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Review Article

Risk Factors of Cancer in the United Arab Emirates

Hira Abdul Razzak, Alya Harbi, Wael Shelpai, Ahmad Qawas

Statistics and Research Centre, Ministry of Health and Prevention, Dubai, UAE

Abstract

Cancer is recognized to be a major healthcare problem globally. Cancer is a disease that mainly occurs when alterations in a normal cell group within the body leads to uncontrolled growth, mainly causing a lump referred to as a tumor. The aim of this study is to systematically review and extract studies reporting the risk factors of cancer in UAE between 2007 and 2016. A systematic literature search was performed by using “PubMed, Scopus databases, Science direct, and local journals” and appropriate key terms to retrieve studies carried out in United Arab Emirates with regards to risk factors of the cancer. 75 articles were extracted in the beginning. After screening for exclusion criteria and retrieval of full texts, overall 16 articles were used in this study. Search limits were restricted to studies in English language, between 2007 and 2016, and on UAE population (both citizens and expatriates). This review yielded 16 studies about the cancer risk factors in United Arab Emirates, including cross-sectional studies (n = 9), population-based cross-sectional retrospective survey (n = 1), retrospective cohort studies (n = 4) and qualitative studies (n = 2). Tobacco use, unhealthy diet, family history, infection with HPV, physical activity, and radiation exposure were among the factors investigated. There was insufficient evidence available on some potentially essential risk factors such as use of alcohol, aging, and being overweight. This systematic review signifies an increasing cancer prevalence in the United Arab Emirates and suggests that extra effort is needed with a multi-sectorial approach in future at both the national and international level to effectively tackle the burden of cancer.

Keywords: Cancer, risk, cancer screening, prevalence, early detection, prevention, UAE.

Introduction

Cancer is a devastating disease that affects people in different ways (1). The condition of cancer is one of the leading cause of death across the globe. It is accounted for about 7.9 million deaths (about 13% of all deaths) in the year 2008 (2). An increased life expectancy suggests that the risk for developing cancer tends to increase extensively. Deaths caused from cancer across the globe are continually rising with an expected 12 million deaths in the year 2030. As majority of cancers are diagnosed in adults at an advanced age, examining the burden of this condition is imperative than other diseases in a population with an extended life expectancy (3). Internationally, global leading cancer killers are likewise considered to be eight most common with regards to its incidence. Together, it accounts for about 60 percent of all deaths and cases of cancers (4). These includes cancers of lung, stomach, breast, colon—rectum, mouth, liver, cervix and esophagus.” Generally, the UAE is thought to have a much reduced cancer incidence than the western nations, and over the course of last 40 years, it has experienced a period of dramatic demographic, social, and economic alterations which resulted in increased prosperity and life expectancy. Such an epidemiological evolution has led to a considerable raise in chronic non—communicable diseases incidence, including cancer, which is a 3rd leading basis of death in the United Arab Emirates (after injury and cardiovascular diseases) causing 10 percent of death in the year 2010 together with 16% of all deaths in the Emirate of Abu Dhabi during the same year (5).

Tobacco smoking is one of the significant cancer risk factor for chronic diseases (6). Use of alcohol, unhealthy diet, and lack of physical activity are significant contributors to cancer, and additionally significant to other cause of diseases as well (7). Few risk factors that are less globally important includes exposure to asbestos, substances, air pollution, indoor smoke from heating and cooking that can cause cancer along with a huge burden for chronic respiratory diseases (7). Change in behavior is a possible solution and offers a great potential for preventing cancer (8). To date, a comprehensive cancer overview in United...
Arab Emirates has not been performed with respect to its burden and knowledge about risk factors. Therefore, this article summarizes the major risk factors observed in UAE population that can be modified to decrease the risk of cancer and highlight current gaps in existing knowledge for the purpose of embarking future research.

