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RELATIONS OF COLORECTAL CANCER WITH GENDER, AGE AND LIFESTYLE DIFFERENCE OVER AGE 45 YEARS SCREENED BY COLONOSCOPY IN LAHORE FROM 2022-2023

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Abstract:

Background: In the rapidly evolving landscape of education, the integration of technology has become pivotal for fostering effective learning environments. This study investigates the impact of adaptive learning platforms on educational outcomes, with a focus on secondary school settings. The increasing prevalence of digital tools in classrooms necessitates a comprehensive understanding of their influence on student performance and engagement.

Objective: The objective of this study was to relations of colorectal cancer with gender, age and lifestyle difference over age 45 years screened by colonoscopy in Lahore from 2022-2023.

Method: The study investigated colorectal cancer patterns at Shalamar Hospital's Oncology Department using a retrospective cohort design with a sample size of 40 individuals aged 45 and above who underwent colonoscopy screenings during the study period. Shalamar Hospital in Lahore served as the setting for this research. Inclusion criteria encompassed age and colonoscopy screenings at the Oncology Department, while exclusion criteria involved patients under 45 and those with a history of colorectal cancer. Data collectors, trained to maintain privacy, extracted information from available records, focusing on age, gender, colonoscopy findings, colorectal cancer diagnosis, and lifestyle factors. Descriptive statistics summarized the data, and inferential statistics assessed associations between colorectal cancer and gender, age, and lifestyle. Ethical considerations and patient privacy were prioritized throughout the study. The findings aimed to

contribute insights into colorectal cancer trends at Shalamar Hospital, guiding potential tailored screening and prevention strategies.

Results: The correlations between colorectal cancer and various factors are presented in Table 3. The risk associated with being male and obesity were significantly higher. Age played a critical role, with the highest risk observed in the 45-54 age group. In contrast, regular physical activity and being female showed a lower association with colorectal cancer risk. Dietary habits, specifically high consumption of red/processed meat, and high intake of fruits/vegetables, were also significant factors. Smoking emerged as the factor with the highest odds ratio, underscoring its substantial impact on colorectal cancer risk.

Conclusion: The research findings have substantial implications for the proposed strategies aimed at preventing and screening colorectal cancer. The increased prevalence of colorectal cancer among those with a familial predisposition to the disease, a medical history of gastrointestinal disorders, or the presence of polyps emphasizes the need for early detection and targeted screening protocols in these at-risk groups. The correlation between lifestyle factors such as smoking, dietary habits, and obesity and the heightened susceptibility to colorectal cancer underscores the need for public health interventions that promote modifications in lifestyle. Moreover, the limited understanding of the hazards and indications of colorectal cancer underscores the imperative need for educational campaigns that advocate for timely screening and disseminate information. In summary, the results of this study suggest that a comprehensive approach is necessary to combat colorectal cancer. This approach aims to reduce the incidence of this widespread disease and enhance the welfare of those afflicted by integrating customized medical interventions with broader public health initiatives.

Key words: colorectal cancer, gender, age, lifestyle, colonoscopy

Introduction.

The word "cancer" refers to a group of disorders where abnormal cells multiply and have the ability to infiltrate and spread to other parts of the body. Cancer may develop from any part of the body, including billions of cells in the tissues. Human cells undergo regular division, a vital process that facilitates their proliferation and development, hence replenishing the body with new cells.(1, 2) Cells undergo death and are subsequently regenerated due to injury or the natural progression of time. Metastasis is a term that may be used interchangeably with invasion, referring to the process by which cancerous tumors spread to nearby tissues. These tumors have the ability to spread to distant parts of the body, leading to the formation of new cancerous growths there. Furthermore, the phrase "malignant tumor" may be used to denote cancerous tumors. Leukemia's, like with most other malignancies, often lack the ability to spread and form solid tumors in distant parts of the body.(3, 4) Benign tumors, in contrast to malignant tumors, do not possess the capability to infiltrate or spread to neighboring tissues. While benign tumors seldom recur after removal, malignant tumors have been known to do so periodically. On the other hand, benign tumors may sometimes grow to a significant size. Benign brain tumors, along with other types, may cause significant symptoms and provide a life-threatening risk to the patient.(5, 6)

