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Determinants of Gastro-esophageal Reflux Disease in Nablus

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Dedication

All praise to Allah, today I fold the days tiredness and the errand summing up between the cover of this humble work …

To the utmost knowledge lighthouse, to our greatest and most honored **Prophet Mohammad** - May peace from Allah be upon him…

To the Spring that never stops giving, to whom she weaves my happiness with strings from her merciful heart... To my beloved **mother**…

To whom he strives to bless comfort and welfare , never stints what he owns to push me in the success way, who taught me to promote life stairs wisely and patiently … To my beloved **father**…

To whose love flows in my veins, and my heart always remembers them … To my dearest **brothers** and beloved **sister**…

To those who taught me letters of gold and words of jewel of the utmost and sweetest sentences in the whole knowledge. Who reworded to me their knowledge simply and from their thoughts made a lighthouse guides me through the knowledge and success path …

To my honored **teachers** and all who gave me help and support throughout my life …

To my beloved home land **Palestine** … And to all **Palestinians** and **Muslims** all over the world …

MARAH ABU SALHA

2016

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At last, all my love to my dear family, their encouragement was my motivation …

MARAH ABU SALHA
2016

الإقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

Determinants of gastro esophageal reflux disease in Nablus

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص ، باستثناء ما تمت الإشارة إليه حيثما ورد ، وأن هذه الرسالة ككل ، أو أي جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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Date : 12/5/2016 **التاريخ :**

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List of Abbreviations

GERD Gastro Esophageal Reflux Disease

NSAID Non Steroidal Anti inflammatory Drug.

LES Lower Esophageal Sphincter

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Abstract

Background

Gastro-esophageal reflux disease (GERD) is used to describe the symptoms and changes of the esophageal mucosa, that result from reflux of the stomach contents into the esophagus, which is affected by various lifestyle factors, such as age, gender, body mass index (BMI), obesity and other life style factors. GERD is a very common disorder worldwide and it is a very common disease affecting millions of people around the globe. Yet, it has never been investigated in the Palestinian population. We aim to evaluate the potential determinants of GERD severity and frequency of symptoms among the Palestinian population in Nablus district.

Materials and methods

A cross sectional study using a previously validated questionnaire was performed using face-to-face or telephone call interviews. A non-random purposive sampling technique was used of nearly 120 subjects from the external clinics of An-Najah educational Hospital, Specialized Arab Hospital, Al watani Governmental hospital, and from a private clinic in Nablus. All analysis was conducted using SPSS 16 software. Chi square was used to analyze differences between dependent variable and independent variables. Multivariate logistic regression was also performed

in order to adjust for possible confounders. P-value of less than 0.05 was considered statistically significant.

Results

We were able to recruit 120 participants from three hospitals and one private clinic in Nablus city. The male participants were 40 subjects (33.3% of the sample) while female were 80 (66.7%). Data analysis showed that the majority of participants were more than 50 years old (34.2%). There were no statistically significant differences between the participants and GERD severity regarding age and marital status (P values > 0.05). Furthermore, the most significant variable of the demographic factors were: family members and patients height, and of the exposure factors were: fatty food, coffee consumption and having antihypertensive drugs or NSAID medication. In multivariate logistic regression only those who reported that they usually don't feel of chest pain during GERD symptoms were less likely to have severe GERD symptoms (OR:0.09; 95% CI: 0.02-0.52), and those who complained that they always did not have sleeping disturbances due to GERD episodes were also less likely to have sever GERD symptoms (OR:0.05; 95% CI:0.007-0.40).

Conclusion

Patients showed an increase in the occurrence of GERD symptoms after they exposed to fatty food, coffee consumption and some medication. Increasing public awareness, educating population about; bad life style, wrong eating habits which related to GERD symptoms, and instructing the

public about GERD preventive practices, these procedures and others should form an essential basic of the intervention steps. Finally, we recommend further future studies in all internal departments of the Palestinian hospitals, in order to correlate the reported symptoms with the exposed factors and determinants more appropriately.

Chapter One
Introduction

1.1 Background

Nearly, 10–20% of persons in the general population show signs of gastro-esophageal reflux disease (GERD)[1]. It is a chronic, relapsing disorder, characterized by reflux symptoms like heartburn, regurgitation, esophageal injury, and various extra-esophageal symptoms. It is considered to be an emerging digestive disease in Asia[2]. The term gastro esophageal reflux disease (GERD) is used to describe the symptoms and changes of the esophageal mucosa, that result from reflux of stomach contents into the esophagus, lower esophageal sphincter pathology seems to be responsible for the acid reflux in many patients[2]. GERD symptoms include epigastric pain, heartburn, pharyngeal burning, and regurgitation of gastric contents, acidic taste and dysphagia[3]. GERD show a variety of symptoms frequency and severity in the population. Occasional symptoms are experienced by a large proportion of the population but GERD results from frequent or severe symptoms which are sufficient to impair the individual's health quality of life[4]. Such symptoms may be experienced daily, weekly or only few times per month[3]. Therefore, GERD is responsible for sickness absenteeism, impaired health-related quality of life and esophageal adenocarcinoma. Furthermore, Struch et al. showed that gastro-esophageal reflux disease is a risk factor for halitosis[5]. Dietary factors like shorter dinner-to-bed time, a high fat diet, obesity and smoking have been implicated in increasing the risk for GERD. Other lifestyle factors