Methodology

An electronic search was undertaken to extract abstracts and full text articles from PubMed, Scopus databases, and Science direct that met our inclusion criteria. The search strategies applied consist of utilizing appropriate key terms along with Medical Subject Headings (MeSH) for the retrieval of targeted literature. After a preliminary search on literature, an exhaustive search for this study utilized different keywords such as: Cancer, Risk, cancer screening, prevalence, early detection, prevention, UAE, Al–Ain, Ras al–Khaimah, Fujairah, Abu Dhabi, Dubai, Ajman, Sharjah, Dubai, and Umm al–Quwain. Boolean connectors in addition to truncation symbols “OR”, “AND” were used for merging terms so as to focus and broaden our search. Moreover, the research articles from local journals were also searched and were cross-referenced with the keywords list to ensure a thorough literature search.

Inclusion and Exclusion Criteria

This systematic review focused on studies that satisfy the aforementioned requirements. It included any study that had a direct impact on determining the possible risk factors of cancer. The review included original research in peer-reviewed journals written in English, and papers

![Figure 1: Schematic representation of the study selection for the systematic review of literature](image-url)
Table 1: Summary of risk factor studies included in the Systematic Review

<table>
<thead>
<tr>
<th>No</th>
<th>Study design</th>
<th>Year</th>
<th>Study population</th>
<th>Study Key findings</th>
<th>Author/Year</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Cross-sectional</td>
<td>2008</td>
<td>88 cases of HL patients were reported (from 1988-2004)</td>
<td>In comparison to adult age group, EBV was expressed more commonly in HL within pediatric age groups. The significant relationship between the HL and EBV that have additionally strengthen the proposition that all HL cases need to be examined for the status of EBV as its existence imposes a significant impact on the response to therapy and prognosis.</td>
<td>(Al-Salam, John, Daoud, Chong, and Castella, 2008)</td>
</tr>
<tr>
<td>2</td>
<td>Cross-sectional</td>
<td>2010</td>
<td>Nurses who took part in the breast cancer awareness week programme</td>
<td>In order to begin BSE, 96.1% of the individuals were responsive of the best age, whereas, 87.7% respondents were aware that female with consistent menstruation need to undertake BSE at a specific day on monthly basis, preferably on 7th and 5th day after menstruation. Regarding the BSE method, 68.8% were aware that both palpation and inspection are ideal technique for detecting any variations in an individual’s breast. An enormous number, i.e. 84.4% of respondents suggested to perform BSE. 78.3% single and 87.0% married practiced BSE. The finding of this study indicated that nurse possess a “satisfactory knowledge” about BSE and it is also demonstrated in the BSE practice. More focus was laid on the BSE in postgraduate and undergraduate courses specifically for nurses as they were intricate more in the education and care of the patients.</td>
