

Obesity and cancer-brief report and commentary

Abstract

Background: Obesity is a burgeoning health problem with many deleterious consequences.

Objective: This work examined the degree to which body weight characteristics and related features of women 18-75years of age were associated with having a cancer history.

Methods: HINTS data from NCI 2002/3-2005 were downloaded and examined using descriptive statistics.

Findings: There was a consistent association between having a cancer history and being overweight or obese. Conversely, those who were heavier tended to report exercising less often than those of normal weight.

Conclusion: Heightening public awareness of the obesity cancer linkage along with the related importance of regular physical activity is of potential utility in efforts to prevent or reduce the cancer as well as the obesity epidemic at both the individual and national level.

Keywords: cancer, eating practices, exercise, obesity, body mass index, healthy women, endometrial cancer, excess body weight

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Abbreviations: CAT, computerized assisted tomographic; BMI, body mass index; BMIs, body mass indices;

Introduction

Cancer, a condition involving the abnormal growth of certain cells to form tumors, has been linked to excess weight in several studies. These include studies of breast cancer, uterine cancer, colon and rectal cancers, kidney, esophageal and gall bladder cancers. Moreover, those with higher body weights are found to be higher risk for cancer^{1,2} as are those with poor nutrition, who are both overweight and inactive.³

For example, higher adiposity due to lifestyle factors is an independent risk factor for breast cancer^{4,5} and especially for advanced stage and high grade tumors.⁶ In addition, obese and physically inactive breast cancer patients may have poorer survival rates compared with lighter weight and more active women.⁷

Other research has found inadequate consumption of fruits and vegetables may be a risk factor for multiple types of cancer.⁸

In a prospectively studied population by Calle et al.,² the researchers found that those with a Body Mass Index (BMI) of at least 40, had death rates from all cancers combined that were 52% higher (for men) and 62% higher (for women) than the rates in men and women of normal weight. For men, the relative risk of death was 1.52 (95 percent confidence interval, 1.13 to 2.05); for women, the relative risk was 1.62 (95 percent confidence interval, 1.40 to 1.87).

On the basis of the adverse associations observed in this study, the authors estimated that current patterns of overweight and obesity in the U. S. could account for 14% of all deaths from cancer in men and 20% of those in women.

In an analysis of a nationally representative sample (3142 cancer free women and 520 with no cancer history) surveyed between 2002 and 2005, using the HINTS data base,⁹ results showed fewer women

with a cancer/family history cancer had normal Body Mass Indices (BMIs) when compared to healthy women; and that the heaviest individuals on average, were women with cervical and endometrial cancer histories. In terms of related health behaviors and beliefs, more women with a cancer history said they ate vegetables daily than healthy women with no cancer history, suggesting that this factor was not related to their cancer diagnosis or body weight issue. Moreover, most women surveyed were found to have similar daily fruit and fruit juice intake, regardless of health status, except for breast cancer survivors (where it was high); and endometrial cancer (where it was low). Unsurprisingly, more healthy women carried out vigorous exercise than cancer survivors even though most (except for colon/endometrial cancer survivors) said they believe in exercise Figure 1.¹⁰

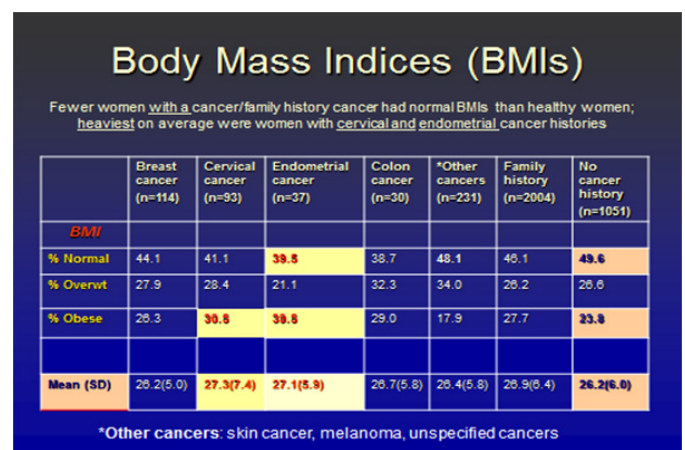


Figure 1 HINTS data analysis of BMI trends across Cancer Diagnoses (Source 21, 22).