associated are stress, alcoholism. Residents in rural areas and those with a positive family history are associated with a higher risk of GERD. However, socioeconomic status and westernized diet are not confirmed yet as risk factors[4]. The approximate prevalence of GERD based on definition of at least weekly heartburn and/or acid reflux is 10–20% in Western countries[2,4.]. The prevalence and incidence studies in the Asian countries are scarce which might explain the low prevalence and incidence of GERD in Asian nations[2,4,6]. However, it has obviously been increasing, and has recently become a common disease in Japan[7]. Based on the systematic review, reflux is more common in Arab countries than Asian countries. The prevalence of GERD in East Asia was found to be 5.2%-8.5% from 2005 to 2010. In Southeast and Western Asia, it was 6.3%-18.3 % after 2005, which was much higher than East Asia [8]. There is a wide range of GERD prevalence amongst Asian and Arab countries. In 2010 GERD prevalence in China was 5.2% and 8.5% in Korea by the year 2009 and 5% in Singapore. In Turkey, the prevalence was 20% [9], whereas in (2010) it was only 7.7% in Japan and 5% in Taiwan [10]. A prevalence of 38.8% was reported in Malaysia in 2004, and 24% in Pakistan in 2005, while the prevalence in Saudi Arabia was found to be 15% in 2010[10]. In the Israeli adult population it was found to be 30% [11]. The absence of a universally accepted diagnostic definition of GERD symptom severity and frequency for application in epidemiological studies might also explain the differing prevalence rates [2]. The incidence in the Western world was approximately 5 per 1000 person years, which reflect the chronicity of the disease due to

the low rate of incidence relative to prevalence [4]. Nowadays, it has been the worldwide consensus that the goals of GERD therapy should be based on the improvement of various symptoms and prevention of complications[12].

1.2 Study justification (rationality)

The etiology of GERD remains incompletely understood, although obesity (high body mass index; BMI) and tobacco smoking have been associated with an increased prevalence of GERD. Therefore, identifying the modifiable risk factors that are associated with GERD is of public health importance [13]. In addition, although some studies examined the determinants of GERD in some population, data from low and middle-income countries are limited [14], and data regarding GERD from Arab countries is scarce. In Palestine and to the best of our knowledge, there is no available data on morbidity rates that evaluate GERD disease symptoms and its determinants of severity. This study will be the first in the local and the Arab Region that investigates such a relationship. Therefore, this study will identify the main dietary, physical and life style determinants of GERD. This would aid in creating awareness among general population to make necessary decisions to improve their lifestyle to avoid the symptoms of this disease. This study will also be a baseline one for a national multi-center large study after securing the required fund and resources including human ones.

1.3 Study hypothesis

The study hypothesis is that severity and frequency of GERD symptom are related to exposure to some dietary, physical and lifestyle factors.

1.4 Goal of the study

To decrease GERD's morbidity among the Palestinian community.

1.5 Study objectives

1.5.1 General objective

To assess the determinants of severity and determinants of frequency regarding GERD disease's symptoms among the Palestinian population in Nablus district in order to implement preventive measures for the control of this disease.

1.5.2 Specific objectives:

1.To study the relationship between GERD disease symptoms and work conditions(sedentary and non sedentary) and psychosocial factors like work stress.

2.To determine the association between GERD disease symptoms and obesity.

3.To determine the association between GERD disease symptoms and dietary factors like shorter dinner-to-bed time, a high fat diet and to Western diet.

4.To determine association between GERD disease symptoms and socio-demographic factors and smoking history.

5.To assess the factors that are associated with GERD severity (mild/moderate/severe) among the study population.

Chapter Two
Literature review

2.1 Introduction

GERD is a very universal disease affecting millions of people around the world, therefore, it is relatively important to clarify the contributing lifestyle factors affecting GERD symptoms [12]**.** It has been suggested that there is a differences in prevalence rate in different countries, due to several potential explanations; such as lifestyle factors, dietary factors, overweight/ obesity and genetic factors [15].

2.2 Factors associated with GERD

2.2.1 Gender

Studies showed that mild forms of GERD tend to be more common in women than men[4].

2.2.2 Pregnancy

A prospective longitudinal cohort study on 510 pregnant women show that GERD symptoms occur more often in pregnant women than in non-pregnant and the frequency rises in the course of pregnancy [16].

2.2.3 Dietary intake

Studies showed that there are some dietary habits that may increase the chance to have symptoms of GERD, such as large-volume meal, irregular food intake, rapid food intake, late-evening meals or eating between meals.

In general, irregular dietary intake is one of the most important risk factors for GERD[15]. A cross sectional study showed that high dietary fat intake is associated with an increased risk of GERD symptoms, while high fiber intake correlated with a reduced risk of GERD symptoms. Physiological studies have shown a decrease in lower esophageal pressure and an increase in esophageal acid exposure in response to ingestion of a variety of food such as those rich in fat, chocolate and carminative (for example spearmint)[1,15]. A survey of 1004 subjects show that chocolate caused symptoms in 40% and fatty foods in 70%, but this study did not quantify the intake of these items[1]. Other study in Korea concluded that spicy foods, noodles, sweets, fatty meals, breads, carbonated drinks, alcohol and caffeinated drinks were associated with symptom aggravation in GERD[15]. However, one study evaluated data from the National Health and Nutrition Examination Survey NHANES I conducted in USA found no association between dietary fat intake and erosive esophagitis[1]. A recent population based on epidemiological studies in the USA reported a significant increase in the risk of esophageal adenocarcinoma with increased dietary fat intake [1].

