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原著

Awareness of Cancer in Asian Countries - A Review of the Literature

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Abstract

The purpose of this review was to examine the evidence regarding awareness of cancer, its risk factors, signs and symptoms, hence also find the existing knowledge gap from the research done in eight Asian countries. Various aspects of cancer were searched using databases like Pubmed, Google Scholar. Ten papers were reviewed for this study.

This study shows that awareness about cancer in many Asian countries like Saudi Arabia, India, Japan, Oman, Jordan is still at infancy and there are inadequate activities in these countries regarding cancer awareness promotion.

Very few papers have addressed about the cancer screening even though cancer screening is an important aspect in prevention of cancer. This study has also tried to highlight the gap in awareness about cancer and their manifestations and focused on strong need of educational and informational programs to spread awareness among Asian people.

Keywords：cancer, risk factors, symptoms, asian countries, cancer screening

I. INTRODUCTION

Cancer is a significant healthcare problem and a leading cause of death worldwide, accounting for approximately 14 million new cases, 8.2 million deaths in 2012 (World Health Organization, 2014). Most cancer-related deaths occur in cases of lung, liver, stomach, colon and rectum, liver, and esophageal cancer (1.59 million, 745,000, 723,000, 694,000, 400,000 respectively) [1]. In Europe, cancer accounts for 20% of all deaths, and it leads to 1.1 million deaths per year in Southeast Asia [2,3].

The majority of cancer- related deaths occur in low- and middle-income countries, most likely because of delayed presentation[5]. Tobacco use, alcohol use, unhealthy diets, and physical inactivity are the main worldwide risk factors for cancer. Tobacco use (smoking or chewing) is the single most important risk factor for cancer and leads to 22% of all cancer deaths and 71% of lung cancer deaths globally [4]. In addition, some endemic chronic infections in low- and middle-income countries are important cancer risk factors. For example, cervical cancer, which is typically caused by the human papilloma virus (HPV), is a leading cause of cancer death among women in low-income countries [4]. It is estimated that more than 30% of all cancer may be prevented by modifying or avoiding key risk factors, including tobacco use, obesity or being overweight,

lack of physical activity, alcohol use, unhealthy diets with low fruit and vegetable intake, sexually transmitted HPV infection, urban air pollution, and indoor smoke from solid fuel use in homes [1].

According to the World Health Organization (WHO), even though the effects of cancer can be reduced with early detection and treatment, the number of new cases is expected to rise by approximately 70 % over the next two decades [1]. In other words, the history of cancer indicates that its annual incidence will rise from 14 million in 2012 to 22 million over the next two decades [1].

Many researchers have focused on the importance of increasing public awareness concerning the warning signs and symptoms of cancer. Evidence suggests a significant portion of the increase in cancer is due to a number of factors including poor awareness of the signs, symptoms, and risk factors for cancer; poor availability of tests or screening programs, and limited access to standard treatment [5]. In 2010, a study done in Saudi Arabia showed that increasing the population's basic cancer knowledge is as important for controlling cancer as are diagnostic tools, screening, and new preventive approaches [6]. However, studies examining public awareness concerning the warning signs of cancer in relation to early detection and prevention in various countries have shown public knowledge is poor [7].

This lack of awareness concerning cancer screening and prevention is important because it contributes to delayed presentation of cancer symptoms and may therefore lead to a delayed cancer diagnosis and treatment [8, 14]. It is among the most important factors contributing to late stage presentation [9]. Unfortunately, this is especially problematic in developing countries, in which there is often poor awareness of the various risk factors of common cancers and known preventive strategies, including the importance of early detection through screening and the ability to treat precancerous lesions [9, 10].

Living with cancer can be a daily battle, and the burden of medical costs can be terrible, particularly in developing countries. Although many studies have examined cancer risk factors, treatment strategies, and prevention, research into the awareness of cancer among general populations is in its infancy in many developing countries. Asia, for example, is a very heterogeneous continent. Although high-income countries, such as Israel, Kuwait, Qatar, Republic of Korea, Singapore, Japan and the United Arab Emirates, have developed health services, most Asians live in low- and middle- income countries with extremely limited health services and substantial cancer burdens. Asia accounts for 60% of the world's population and half the global cancer burden, facts that justify the need to separate Asian from non- Asian countries [15].

