Original Research Article

Awareness of the general population about the causes, management and prevention of Peptic Ulcer Disease in Arar City, Northern Saudi Arabia

Abstract:

Background: Gastro-dudenal ulcere is a global problem with a lifetime risk of development ranging from 5% to 10%**. Objective:** This study aims to determine the public awareness in Arar, Saudi Arabia, regarding the causes, management and prevention of gastro duodenal ulcer. **Methods:** A cross-sectional study was conducted in Arar city, Saudi Arabia in the period of 1 September to 30 October 2021 among the general population of Arar, Saudi Arabia.**Conclusion:** Almost half of the participants had knowledge about gastric or duodenal ulcers and most of them know the risk factors and possible complications. There is non-significant relationship between gastro-duodenal ulcers awareness and age, gender and educational level while a significant relationship was found between level of awareness and social status, functional status and the average monthly income of the participants.

Key words: duodenal ulcers, ulcers Gastric ,awareness, general population, Arar, Saudi Arabia.

Introduction:

Gastric and duodenal ulcers are two varieties of peptic Peptic Ulcer Disease (PUD). The ulcer is formed as a break within the stomach lining mucosa, at the start of the duodenum, or sometimes within esophagus. Approximately 4% of the population acquire peptic ulcers (1). The lifetime risk of developing peptic ulceration is approximately 10% (2).

Deaths that are reported due to peptic ulcers accounted for 301,000 in 2013, rather than 327,000 deaths in 1991 (3).

Objective:

The aim of this study is to determine the public awareness in Arar, Saudi Arabia, regarding the causes, management and prevention of gastro duodenal ulcer.

Methodology:

A cross-sectional study was conducted in Arar city, Saudi Arabia in the period of 1 September to 30 October 2021 among the general population of Arar, Saudi Arabia.

Inclusion criteria: age between 18 and 70 years, both genders and all educational levels.
Exclusion criteria: Older than 70 or younger than 18 years.
Sample size:

Sample size was calculated by using sample size equation through the following formula $(N=(Z\alpha)2 \times ([p(1-p)]/d2)$

Where:

n = estimated sample size.

Zα at 5% level of significance = 1.96

d = level of precision and is estimated to be 0.05

p = High awareness levels in two previous studies (30%).

Actual sample size = (Primary sample size × design effect (estimated to be 1.5) considering target population more than 10 000, and study power 95%.

In our study the sample was 420 individuals.

Sampling Technique:

The participants were selected using the systematic random sampling technique. Data was collected from all adult male and female attendees of 5 randomly selected primary health care centers (PHC) in Arar city. We included all the population attending the PHC

centers for any cause, not only the patients. After identifying the first participant randomly, then every 3rd attendant was interviewed and included in the study till the required sample was covered. Data was collected through personal interviews with the selected population and filled the questionnaire which guided us to the required data according to the study objective.

Data collection:

A pre-designed questionnaire was used for data collection.

It included questions regarding socio-demographic characteristics of the participants

questions regarding the awareness about the causes, management and prevention of gastro duodenal ulcer and questions about the family history and management, in addition to methods of prevention

Pilot study: A pilot study was conducted on 20 respondents before the beginning of the study period to determine the applicability and adequacy of the questionnaire, further additional modifications was done after testing, and the questionnaire was re-administered.

Data management:

Data was analyzed using statistical package for the social sciences (SPSS, version 23) and results were presented by tabular and graphical presentation according to the study objective.

Ethical Considerations:

An ethical approval to conduct this study was obtained from the research ethics committee of the Northern Border University in Arar city, Saudi Arabia (HAP-09-A-043) decision no.(4/43/H). The questionnaire contains a brief introduction to explain the aim of the study to the participants. Participants were informed that participation is completely voluntary. No names were recorded on the questionnaires. All questionnaires were kept safe.

Results

Table (1) shows the Sociodemographic and characteristics of participants. Only 6.8% of the participants were less than 20 years old, 60% of them were between 20 and 40 years old and 33.1% were more than 40 years old. Most of our participants were university educated or more, 16.5% of them were secondary educated and only 0.4% were non educated. Almost three quarters of our participants (74.6%) were females, 67.8% of them were married and 25.9% were single. Regarding the working status, 65.8% of our participants were employed while 34.2% were not and almost half of our participants had average monthly income 10 thousands or more.