2.2.4 Body mass index and obesity

Many population-based studies, although not all, showed that besides genetic factors and pregnancy, overweight has been widely recognized as a risk factor for GERD [17]. Epidemiological studies indicate a higher prevalence of GERD in obese patients [18]. A study conducted on a general

population in Spain and other studies also examined that maximal change in weight during adult life weight gain is linked with GERD, independently of BMI, although few data suggests that weight gain might be a risk factor for GERD[17]. A cohort study reports a positive association between body-mass index (BMI) and gastro-esophageal reflux disease (GERD)[19]. High body mass index is considered as a causal factor for heart burn and acid regurgitation. Moreover, obese people are almost three times more likely to have heartburn and acid regurgitation compared to normal Weight[6]. Many studies show that obesity (BMI >30 kg/m^2) has risen to epidemic proportions in several regions of Europe, Asia and USA. Data among adults aged 20–74 years, showed that the prevalence of obesity increased from 15.0% in 1976–1980 to 32.9% in 2003–2004. Results of multiple case-control and cohort studies indicate that obesity has a causal association with GERD or its complications. In general, increasing in GERD symptoms has been shown to occur in individuals who gain weight but normal range of body mass index (BMI). For example, findings from a recent study suggest that increased abdominal obesity may strangely increase GERD in Caucasians and men[20]. Other large cohort study in women show that increasing BMI, leads to increase frequency of symptoms, even in women with normal BMIs range, weight gain corresponding to an increase of more than 3.5 kg/m^2 in BMI increased the risk of GERD frequency compared with women with no weight changes[18]. Other cohort study in Greek showed the association between obesity and GERD, it's also confirmed strongly that BMI is associated with the reflux

symptoms in overweight and obese patients [21]. In conclusion, maintaining a normal BMI and normal weight may reduce the chance of developing GERD and its potential complications [20,22]. Opposite of that is in Swede where a population based study reported that gastro-esophageal reflux symptoms occur independently of body mass index, and weight reduction may not be valid as an anti-reflux therapy [23].

2.2.5 Infection

Other risk factor for GERD is a Helicobacter pylori infection. a Case control study conducted in USA showed an inverse association between Helicobacter pylori antibody status with a GERD diagnosis and GERD symptoms severity in a community-based population[24].

2.2.6 Sleep

Across-sectional population-based study showed a dose-dependent association between sleep problems and GERD after taking genetics and other known risk factors for GERD into account [5,25]. On the other side, good quality of sleep is found to be important for avoiding GERD symptoms [12]. Particularly for nocturnal GERD where it is thought that during sleep, the esophageal peristalsis is decreased, salivary production diminished, upper esophageal sphincter basal pressure declined, and in the supine position, frequent lower esophageal sphincter become relaxed, therefore, improving quality of sleep is essential for relieving GERD symptoms [12].

2.2.7 Smoking, alcohol and hookah

Associations of alcohol drinking and cigarette smoking with GERD symptoms and esophagitis have previously been reported. They found modest but statistically significant associations between alcohol or cigarette use and GERD symptoms. Cigarette smoking usually starts in young adulthood, so temporal relationship between this habit and GERD is likely[4]. Ever hookah smoking, it has been reported to be associated with GERD, the association between hookah smoking and GERD among never cigarette smokers and hookah smoking had statistically significant or borderline significant associations with mild and moderate GERD [12].

2.2.8 Coffee consumption

For coffee consumption, there are few data and the picture is less clear. Two cross sectional studies reported that there was no significant association, while a third identified an inverse relationship [4].The Swedish study by Terry et al. concentrated particularly on behavior relating to food consumption, in addition to the lack of association with coffee consumption, the authors also demonstrated that there was no association with consumption of trigger foods (total fat, chocolate, mint, coffee, onions, citrus fruits, and tomato), portion size of meals, or time of the last meal of the day [4].

2.2.9 Physical activity

Moderate physical activity seems beneficial, while vigorous activity may be dangerous in predisposed individuals[8]. However, due to the evidence that incorrect dietary habits and the absence of regular physical activity represent important risk factors for the development of GERD, the lifestyle changes are recommended in patients with or at high risk for GERD [8]. According to the proposal by a panel of international experts of a new algorithm for GERD management, life-style factors (i.e. meal size and timing, not lying down after a meal or lying down where the head is in a non-elevated position, not smoking, not consuming alcohol, not eating heavily spiced or fatty food and having a physically active life) are important instruments for the overall management of GERD [8]. A Swedish population-based cross-sectional survey was conducted and shows that intermediate frequency of physical activity might decrease the risk of GERD among obese individuals, while no influence of physical activity on GERD was found in non-obese people [22].

2.2.10 Association with other disease

A study conducted on outpatient department of general medicine and emergency care of Toho University Omori Hospital (Japan) suggested that ischemic heart disease might be found although a patient was referred to the hospital with a complaint of GERD symptoms[26].

2.2.11 Medication

A number of significant associations were demonstrated with the use of medication. For example, increased use of anti-cholinergic drug therapy was significantly associated with the prevalence of GERD[(4)]. The longitudinal UK (United Kingdom) database study revealed relationships with the current use of nitrates (in the case of patients with ischemic heart disease) and past use of oral steroids. The study also reported a lack of association of GERD with benzodiazepines and calcium antagonists. This study did however highlight an interesting inverse association between symptoms of GERD and use of oral contraceptives or hormone replacement therapy[(4)]. Besides that, a population-based twin study showed that progestin hormone therapy and oral contraceptives is less responsible to cause GERD symptoms, while estrogen hormone therapy is an independent risk factor for reflux symptoms [(27)].

2.2.12 Cancer probability

A cohort study by Farhad Islami et al. conducted on 50001 participants show that severe daily symptoms (that interfere with daily work or causing awakenings at night, reported by 4.3% of participants) were associated with cancer mortality, but it wasn't associated with mild to moderate symptoms or with onset time or frequency of GERD [(23)]. A five case control studies showed a significant positive association between BMI and esophageal adenocarcinoma although long latency period required before prolonged GERD leads to esophageal adenocarcinoma [(20)].

2.2.13 Anxiety

The most common psychiatric disorders among the adult population in the Western world are anxiety and depression .These disorders may similarly influence gastrointestinal disorders, but the relation between them and reflux disease is largely uninvestigated. Few population-based studies showed the association between psychiatric disorders and gastro-esophageal reflux symptoms[13]. A population-based study based on two health surveys conducted in the Norwegian county Nord-Trondelag in 1984-1986 and 1995-1997 indicated that anxiety and depression are strongly associated with reflux symptoms [13].