In this literature review, we aimed to examine evidence obtained from research in eight Asian countries regarding cancer awareness, including knowledge of risk factors, signs and symptoms, to identify knowledge gaps. We conclude by detailing the limitations of current studies and the need for developing educational and informational programs to improve awareness. Finally, we make recommendations for future research and practice.

II. METHODS

1. Information Sources and Search Terms

PubMed, EndNote, CINAHL, and Google Scholar databases were searched. We used the following keywords: "cancer symptoms," "cancer signs," "awareness" OR "public knowledge," "questionnaires for cancer awareness," "risk factors," "cancer," and "cancer beliefs" AND "knowledge." The literature search was limited to publications in English after 2005.

2. Study Selection and Eligibility Criteria

In the initial search, titles were scanned to exclude content not related to the general awareness of risk factors and sign or symptoms. After that, a more refined search was conducted by excluding papers not related to eight specific Asian countries of interest: Oman, Japan, Saudi Arabia, Malaysia, Iran, Pakistan, Jordan, and India.

Papers regarding awareness of cancer in the eight identified Asian countries were searched but qualitative studies were excluded from the review. The included papers needed to contain information on the awareness of signs and symptoms, risk factors, and cancer awareness screening among Asians. They also needed to compare the levels of awareness between men and women, young and older adults, and those with high and low educational levels. We reviewed papers based on country/location, study methodology, respondents, sampling methods, and findings concerning symptom awareness.

III. RESULTS

1. Study Selection

Focusing on all keywords, we initially retrieved data from international sources, covering medical oncology, radiological practice, awareness of specific cancers (for example, oral, lung, cervical, and breast cancers). Scanning the titles for the pertinent information listed above led to a reduced sample of 34 papers. After studies not conducted in Oman, Japan, Saudi Arabia, Malaysia, Iran, Pakistan, Jordan, or India were excluded, we were left with 11 papers. However, one further article was excluded because the content did not match with that of other papers, thus limiting the sample to 10 articles from seven countries.

Table 1. General Population Surveys: Awareness of Cancer

Author (year)	Countries	Type of study	Sample size	Sample method	Survey method	Age range (years)	Questionnaire	Reference
Al-Azri (2015)	Oman	Cross-sectional, community based	345	Convenience	Self-administered	19-84	CAM	5
Ravichandran (2010)	Saudi Arabia	Observational cross sectional	1,407	Random	Interview	15-87	Self- designed questions	6
Feizi (2011)	Iran	Exploratory and Correlational Cross sectional	2,500	Probabilistic multi- stage stratified cluster sampling	Interview	18 and above	Self- designed questions	7
Ahmad (2014)	Jordan	Cross-sectional	2,962	Stratified sampling	Face to face interview	15-87	Self- designed questions	8
Bhurgri (2008)	Pakistan	Cross sectional	315	Convenience	Interview	13-75	Self- designed questions	9
Raj (2012)	India	Cross sectional	3,000	Multistage random Sampling	Interview	15-60	Self- designed questions	10
Al-Azri (2014)	Oman	Cross sectional	384	Convenience	Self-administered	19-77	CAM	11
Inoue (2006)	Japan	Multi-purpose Cross sectional survey (Omnibus survey)	1,355	Stratified two stage sampling	Face to face interview	20-70 above	Self- designed questions	12
Al- Naggar (2015)	Malaysia	Cross sectional	260	Random	Self-administered	9-22	Self- designed questions	13
Ahmad (2015)	Jordan	Cross-sectional	3,196	Stratified random sampling	Face to face interview	18-95	Self- designed questions	14

2. Questionnaires Used in Studies

Only a few papers we identified used the Complementary and Alternative Medicine (CAM) questionnaire which is designed to identify the degree to which hospital cancer patients employ alternative and complimentary cancer treatments [16] . The researchers all developed their questionnaires after intensive literature reviews. They also conducted pre-test prior to their data collection to confirm the validity of their instruments. Other survey tools were developed to more comprehensively evaluate population perceptions regarding cancer [14] . Specifically, tools have been developed to collect information on demographic variables, awareness concerning risk factors, awareness of the signs and symptoms of cancer, and knowledge of cancer screening. Closed-ended questions were used for most papers, although some employed open-ended questions [6] .

3. Awareness on Risk Factors for Cancer

Seven studies were identified that assessed the awareness of cancer risk factors, and the respondents of these studies identified various risk factors.

