



EMPHNET's Research Digest

Modifiable Risk Factors for Cancer in the Middle East and North Africa: A Scoping Review

Introduction

The Middle East and North Africa (MENA) region's rapid economic growth has led to significant lifestyle changes, including high-calorie diets and reduced physical activity, resulting in increased obesity and cancer rates. Cancer is a major health issue, with over half of the global cases in 2020 resulting in death. In the Middle East, more than 430,000 new cases were reported in 2020, with women being particularly affected, especially by breast cancer linked to obesity.

Lifestyle and environmental factors, such as smoking, alcohol, high BMI, physical inactivity, poor diet, infections, and pollution, are major cancer risks. In the East Mediterranean region, these factors accounted for 164,780 cancer cases in adults over 30. The rise in cancer rates is also due to aging, improved diagnosis, and better reporting.

This digest based on the paper titled, [“Modifiable risk factors for](#)

[cancer in the Middle East and North Africa: a scoping review”](#) and published in BMC Public Health, aims to map evidence on controllable cancer risk factors in the MENA region to enhance prevention programs. Objectives include assessing the links between cancer and tobacco, alcohol, diet, obesity, physical activity, and environmental exposures, and identifying gaps in the literature.

Methods

The scoping review targeted studies published between 1997 and 2022, it examined cancer risk factors, specifically focusing on modifiable predisposing factors in the MENA region, utilizing the Arksey and O'Malley framework. The research question's eligibility was assessed using the PCC (Place, Concept, and Context) framework. In July 2022, a systematic literature search was conducted across multiple databases, including EMBASE PubMed/MEDLINE, CINAHL, and Cochrane/CENTRAL, with Google

Scholar serving as a supplementary resource. The review included studies reporting on modifiable cancer risk factors among adults in the MENA region during this time frame.

Results

A total of 4,495 records were initially screened, with 184 assessed for eligibility, resulting in 42 relevant articles for data extraction, the majority from Iran. Breast cancer was the most studied, followed by head and neck cancers, and the majority of studies were case-control in design, highlighting tobacco consumption as a significant cancer risk factor in the MENA region.

Smoking and Cancer in the Middle East

Tobacco consumption was the most investigated cancer risk factor across the MENA region, with lung, bladder, squamous cell carcinoma, and colorectal cancer being the most common types of cancer attributable to tobacco consumption

in the MENA region. Studies identified smoking as a primary predictive factor for lung cancer and noted increased risks from passive smoking. The use of “Shammah”, which is a type of smokeless tobacco, significantly increased the risk of developing oral squamous cell carcinoma (OSCC). Further research indicated that heavy smoking significantly raised the risks of developing bladder and urothelial cancers, with passive smoking also contributing to urothelial carcinoma risk. Combining different tobacco products, such as cigarettes and hookah, showed varied cancer risks, with some studies finding lower risks when combining the two.

Diet and Cancer in the Middle East

Research shows that specific diets in the Middle East are linked to cancer development, while others are protective. A Mediterranean diet, rich in vegetables, fruits, dairy products, fish, seafood, and coffee and tea, reduces the likelihood of breast cancer. A case-control study on post-menstrual women from Saudi Arabia found that consuming animal products, black tea, seafood, fish, coffee, legumes, and fruits and vegetables weekly significantly reduces breast cancer risk. Another study showed that increased use of animal oils and reduced consumption of fish oil, dairy, white meat, soy, and nuts increase the risk, while diets rich in lettuce, cabbage, and carrots are protective.

A study using the Food Quality Score (FQS), showed an association between diet quality and breast cancer risk among premenopausal women. Similarly, a study using the dietary phytochemical index (DPI) to determine the impact of diet quality on cancer risk, illustrated that participants with a high DPI had reduced chances of developing breast cancer compared to those with the lowest DPI. Other studies linked diet to various cancers, such as stomach and lung cancer, indicating that increased con-

sumption of sucrose, proteins, and cholesterol raised cancer risks, while high carbohydrate intake was protective.

Obesity and Cancer in the Middle East

The Middle East ranks high globally for obesity. The study found limited evidence linking overweight (BMI > 25) and obesity (BMI > 30) to cancer, with only 5 out of 37 studies finding a connection. Notably, post-menopausal women with higher BMI were at greater risk for breast cancer. However, the reliability of BMI as a predictor for obesity and cancer risk is questionable due to its low sensitivity and specificity.

Physical Inactivity and Cancer in the Middle East

Few studies have linked physical inactivity to cancer risk in the MENA region. Inactive professions have been associated with higher colorectal cancer prevalence, while vigorous physical activity reduces breast cancer risk in post-menopausal women. Despite some findings, a direct link between physical activity and colorectal cancer is still lacking. Barriers to physical activity include harsh weather, cultural norms, and limited sports facilities, indicating a need for more research in this area.

Alcohol Consumption and Cancer in the Middle East

Alcohol consumption is relatively low in the MENA region but is still a common cancer risk factor. Studies show increased risks for cancers such as pancreatic, oropharyngeal, esophageal, liver, and colorectal among alcohol consumers. Heavy drinking is more prevalent among men, with alcohol increasing cancer risk especially when combined with smoking. Some studies found no connection between alcohol and certain cancers, but limitations in these studies suggest a potential underestimation of risks.

Infections and Cancer in the Middle East

A few studies have found significant links between infections and cancer risk in the Middle East and North Africa region. Helicobacter pylori is associated with gastric cancer, and schistosomiasis increases the risk of urothelial and squamous cell carcinoma. However, no links were found between viruses like Epstein-Barr or HPV and oral and squamous cancers. Conflicting results exist regarding the hepatitis G genome and non-Hodgkin lymphoma, indicating a need for further investigation. A meta-analysis found that the HPV prevalence within the MENA region was 16% among the general population, with 54% found among patients with abnormal cervical cytology, and 81% among those with cervical cancer.

Exposure to Environmental Carcinogens

There is limited literature on environmental carcinogens in the MENA region. Some studies have linked high levels of heavy metals like nickel, chromium, lead, copper, and cadmium to increased cancer risk, particularly head and neck malignancies.

Conclusion

Policymakers need to enhance preventive measures against smoking and other modifiable risk factors. Research on modifiable cancer risk factors in the MENA region is inadequate in both quality and quantity. Future studies should focus on prospective cohort and experimental designs to establish the temporal effects of these risk factors. Researchers should ensure representative sampling across diverse settings, and underrepresented MENA nations should increase their research contributions to better estimate the impact of these risk factors on cancer.

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