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Research Article

Awareness Assessment towards Anemia in the Western Region of Saudi Arabia

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ABSTRACT

Background: Anemia is a common public health problem-affecting people at both developing and developed countries. It characterized by abnormal low hemoglobin level and associated with several numbers of risk factors.

Method: Pre-piloted online questionnaires consist of 21 questions were used in this study to assess the general awareness level toward anemia.

Results: This study showed that the majority of the participants showed well understanding regarding what is the anemia with (89%). More than two third of study participants (77%) recognized that some types of anemia can be inherited. However, limited level of awareness was presented regarding to the association of anemia with exposure to the benzene and working in cement factories for long periods with 15% and 14% respectively.

Conclusion: This is the first study to be done in western region of Saudi Arabia to assess the people awareness level toward anemia and their risk factors. This study also suggested that increasing awareness and education for the purpose of changing life style and consumption patterns as well as additional intakes of supplements in some medical cases and pregnancy for preventing or/and reducing the incidence of anemia.

Keywords: Anemia; Awareness; Western region; Saudi Arabia

INTRODUCTION

Anemia is a common public health problem that affecting people at any age among developing and developed countries. It characterized by abnormal low hemoglobin level and related to different health complications range from mild to severe such as headache, fatigue, low productivity and maternal mortality. In 2002, the World Health Organization (WHO) has been identified anemia as one of the top ten risks for mortality [1].

Blood hemoglobin concentration consider the most reliable indicator of anemia, however, it is not enough to determine the cause and type of anemia [2]. In Saudi Arabia (2004) anemia was diagnosed based on hemoglobin and hematocrit concentrations among adult and elderly and found that 38% and 55% were anemic respectively [3].

Several number of medical disorders have been reported to be associated with increase the risk of developing anemia including; iron deficiency, micronutrient deficiencies (e.g. vitamins A, vitamins B12 and folate), acquired or inherited disorders influence red blood cells (RBCs) synthesis and hemoglobin production (e.g. haemoglobinopathies) and acute and chronic illnesses (e.g. tuberculosis, human immune deficiency virus, stomach cancer and malaria) (World Health Organization, 2015). Iron deficiency is reflected almost 50% of anemia cases, yet the percentage of the prevalence is varies among different regions, conditions and individuals [4,5].

In Turkey, a study has been found that lower consumption of red meat as well as irregular eating habits are highly associated with development of anemia among children between 12-16 years old [6]. Microcytic anemia was reported in-patient diagnosed with decreased iron absorption as a result of tea drinking simultaneously with meat consumption [7]. Within the same study they also found that haeme iron from cooked meats is not affected by consumption of tea. On the other hand, different research study was performed on rats and reported that consumption of tea and coffee was not associated with anemia [7].

According to the WHO, the most affected group with anemia is pregnant women, about 56 million were affected from all over the world from 1993 to 2005 [8]. Moreover, in developing countries anemia is considering one of the most common health problems in pregnant women in the range of 40% to 60% [9]. Abnormal (upward) shift of the haemoglobin distribution curve were

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reported among male and female cigarette smoker. In addition, several chronic diseases, which can be complicated by anemia, have been associated with cigarette smoking. However, cigarette smoking in healthy individuals causes an increase in haemoglobin concentration as a result of exposure to carbon monoxide (CO) [10]. Shah and Naik found that aplastic anemia was diagnosed in workers who used benzene without any protective measures for longer than a year in Surat, India [11]. The generated cement dust from construction of buildings and roads showed statistically significant decrease in haemoglobin level and red blood cell (RBC) among construction workers [12]. More than 150 years ago Richard Brigh was the first who reported the association between anemia and chronic renal failure due to inhibition of erythropoiesis production or /and shortened red cell survival [13].

Unfortunately, there were limited number of studies showed the general awareness level of anemia and its causes among population at the western region of Saudi Arabia. Thus, the aim of this study was to assess awareness level about anemia and its causes between Saudi and non-Saudi population in three cities; Makkah, Jeddah and Taif.

METHODS

This study carried out between November to December 2018, in 433 Saudi and non-Saudi male and female adults who were living in Makkah, Jeddah or Taif city at the western region. Data were collected using pre-piloted online questionnaires consist of 21 questions. The first part of the questionnaire was about the demographic data of participants (gender, age, nationality, city, educational level, sector and social status). The second part of the questionnaire focused on measuring the awareness of anemia and its risks factors. It consisted of 13- closed-ended questions with the only possible answer of yes or no.

Data analysis

Responses to the second parts of the questionnaire were assessed by closed-ended with the only possible answer of yes or no. The data was collected and analyzed statistically using SPSS version 16.