2.2.14 Family history

A cross sectional study showed that GERD symptoms were associated with having an immediate family member with significant heartburn or disease of the esophagus or stomach, which suggests that a genetic factor to the disorder [29].

Chapter Three
Patients and Method

3.1 Introduction

This chapter discusses the methodology of the study. It includes the methodological approach, research design, selection of the study population, sample size, methods of data collection. Consideration is also given to the methods of data analysis. Ethical and administrative issues were also described in this chapter including consent for conducting the study and invitation to participants.

3.2 Study design

A cross sectional study was conducted.

3.3 Study population

The study population was subjects with physicians diagnosis of GERD symptoms recruited from the patients attended the study setting

3.4 Study settings

The study was conducted in the outpatients clinics of; Specialized Arab Hospital, Al Watani Governmental hospital, An najah educational hospital and in Dr. Yasser Abu-safieh private clinic, all are in the Nablus district. The above mentioned sites were chosen primarily because they have internal specialists and were accessible to the researcher.

3.5 Sample Size

The study population was 120 GERD patients. A non-random purposive sample of all those met the selection criteria (over 20 years old male and female) and were attended the study setting during its period of time, and voluntarily agreed to participate and where able to give their signed consent was selected. Based on the study type I error (α) that has been estimated up to 5% for the study and a power expectation of 80%, a sample size of 120 was estimated to be sufficiently large enough to highlight the expected differences.

3.6 Variables operational definitions

-Gastro- esophageal reflux disease symptoms are defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week as minimal entry criteria[30].

-Ex-smokers are defined as those smokers who have quit smoking since at least six months prior to data collection.

-Physical activity is assessed by asking closed-ended questions about their occupational, domestic, and leisure time.

-Sedentary physical activity was classified as persons desk work.

-Non-sedentary: Standing all day working.

-Place of residence defined as living in city or village or refuges camp.

-Height of Place of residence determined relatively by the participant.

-Body mass index: the weight in Kg divided by the square height in meter.

- Coffee consumption: patients were asked if they usually drink it on daily basis, regularly, occasionally or rarely.

- hubby bubbly : patients were asked if they are currently smokers, ex-smokers or never smoked water pipe before**.**

3.7 Ethical and administrative considerations

The study proposal was approved by the Institutional Review Board (IRB) (Annex A) and the scientific research committee of the Public Health department as well as the faculty of graduate studies scientific research board at An-Najah educational hospital (Annex B). A permission from the manager of Specialized Arab hospital to conduct the study in his hospital was obtained(Annex C). A permission to conduct the study was also obtained from the Palestinian Ministry of Health (MoH) for the governmental hospital(Annex D). Also, permission from Dr. Yasser Abu-Safieh to conduct the study in his private clinic was obtained. A permission was also obtained from the administration of the An-najah hospital(Annex E and F). An explanatory letter for all participants was attached to each questionnaire which explains the aim, importance, confidentiality and anonymity of the information with optional participation (voluntary). A written and signed informed consent was obtained from each participant(Annex G and H).

3.8 Data collection

This study was designed to collect data in order to assess the determinants of severity and frequency of GERD disease symptoms among the GERD patients who were admitted to the external clinic of Al Watani Governmental hospital (those patients was diagnosed as GERD patients by the available internal specialist Dr. Rezeq Al-Natur), then the researcher herself took the patients consent to participate and asked them to fill the questionnaire, Data was also collected from patients admitted to the outpatients clinic of Specialized Arab hospital (Those patients were diagnosed as GERD patients by Dr. Mohammad Lubbadeh). Data was also collected from the patients attending Dr. Yasser Abu-Safieh private clinic in Nablus city, West Bank, Palestine, in the last two sites patients have already been diagnosed as GERD and come for follow up their case or as new patients, the physician gave us their telephone number to contact them for a fixed interview. Furthermore, some cases were collected from the outpatients clinic of An-Najah educational Hospital, where patients diagnosed by Dr. Qusai Abdo, the patients from this site fill the questionnaire by themselves.

A self-administered validated and standardized questionnaire was used to collect the required information. It was adapted to the local Palestinian conditions with minor modifications after asking ten GERD patients to fill in it. As a result of this pre-test (pilot testing), some changes added with minor adjustments to improve the clarity of the questions. The pilot testing

was also expected to facilitate the orientation and adjustment of the sequence of the procedures and standardization of questions delivered to the subjects by the researcher in the major study. Patients in the pilot testing were not included in the major study.

The questionnaire included a self-reported list of lifestyle factors associated with GERD disease such as; dietary factors like shorter dinner-to-bed time, a high fat diet, obesity, smoking and stress. Place of residence, positive family history, socioeconomic status and westernized diet were also be evaluated (Annex I).

The researcher herself made the interview or the telephone call with the study participants.

3.9 Study tool:

The questionnaire included questions dealing with the study independent and dependant variables (Annex I). It included:

1) Socio-demographic factors and exposure to some factors that might influence health such as smoking status and Argela.

2) Exposure to external factors such as living in high altitudes areas.

3) A self-reported list of symptoms of GERD such as; heart burn, hoarseness, chest pain.

4) Questions for patients about their physical activity (sedentary or non-sedentary), and their eating habits (including eating fatty food, eating quickly and close dinner to bed time) and its relation with reflux episodes.

5) Questions about patients health conditions; co-morbidities, the drugs they are taking and their relation to the episodes.

3.10 Exclusion criteria

Subjects were excluded if they have other gastrointestinal diseases (for example, active peptic ulcer disease, infectious conditions of the intestine and gastric malignancy), a history of gastrectomy or severe health problems, currently pregnant women, and patients under 20 years old also excluded.