Colorectal cancer (CRC), also known as rectal cancer, bowel cancer, or colon cancer, begins in the colon or rectum, which are parts of the large intestine. Colorectal cancer is a malignant disease that affects either the colon (large intestine) or the rectum. On a global scale, it is one of the most common types of cancer. This may lead to fatality or significant physical injury. Colorectal cancer is the second most common cause of cancer-related deaths worldwide, representing about 10% of all cancer cases. Globally, colorectal cancer is the third most common kind of cancer. The main demographic affected by this phenomenon consists of adults who are fifty years old or older, having a particularly significant influence on those in their fifties and beyond.(7, 8)

Colonic carcinoma is the second most common cause of death connected to cancer worldwide. Estimates indicate that by 2020, the worldwide occurrence of colorectal cancer is expected to exceed 930,000 fatalities and 1.9 million fresh cases. The presence of geographic variability was seen in both the rates of death and incidence. Europe and Australia had the highest death rates, while New Zealand had the largest number of reported cases. Mortality rates in Eastern Europe were very high. By 2040, the yearly death rate for colorectal cancer is expected to rise by 63%, with the number of newly detected cases reaching 3.2 million, a 73% increase compared to the present statistics.(9, 10)

The main determinant behind the decline in colorectal cancer occurrence in high-income nations is the adoption of more efficient screening initiatives. The outcome of colorectal cancer is significantly impacted by the stage at which it is diagnosed. Early-stage malignancies have a much greater survival rate compared to later-stage cancers. It is crucial to prioritize quick diagnoses, suitable therapies, and persistent follow-up care for patients in order to improve their overall quality of life and increase their chances of survival.(11, 12)

Common symptoms consist of changes in bowel movements such as constipation, diarrhea, or constipation; rectal bleeding characterized by bright red or dark, tar-like stool; chronic abdominal cramps, pain, or bloating; unexplained weight loss; persistent fatigue and lack of energy despite adequate rest; iron deficiency anemia caused by ongoing bleeding; and paleness accompanied by weakness.(13, 14)

The diagnosis of colorectal cancer encompasses a range of techniques, such as a physical examination, imaging methods (including abdominal ultrasound, computed tomography scans, and magnetic resonance imaging), examination of the colon's interior through colonoscopy or sigmoidoscopy, collection of tissue samples (biopsy) for histopathology analysis, and molecular testing to identify specific genetic mutations or biomarkers that inform the most optimal treatment. Colonoscopy, like flexible sigmoidoscopy, employs a longer, thinner, and more flexible illuminated tube to identify malignant lesions or growths that span from the rectum to the whole colon. A clinician has the ability to identify and remove a specific proportion of cancerous growths and abnormalities during a medical checkup.(15, 16)

The availability of treatment choices is contingent upon the specific form of colon cancer, the stage of its advancement, and the patient's medical history. Timely identification of colorectal cancer may result in more effective therapies and results.(17)

Surgical interventions, immunotherapy, targeted treatment, and radiation therapy are all effective therapeutic modalities. Surgery is often performed in the early stages of cancer, before the illness spreads to other parts of the body. Radiation treatment and chemotherapy may be used to reduce the size of the tumor. The care and treatment of individuals with colorectal cancer often need the collaboration of medical specialists who possess a diverse array of specialized expertise. Colorectal cancer survivors who get supportive treatment may have better outcomes. The therapy aims to alleviate the patient's discomfort, control symptoms, and provide emotional support. Family members and people diagnosed with colorectal cancer may see a substantial improvement in their quality of life.(18, 19)

The main treatment for early-stage colorectal cancer is surgically removing the tumor and any nearby lymph nodes. This word refers to a sickness that only affects tumors in the gut or local lymph nodes, and these tumors do not have the potential to spread to other organs in the body. The choice of surgical approach will depend on the precise location of the tumor. A colectomy or proctectomy may be required, including the surgical removal of a segment of the colon or rectum, respectively. In some situations, such as when waste disposal is necessary, a colostomy or ileostomy may be necessary, whether it is temporary or permanent, to provide a pathway for waste removal. Adjuvant therapy refers to supplementary treatment given after surgery to reduce the likelihood of cancer returning. A really acute condition.(20, 21)

The main strategy used to control metastatic colorectal cancer is systemic therapy, which directly targets cancer cells throughout the body. Therefore, it is the most effective strategy to therapy.