<td>(Sreedharan, Mutteappallymy all, Venkatramana, and Thomas, 2010)</td>
</tr>
<tr>
<td>3</td>
<td>A multicentre, retrospective study</td>
<td>2013</td>
<td>Study was conducted at four major hospitals in the UAE</td>
<td>From the 992 reports about the oral biopsy, there were 147 malignant tumor cases that accounted for a total biopsy equivalent to 14.9%. In total, there were 15 different kinds of malignant lesions diagnosed, of which the OSCC or &quot;oral squamous cell carcinoma&quot; was more prevalent as it was formed from &quot;11.4% of the overall oral biopsies retrieved.&quot; One of the most common cancer presentation included ulceration followed by white lesions and ulcers. Additionally common sites where lesions were diagnosed included tongue 51.0%, followed by the lips and cheeks. &quot;oral squamous cell carcinoma&quot; accounted for about 77 percent of all reported malignancies. The next dissections were performed in only 20.8% of all cases related to OSCC diagnosed at Tawam and Mafrax hospitals, of which 43.75% demonstrated a neck metastasis evidence.</td>
<td>(Anis, &amp; Gaballah 2013)</td>
</tr>
<tr>
<td>4</td>
<td>Cross-sectional study</td>
<td>2013</td>
<td>Dental students (undergraduates in 5th year)</td>
<td>83% of the individuals identified the tobacco use as an oral cancer risk factor, 45.6% were aware of the low vegetable and fruits consumptions and 52% identified old age, while around 74.4% of students were capable of correctly identifying the alcohol use as a risk factor for oral cancer. Furthermore, a significant relationship was found between the previous and current tobacco users along with possessing a low knowledge of “risk factors score” (P = 0.015). However, no significant relationship was found between the years of study in the dental college, nationality, gender together with awareness about risk factor scores pertaining to oral cancer.</td>
<td>(Rahman, Hawas, Rahman, &amp; Rabah, 2013)</td>
</tr>
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<td>5</td>
<td>Cross-sectional study</td>
<td>2014</td>
<td>Female students Settings: Three universities (between April 2011 June 2012)</td>
<td>The participants (n = 392) were observed to be more recurrently between the age group 18 and 22 (63.5%), never married (89%), and non-Emirati (90.1%). A breast cancer family history was demonstrated by 36 (9.2%) of the students. The participant’s percentage having below or low average knowledge scores related to the warning signs, risk factors, and techniques for early breast cancer detection was 45.9%, 40.6%, and 86.5%, respectively. Meaningfully, advanced awareness scores on risk factors were found among respondents having breast cancer history (P = 0.03). Most likely, the misconception identified included the &quot;treatment for breast cancer affecting female's femininity&quot; (62.5%).</td>
<td>(Al-Sharbatti, Shaikh, Mathew, Albiate, 2014)</td>
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## Risk Factors of Cancer in the United Arab Emirates, Hira Abdul Razzak, et. al.

