

## RESEARCH ARTICLE

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# Perception of Cancer Risk and Its Associated Risk Factors among Young Iraqis living in Baghdad

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### Abstract

Cancer is responsible for substantial burden on communities and more specifically on less developed countries. The incidence of cancer is on the rise due to population growth and aging, also due to increment of the risk factors such as smoking, increasing weight, low physical activity associated with adoption of western lifestyle. Around 14 million cases of new cancer and 8 million deaths from cancer is estimated to occur by 2012. This cross-sectional study was conducted in Baghdad from June 2016 to October 2016. Participants were selected according to our inclusion criteria, namely aged between 18 to 40 years and not being diagnosed with any chronic diseases. Those who fulfilled the inclusion criteria were 700 participants who completed the questionnaire. Results showed that most of our participants had low perceived susceptibility to cancer risk (62.4%), low perceived severity (59.8%), but good perceived benefits of screening (56.6%). Hierarchical linear regression analysis showed that sociodemographic factors of gender, marital status, and education level were statistically significant. Moreover, factors of health behaviour such as practice towards health and preventive behaviour were associated with the outcome. Finally, treatment control and emotional factors were mostly predicting the outcome. Perceived susceptibility to cancer along with its psychological factors and behaviour were important contributors to self-perceived health in this study. Hence there is association between perception and future morbidity and mortality, thus it is crucial for public health policy. Comprehensive health programs that include health promotion campaigns and proper health care services that deals with secondary prevention.

**Keywords:** Cancer- perception- young adults- Iraq

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### Introduction

Cancer is the second leading cause of death globally, accounting for an estimated 9.6 million deaths in 2018. Worldwide, about 1 in 6 deaths is due to cancer. Approximately, 70% of deaths from cancer occur in low- and middle-income countries. Around one third of deaths from cancer are due to the 5 leading behavioural and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use. Cancer disease is responsible for substantial burden on communities and more specifically on less developing countries. Its incidence is on the rise due to population growth and aging, and also due to increment of the risk factors such as smoking, excess body weight, low physical activity that are associated with western lifestyle adoption. It is estimated that around 14 million cases of new cancer and about 8 million cancer deaths will be found in 2012 (Torre et al., 2015). On the other hand, around 50% of cancer diseases can be prevented through avoiding cancerous risk factors and providing proper preventive strategies. It was found that the first

three cancers for men were lung, prostate, and colon cancer with prevalence rate of 16.7%, 15%, and 10%, respectively. While for women, it was revealed that breast cancer had the highest prevalence (25.2%), followed by colorectal (9.2%) and lung cancer (8.8%) (World cancer research fund, 2012).

There are clear diversity and multiple ethnicities as well as different religious groups in Iraq, which play a critical role in people's life especially health aspect. Iraqi cancer registry shows that lung cancer is the most frequent cancer among males (17.2%), followed by lymphoma (9.4%), leukaemia (9.3%), bladder cancer (8.6%), and gastric cancer (5.2%). While for females, breast cancer is the most prevalent cancer (21.9%), followed by leukaemia (8.4%), lymphoma and myeloma (7.1%), lung cancer (6.2%), and colorectal cancer (4.9%). Similar figures are found in Arabic countries with the same modifiable factors as along with poverty and lack of appropriate healthcare services. Generally, data concerning cancer are scares in Arab world and only few studies in this regard have been done. According to World Health Organization (WHO), annual cancer mortality is going to rise from 7.6 million

in 2008 to around 13 million in 2030 (Ismail et al., 2013).