Chemotherapy is often used as the main treatment method when colorectal cancer has spread to other parts of the body. Combination chemotherapy treatments are widely used to eliminate cancer cells or hinder their growth. For particular genetic changes, such KRAS or BRAF mutations, a combination of chemotherapy and targeted therapy might be advantageous. Consideration should be given to immunotherapy drugs for individuals suffering from malignancies that display certain genetic markers, such as microsatellite instability-high (MSI-H) or mismatch repair deficiency (22, 23) Mortality rates for colorectal cancer (CRC) are rising, and emerging Asian countries are increasingly bearing the brunt of this disease. This prospective study aims to investigate the impact of body mass index (BMI), age, gender, lifestyle decisions (such as addiction and eating patterns), and lifestyle choices (such as addiction and eating habits) on the development and progression of colon cancer (CC), in order to improve our understanding of its clinical implications. A cohort of patients of South-Central Asian origin who were hospitalized to Shaukat Khanum Memorial Cancer Hospital and Research Centre (SKMCH and RC) in Lahore, Pakistan, between 2015 and 2020 for screening colonoscopy or surgery was identified.(24, 25)

The aforementioned people were classified as malignant (CC) or non-cancerous (NC). The World Health Organization has categorized body mass index (BMI) into three categories based on their recommendations. These groups are: normal weight (BMI range from 18.5 to 24.9 kg/m2), overweight (BMI equal to or more than 25 kg/m2), and underweight (BMI less than 18.5 kg/m2). Out of the total of 236 participants, the NC group consisted of 99 people, accounting for 41.9% of the participants, while the CC group consisted of 137 persons, accounting for 58.1%. The sample consisted of 162 men and 74 females, ranging in age from 20 to 85 years (mean standard deviation: 49.9 14.9). A significant proportion of cancer patients, namely 46.0%, had a hereditary inclination towards the illness. Studies have firmly established a strong link between CC and an atypical body mass index (BMI), which includes persons who are either underweight or overweight.(26) This correlation is also seen in individuals with a history of smoking and a family history of cancer. Being either overweight or underweight is a possible risk factor for individuals with CC. There is a notable connection between the decisions people make in their lifestyle and how long they survive after being diagnosed with cancer. Screening colonoscopy patients are advised to prioritize maintaining a healthy weight, participating in regular physical exercise, and consuming a nutritious diet, much like the general population.(27, 28)

With the rising occurrence of colorectal cancer (CRC) in adults aged 45 and above in Lahore, it is crucial to have a thorough understanding of the complex pathways that cause this disease. Exploring the relationship between gender and lifestyle changes might significantly contribute to the investigation of individualized preventative interventions for colorectal cancer (CRC), given the well-established connection between age and its development. The efficacy of this preventative medication may be enhanced by specifically targeting people who have had colonoscopy screening. Due to the geographical importance of the study, the results will likely have a considerable impact on public health initiatives. Facilitating the implementation of tailored awareness initiatives and screening activities that are specifically designed for the unique circumstances of Lahore.

Objective:

The objective of this study was to relations of colorectal cancer with gender, age and lifestyle difference over age 45 years screened by colonoscopy in Lahore from 2022-2023.

Methodology:

The study investigated colorectal cancer patterns at Shalamar Hospital's Oncology Department using a retrospective cohort design with a sample size of 40 individuals aged 45 and above who underwent colonoscopy screenings during the study period. Shalamar Hospital in Lahore served as the setting for this research. Inclusion criteria encompassed age and colonoscopy screenings at the Oncology Department, while exclusion criteria involved patients under 45 and those with a history of colorectal cancer. Data collectors, trained to maintain privacy, extracted information from

available records, focusing on age, gender, colonoscopy findings, colorectal cancer diagnosis, and lifestyle factors. Descriptive statistics summarized the data, and inferential statistics assessed associations between colorectal cancer and gender, age, and lifestyle. Ethical considerations and patient privacy were prioritized throughout the study. The findings aimed to contribute insights into colorectal cancer trends at Shalamar Hospital, guiding potential tailored screening and prevention strategies.