Table (2) shows Knowledge of participants regarding the gastro-dudenal ulcers and its possible risk factors. Most of our participants (80.5%) don't suffer from any chronic diseases while 6.3% of them suffering from hypertension and 6.3% were diabetic. thought that of the participants 47.5%they had knowledge about gastric or duodenal ulcers, while 52.5% thought that they don't. Regarding the risk factors of the disease, 76.9% of the total participants thought that stress may cause gastric and duodenal ulcers, 91.1%of them thought that eating spicy foods and peppers may cause stomach ulcers and duodenal ulcers, 81.6% of them thought that taking painkillers in excess may be a risk factor for gastric and duodenal ulcers and 91.1% thought that drinking alcohol may cause stomach ulcers and duodenal ulcers.

From our total 571 participants, 95.8% had heard of stomach germs, 75.8% thought that infection with stomach germs may cause gastric and duodenal ulcers and 71.3% of them thought that antacids are effective in treating stomach and duodenal ulcers. 87% of our participants thought that the unclean food is the most common way of transmission to the stomach germs, 6.3% thought its sharing utinsils and 5.1% thought its body fluids from the infected person. 45.2% of our participants reported that stomach germs cause stomach cancer from their point of view, 27.7% of them said that gastric and duodenal ulcers have a genetic factor, 40.6% of them thought that having gastric and duodenal ulcers may lead to severe bleeding and death while 55.7% had an information that antacids are effective in treating stomach and duodenal ulcers.

Table (3) shows the relationship between sociodemographic data of the participants and awareness level regarding gastro-duodenal ulcers.

This table showed a non-significant relation between gastroduodenal ulcers awareness and each of age, gender and educational level (with P value = 0.055, 0.462 and 0.827) respectively, while we found a significant relationship between level of awareness and social status, functional status and the average monthly income of the participants (P= 0.016, 0.027 and 0.009) respectively.

Table (1): Sociodemographic characteristics of participants (n=571)

Parameter		No.	Percent
Age	• Less than 20	39	6.8
	• 20 - 30years old	168	29.4
	• 2 1- 40years old	175	30.6
	• More than 40	189	33.1
Education level	• uneducated	2	.4
	• primary	7	1.2
	• intermediate	11	1.9
	• secondary	94	16.5
	• college and above	457	80.0
Gender	• Male	145	25.4
	• Female	426	74.6
Social status	• Single	148	25.9
	• Married	387	67.8
	• Widower	7	1.2
	• Divorcee	29	5.1
Working status	• work	376	65.8
	• not work	195	34.2
Average monthly household income (in Saudi riyals)	• Low (Two thousand or less)	44	7.7
	• Average (from two thousand to 10 thousand)	243	42.6
	• High (10 thousand or more)	284	49.7

Table (2): Knowledge of participants (n=571).

Parameter		No.	Percent
Do you suffer from one of the following chronic diseases: You can	• I do not suffer from any	460	80.5

choose more than one answer.	chronic diseases		
	• hypertension	36	6.3
	• diabetes	36	6.3
	• obesity	9	1.5
	• Coronary insufficiency	4	0.7
	•arteriosclerosis	1	0.1
Do you think you have knowledge about gastric or duodenal ulcers?	• Yes	271	47.5
	• No	300	52.5
Do you think that stress may cause gastric and duodenal ulcers?	• Yes	439	76.9
	• No	132	23.1
Do you think that eating spicy foods and peppers may cause stomach ulcers and duodenal ulcers?	• Yes	520	91.1
	• No	51	8.9
Do you think that taking painkillers in excess may cause gastric and duodenal ulcers?	• Yes	466	81.6
	• No	105	18.4
Do you think that drinking alcohol may cause stomach ulcers and duodenal ulcers?	• Yes	520	91.1
	• No	51	8.9
Have you ever heard of stomach germs?	• Yes	547	95.8
	• No	24	4.2
Do you think that infection with stomach germs may cause gastric and duodenal ulcers?	• Yes	433	75.8
	• No	138	24.2
In your opinion, what is the most common cause of gastric and duodenal ulcers?	• Pressure nervousness	86	15.1
	• Eating a lot of spicy foods	183	32.0
	• Take painkillers a lot	65	11.4