In health behavioural theories, risk is not solely affected by cognition, but other factor such as favourable attitude are linked with low risk perception (Kelly et al., 2013). Cancer perception plays a crucial role in motivating people to adopt healthy behaviour. Chronic disease susceptibility is affected by modifiable risk factors such as low physical activity, unhealthy diet, smoking, and alcohol drinking. Hence, understanding individual behaviour and discovering factors affecting an individual's decision are critical. Moreover, environmental and social characteristics surrounding people play decisive roles in individual's health decision. Thus, immediate exposure to disease may result in increase of vulnerability to it, enhancing disease risk perception (Schmiedebergs and Pharmacol, 2017). Most of chronic diseases are subtle such as hypertension and cancer, thus majority of affected people do not know about and there will not be any further investigation and medical exam unless the illness is established. People in this stage perceive themselves as healthy individuals (Salman, 2012). Perception of cancer might motive individuals to do screening and lead them to do less risky health behaviour. Those with underestimation of cancer risk perception are less likely to undergo health screening, while others with overestimation of cancer risk perception incline to do health screening and other health activities in order to minimise their worries and put burden on health system (Kim et al., 2014). According to American Cancer Society, more than half of males and about one third of females are affected by cancer . Primary and secondary preventions would prevent and early detect sorts of cancers such as lung and cervical one . It might also lessen the effect of the tumour if detected early and makes course of the treatment shorter. Thus , Perception of cancer risk and severity would affect individual thinking and behaviour and ultimately moves towards healthy preventive behaviour (Werk et al., 2017). The aim of this study was to explore perceived susceptibility, severity and benefit of screening towards cancer among Iraqi adults living in Baghdad.

## Materials and Methods

This cross-sectional study was conducted in Baghdad from June 2016 to October 2016. Our inclusion criteria were defined as follows: aged between 18 to 40 years and not being diagnosed with any chronic diseases. The study was first piloted and validated (Harith and Shamsul, 2017). Sample size was calculated using Fleiss formula (Fleiss, 1981) and difference in proportion in level of education among gender (Al Shafae et al., 2008).

Participants were selected using multi-stage sampling method. Firstly, all districts and sub-districts were selected through cluster sampling, and then a certain number of clusters were selected as primary sampling unit (PSU). Participants, as the secondary sampling unit (SSU), were chosen conveniently from these clusters. In total, 700 participants were recruited according to our inclusion criteria.

*To best of our knowledge, no study has been conducted in this field in Iraq*

A self-administered questionnaire was distributed among the participants. The questionnaire was adopted and adapted from that presented by Hafiza et al., (2013) and Figueiras and Alvis (2007). Forward- and Back-translations were conducted by Al-Hikma Institute for Legal Translation.

The questionnaire consisted of the two following sections: sociodemographic section that included information about education level, working status family history of cancer, smoking, alcohol consumption, marital status, BMI, and the amount of exercise done by the participants.

The second section was related to perceived susceptibility, severity and benefits of screening, which were rated by using 5-point Likert scale (1= strongly disagree, 2= disagree, 3=not sure, 4= agree, 5= strongly agree). This includes: health preventive behaviour (practice prayer, using herbal and traditional medicine, do regular follow up and screening, search for nutritional information), health practice and finding health information ( while surfing the internet, from television programs, from health personnel, or family relatives or friends) Questions asked were concerning perception of severity of disease, probability of disease and perception of perceived benefits of screening disease from screening their perceived susceptibility to having the disease, perceived benefits of screening, treatment control (whether disease can be prevented before its happening, treatment can control the disease, treatment will be effective in curing the illness), personal control (course of the disease depends on the person, illness might get better or worse depending on the person), timeline ( the disease will last for long time, it will be permanent, symptoms will comes off and on, it will occurs in cycles), consequences ( the disease has serious financial consequences, the disease has serious burden on the family members), coherence ( the person does not understand the illness, the symptoms of the cancer are puzzling to the person), emotional ( the person get upset when thinking about it, get depressed, get feeling of afraid, becomes anxious).

All the participants were informed about the objectives of the study and written informed consent was obtained from each of the participant.

This study was approved by National University of Malaysia Medical Centre (ethical code: FF-2016-261).

## Results

As shown in Table 1, most of the participants were males (n=456, 65.1%). In terms of marital status, it was shown that 437(62.4%) of the participants were married. In total, we found that the number of participants who had high education (506, 72.3%), were employed (503, 71.9%), had abnormal BMI (450, 64.3%), had low physical activity (460, 65.7%), and had no experience of smoking (576, 82.3%) or alcohol drink (655, 93%) were higher. Regarding family history of cancer, 59 (8.4%) had positive history and 641 (91.9%) had negative history.