Tobacco. Tobacco was regarded as the major risk factor, as supported by majority of the respondents from all seven countries. The highest response was 96.0% (n = 3196) in a study conducted in Jordan, while the lowest response was 43.0% (n = 2000) in a study conducted in Japan [8) 12)]. The other studies also showed good knowledge of tobacco, with rates of 83.3% , 94.3%, 92.6%, 79.2% and 73.6% in Oman, Saudi Arabia, India, Pakistan, and Malaysia, respectively [11) 6) 10) 9) 13)]. The finding in Japan concerning tobacco was surprising, but even more surprising was the fact that a majority (51.3%) believed viruses and bacteria were major risk factors for cancer. This belief may have resulted from the epidemic of severe acute respiratory syndrome occurring just prior to data collection, as well as the recent Japanese mass media focus on endocrine-disrupting chemicals. Despite having a less clear relationship with cancer, both these factors resulted in an increased interest in these issues [12] .

Lack of physical Activity. Lack of physical activity was considered another risk factor for cancer, and most people in Saudi Arabia (84.2%), Malaysia (83.6%), and Jordan (62.9%) supported this idea [6) 13) 8)]. However, these findings were inconsistent with study findings from Oman, Japan, and India, in which only 31.0%, 26.0%, and 4.3% of the participants, respectively, named the lack of physical activity as a risk factor. In India, there have been significant efforts, along with a major media publicity program, aimed at smoking cessation, the "Cigarettes and Other Tobacco Products Act, 2003". This act prohibits the consumption of cigarettes and other tobacco products that are injurious to health (MOHFW, 2003). However, health education activities tend not to publicize other important risk factors, such as the consumption of alcohol and red meat, industrial radiation, early child bearing, and being nulliparous [10)].

Obesity. In a Jordanian study, 64.7% of the participants believed obesity was a risk factor for cancer [14)]. This was somewhat similar to the percentage of Malaysian adolescents (56.1%) who identified obesity as a risk factor [13)]. These findings were again inconsistent with those of studies conducted in Oman, Japan and India, in which the percentages of participants identifying this particular risk factor were 32.0%, 28.2%, and 4.3% respectively [11) 12) 10)]. Despite obesity being an established risk factor for several forms of cancer, including colon carcinomas, adenomas, ovarian cancer, and liver and pancreatic cancer, respondents in Pakistan showed very low awareness. This might have been because the people in this country have a lower awareness of obesity risks in general [9)].

Alcohol. Alcohol was believed to be a cancer risk factor by 80.4%, 71.3%, 69.0%, 68.0%, 58.8% of the respondents in studies in Saudi Arabia, Malaysia, Pakistan, and India respectively [6) 13) 11) 9) 10)]. However, this finding was inconsistent with those of studies conducted in Japan, in which only 22% of the participants identified alcohol as a risk factor [12)].

Radiation. Radiation was considered as a risk factor for cancer by majority of the people in Jordan (94.0%) and Malaysia (72.2%) [14) 13)]. The findings, however are inconsistent with those of studies in Oman, Pakistan, Japan, and India, in which 38.8%, 47.8%, 36.0%,17.8% respectively, of participants considered radiation to be a risk factor [11) 9) 12) 10)].

Family History. A positive family history was believed to be another important risk factor among Malaysians [13)] (75.8%), which was not consistent with the findings from studies conducted in Pakistan, Oman, Japan, and India, which showed rates of 48.9%, 34.9%, 32.0%, and 15.0%, respectively [9) 11) 12) 10)].

Others. Only 30.2% of Omani people believed that smoked food was a risk factor for cancer, which conflicted with the results in Pakistan (33.0%), India (15.9%), and Japan (21.0%) [9) 10) 12)]. In the Malaysian study, 88.9% of people believed that healthy food prevents cancer, which might have been because the study was conducted in a developed area, in which participants would have better access to health services and greater exposure to cancer awareness campaigns than their rural counterparts [13)].