<table>
<thead>
<tr>
<th>No</th>
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<tr>
<td>6</td>
<td>A multisite retrospective study</td>
<td>2015</td>
<td>Settings included organizations from UAE, Saudi and Qatar.</td>
<td>The multivariate and univariate analyses demonstrated that non-smoking status, adenocarcinoma subtype, and female gender were significant predictors for EGFRmut. There was no difference between Arabs and non-Arabs.</td>
<td>(Jazieh e al, 2015)</td>
</tr>
<tr>
<td>7</td>
<td>Cross-sectional</td>
<td>2009</td>
<td>Adult (local and expatriates). Median age: 34. (Diagnosed between January 2000 - December 2006)</td>
<td>63% were males and 24% were UAE nationals. A statistically significant greater AML incidence was observed among “national females than in national males.” These findings contradicts the general known results that ALL and AMLO are more frequently found in males. The accumulative risk factors impolcations to which a female is exposed for instance, deficiency of Vitamin D because of direct benzene exposure, sunlight deprivation and enhancement of color in henna warrants additional investigation and cannot be excluded.</td>
<td>(Hassan et al, 2009)</td>
</tr>
<tr>
<td>8</td>
<td>Cross-sectional</td>
<td>2011</td>
<td>Nurses; Mainly the participants of the breast cancer awareness week programme</td>
<td>There were 50% of individuals who agreed strongly with the early breast cancer detection by undertaking self-examination of breast. About 39% thought that “women aged 40 years and older” have mammogram annually as well as remain to do the same while, 25% intensely believed that females in their early “20s and 30s” should undergo “clinical breast examination” as a practice of their “periodic health examination” by health care providers. 33.8% of the participants agreed intensely believed on offering information on the limitations and benefits of BSE to the female population. 26% of the respondents were affirmative that women at an elevated risk should acquire “mammogram and magnetic resonance imaging” conducted every year.</td>
<td>(Venkatramana, Sreedharan, &amp; Muttappallymy, 2011)</td>
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<td>9</td>
<td>A qualitative study</td>
<td>2012</td>
<td>Women from several regions of EAD (from April-September 2009)</td>
<td>Some of the difference in opinions, perceptions, and beliefs linked with the stated breast cancer cause, preference related to the services of breast cancer, cultural attitudes towards breast cancer, trust in health services, financial considerations were observed across all age groups and nationality.</td>
<td>(Sahib et al, 2012)</td>
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<td>10</td>
<td>A cross-sectional survey</td>
<td>2013</td>
<td>Female university students in Ajman</td>
<td>22.7% respondents practiced BSE however, only 3 percent of them practice “BSE” on a monthly basis. “Marital status” excluding age is significantly linked with the possibility of age. For BSE, one of the most frequent barriers includes absence of doctor advice, in view of oneself not at risk, and lack of knowledge.</td>
<td>(Al-sharbatti, Shaikh, Mathew, &amp; Al-Bate, 2013)</td>
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<td>11</td>
<td>A cross-sectional survey</td>
<td>2013</td>
<td>640 women (age range: 18-50 years)</td>
<td>Merely, 29% of the women sampled had ever heard of the infection of HPV. Around 15.3% women considered it to be STI. Only 22% females have also heard of the “HPV vaccine.” In general, three quarter of females perceived that one is capable to prevent cervical cancer. About 28% were known to recognize vaccine as a preventive step against cervical cancer. Husband’s educational level and age (AOR 1.049, 95% CI 1.02-1.08) was significant (p value 0.015) after women’s age adjustment.</td>
<td>(Ortashi, Raheel, Shalal, Osman, 2013)</td>
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<td>12</td>
<td>Qualitative study with interpretivist and social constructivist</td>
<td>2015</td>
<td>6 South Asian women in addition to 7 Emirati women living in Dubai</td>
<td>In total, there were four themes related to the female attitudes and beliefs about cervical cancer which emerged from the data. Initially, the cervical cancer was thought to be a silent disease that can be noticed with screening at an earlier age. Nevertheless, it is also linked with extramarital sexual relations that is known to influence negatively the screening uptake, Secondly, pain and embarrassment, women’s</td>
<td>(Khan, &amp; Woolhead, 2015)</td>
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Research articles, mainly reviewed by peers helps in safeguarding the standards in publishing along with offering value plus credibility to the published material. This study included both qualitative research studies (interviews, focus groups, naturalistic studies, grounded theory, ethnographic studies, and phenomenological studies), and quantitative research studies (retrospective, prospective, case control, cohort, case series, cross-sectional, cross over design, time series, and randomized controlled trials).