3.11 Data analysis

The study population was classified according to severity into two groups (mild/moderate and severe) according to the self reported frequency of symptoms. Patient who usually experience at least two mild episodes of heartburn per week was classified as mild/moderate cases and those with at least five daytime episodes and one nighttime episode per week as minimal entry criteria was classified as severe cases [(24)]. All data was entered and analyzed using the statistical software package SPSS (Statistical Package for the Social Sciences) version 16 (SPSS Inc., 2007). Chi-square test was used to analyze the differences between the dependant variable and the qualitative independent variables. Multivariate logistic regression analysis

adjusting for possible confounders was used and a *P*-value of less than 0.05 was always considered significant.

3.12 Summary

In this chapter, study methods and materials have been described including study settings, design, pilot study, study population and sample size, data collection and statistical data analysis. Moreover, ethical and administrative issues were also been described.

Chapter Four
Results

4.1 Introduction

This chapter introduces the study results including the characteristics of the participants and the average percentages of the responses for each item in the questionnaire.

4.2 GERD severity classification

GERD Severity Classification defined as low as two mild episodes of heartburn per week (we considered it as mild / moderate cases in our study) and as high as five daytime episodes and one nighttime episode per week (severe cases). The severe cases were around 76 cases, 63.3% of the study population, while the (mild / moderate) cases were 44 cases, represent 36.7% of the population.

4.3 Characteristics of the study population

In this study, we were able to meet 120 participants from four sites in Nablus. Table 4.1 below shows the distribution of the study population. The majority of the participants recruited from Al Watani Governmental Hospital (n=54) who represent nearly 45% of the study population, but the lowest number of cases were from An-Najah educational Hospital (n=4) 3.3% of all population. However border line significant difference was found between GERD severity and the study setting. The binary logistic regression analysis showed that patients from Al Watani Hospital were

shown to be significantly more likely to have severe symptoms compared with those patients from Dr Yasser Abusafieh clinic [COR (95%CI): 2.47(1.03-5.94)].

Table 4.1:Distribution of the study cases by the study setting (N=120).

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI) !
		Mild/ moderate	Severe		
Site of diagnosis					
- Al Watani Hospital	54 (45)	13(24.1)	41(75.9)		**2.47(1.03-5.94)**
- specialized Hospital	21 (17.5)	8(38.1)	13(61.9)	0.067	1.27(0.44-3.73)
- An Najah Hospital	4 (3.3)	3(75)	1(25)		0.26 (0.025-2.73)
- Dr.Yasser Clinic$	41 (34.2)	18(43.9)	23(56.1)		----

*Data are expressed as number (percent) of each group.

** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .

$ Reference category. ! COR: crude odds ratio. CI: confidence interval.

4.4 Association of GERD severity with socio demographic factors

As shown in the (Table 4.2) below, the sample was initially described on the variable “sex”. The female patients were 80 in this study representing nearly 66.7% of all population, but no significant difference was found between GERD severity and sex. On “Age” category, respondents were asked to choose from the most appropriate category “20-30 years”, “31-40 years”, “41-50 years” and “older than 51 years”. The largest number of respondents indicated their age as older than 51 (n=41; 34.2%), while the least group was between "41 and 50 years" (n=24; 20%). The age hasn’t statistically significant difference with GERD severity. On marital status category, respondents were additionally described on the variable “Marital Status”. The majority of the subjects (n=94; 78.1%) reported that they are married. However, no significant difference was found between GERD severity and marital status.

Regarding the highest level of education completed by the respondents, the largest group (n=60; 50%) reported Primary/secondary level. The second largest group (n=34; 28.3%) reported the achievement of Bachelor's as the highest level of education completed but no significant relationship was found between the study dependent variable in regard to the educational level. Beside that when we conducted a regression also there was no significant difference between the previous mentioned variables and GERD severity.

On family member category, 34 respondents (28.3%) of the study participants have between three and five family members, a significant relationship was found between GERD severity and the number of family members, a binary regression also showed that families with (6-8) members more likely to have sever GERD symptoms compared to families with more than eight members. In addition to family member, the height variable also showed statistically significant relationship with GERD severity. But the other remaining socio-demographic factors showed statistically non significant differences with GERD severity, (height was categorized in to two categories with median as cut of point). The results from binary logistic regression analysis showed that all socio demographic factors were shown to be non significantly related to GERD severity except family member and patient height, patients with (6-8) family members were shown to be significantly more likely to have severe symptoms compared those patients with more than 8 members[COR (95%CI): 3.84 (1.14-12.99)].And those with height less than 165cm were shown to be significantly more likely to have severe symptoms compared those patients with more than 165 cm tall [COR (95%CI):2.37 (1.10-5.10)].(weight has not measured as it changeable with age, patients just stated their height).(for more details, see table 4.2).

Table 4.2: Association of GERD severity with socio demographic factors (N=120).