Table 2: Awareness of Risk Factors of Cancer

Paper	Countries	Tobacco (%)	Physical activity (%)	Alcohol (%)	Radiation[a] (%)	Obesity (%)	Viruses (%)	Family History (%)	Smoked food[b] (%)
Ahmad (2015)	Jordan	96.0	62.9	-	94.0	64.7	68.6	-	-
Al-Azri (2014)	Oman	83.3	31.0	69.0	38.8	32.0	30.5	34.9	30.2
Ravichandran (2010)	Saudi Arabia	94.3	84.2	80.4	-	-	-	-	-
Bhurgri (2008)	Pakistan	92.6	-	68.0	47.8	31.0	57.7	48.9	33.0
Raj (2012)	India	79.2	4.3	58.8	17.8	4.3	11.8	15.0	15.9
Inoue (2006)	Japan	43.0	26.0	21.7	36.0	28.2	51.3	31.5	21.4
Al- Naggar (2015)	Malaysia	73.6	83.6	71.3	72.2	56.1	72.2	75.8	-

*reference 5, 7, 8 were not included in this table.
a.Occupational hazards also included.
b.Charred fish and meat also included.

4. Awareness of the Signs and Symptoms of Cancer

The studies concerning the awareness of cancer signs and symptoms showed similar results by country to those concerning the awareness of risk factors, with various consistencies and inconsistencies. We present an overview of some of these now.

Unusual Bleeding. A study on Iranians showed that 98.2% of them were aware that unusual bleeding was a sign and symptom of cancer, which was comparable to results from a similar study conducted in Malaysia, in which 75.3% agreed this was an important sign [7) 13)]. However, these findings are inconsistent with findings from studies conducted in India,

Oman, and Jordan, in which only 23.9%, 32.2%, and 57.4%, respectively, agreed unusual bleeding was an important cancer indicator [10) 5) 8)] . This might have been due to the literacy rates of the areas in which data collection was conducted in India.

Presence of an Unusual Lump or Non-healing Wound. The Iranian study showed that 99.8% and 95.4% respectively, of their participants recognized that the presence of an unusual lump or non-healing wound was important in detecting cancer [7)]. This might be due to their comparatively high education levels. In the Malaysian study, 88.0% and 66.3% agreed that an unusual lump and non-healing wound, respectively, were indicative of cancer [13)]. However, these results are inconsistent with the Indian and Jordanian study [10) 8)]. The high levels discovered in the Malaysian studies might reflect the fact that unusual lumps and non-healing sores are commonly associated with breast cancer, which accounts for 18.1% of all the country's new cancer cases and is the most common cancer found among Malaysian women. Since the 1990s, Ministry of Health, along with other governmental organizations, has implemented various camps and campaigns to increase awareness and improve screening among Malaysian females, which might explain their high levels of awareness of symptoms like unusual lumps and non- healing wounds [13)].

Other Symptoms. The symptoms in this category included change in the appearance of a mole, continuous flu or cough, and weight loss. The Jordanian study showed that 72.4% of the participants believed a change in the appearance of a mole was an important sign of cancer [8)]. This finding was similar to that observed in the study conducted in Malaysia, in which 64.6% believed this to be this case, but it was inconsistent with the views expressed by participants in India (5.2%) and Oman (44.3%) [10) 11)]. In the Omani study, 44.3% of the participants believed that changes in moles, a continuous flu or cough (22.0%), and weight loss (43.8%) were important cancer signs and symptoms. However, this study was conducted in only three communities of Oman for convenience, and more women responded than men, thus affecting the significance and generalizability of the results. Asian women have expressed greater fears of cancer, as well as greater degree of shyness, poorer health education, and inadequate access to health care facilities [5)]. Nevertheless, these findings were consistent with those of the study conducted in India, where 5.2%, 8.0%, and 7.0% believed that changes in moles, flu, and weight loss, respectively, were important signs and symptoms of cancer [10)].

5. Awareness on Cancer Screening

Various interesting results have been found concerning the awareness of cancer screening. Jorda-

Table 3: Awareness of Symptoms of Cancer

Papers	Countries	Unusual bleeding (%)	Unusual lump (%)	Change in mole (%)	Continuous flu (%)	Irregular bowel (%)	Wound not healing (%)	Weight loss (%)
Ahmad (2014)	Jordan	57.4	76.2	72.4	53.9	46.4	29.8	69.4
Al-Azri (2015)	Oman	32.2	50.7	44.3	22.0	42.6	43.2	43.8
Raj (2012)	India	23.9	22.2	5.2	8.0	4.3	17.4	7.0
Al-Naggar (2015)	Malaysia	75.3	88.0	64.6	51.7	62.1	66.3	76.2
Feizi (2011)	Iran	98.2	99.8	98.2	93.0	85.8	95.4	94.6

