

## Global Burden of Obesity and its Association with Cancer Among Young Adults in Pakistan

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### Introduction

Obesity is considered a growing problem in this modern era due to acceptance of the modernization of lifestyle that led to increased consumption of a diet rich in fatty acids and carbohydrates, sedentary lifestyle, and decreased life expectancy. According to the Center for Disease Control and Prevention, a person is obese if the BMI  $\geq 30$ , and extreme obesity is labeled if the BMI  $\geq 40$ . An overweight person has a BMI  $\geq 25$ . Obesity is a renowned preventable disease but, its prevalence is increasing Globally with each passing day. Earlier, obesity was considered a serious health issue in developed countries. But nowadays this problem is on the rise in developing countries as well, especially the urban areas. According to WHO, In the year 2019, 38.2 million children were overweight and obese. In 2016, 1.9 billion people adults of age 18 and above were overweight. Out of those, a large proportion (approximately 650 billion) of people were reported obese.<sup>1</sup> From several suitable pieces of evidence, it has been seen that obesity is closely related to multiple types of cancers, including Endometrial carcinoma, colorectal carcinoma, thyroid carcinoma, esophageal and renal carcinoma. Moreover, obesity leads to an increased risk of other types of cancers like gall bladders cancers, hepatocellular carcinoma, cervical cancer, non-Hodgkin lymphoma, and leukemia.<sup>2</sup>

In 2020, approximately 19.3 million new cases and 10 million deaths due to cancer occurred worldwide. By

the end of 2040, the Global burden of cancer will reach 28.4 million cases, with a much more increase in developing countries (64 to 95%) mainly because of demographic changes. However, this may further intensify by cumulative risk factors related to globalization and economic growth.<sup>3</sup> As indicated by WHO, in 2016, 1.9 billion people age between 25 to 40 years were overweight. State-level estimates for the USA paint a considerably more depressing image going ahead: by 2030, 48.9% of adults will have stoutness; 24.2% of adults will have extreme corpulence; and extreme overweight will be the most well-known BMI class among ladies, non-Hispanic dark adults, and low-pay adults.<sup>4</sup>

According to the American Cancer Society, excess body weight is related to the increased incidence of cancer. In America, 11 % of cancers among women and 5% of cancer among males are accountable to obesity and almost 7 % of all cancer mortalities among overweight individuals.<sup>5</sup> About 630,000 individuals in the U.S. were determined to have a malignant growth related with overweight and stoutness in 2014. Around 2 of every 3 happened in adults aged 50-to 74-years-old.<sup>6</sup>

The population of Pakistan is ethnically assorted and diverse. Discrete ethnic groups dwell in all provinces of the country. Due to the diversity and heterogeneity, cancer prevalence obtained from areas inhabited by different ethnic groups differs significantly. There is no proper cancer registry in Pakistan which muddles the circumstances further. In Pakistan, breast and thyroid cancer are common due to obesity, especially among women.<sup>7</sup>

The main predisposing factors for obesity-related cancers are metabolic abnormalities like low-grade inflammation, Fluctuations in gut flora, and mitochondrial dysfunction. The aberrations related to obesity are often defined as metabesity. Alongside a hereditary part, the aggregates in metabesity are generally the aftereffect of an inactive way of life and undesirable

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dietary patterns. Metabesity is related to Insulin opposition, hypertension and glucose levels, instinctive adiposity, reformist atherosclerosis, dyslipidemia, and fatty liver are common in overweight people. Metabesity is a looming pandemic of colossal public health inferences with gigantic clinical, financial, and humanistic load.<sup>8</sup>

The connections between body weight and malignancy are mind-boggling and are not yet comprehended. The circumstance of weight gain may likewise influence malignant growth hazard. The onset of obesity during childhood and early adulthood might cause more danger than putting on weight sometime down the road for certain malignancies. Imbalance in muscle to fat ratio may build disease hazard by influencing: Inflammation in the body, Cell and vein development, Cells' capacity to live more than they ordinarily would, Levels of specific chemicals, like insulin and estrogen, which can boost growth and development.<sup>5</sup>

With such stunning insights, the thump on the impact of the obesity rampant on prevention and control of malignancies can't be belittled. Breaking the apparently inevitable chain of maternal, youth, juvenile, and adult obesity is essential if the overall burden of obesity-related co-morbidities and eventually mortality were to lessen. Recently a study was conducted in Israel in which 2.3 million adolescents were studied for obesity and results showed that in young adult obesity is connected to midlife malignancy risk among both genders, featuring the need to handle obesity right on time in life.<sup>9</sup> Simultaneously, it is also necessary not to stigmatize people who are obese and overweight, As obesity is a multifactorial condition driven by community inequality and health disparities and influencing most those people least ready to carry out of lifestyle modification.

The most important preventive tool for obesity-related cancers is to keep a healthy eating routine with lots of physical activity. For maintaining a healthy lifestyle, it is important to eliminate trans fatty acids from the daily diet and switch from saturated fatty acids to unsaturated fats and a vegan diet. The use of fruits and vegetables benefits by providing more anti-oxidants to the body that somehow slow the process of metaplasia. Additionally, by limiting sugars and salt consumption, introducing whole wheat products rich in fiber and nuts in the diet might help controlling obesity<sup>10</sup>. Through research, the role of bariatric surgery as a therapy for extremely obese eligible individuals to prevent cancer

has proven.<sup>12-11</sup> Moreover, the use of medicines like aspirin and tamoxifen for the prevention of colorectal and breast cancer is studied and shows promising results. The use of drugs like Statins and metformin can also help to prevent cancer, but further studies are required to generate strong evidence.<sup>12</sup>

Hence to fight this epidemic, Pakistan needs to improve education and training and expand infrastructure in the collaboration of both public and private-public health sectors. Building Cancer registries and organize awareness and screening programs for cancer and obesity at the national, provincial, and district level is momentous. Spending more GDP on basic health education and research in the health care system are measures that can safeguard Pakistan's health care delivery system to become proficient in handling the increasing incident load of obesity-related cancer.

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