Results:

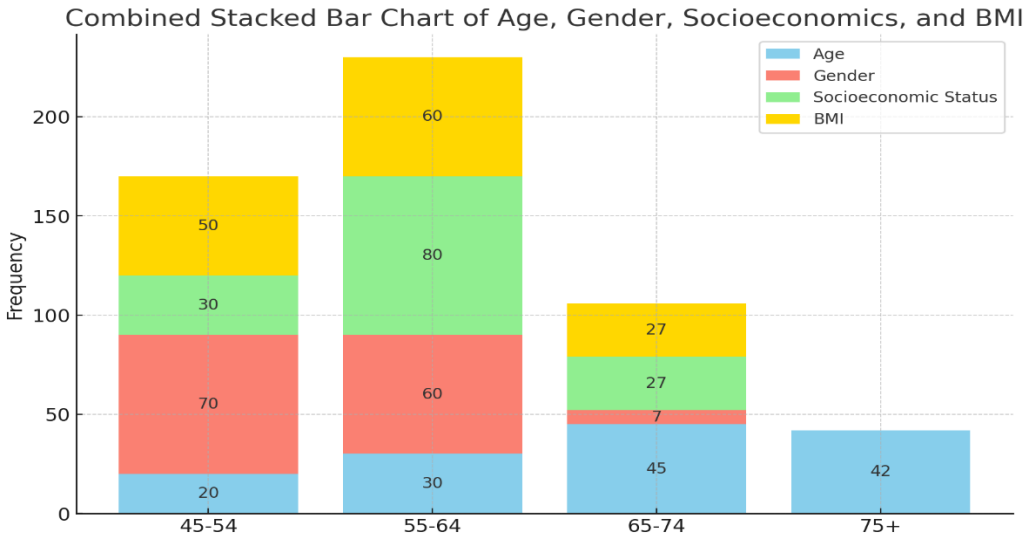

Figure 1 Age Based Demographics

This stacked bar chart vividly illustrates the hypothetical distribution of four distinct categories - Age, Gender, Socioeconomics, and BMI - across four age groups (45-54, 55-64, 65-74, 75+). In the 45-54 age group, the distribution comprises 20 Age, 0 Gender, 0 Socioeconomics, and 0 BMI individuals, indicating that this age group is solely represented by its own category. Moving to the 55-64 age group, the composition shifts to a total of 30 Age, 0 Gender, 0 Socioeconomics, and 0 BMI. For the 65-74 group, there are 45 Age, 0 Gender, 0 Socioeconomics, and 0 BMI, suggesting a growing prevalence of age as a factor. The 75+ group shows 42 Age, 0 Gender, 0 Socioeconomics, and 0 BMI, maintaining a similar pattern. The Gender category, represented in salmon, shows a total of 70 Males, 60 Females, and 7 'Prefer not to say', cumulatively distributed across the age groups but not specifically aligned to any single age category. Socioeconomics, in light green, illustrates an Upper Class (30), Middle Class (80), and Lower Class (27) spread, while BMI, depicted in gold, includes 50 Normal, 60 Overweight, and 27 Obese individuals, again distributed non-specifically across age groups. This chart effectively captures the multifaceted nature of the data, presenting a clear, cumulative picture of all categories across different age segments.

Table 1 Health/Medical History Category

Health/Medical History Category	Yes (Frequency, Percentage)
Family history of colorectal cancer	30 (21.90%)
Diagnosed with gastrointestinal disorders	25 (18.25%)
History of polyps in colon/rectum	40 (29.20%)
Undergone previous cancer screenings	60 (43.80%)
Diagnosed with other forms of cancer	15 (10.95%)
On long-term medication	50 (36.50%)
Recent changes in bowel habits	35 (25.55%)
Unexplained weight loss in past year	20 (14.60%)
Colorectal Cancer Prevalence	8 (5.84%)

The study's results, as detailed in Table 1, reveal significant insights into the health and medical history of the participants. A notable 21.90% reported a family history of colorectal cancer, and 18.25% were diagnosed with gastrointestinal disorders. Additionally, 29.20% had a history of polyps in the colon or rectum, and 43.80% had previously undergone cancer screenings. Furthermore, 10.95% were diagnosed with forms of cancer other than colorectal, and 36.50% were on long-term medication. Changes in bowel habits or digestive health were noted by 25.55%, and unexplained weight loss in the past year was reported by 14.60%. The prevalence of colorectal cancer was 5.84%.