	• Germ stomach	177	31.0
	• drinking liquor	60	10.5
According to your knowledge, how is the stomach germ transmitted to humans?	• unclean food	497	87.0
	• in the air	9	1.6
	• body fluids from the infected person	29	5.1
	• Sharing utensils/ chopsticks	36	6.3
According to your knowledge, does stomach germs cause stomach cancer?	• Yes	258	45.2
	• No	313	54.8
Do you think that gastric and duodenal ulcers have a genetic factor?	• Yes	158	27.7
	• No	413	72.3
What are the symptoms of stomach ulcers and duodenum that you know? You can choose more than one answer	• vomiting or vomiting blood	284	49.7
	• black stools	116	20.3
	• Anorexia	270	47.2
	• Abdominal pain	307	53.7
	• Bloating	240	42.1
	• Unexplained weight loss	239	41.8
Do you think that having gastric and duodenal ulcers may lead to severe bleeding and death?	• Yes	232	40.6
	• No	339	59.4
Do you think that antacids are effective in treating stomach and duodenal ulcers?	• Yes	318	55.7
	• No	253	44.3
Is stomach germs treated with antibiotics?	• Yes	407	71.3
	• No	164	28.7
Do you think that washing hands well before eating prevents infection	• Yes	490	85.8

with stomach germs?			
	• No	81	14.2

Table (3): The relations between sociodemographic data of the participants and awareness level regarding gastro-duodenal ulcers (n=571).

Do you think you have knowledge about gastric or duodenal ulcers?		Yes	No	Total (N=102)	P value
Age	Less than 20	12 4.4%	88 29.3%	189 33.1%	0.055
	30 - 20years old	75 27.7%	27 9.0%	39 6.8%	
	21 - 40 years old	83 30.6%	93 31.0%	168 29.4%	
	More than 40	101 37.3%	92 30.7%	175 30.6%	
Gender	Male	65 24.0%	80 26.7%	145 25.4%	0.462
	Female	206 76.0%	220 73.3%	426 74.6%	
Social status	Single	56 20.7%	92 30.7%	148 25.9%	0.016
	Married	192 70.8%	195 65.0%	387 67.8%	
	Widower	4 1.5%	3 1.0%	7 1.2%	
	Divorcee	19 7.0%	10 3.3%	29 5.1%	
Educational level	Uneducated	1 0.4%	1 0.3%	2 0.4%	0.872
	Primary	2 0.7%	5 1.7%	7 1.2%	
	Intermediate	6 2.2%	5 1.7%	11 1.9%	

	Secondary	45 16.6%	49 16.3%	94 16.5%	
	college and above	217 80.1%	240 80.0%	457 80.0%	
functional status	Work	191 70.5%	185 61.7%	376 65.8%	0.027
	not work	80 29.5%	115 38.3%	195 34.2%	
Average monthly household income (in Saudi riyals)	Low (Two thousand or less)	14 5.2%	30 10.0%	44 7.7%	0.009
	Average (from two thousand to 10 thousand)	106 39.1%	137 45.7%	243 42.6%	
	High (10 thousand or more)	151 55.7%	133 44.3%	284 49.7%	

Discussion:

Gastro-duodenal ulcer is a global problem with a lifetime risk of development ranging from 5% to 10% [11,12] Although gastric ulcers are very common, duodenal ulcers are four times more common than gastric ulcers. Also, duodenal ulcers are more common in men than in the woman.[12]

Waking during the night with upper abdominal pain that worsens with eating are the foremost common symptoms of peptic ulcers. With a peptic ulcer, the pain may worsen with eating. Other symptoms are poor appetite, belching, weight loss and vomiting, fullness, bloating, intolerance to fatty foods, and hear tburn. There are not any symptoms in around one-third of older people (4, 5). The most common causes of peptic ulcers are Helicobacter pylori infection and also long-term consumption of non-steroidal anti-inflammatory drugs. Peptic ulcers aren't caused by spicy foods and Stress. However, they will make the symptoms worse. Less common causes of peptic ulcers include cigarette smoking, Zollinger-Ellison syndrome,stress due to serious illness, and liver cirrhosis,Mucosal injury caused by the three most common causative agents - H.pylory (through urease activity), NSAID (through inhibition of prostaglandin synthesis) and

alcohol (through alcohol-induced gastroenteritis),(1, 6). Bleeding is one of the complications caused by peptic ulcers, that lead to anemia or severe blood loss requiring hospitalization or a blood transfusion. Loss of blood may cause black or bloody vomit or black or bloody stools. Bleeding occurs in as many as 15% of individuals (7), also perforation, and blockage of the stomach may occur. Gastric and duodenal ulcers account for (3.2%) and (4.9%) of participants which is consistent with an Iranian study, making an overall prevalence of 8.2 %. H. pylori infection, Smoking, and chronic intake of NSAIDs were the main risk factors of peptic ulcer supported by several studies. For peptic ulcers, in addition to H. pylori infection and Smoking, male gender and living in a populated area were among significant risk factors (8). consistent with a recent study to look for risk factors leading to peptic ulceration, it's found that the most common risk factors were H. pylori infection, tobacco smoking, and use of minor tranquilizers.In those with increased antibodies to H. pylori, tobacco smoking and intake of alcohol increased the danger of peptic ulceration disease PUD whereas moderate free-time physical activity protects against peptic ulceration (9).