### Selection Criteria, and Data Extraction

The articles selected mainly focused on examining risk factors of cancer explicitly involving UAE population. In total, 554 records were identified, 75 of which remained after duplicates were removed. Abstracts and titles were reviewed for the purpose of scanning for exclusion criteria; at this stage, 59 articles were additionally excluded. Retrieval of full text was then performed for 16 articles for careful review. Both quantitative, as well as qualitative studies were characterized as per the level of

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<td>13</td>
<td>A cross-sectional, population-based retrospective survey</td>
<td>2015</td>
<td>Women</td>
<td>4593 females were screened for cervical cancer, possessing 225 (4.89%) abnormal smears. Most of the abnormal smears included atypical squamous cells with undetermined significance (ASCUS) 114 (2.48%). Findings suggest that over last 10 years, 60% rise in the abnormal cervical smear number in UAE. The highest incidence of high grade abnormality were observed in females who were above an age of 61 years (1.73%), hence, this women group might have missed the changes in screening of cervical cancer at an early age and it can be determined by means of a well-known second peak of HPV infection observed in various other prevalence studies.</td>
<td><a href="21">Al Zaabi et al, 2015</a></td>
</tr>
<tr>
<td>14</td>
<td>A cross-sectional survey</td>
<td>2014</td>
<td>4 out of 12 religious and cultural community centers in Al Ain city selected randomly in the year 2013</td>
<td>In spite of the increase in the screening modality uptake, limited knowledge of breast cancer screening exist and was considerably evident. Approximately, half of the females (44.8%) never had a CBE or Clinical Breast Exam while, 44.1% of women didn’t had mammography and expressed limited awareness about the screening technique existence. Around 1/3rd of the respondents interpreted “the presence of a breast lump incorrectly. Moreover, expressed limited worries about the nature of the lump than would normally be expected.”</td>
<td><a href="22">Elobaid, Aw, Grivina, and Nagelkerke, 2015</a></td>
</tr>
<tr>
<td>15</td>
<td>A retrospective review of medical records</td>
<td>2015</td>
<td>Comprehensive Cancer Registry (CCR) pathological data (From 1998 to 2014- around 25 years).</td>
<td>Among 83 malignant SGT cases observed, peak occurrence was in the fifth decade of life. Frequency: males (61%) &gt; and females (39%) Tumor type: Muco-epidermoid carcinoma (35%), acinar cell carcinoma (10.8%), and adenoid cystic carcinoma (18.1%). Similar tumor distribution pattern as found in patients from Middle East, GCC, and Asian countries. &quot;The salivary gland tumors distribution in multiethnic and multicultural population in Gulf was first described. Hence, the development of SGT registry will aid researchers and clinicians to better understand and manage this disease.&quot;</td>
<td><a href="23">Al Sarraj, Nair Al Siraj, &amp; AlShayeb, 2015</a></td>
</tr>
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<td>16</td>
<td>Retrospective data collection</td>
<td>2014</td>
<td>Specimens were received (from January 2010 - December 2010) Settings: Al-Qasmi Hospital (Sharjah)</td>
<td>Mean reported age: 28.7 years with “male to female” 2:1 ratio. In total, 8 tumors were found near the tips of appendix having a mean diameter of 3.3 mm, whereas the remaining one is near the proximal appendix end. All these cases were known to be linked with concomitant suppurative appendicitis. In 7 of the cases being reported, the tumors were confined to the muscular layer, whereas in a single case there is an extension of mesoappendix and serosa, respectively. For neuron-specific enolase on immunohistochemistry, synaptophysin, and chromogranin A is negative for cytokeratin-7.</td>
<td><a href="24">Anwar, Desai, Al-Bloushi, Alam, &amp; Cyprian, 2014</a></td>
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</table>
evidences. This review was undertaken as per the PRISMA guidelines. It aims to improve the reporting quality of a review and also offers substantial transparency in the selection procedure of the articles. Different themes were then identified from which the research articles selected were analyzed, generating the results of this review. Figure 1 below illustrates the strategy used to conduct this review.

Results

After a systematic literature search to recognize epidemiological studies that had been conducted in the United Arab Emirates with regards to its risk factors, only 16 studies were included based on the hierarchy of evidence related to the strength of the literature, including nine cross sectional studies (9, 10, 12, 13, 15, 16, 18, 19, 22), one population-based cross-sectional retrospective survey (21), four retrospective cohort study (11, 14, 23, 24), and two qualitative studies (17, 20). Risk factor studies (n = 16) explored tobacco use, unhealthy diet, family history, infection with HPV, physical activity, and radiation exposure (Table 1). Six studies reported tobacco use as a risk factor for cancer (9, 10, 11, 12, 13, and 14), one reported unhealthy diet (15), three family history (16, 17, and 18), three infection with HPV (19, 20, 21), one physical activity (22) and two radiation exposure (23, 24) as a risk factor for cancer. Furthermore, these studies covered different types of cancers including breast cancer studies (n = 6), oral cancer studies (n = 2), lung cancer study (n = 1), Hodgkin Lymphoma (n = 1), three cervical cancer (n = 3), one appendicular carcinoids (n = 1), one acute leukemia (n = 1), and one salivary gland tumors (n = 1).