These results imply that to reduce the cancer burden among women, more vigorous physical activity may be more helpful than

not. This is especially so, given the observation that in all sub-groups examined, the likelihood of carrying out vigorous exercise decreased in relation to body mass in Figure 2. Food intake is not as problematic perhaps, because the extent of intake, as well as type of foods reported eaten over time, is similar among cancer survivors and non-cancer controls even though inadequate consumption of fruits and vegetables is regarded as a risk factor for multiple types of cancer.⁸

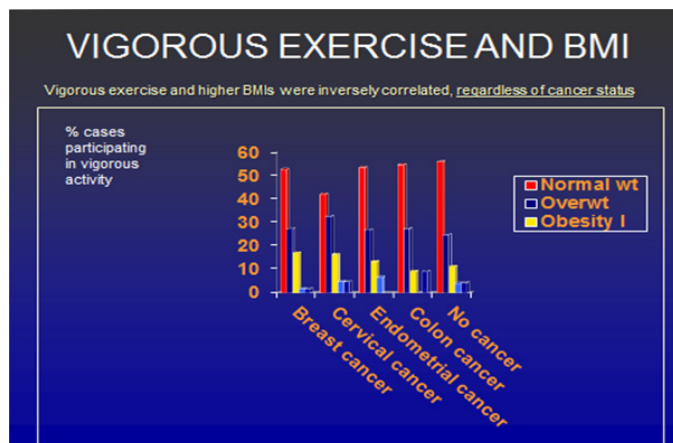


Figure 2 HINTS data analysis showing trends in BMI versus Vigorous Exercise (Source 21, 22).

Conclusion

In accordance with Coups & Ostroff,¹¹ we conclude that among multiple lifestyle factors and beliefs, may place women at risk for some forms of cancer. However, physical activity levels can mediate or moderate some forms of cancer commonly experienced by women differentially, potentially through its impact on body weight. While some cancer survivors are carrying out healthful behaviors that may impact risk of cancer, many women do not seem engaged in lifestyles that can reduce cancer onset and severity, and possible reoccurrence even after diagnosis—a finding recently noted by Nomura et al.¹² This issue warrants further exploration and clearly their possible misperceptions and others underpinning their present behaviors need to be addressed.¹³

Although we have known about this relationship for more than a decade, Deng et al.,¹⁴ noted obesity, a worldwide epidemic continues to confer an increased risk for multiple serious conditions, including cancer, and is increasingly recognized as a growing cause of preventable cancer risk. In this regard, as outlined by McKenzie et al.¹⁵ It is the author's view that negative lifestyle factors clearly play a key role in raising the risk for various cancers—especially if they result in excess body weight—and are hence variables of major import to address in the context of this issue.

Implications

To reduce the immense cancer burden experienced by women in a meaningful way, we recommend: women with a family cancer history, as well as other women with a family cancer history, and those who are overweight or obese, should be targeted in the younger age ranges or receive preventive health messages and screenings before age 18.

Given the many health behaviors that can impact cancer risk, and the fact that most Americans are unaware of the 'fat-cancer' connection¹⁶ health promotion specialists may need to:

- i. Better inform women about their behavioral risks and help them to develop appropriate lifestyle modification interventions.
- ii. Help reduce misperceptions related to cancer.
- iii. Employ a multi-pronged message approach, to offset the risk posed by smoking along with low beliefs in the value of exercise as outlined by Strecher et al.¹⁷
- iv. Efforts to offer more supportive and better counseling communications to reduce depression among cancer survivors¹⁸ as well as to promote exercise¹⁹ which improves mental health²⁰ and personal and professional support for low income women who may experience greater psychological distress than others is also indicated.²¹

The reasons why excess body fat can influence cancer, cancer related morbidity and cancer mortality, are several. They include the fact that excess body fat, which increases the amount of estrogen in the blood, also increases the risk of female reproductive system cancers. In addition, it increases the risk of acid reflux, thus causing esophageal cancer. Excess body fat can also heighten insulin levels, thus promoting hormones that cause cells to multiply. Obesity also renders cancer harder to diagnose and treat via palpation and Computerized Assisted Tomographic (CAT) scanners may not accommodate obese individuals successfully.²² Those who are obese may also avoid regular doctor's visits due to embarrassment. Being obese may also reduce their physical capacity and mobility, which contribute to adverse health outcomes, and poor health status, in general. Importantly, while the precise mechanisms linking obesity and cancer are still under investigation, the biological basis for these associations includes both systemic and local tissue effects and white adipose tissue inflammation, which appears to be a critical component.^{4,12}

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Conflict of interest

The author declares no conflict of interest.

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