•Reference 6, 9, 11, 12, 14 were not included in this table.

nian study showed that 96.0% of the participants were aware that early cancer detection screening was available, but 19.0% believed that there was no adequate treatment for cancer. Interestingly, 70.0% of the participants linked cancer with death, and 22.0% regarded it as a cause of death. Although three-quarters of the sample agreed that cancer could often be cured, only 10.0% had participated in cancer screening at the time of questioning [14]. These findings are similar to those from studies conducted in Pakistani and Saudi Arabian study, in which 91.7% and 76.0% of the participants, respectively, agreed that early detection could improve cancer prognosis [9) 6)]. In other studies, 90.7% of Malaysian adolescents and 57.1% of Indian participants agreed with the same statement [13) 10)]. In the Pakistani study, 72.6% of participants agreed that cancer was a preventable disease, and this findings conflicted with study results from Japan, in which only 35.5% of the participants agreed cancer could be prevented [9) 12)].

IV. DISCUSSION

The literature on awareness of risk factors, signs and symptoms of cancer indicates awareness is influenced by sociodemographic variables. Tobacco was widely considered a major risk factor for cancer, while unusual lumps and unusual bleeding were considered major signs and symptoms. Importantly, women were more likely than men to be aware of early signs and symptoms [6) 7) 11)]. The Iranian paper showed that married adults (particularly women) were more concerned about their health, possibly because of their responsibilities to the family while the study done in Saudi Arabia showed married individuals have less cancer- related knowledge than single individuals. The association with age significantly varied, with awareness levels of general cancer symptoms tending to be higher among young adults [6) 11)]. Education also played an important role in determining the awareness of respondents, with highly educated people displaying more awareness [7) 11) 14)]. Unfortunately, few researchers addressed the topic of cancer screening, but several studies still found most respondents believed cancer could be treated if it was detected at an early stage [6) 9) 14)]. One study showed that awareness was influenced by the availability of specialist facilities and their reputation among the local population [10)].

Future Perspectives

In the studies reviewed in this report, there was too great a focus on participants' knowledge and awareness of specific cancers, such as oral, breast, and cervical. Globally, extensive studies have been conducted on these topics, whereas very few studies been conducted concerning the general awareness of cancer. Many researchers claimed that their studies represented the first attempt to determine the awareness of risk factors for or signs and symptoms of cancer. These research articles highlighted important gaps in the Asian population's awareness of cancer and its manifestations, highlighting the need to focus on educational and informational programs to spread awareness. However, it was also shown that the cancer awareness promotion was inadequate in most of these countries, and that greater priority needed to be given to the general awareness of cancer, rather than just the awareness of specific cancer symptoms. More extensive and widespread studies are also needed in low-and middle-income Asian countries such as Nepal, Bangladesh, Bhutan, Sri Lanka, and Pakistan because the cancer burden is increasing in these countries and some still have extremely limited services. The awareness of cancer screening and its importance should be spread via educational programs. Role-playing, street drama, rallies, and health check-ups could be excellent op-

portunities for spreading educational messages in these countries. To assess the progress of people's awareness, longitudinal studies play an important role, as people are observed in multiple time intervals. Although cross- sectional studies are easy and convenient to conduct, longitudinal studies should also be conducted to enhance the understanding of people's awareness levels. Individual health beliefs regarding cancer and non- communicable disease should be more thoroughly understood, and this need could possibly open up another major research area.

Limitations

The most significant limitation of this literature review was the selection criteria used. We selected only those articles published in English that were accessible through the university's database. We also excluded qualitative studies, which could have provided more detailed and important information. Regarding our design, we only selected Asian papers, so it must be remembered that this limits our ability to make direct comparisons with international data from non-Asian countries. Finally, the sample of valid papers was limited to just 10 for the final study, which might restrict the validity of our results.

V. CONCLUSION

Cancer is an important lifestyle-related disease, and Asian countries need to place greater focus on raising awareness of its risk factors, signs and symptoms, and prevention. Though many countries are battling against cancer, awareness about cancer seems limited. In addition, there is a need to provide equitable access to health services for cancer screening, early detection, treatment, and palliative care. This literature review shows that there is a high demand for improved cancer awareness among the Asian population.

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