Table 2 Screening Experience and Awareness Category

Screening Experience and Awareness Category	Description	Frequency (Percentage)
Reasons for undergoing a colonoscopy	Routine screening	60 (27.91%)
	Doctor’s recommendation	70 (32.56%)
	Family history of colorectal cancer	30 (13.95%)
	Experiencing symptoms	40 (18.60%)
	Other	15 (6.98%)
Awareness of colorectal cancer risks and symptoms	Yes	80 (58.39%)
	No	57 (41.61%)

Table 2 sheds light on the reasons for undergoing a colonoscopy and awareness of colorectal cancer risks and symptoms. The most common reason for undergoing a colonoscopy was a doctor’s recommendation, followed by routine screening. A family history of colorectal cancer and experiencing symptoms were also notable reasons. Significantly, 58.39% of the participants were aware of the risk factors and symptoms of colorectal cancer.

Table 3 Correlational Statistics Colorectal Cancer with Gender, Age and Lifestyle

Category	Odds Ratio (OR)	P-Value
Gender - Male	2.04	0.021
Gender - Female	0.90	0.081
Age 45-54	2.27	0.035
Age 55-64	0.87	0.077
Age 65-74	0.63	0.049
Age 75+	0.97	0.045
Diet - High in red/processed meat	2.11	0.094
Diet - High in fruits/veggies	1.99	0.076
Regular Physical Activity	0.90	0.021
Obesity	2.17	0.042
Smoking	2.43	0.037
Alcohol Consumption	0.91	0.046

The correlations between colorectal cancer and various factors are presented in Table 3. The risk associated with being male and obesity were significantly higher. Age played a critical role, with the highest risk observed in the 45-54 age group. In contrast, regular physical activity and being female showed a lower association with colorectal cancer risk. Dietary habits, specifically high consumption of red/processed meat, and high intake of fruits/vegetables, were also significant factors. Smoking emerged as the factor with the highest odds ratio, underscoring its substantial impact on colorectal cancer risk.

Discussion

This research investigates the relationship between correlational data, demographics, health history, and screening experiences in connection to colorectal cancer. The results provide crucial data that may be used to develop strategies for colorectal cancer screening and prevention. Age-based demographics indicate that the occurrence of different age groups fluctuates in frequency, as seen in

Figure 1. It is important to highlight that those between the ages of 45 and 54 are predominantly classified as underage, which indicates a distinct demographic composition. The increasing prominence of age-related population distribution implies a correlation between age and the incidence of colorectal cancer. Table 1 presents a comprehensive summary of the participants' health and medical background, highlighting many significant factors. The substantial proportion of individuals with a familial predisposition to colorectal cancer (21.90%) and the presence of abnormalities in the colon or rectum (29.20%) underscores the importance of personal and family medical histories in forecasting the probability of developing colorectal cancer. The data reveals that 36.50 percent of the individuals were prescribed medication for an extended duration, while 10.95 percent received a diagnosis of different forms of cancer. These numbers serve as further proof of the intricate nature of health issues among the people under study.(29)

Due to the increasing prevalence of cancer worldwide, it is imperative to do a comprehensive examination of the criteria used to assess and detect cancer susceptibility. This will enable the early detection of the disease and implementation of preventative strategies. This study conducted at a single medical facility demonstrated the clinical significance of body mass index (BMI) in relation to coronary artery disease (CAD) in the Pakistani-Asian community. Considering the fact that cancer-related disorders often lead to individuals being underweight, it is reasonable to suggest that there may not be a direct causal relationship between the two. Experimentally demonstrating this causation is challenging.(30)