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI)!
		Mild/ moderate	Severe		
Sex					
-Male	40 (33.3)	19(47.5)	21(52.5)	0.08	0.50 (0.23-1.96)
-Female $	80 (66.7)	25(30.2)	55(68.8)		----
Age					
- 20-30 yrs	29 (24.1)	14(48.3)	15(51.7)		0.66 (0.25-1.77)
- 31-40 yrs	26 (21.7)	12(46.2)	14(53.8)	0.167	0.54 (0.20-1.50)
- 41-50 yrs	24 (20)	6(25)	18(75)		1.76 (0.54-5.77)
- > 50 yrs $	41 (34.2)	12(29.3)	29(70.7)		----
Residence place					
-City	55 (45.8)	19(34.5)	36(65.5)	0.529	4.47(0.38-52.73)
-Village	62 (51.7)	23(37.1)	39(62.9)		3.39(0.29-39.50)
-Refugees camp $	3 (2.5)	2(66.7)	1(33.3)		----
Educational level	12 (10)	1(8.3)	11(91.7)		2.2(0.11-42.74)
-Illiterate	60 (50)	22(36.7)	38(63.3)		0.37(0.04-3.39)
- Primary/secondary	8 (6.7)	3(37.5)	5(62.5)	0.218	0.33(0.03-4.40)
-Diploma	34 (28.3)	16(47.1)	18(52.9)		0.20(0.02-1.90)
-Bachelor's	6 (5)	2(33.3)	4(66.7)		----
-Postgraduate $					
Marital status					
-Married	94 (78.3)	33(35.1)	61(64.9)		3.88(0.34-44.37)
-Single	14 (11.7)	7(50)	7(50)	0.37	2.67(0.19-36.76)
-Widowed	9 (7.5)	2(22.2)	7(77.8)		7(0.40-123.35)
-Divorced $	3 (2.5)	2(66.7)	1(33.3)		----
Work nature					
-High physical exertion	6 (5)	3(50)	3(50)		0.67(0.07-6.87)
-Middle physical exertion	92 (76.7)	32(34.8)	60(65.2)		0.63(0.12-3.28)
-Only office work	14 (11.7)	6(42.9)	8(57.1)	0.841	0.44(0.07-3.03)
-No physical exertion $	8 (6.7)	3(37.5)	5(62.5)		----

*****Data are expressed as number (percent) of each group.

****** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5daytime episodes and 1 nighttime episode per week .

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

Table 4.2: Association of GERD severity with socio demographic factors (N=120). (cont.)

Variable	N (%)*	GERD Severity** Classification		Chi square P value	COR (95%CI)!
		Mild/ moderate	Severe		
Family member					
-<3	23(19.2)	12(52.2)	11(47.8)		1.25(0.34-4.59)
-3-5	34(28.3)	13(38.2)	21(61.8)	**0.044**	1.63(0.48-5.55)
-6-8	48(40)	11(22.9)	37(77.1)		**3.84(1.14-12.99)**
-> 8 $	15(12.5)	8(53.3)	7(46.7)		----
Salary					
- < 2500 NIS	57(47.5)	18(31.6)	39(68.4)	0.271	1.80(0.84-3.87)
- ≥ 2500 NIS $	63(52.5)	26(41.3)	37(58.7)		----
Residence place					
-High	46(38.3)	15(32.6)	31(67.4)	0.413	0.76(0.18-3.25)
-Middle	62(51.7)	26(41.9)	36(58.1)		0.49(0.12-2.00)
-Low $	12(10)	3(25)	9(75)		----
Height (cm)					
- ≤ 165	73(60.8)	21(28.8)	52(71.2)	**0.025**	**2.37(1.10-5.1)**
- > 165 $	47(39.2)	23(48.9)	24(51.1)		----

*****Data are expressed as number (percent) of each group.

******GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week . **$** Reference category. **!** COR: crude odds ratio. **CI**: confidence interval

4.5 Association of GERD severity with exposure factors

This section summarizes the respondents self-reporting of some interesting factors that could be related to Gastro Esophageal Reflux Disease symptoms. Table 4.3 below shows these variables and their distributions among study population with the chi-square statistical significance test, and crude odd ratio with confidence interval.

As shown in the table 4.3 below, participants were asked to offer information concerning their life style. Twenty percent of the respondents (n=24) reported that they are current smoker, while (n=90; 75%) indicated that they never smoked in their life and(6, 5%)patients were ex-smokers. There was a non significant relationship between GERD severity and cigarette smoking.

Moreover, respondents were also asked about argela smoke, 24 cases who represents 20% of the population were current smokers and (n=91, 75.8%) never smoked in their life, while (n=5, 4.2%) were ex smokers. However no significant difference was found between GERD severity and argela smoke.

Nearly half of the study cases have other health problem in addition to GERD (n=61, 50.8%) border line significant difference also was found between GERD severity and the presence of co morbidity in general, but patients with diabetes or hypertension problem were more likely to have GERD problem. While 76 patients(63.3% of the population) taking drug for other health problem,44 patients (36.7% of the population)did not take

other drugs. Chi square P value showed a significant relationship between GERD severity and taking drug for other health problem. Those who were taking antihypertensive drugs or Non Steroidal Anti Inflammatory drugs (NSAID)were more likely to have severe GERD symptoms compared with those not taking one of these drugs. According to life style factors, in addition to presence of other health problem and using antihypertensive and non steroidal anti inflammatory drug, we found that eating fatty food and coffee consumption have statistically significant difference with GERD severity, but no other difference found between other studied exposure factors and GERD severity. Besides that, binary logistic regression analysis showed that all exposure factors were shown to be non significantly related to GERD severity except patients with diabetes or hypertension disease, they were shown to be significantly more likely to have severe symptoms compared with those patients not having one of these health problem[COR(95%CI): 9.76 (1.2476.75)], [COR(95%CI):2.35(1.01-5.44)]respectively. And those who were taking drug for other health problem shown to be significantly more likely to have severe symptoms compared with those not taking drug in general, and specifically patients with anti hypertensive or non steroidal anti inflammatory drug were more likely to have sever GERD symptoms than those not taking these kinds of drug. Fatty food and coffee consumption also were shown to be significantly related to GERD severity, patients who were occasionally or not exposed to GERD symptoms after fatty food or coffee consumption

were less likely to have sever GERD symptoms. (for more details, see table 4.3 below).

Table 4.3: Association of GERD severity with exposure factor (N=120).