Al-Salam, John, Daoud, Chong, and Castella (9), studied to determine the Hodgkin lymphoma epidemiology in UAE national population together with delineating the degree of its association with Epstein–Barr virus. The results demonstrate a significant association exists between EBV and HL. Passive smoking tends to play a crucial role in immune responses of the host that often modifies this relationship of EBV with cancer. Rahman, Hawas, Rahman, and Rabah (12) studied the future dentists knowledge of the UAE on non–risk and risk factors for oral cancers. The results demonstrated that 83% of the individuals identified tobacco use as a risk factor for oral cancer. Conversely, Hassan et al. (15) showed deficiency of Vitamin D as an accumulative AML (Acute myeloid leukemia) risk factor for females because of sunlight deprivation, direct benzene exposure, and color enhancements in henna that also warrants supplementary investigations.

Human papilloma virus (HPV) infection is thought to be a most vital risk factor for cancer. One of the ways HPV considerably spreads is by means of sex, comprising of anal, vaginal, and even oral sex. Two of the studies addressed the knowledge of women regarding HPV vaccine, infection, and cervical cancer screening in UAE (19, 20). Approximately, 29% of the women sampled had never heard of the HPV infection, 15.3% women considered it to be STI and only 22% females have heard of the HPV vaccine. Generally, three quarter of females perceived cervical cancer is preventable. Whereas, Khan, & Woolhead (20) suggested that females became aware of screening primarily when receiving treatment related to fertility and during pregnancy.

Individuals often get worried that their family history of cancer demonstrates that they are at higher risk. Hence, it is recommended that all females should undergo a screening mammogram every 2 years that starts at 40 years of age (plus possibly if a person have a family history of breast cancer). Al–Sharbatti, Shaikh, Mathew, and Al–Biate (18) in their study revealed that 22.7% of respondents practiced BSE however, only 3% of them practice it on a monthly basis. For Breast Self–Examination (BSE), most frequent barriers included absence of doctor advice in view of oneself not at risk and lack of knowledge. Further, two of the studies focused on the effects of radiation exposure on cancer. Radiation of certain wavelengths that are also known as ionizing radiation often has sufficient energy to impair DNA as well as cause cancer. Such ionizing radiation comprise of X–rays, gamma rays, radon, and several other high–energy radiation procedures (23, 24).

Discussion

This review demonstrated and exemplified essential concepts and knowledge related to the risk factor studies conducted in the United Arab Emirates between 2007–2016. The present systematic review is based on cross sectional studies (n = 9), population–based cross–sectional retrospective survey (n = 1), retrospective cohort studies (n = 4), and qualitative studies (n = 2) that demonstrated tobacco use, unhealthy diet, family history, infection with HPV, physical activity, and radiation exposure as risk factors for cancer.

Based on the results of the studies reviewed, three studies suggested that either genes and/or shared environmental determinants are accompanied with an amplified risk for developing cancer (16, 17, 18). Six studies reported tobacco use as a cancer risk factor (9–14). Cigarette smoking is considered as a causal risk factor for Hodgkin Lymphoma, breast, and oral cancer. Tobacco is known to act on multiple carcinogenesis stages, however, it not only distributes a host for carcinogens but also grounds for inflammation along with irritation and interfering with an individual’s natural protective barriers. The use of tobacco
and its associated health risks are not considerably limited to smoking cigarette. Smokeless tobacco, pipe, and cigar usage also elevates the cancer risk as does the exposure to second hand smoke or environmental tobacco smoke (7). Furthermore, various other condition and diseases are caused by smoking such as pregnancy complications, lung infection, stroke, and heart disease. While after cessation, the risks associated with the use of tobacco falls quickly (25). Therefore, in order to reduce the global cancer burden and numerous other chronic conditions, it is important to implement policies and programs that would discourage smoking among the youth as well as to initiate information programs to stop smoking across the population in the UAE.

Previous studies indicate that being inactive is associated to major chronic diseases such as cancer, cardiovascular disease, stroke, osteoporosis, and type II diabetes (29). Our study suggest that the risk of having breast cancer increases because of physical inactivity (22). On the contrary, other studies emphasized that the lack of physical activity is mainly associated with a higher risk of prostate and lung cancer (31). However, the studies in UAE related to this association are lacking and not enough.

