveillance and control whilst causing problems for healthier-lifestyle abiding people that become cancer patients. Whilst it is important for people to maintain a general level of physical fitness and eat a balanced diet, these two do not prevent disease. The occurrence of cancer, is unbridged by diet or physical activity. Lastly, the discourse on the influence of knowledge, attitudes and behavior in literature seems to suggest that people with knowledge stand a better chance to deal with cancer. The discourse seems to suggest that among people that have knowledge about signs and symptoms, or treatment options, the chances of positive treatment outcomes are higher. However, in as much as this might be true for some cancers, which when treated early, can be cured. This information has however been used to imply sometimes in attending support groups people believe that they stand a better chance of recovery through psychotherapeutic interventions. There is thus a danger of suggesting that attitude and behavior change become replacement for biological treatment.

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