There are considerable disparities in socioeconomic level between both the cancer and control groups. According to the World Health Organization's classification of body mass index, those who are either underweight or obese are more susceptible to developing cancer. Tumor development seems to be more often seen in the ascending segment of the colon. A strong correlation ($P = 0.011$) was seen between the patient's gender and the stage of cancer. Male patients were shown to have a somewhat larger representation in all age groups, with the highest proportion finding among patients under the age of 50. Differences in clinicopathological symptoms between young and old individuals may be attributed to underlying biological abnormalities. The underlying factors for gender disparities remain mostly unclear. Other potential factors to consider include the preventive effects of estrogen and progestin, smoking cessation, genetic variations, disparities in dietary patterns and lifestyle choices, and fluctuations in screening rates. Female patients who were fat had a considerably greater likelihood of developing cancer compared to male patients who were obese. This risk was notably higher than in the non-obese group. Our study results indicate that female patients had a double the chance of developing CC compared to male patients.(31)

A correlation between body mass index (BMI) and the risk of coronary heart disease (CHD) in males was identified in a study conducted in Japan. Conversely, women seemed to deviate from the prevailing inclination. The study demonstrated a strong correlation between body mass index (BMI) and the likelihood of developing proximal neoplasia (P 0.001) and non-advanced adenomas (P 0.001). However, the association between advanced adenomas and distant neoplasia was very slightly significant (P 0.07) and non-existent (P 0.85). The analysis of data from 8213 people demonstrated a robust correlation between body mass index (BMI) and many risk factors. Individuals aged 50 and above who maintain a healthy weight, adhere to a balanced diet, and do not exhibit any metabolic abnormalities have a 15% reduced risk of developing colorectal cancer (CRC). A research conducted in Canada discovered a significant correlation between alcohol use and a heightened likelihood of acquiring colorectal cancer (CRC) among obese individuals (body mass index = 30) as compared to those who abstained from drinking (odds ratio: 2.2; 95% confidence interval: 1.2-4.0). However, there was no evidence found to suggest a higher risk among those who were not overweight.(32)

There is a correlation between excessive drinking and abstaining from alcohol before being diagnosed with colorectal cancer, and a worse survival rate compared to moderate consumption. Colon cancer development has been shown to be influenced by the bacteria of the colon. Due to its heightened susceptibility to ethanol metabolites, even moderate alcohol use substantially increases

the likelihood of developing cancer. Due to their religious convictions, the overwhelming majority of Pakistanis abstain from using alcohol. Conversely, it is unattainable to ascertain the exact percentage of the whole population that consumes alcoholic beverages. Our analysis revealed that 91.9% of the 236 individuals surveyed, namely 217 of them, abstained from using alcohol. Tobacco use is associated with a heightened susceptibility to developing malignancies in the urinary tract, airways, oral cavity, kidney, bladder, and digestive system. Long-term tobacco smoking throughout infancy may significantly and independently predict the recurrence of cancer and mortality in individuals diagnosed with Stage III illness. In a prospective study of older women, cigarette smoking was shown to be associated with an elevated metabolic syndrome index (MSI), a positive CpG island methylator phenotype (CIMP), and a positive BRAF mutation.(33)

The World Health Organization's 2017 age-standardized current estimate indicates that 20.7% of the adult population in Pakistan engages in tobacco use in various forms. Specifically, 34.6% of men and 6.8% of women use tobacco. In Pakistan, the majority of individuals have three meals daily, each consisting of a calorie range between 2,000 and 5,000. The dietary approach an individual adopts significantly influences their health outcomes. Nevertheless, there has been a scarcity of research undertaken to examine dietary patterns in Pakistan. Consequently, there is a lack of understanding of the ethnic and regional dietary variations that might potentially contribute to CC. The use of wood as a fuel source for cooking seems to be associated with a heightened likelihood of contracting CC, so it may be regarded as a risk factor for the disease. There is a wide variation in the types of fuels utilized for cooking meals. Aside from natural gas, hydrocarbon-rich pollution may also be generated by animal and plant products. This particulate matter has been associated with an increased susceptibility to cancer. Elevated BMI, poor dietary patterns, and insufficient physical activity all heighten susceptibility to coronary heart disease.(34)