RESULTS

A total of 433 Saudi and non-Saudi male and female from the western regions of Saudi Arabia (Makkah, Jeddah or Taif city) were completed the electronic questionnaire. The range of respondents' age was between 18 to over 50 years. The majority of respondents were Saudi and female with 89% (385/433) and 77% (335/433) respectively. The demographic data of this study is shown in (Table 1).

The basic awareness about anemia and their risk factors were assessed within 13 items of the questionnaire. The majority of the participants demonstrated good understanding regarding what is the anemia 89% (386/433). Higher percentage of participants knows that some types of anemia can be inherited 77% (334/433).

In addition, more than half of the participants with 57% (248/433) and 70 % (302/433) were aware of that not eating meat for long period and drinking red tea while eating may lead to anemia respectively. The majority of participants with good level of knowledge about that the pregnancy might cause anemia among pregnant women 75% (325/433). However, most of the participants who were not aware of the association between pregnancy and anemia were female with 67% (72/107) (Table 2). The results also reported that most participants were aware of the association between smoking and imbalance in blood function 74% (321/433) (Table 2). Respondents' awareness about the association of anemia with exposure to the smell of benzene and working in cement factories for long periods were limited with 15% and 14% respectively. This study also investigated respondents' awareness about development of anemia as a result of chronic kidney failure 58% (252/433) and due to some immune diseases 52% (224/433) (Table 2). Only 35% were aware that chronic hemorrhoids can lead to mild or severe anemia. Many participants were aware of the link between stomach ulcers and duodenal ulcers and anemia 63% (274/433). It has been also reported that 53% (231/433) of participants were aware of the relation between types of intestinal worms and causing of anemia. According to the results of this study it has been shown that 98% (92/94) of the participants from the medical field were answer all the questionnaire questions which related to anemia and it's risk factors correctly (Table 2). Moreover, it has been shown that there is a significant proportion between the educational level and degree of anemia awareness.

Table 1: Showed the number and percentage of participant's variables including; age, educational level, city, nationality and work field.

Variables		Total number	Percentage (%)
Age group	18-28	106	24.5
	29-39	134	31
	40-50	117	27.1
	Over 51	75	17.4
Educational Level	Uneducated	6	1.4
	High school	73	17
	Undergraduate	254	59
	Postgraduate	99	23
City	Makkah	132	30.5
	Jeddah	136	31.5
	Taif	164	38
Nationatity	Saudi	386	89
	Non-Saudi	47	11
Feild	Medical	94	22
	Non_medical	339	78

Table 2: Showed the number and percentage of participants answers about the anemia's related risk factors.

Anemia risk factors		Total number	Percentage (%)
Not eating meat for long periods may lead to anemia	Yes	248	57
	No	185	43
Drinking red tea while eating can lead to anemia	Yes	302	70
	No	131	30
Pregnancy can lead to anemia	Yes	325	75
	No	108	25
Smoking may lead to an imbalance in blood function	Yes	321	74
	No	112	26

Exposure to the smell of gasoline for long periods may lead to anemia	Yes	66	15
	No	366	85
Working in cement factories for long periods may lead to anemia	Yes	62	14
	No	370	86
Some types of anemia are inherited	Yes	334	77
	No	99	23
Chronic renal failure may lead to anemia	Yes	252	58
	No	181	42
Chronic hemorrhagic disease may lead to anemia	Yes	153	35
	No	279	65
Ulcers of stomach and duodenum lead to anemia	Yes	274	63
	No	159	67
Some types of intestinal worms cause anemia	Yes	231	53
	No	202	47

DISCUSSION

Anemia is a common public health problem-affecting people at any age among developing and developed countries. Several risk factors have been reported to increase the chance of developing anemia in different research studies. This study presented the level of awareness toward anemia and their risk factors among Saudi and non-Saudi at western region of Saudi Arabia.

Generally, from the results of this study it is obvious that a true understanding about anemia is presented from the majority of the participants. This study has also reported that 77% of the study population was aware of the fact that some types of anemia can be inherited. Similar to our study results, a study performed in Qassim and showed that the majority of the participants were aware of drinking red tea during the meal and pregnancies are associated with anemia [14]. Hussain and shu have reported that 52% of women participants of their study were well known that drinking tea at the same time of consuming diet can impair the iron absorption leading to anemia [15]. However, the results of this study showed limited awareness about exposing and inhalation of some chemicals such as benzene and working in cement factories for long period and development of anemia from most of the participants. In this study 25% of participants were not aware of the association between pregnancy and anemia out of which 67% were female. This concurs with [14] study which reported that male respondents were more aware of that the pregnancy might cause anemia more than female respondents.

This study suggests some actions to eradicate or minimize the incidence of anemia. These actions include increasing awareness and education for the purpose of changing life style and consumption patterns as well as additional intakes of supplements in some clinical cases and pregnancy under medical supervision.

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CONFLICT OF INTEREST

The authors have no conflict of interests to disclose.

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