Variable	N(%)*	GERD Severity Classification**		Chi square P value	COR (95%CI)!
		Mild/ moderate	Severe		
Smoking					
-Current smoker	24(20)	9(37.5)	15(62.5)	0.773	0.67(0.26-1.68)
-Ex-smoker	6(5)	3(50)	3(50)		0.48(0.09-2.50)
-Non smoked $	90(75)	32(35.6)	58(64.4)		----
Cigarette number (n= 24)					
- 1-5	5(20.8)	2(40)	3(60)	0.852	0.44(0.056-3.51)
- 5-10	4(16.7)	1(25)	3(75)		2.00(0.17-24.07)
- ≥ 10 $	15(62.5)	6(40)	9(60)		----
Hubby bubbly smoke					
-current smoke	24(20)	12(50)	12(50)	0.259	0.517(0.21-1.28)
-Ex-smoker	5(4.2)	1(20)	4(80)		2.07(0.22-19.29)
-Non smoked $	91(75.8)	30(33)	61(67)		----
Coffee consumption					
-Rarely	21(17.5)	7(33.3)	14(66.7)	0.791	1.67(0.41-6.77)
-Occasionally	24(20.0)	7(29.2)	17(70.8)		2.00(0.50-8.00)
-Regularly	60(50)	24(40)	36(60)		1.00(0.32-3.17)
-Not at all $	15(12.5)	6(40)	9(60)		----
Eating before sleep					
-Go to bed directly after eating	16(13.3)	4(25)	12(75)	0.288	1.41(0.41-4.84)
-Go to bed less than 2hrs after eating	32(26.7)	15(46.9)	17(53.1)		0.53(0.23-1.25)
-Go to bed more than or 2 hrs after eating$	72(60)	25(34.7)	47(65.3)		----
Family history					
-No	69(57.5)	26(37.7)	43(62.3)	0.789	0.88(0.41-1.89)
-Yes $	51(42.5)	18(35.3)	33(64.7)		----
Eating quickly					
-Not at all	34(28.4)	9(26.5)	25(73.5)	0.287	2.36(0.86-6.48)
-Occasionally	36(30.0)	16(44.4)	20(55.6)		0.77(0.32-1.83)
-Always $	50(41.6)	19(38)	31(62)		----
Physical activity					
-No	75(62.5)	26(34.7)	49(65.3)	0.842	0.65(0.19-2.23)
-Occasionally	30(25)	12(40)	18(60)		0.63(0.16-2.46)
-Daily $	15(12.5)	6(40)	9(60)		----

*****Data are expressed as number (percent) of each group.

****** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week.

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

Table 4.3: Association of GERD severity with exposure factor (N=120) (cont.)

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI)!
		Mild/ moderate	Severe		
Co morbidity					
-No	59(49.2)	26(44.1)	33(55.9)	0.098	0.53(0.25-1.13)
-Yes $	61(50.8)	18(29.5)	43(70.5)		----
Co-morbidity Type @					
-Diabetes	16(13.3)	1 (6.2)	15(93.8)	**0.007**	**9.76(1.24-76.75)**
-Hypertension	43(35.8)	9(20.9)	34(79.1)	**0.008**	**2.35(1.01-5.44)**
-Hyper lipid	26(21.7)	10(38.5)	16(61.5)	0.830	1.02(0.41-2.54)
-Mental disorder	2(1.7)	1(50)	1(50)	0.693	1.68(0.10-27.57)
-Asthma	8(6.6)	1(12.5)	7(87.5)	0.142	4.04(0.48-34.02)
-Other	12(10)	5(41.7)	7(58.3)	0.705	1.09(0.31-3.84)
Taking drugs for other health problem					
-Yes	44(36.7)	23(52.3)	21(47.7)	**0.007**	**2.80 (1.28-6.11)**
-No $	76(63.3)	21(27.6)	55(72.4)		----
Symptoms after drug					
-Yes	39(49.4)	8(20.5)	31(79.5)	0.06	0.39(0.14-1.05)
-No $	40(50.6)	16(40)	24(60)		----
Co-morbidity Therapy @					
- Anti hypertensive drug	32(26.7)	7(21.9)	25(78.1)	**0.043**	**2.59(1.01-6.63)**
- NSAID drug	47(39.2)	11(23.4)	36(76.6)	**0.016**	**2.89(1.25-6.67)**
- Glucose lowering drug	10(8.3)	1(10)	9(90)	0.068	5.78(0.70-47.22)
- Asthma drug	5(4.2)	1(20)	4(80)	0.430	0.45(0.05-4.17)
- (CNS)drug	1(.8)	1(50)	1(50)	0.693	0.60(0.04-9.75)
- Lipid lowering drug	17(14.2)	5(29.4)	12(70.6)	0.503	1.35(0.44-4.12)
- Aspirin	28(23.3)	11(39.3)	17(60.7)	0.743	0.79(0.33-1.88)
- Hormone	8(6.7)	1(12.5)	7(87.5)	0.142	4.04(0.48-34.02)
- Other drug	2(1.7)	1(50)	1(50)	0.693	0.60(0.04-9.75)
Symptoms after fatty food					
-Not at all	13(10.9)	9(69.2)	4(30.8)	**0.000**	**0.14(0.04-0.49)**
-Occasionally	22(18.3)	13(59.1)	9(40.9)		**0.21(0.08-0.57)**
-Always $	85(70.8)	20(23.5)	65(76.8)		-----
Symptoms after coffee					
-Not at all	54(45)	22(40.7)	32(59.3)	**0.042**	**0.31(0.11-0.88)**
-Occasionally	32(26.7)	14(43.8)	18(56.2)		**0.28(0.09-0.85)**
-Always $	34(28.3)	6(17.6)	28(82.4)		-----
Symptoms after stress					
-Not at all	18(15)	9(50)	9(50)	0.131	0.40(0.14-1.14)
-Occasionally	25(20.8)	11(44)	14(56)		0.51(0.20-1.29)
-Always $	77(64.2)	22(28.6)	55(71.4)		-----

*****Data are expressed as number (percent) of each group. ****** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .**@** Each co morbidity and co morbidity therapy has been categorized in to yes/ no categories , only Yes answer is presented, No category is the reference category**.**

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

Table 4.4: Association of GERD Severity with GERD Symptoms (N=120) .