In this study we included 571 randomly taken participants of the general population in Arar, Saudi Arabia, to assess their level of awareness about gastro-dudenal ulceres and to analyze if there is a significant relationship between demographic data of the participants and their level of awareness. Most of our participants were females, and only 25.4% were males, this may be because females are always have more free time. More than half of our participants were married, 25.9% of them were single and only 6.3% were divorced and widowed.

A previous similar study was done in Jeddah to evaluate the awareness of the general population about gastric ulcer disease, they included 620 participants, the male to female ratio was almost the same as ours [12]. In our study only 6.8% of participants were less than 20 years old, 60% of them were from 20 to 40years old and 33.1% of them were more than 40 years old, while in Dafalla's study 11.5% of the participants were less than 24 years old, 53.5% were from 25 to 44 years old and 35% were more than 45 years old [12]. In this study we evaluated the level of awareness among the participants about gastro-dudenal ulcers. 47.5% of the participants were found to have information about the disease. This level is higher than the level of awareness found in Jeddah by Dafalla [12],

as they reported the awareness level about gastric ulcer disease to be 38.4%. Much lower levels of awareness were reported by Shamseya et al. [16], who stated that the majority of the subjects (81.3%) had poor total knowledge scores, While higher levels of awareness among final-year physician assistantship were reported by Quartey et al. [14], who found that the overall mean knowledge was 64.0%, and 53.5% among the nursing students.

Regarding the risk factors, 76.9% of our participants thought that stress cause gastric ulcers, 91.1% of them thought that type of eating (specially spicy food) causes gastric ulcers and 81.6% of our participants though that taking painkillers frequently causes gastric ulcers. In another study done by Malek. Et al. in the United Arab Emirates [13], only 11.4% of their participants thought that type of eating causes gastric ulcers and 6.60% of them thought that taking painkillers may cause gastric ulcers, while in Dafalla's, 63.4% of the participants thought that gastric ulcers could be caused by psychological stress [12], while a higher fraction of the participants (97.8%) was reported by Jaras et al. [15]. In our study 55.7% of the participants think that antacids are effective treatment for gastro-dudenal ulcers, while in Malek's 34.8% of participants thought that using antacids is one of gastric ulcers causes.[13]

Additionally in the current study, participants were asked about the common complications of gastrodudenal ulcers, and 40.6% of them thought that sever bleeding to death is one of the most common complications of the disease. On the other hand in Dafalla study the answer about the same question were as follows: bleeding (9.8%), perforation (14.8%), stomach blockage (3.2%) [12], and all these complications together (40.2%) and also a higher knowledge about gastric ulcers complications was reported in Jaras study who stated that more than 95% participants knew that PUD is related to bleeding and perforation[15].

In the current study we found a non-significant relation between gastro-dudenal ulcers awareness and each of age, gender and educational level (with P value = 0.055, 0.462 and 0.827) respectively. This is unlike the results of Dafalla, who reported a significant relation between gastric ulcer awareness and age and level of education, as the calculated p-values for these parameters was recorded as 0.002 and 0.010, respectively [12]. Our results were also in contrary to the results previously reported by Shamseya et al. [16], where it was stated that statistically significant difference was observed between the

patient's level of knowledge score and age, in favor of patients whose age ranged between 20 and 30 years, and education level, in favor of patients with high or secondary education, and also in contrary to the study done by Malek et al [13], who reported a significant relation between level of awareness of participants and gender (P= 0.008).We found a significant relationship between level of awareness and social status, functional status and the average monthly income of the participants (P= 0.016, 0.027 and 0.009) respectively, which is in contrast to the findings of the study that was conducted by Shamseya et al. [16], who stated that statistically significant difference was found between the patient's level of knowledge score and occupation, in favor of students and office workers (p = 0.000).

Conclusion:

Almost half of the participants had knowledge about gastric or duodenal ulcers and most of them know the risk factors and possible complications. There is non-significant relationship between gastro-duodenal ulcers awareness and age, gender and educational level while a significant relationship was found between level of awareness and social status, functional status and the average monthly income of the participants.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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