Exposure to ionizing radiation especially at a young age is known to be associated with an amplified risk for developing breast cancer (28). Radiation can generate mutations by damaging DNA. On the other hand, the study conducted by Anwar, (2014) explored the clinicopathological characteristics of “appendiceal carcinoids” in Sharjah (24). This study suggested that tumors were found to be more common in young males. Two of the studies directs that an individual’s genetic makeup is often associated with the risk of breast cancer (13, 18). While other general study conducted by Economopoulou (2015) suggest that this risk accounts for about 20 to 30% of all cases concerning breast cancer (29). Yoshida, Miki (2004) suggested that BRCA1 and BRCA2 are tumor suppressor genes, which if turns faulty can make cells susceptible to supplementary mutations, causing the likelihood of the cells to turn cancerous (30). Moreover, three of the studies reviewed indicated infections of special concern including human papillomavirus (HPV) (19–21). Whereas, CDC (2012), indicated that oncogenic HPV is associated with oropharyngeal, anal, penile, vaginal, vulvar, and cervical cancers (31). The cancer incidence rates increases after 50 years of age. This is consistent with the study conducted by Minichiello and Hawkes, (2011) suggesting that old adults are known to be at a special risk for the reason that they are less expected to practice condom usage and their healthcare providers often fail to inquire about sexual behaviors that are not safe. Therefore, at midlife, non–toxic sexual practices limits the cancer risk associated with HPV (32).

The current review is the first systematic review conducted in UAE focusing on the risk factors of cancer. Although some limitations for the review exist. For example, one limitation of this review was our focus on the English language articles only. As majority of the studies undertaken by the research institutes and universities are in Arabic across the Arab region, therefore, there is a possibility that few important research studies might have been missed as only articles in English were considered. Second, findings from cross–sectional studies do not inevitably indicate causality. Third, as with any review based on published data, one is unable to rule out the possibility of publication bias. Nevertheless, we made an attempt to minimize the bias by searching local and governmental reports and full–text of relevant articles were also requested.

This review can be very useful resource document for public health professionals and researches concerned with cancer prevention and control to better understand the situation and priorities needed for future research in the UAE. In spite that no studies were conducted at the national level, this review has included thoughtful number of studies from countless geographical regions of UAE such as Al–Ain, Ajman, Sharjah, Abu Dhabi, and Dubai. Local journals were reviewed to include all the studies related to the UAE. Cross–references of all included evidence were undertaken by the researcher so that it can be recalled efficiently for examination and sorting over the course of this study.

Conclusion

This review demonstrates the first comprehensive synopsis of the risk factors of cancer in United Arab Emirates. This study has also highlighted the importance of recording and collecting good quality cancer studies. Based on the results found after reviewing current UAE based studies concluded that the knowledge about cancer risk factors are of great importance to the development of effective and preventive measures to combat cancer and to improve the prognosis of individuals who are already affected by this pathology. The study also demonstrated that regular physical activity, appropriate dietary changes, and smoking cessation, together with early therapeutic intervention and targeted screening programs could, substantially reduce the mortality and morbidity associated with different types of cancer. Cancers can principally be preventable and others could be avoided by an appropriate environment choice as well as lifestyle. Numerous detailed cancer causes are now recognized, the
most imperative being smoking, regular physical activity, and rare oncogenic viruses, but a massive percentage of global variation for some common types of cancers such as rectum, prostate, colon and breast remains to be inexplicable.

Behavior and lifestyle changes are vital to reduce the cancer incidence and its risk factors. One of the most influential aspect in altering the behavior at individual level is to make “unhealthy choices harder” and “healthier choices easier.” It can be achieved by means of implementing a health policy that can mandate urban environment and planning, improved nutrition, and to encourage and empower individuals to opt for healthier choices. It therefore requires the contribution from both non–health and healthcare sectors. Furthermore, efforts should be made with a multi–sectorial approach in the future at both the national and international level to effectively tackle the burden of cancer.

References