Around 35% of our participants got their health

Table 1. Sociodemographic Characteristics

Factors	Frequency	Percentage
Gender		
Male	456	65.1
Female	244	34.9
Marital status		
Married	437	62.4
Others	263	37.6
Education		
Low	194	27.7
High	506	72.3
Employment		
Yes	503	71.9
No	197	28.1
BMI		
Abnormal	450	64.3
Normal	250	35.7
Exercise		
low activity	460	65.7
active	240	34.3
Smoking		
Yes	124	17.7
No	576	82.3
Alcohol		
Yes	45	6.4
No	655	93.6
Family history		
Yes	59	8.4
No	641	91.9

information while surfing on the internet, and around 40% resorted to the magazines, 25% got their information from TV or radio programs, and 40% obtained their health information from medical staff and their own family members, relatives, and friends.

More than 50% of the participants resorted to du'a and prayers. Only around 18% used herbs as some sort of complementary medicine and did screening procedures. In addition, approximately 44% used nutritional health, and only 11% practiced some forms of exercises.

Table 2 shows that majority of participants had low perception (62.4%), while only 263 had good perception (37.6%). In terms of perceived severity of cancer, around 418 (59.8%) participants had low perceived threat, while around 40.2% had good perceived severity. On the other hand, the results showed that participants had

Table 2. Perceived Susceptibility, Severity and Benefits of Screening

	High	Low
	Frequency (%)	Frequency (%)
Perceived Susceptibility	263 (37.6%)	437 (62.4%)
Perceived Severity	282 (40.2%)	418 (59.8%)
Benefits of Screening	396 (56.6%)	304 (43.4%)

Table 3. Perceived Susceptibility to Cancer by Sociodemographic and Domains, Hierarchal Linear Regression

variable	B	SE	$\beta$
Constant	18.49	2.58	
Gender	0.33	0.36	0.03*
Marital status	0.45	0.48	0.01
Education	0.3	0.33	0.04
Employment	0.09	0.02	0.01
Smoking	0.18	0.49	0.04
Alcohol use	0.17	0.77	0.06
Finding info	0.01	0.05	0.02
Prevention	0.14	0.05	0.11*
Behaviour	0.13	0.05	0.06*
Practice	0.06	0.04	0.52
Treatment	0.07	0.06	0.04*
Personal	0.39	0.13	0.19
Timeline	0.14	0.06	0.08*
Consequence	0.11	0.14	0.03
Coherence	0.16	0.1	0.06
Emotional	0.1	0.06	0.07*
R <sup>2</sup>	0.059		
F	2.862*		
$\Delta R^2$	0.33		
$\Delta F$	4.025		

Hierarchal linear regression test, two-sided p value <0.05, model 3 reported

better perception to the benefits of screening where more than half (56.6%) had good one, while 43.4% had low perception to screening benefits.

Hierarchal linear regression test was conducted for the factors, and model 3 revealed that the results were statistically significant between perception domains of treatment control, personal control, timeline, consequences, and coherence and emotional with the outcome. It was shown that  $R^2 = 0.059$ ,  $F = 2.862$ , and p-value of model 3 was below 0.001. We found that our participants had some degree of worry, anxiety, and knowledge over the disease course compared to others.

## Discussion

This study examined cancer perceived susceptibility and severity as well as perceived benefits of screening among young Iraqis living in Baghdad. The explanatory model explained around 38% of the variance in the final model in this investigation, which is vital in explanation of the risk to cancer perception.

Cancer perception level was generally low among our participants regardless of their level of education, of whom 72% had tertiary level education.

Our finding was consistent with other studies indicating that perceived susceptibility to cancer and prevention behaviour play an important role in chronic disease prevention (Lee et al., 2010). This study emphasized on

healthy people and their perspective thinking regarding cancer, how their cancer risk perception and disease-related evolves. It was revealed that demographic factors like gender, marital status, and level of education were found to play a role in cancer risk perception. Similarly, Malmusi et al. yielded that women had lower level of cancer risk perception than men (Malmusi et al., 2012). Castillo et al., also found significant difference between men and women in this regard. However, Barreto and de Figueiredo observed no difference between men and women in terms of the level of cancer risk perception (Barreto and de Figueiredo, 2009).