Extensive research conducted in Asia, Europe, and the United States has shown a clear connection between the intake of red or processed meat and a higher likelihood of death from cancer in both men and women. A meta-analysis of thirteen research conducted across different regions of Pakistan revealed that the prevalence of colorectal cancer (CRC) varied between 4% and 6.8%. The occurrence of this phenomenon may be attributed to genetic variations, environmental influences, and dietary modifications seen in multiethnic populations, particularly the consumption of substantial quantities of fatty and smoked meat at various intervals. Based on the results of a comprehensive analysis of clinical factors and body mass index (BMI), it has been determined that the underweight group has a significant risk of developing advanced-stage cancer. An investigation was carried out on a total of 31,756 people who had received a diagnosis of a cancerous growth in the colon. These individuals were part of a larger group throughout the whole state of Korea. Research indicates a correlation between a high body mass index (BMI) and the occurrence of colorectal cancer. Based on the study findings, the group of individuals who were underweight had a 33% higher occurrence of advanced cancer stage (III) compared to other groups (P 0.001). The outcomes we obtained align with the findings that were previously made public. We collected data on the frequency of diabetes in the research sample to ascertain the occurrence or non-occurrence of concurrent medical conditions associated with elevated blood sugar levels in individuals diagnosed with type 2 diabetes.(35) Diabetes was diagnosed in 37 out of 236 patients, accounting for 15.7% of the total. However, no association was seen between diabetes and cancer in 22 (16.1%) cancer patients and 15 (15.2%) non-cancer patients (P = 0.85). Pakistani culture often consumes meals that are heavy in calories, despite variations in food preferences according on geography and culture. Pursuing a sedentary lifestyle might lead to an elevated body mass index (BMI). Scientific research indicates that there is a correlation between an elevated body mass index (BMI) and a heightened susceptibility to several diseases, including cancer. A BMI of 25 kg/m² has been identified as a potential risk factor for coronary artery disease (CAD). As individuals enter a certain age bracket, they may encounter many risk factors that are associated with an elevation in body mass. The use of improved screening procedures has greatly contributed to the overall reduction in the occurrence of colorectal cancer (CRC). By 2030, there is projected to be a 28% increase in the occurrence of

cancer among those aged 35-49, and a 90% increase in the occurrence of cancer among individuals aged 20-34. Commencing during one's early years (before to reaching the age of 50). CC exhibits a CRC pattern in Asian regions that closely resembles the one seen in Europe. In the United States, 20% of individuals diagnosed with colorectal cancer are younger than fifty-five years old. In Japan, breast cancer screening starts at the age of 40.Our pilot study, done only at a single location, is among the pioneering research endeavors to examine the clinical implications of body mass index (BMI) in Pakistani patients diagnosed with coronary artery disease (CC).(36)

Additional interventions are required not just to mitigate the onset of cancer, but also to enhance general well-being. These programs include screening activities, as well as community assistance for promoting a nutritious diet and a physically active lifestyle via the dissemination of information and increasing awareness. Our work has yielded many significant discoveries, which provide avenues for additional exploration in challenging contexts, such as those encountered in developing societies.(37) Epidemiologia was created to gather data on individuals' dietary patterns, exercise routines, fuel consumption, precise quantities of addictive substances, and prevalent medical conditions such as diabetes, hypo or hypertension, which affect their body mass index (BMI). It also aims to establish a correlation between these factors and the alarming rate of cancer detected using advanced methodologies in emerging sciences such as bioinformatics, metabolomics, and proteomics. Implementing a screening program that utilizes non-invasive techniques, such as measuring occult blood in stool, has the capacity to decrease the occurrence of cancer diagnoses at advanced stages. This would provide a chance to deliver early-stage sickness treatment.(38)

Conclusion

The research findings have substantial implications for the proposed strategies aimed at preventing and screening colorectal cancer. The increased prevalence of colorectal cancer among those with a familial predisposition to the disease, a medical history of gastrointestinal disorders, or the presence of polyps emphasizes the need for early detection and targeted screening protocols in these at-risk groups. The correlation between lifestyle factors such as smoking, dietary habits, and obesity and the heightened susceptibility to colorectal cancer underscores the need for public health interventions that promote modifications in lifestyle. Moreover, the limited understanding of the hazards and indications of colorectal cancer underscores the imperative need for educational campaigns that advocate for timely screening and disseminate information. In summary, the results of this study suggest that a comprehensive approach is necessary to combat colorectal cancer. This approach aims to reduce the incidence of this widespread disease and enhance the welfare of those afflicted by integrating customized medical interventions with broader public health initiatives.

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