Considering the effect of education level on cancer risk perception level, our finding was similar with that of other studies (Olszanecka-Glinianowicz and Chudek, 2013; Dieng et al., 2014). Overall, these sociodemographic findings were found to be minimal to the statistical model possibly due to the fact that perception itself is a complex structure and varies from one situation to another and across different individuals. The way through which individuals perceive health problems and make decision concerning their own behaviour do not always follow a logical pattern (García et al. 2005). Furthermore, cancer preventive behaviours and health seeking information were positively correlated with outcome. More than 70% of our participants obtained their health information from TV programs and more than 80% from medical personnel, exemplifying that health seeking information is crucial and a step towards improving behaviour to a healthy one, as it has been known that early detection is highly associated with enhanced disease outcome. In similar vein, Ahmad et al., (2014) reported that about one fourth of participants (n=950) were engaged in healthy seeking attitude for cancer prevention and early detection. Additionally, another study showed that these participants had significant differences in terms of treatment, timeline, and emotional domains, may indicating that they perceived the illness to get longer course of treatment, will continue for longer time and drastically worry and fear from it. This is consistent with other studies (Hopman and Rijken, 2015). Individuals even with high level of education have variant understanding and explanations when it comes to illness perception possibly because they do not have enough information concerning the cancer. Psychological factors and health behaviour are both recognised factors and hence play a vital role in perceived health (Freidoony et al., 2015).

There is emphasis that people who positively engaged with screening also have few barriers. The relationship between emotional domain and health engagement in screening behaviour was negative. The more emotional distress was associated with less likely engagement.

It was found that around 50% of these cancers could be prevented if people had adequate cancer risk knowledge that is satisfactory used to reduce the prevalence. Perceived susceptibility to cancer is a complex process and interaction between different systems which bring about the health behaviour decision according to the behavioural theories. Thus, understanding people's perception to cancer will be of great benefit to improve cancer risk perception and make proper health management programs

(García et al., 2005). Additionally, health behaviour is dependent on health belief as a determinant from which the health theories are developed. It was demonstrated that people would engage in favourable health behaviour if they perceived themselves at risk of a health condition (Wilkinson et al., 2009). Moreover, perception of health people is different from those who are diseased. In other words, healthy individuals perceived cancer as less threatening and less severe than cancerous patients. On the other hand, patients suffering from cancer had a more realistic perception to cancer than healthy individuals. On the other hand, those who did care for ill patients did not develop the same feelings as their patients (Castillo et al., 2011).

Previous literature found that cancer screening was the sole mode of preventive behaviours among Iraqi, especially for breast and lung cancers (Alwan, 2010; Habib et al., 2016; Sheet et al., 2012). When people believe that the health benefits that they receive are superior to any other unwanted side effect from the procedures. Action only started when people feel they are at risk, thus they engage themselves in risk-reducing behaviours or get involved in screening procedures (Godino et al., 2014).

Thus, prevention plays an important role. In order to develop a proper and successful preventive program, knowledge and perception of the cancer should be increased. Moreover, attitude towards screening procedures should be positive to enable the satisfactory process.

In conclusion, this study was the first to investigate the perceived susceptibility to cancer among healthy young adult living in Baghdad. Perceived susceptibility to cancer with its inclusion of psychological factors and behaviour are important contributors to self-perceived health. Hence, there is association between perception and future morbidity and mortality, thus it is crucial for public health policy. Comprehensive health programs that include health promotion campaigns and proper health care services are warranted to deal with primary prevention.

## Acknowledgements

### *Strength and limitations*

The main strength of this study is that it examined a specific belief of healthy young individuals toward cancer. In addition, it shed the light towards an important public health issue and warranted more research in this field because perceived susceptibility to illness reflects the health behaviour and future coping of people with their illness. Regarding limitation, it might be the study design which is cross sectional study in which no causal relationship is determined, although this study was conducted to explore the perception towards cancer rather than determine causality.

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