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI) !
		Mild/ moderate	Severe		
Chest pain during symptoms					
-Don't feel	41(34.2)	23(56.1)	18(43.9)	**0.001**	**0.14 (0.05-0.44)**
-Occasionally	46(38.3)	14(30.4)	32(69.6)		0.41 (0.13-1.28)
-Always$	33(27.5)	5(15.2)	28(84.8)		------
Hoarseness					
-Not at all	76(63.3)	29(38.2)	47(61.8)	0.603	0.81(0.22-2.93)
-Occasionally	32(26.7)	9(28.1)	23(71.9)		1.28(0.31-5.32)
-Always$	12(10)	4(33.3)	8(66.7)		------

*Data are expressed as number (percent) of each group.** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week.

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

4.6 Association of GERD Severity with GERD Symptoms.

We have evaluated GERD symptoms as the main study objective. Table 4.4 above shows the self-reported frequency (percent) of GERD's symptoms among the study population. As shown in the table 4.4 above. Proportionally 33 patients, 27.5% of the sample, always suffer from chest pain during symptoms while (n=41, 34.2%) usually don't suffer from that pain and those who reported occasionally where equal to 46 patients (38.3% of the total sample). Adding to that, binary logistic regression showed that those occasionally or do not have chest pain during symptoms were less likely to have severe GERD symptoms compared to those reported always feel. Relating to the same table, it has been found that Hoarseness symptom not occurred after GERD episode in (63.3%) of population, most of them (61.8%) categorized as severe cases, while 10% of the sample(12 patients)always experience hoarseness symptom and two third of them were sever cases. However no significant relationship between GERD severity and Hoarseness symptom. Binary logistic regression showed that those who reported occasionally experience hoarseness symptom were more likely to have severe GERD episodes compared to those reported always experience hoarseness. (see table 4.4 above for other details).

4.7 Association of GERD severity with consequences of GERD.

Regarding GERD consequences it was denoted that (52.5%) of the population always had sleeping disturbance as a consequence of GERD, the majority of them (79.4%) classified as severe cases. Moreover, disturbances of sleep had a significant relationship with dependent variable of the study. On the other hand, the general trends show that the majority of the study cases had a disturbances of work and eat ((40%),(59.2%) respectively) as GERD consequences, however chi square test showed significant relation between GERD severity with work disturbances but not with eating disturbances. The results from binary logistic regression showed that those who reported occasionally or not experience sleeping, work or eating disturbances were less likely to have severe GERD symptoms compared to those reported always experience. (see table 4.5 below for other details).

Table 4.5 : Association of the GERD severity with GERD consequences (N=120).

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI)!
		Mild/ moderate	Severe		
Sleeping disturbance					
-Not at all					
-Occasionally	28(23.3)	20(71.4)	8(28.6)	**0.000**	**0.11(0.04-0.31)**
-Always$	29(24.2)	11(37.9)	18(62.1)		0.39(0.15-1.03)
	63(52.5)	13(20.6)	50(79.4)		-----
Work Disturbance					
-Not at all					
-Occasionally	43(35.8)	19(44.2)	24(55.8)	**0.036**	**0.30(0.12-0.76)**
-Always$	29(24.2)	14(48.3)	15(51.7)		0.37(0.14-1.03)
	48(40)	11(22.9)	37(77.1)		------
Eating Disturbance					
-Not at all					
-Occasionally	26(21.7)	11(42.3)	15(57.7)	0.118	0.54(0.21-1.36)
-Always$	23(19.1)	12(52.2)	11(47.8)		0.43(0.16-1.13)
	71(59.2)	21(29.6)	50(70.4)		-----

*****Data are expressed as number (percent) of each group.

****** GERD Severity Classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

4.8 Association of GERD severity with GERD treatment.

In this section, we have asked patients about the way they followed to treat their GERD episodes; in order to evaluate the association between GERD severity and treatment of GERD. We found that (91.7% of the study population) using anti acid medication to treat their symptoms (64.5% of them) classified as severe cases, while (8.3%of the study cases) treat their symptoms with traditional medicine, no significant relationship was found between the dependent variable and GERD treatment. Binary logistic regression showed that those who reported using anti-acid medication were more likely to have severe symptoms compared to those reported using traditional medicine to treat their GERD symptoms. (see table 4.6 below for other details).

Table 4.6 : Association of GERD with GERD treatment (N=120).

Variable	N (%)*	GERD Severity Classification**		Chi square P value	COR (95%CI) !
		Mild/ moderate	Severe		
Treating GERD - Using anti-acid medication -Traditional treatment	110(91.7) 10(8.3)	39(35.5) 6(60)	71(64.5) 4(40)	0.125	2.73 (0.73-10.26) ------

*****Data are expressed as number (percent) of each group

****** GERD severity classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .

$ Reference category. **!** COR: crude odds ratio. CI: confidence interval

4.9 Multivariate logistic regression for the factors associated with GERD severity

The multivariate logistic regression model has been performed to assess the variables associated with GERD severity and to control for the confounding factors (table 4.7 below). Variables entered in the multivariate logistic regression model were those with significant crude odd ratio (family member, site of diagnosis, height, co-morbidity type, co- morbidity therapy, symptoms after fatty food, symptoms after coffee consumption, work disturbance, chest pain during symptoms and sleeping disturbance). The results after conducting logistic-regression model identified that all entered variables were not statistically significant with GERD severity except chest pain and sleeping disturbances. Having chest pain during GERD symptoms and sleeping disturbances variables were found to be significantly associated with GERD severity. Patients who reported that they usually don't feel of chest pain during GERD symptoms were less likely to have severe GERD symptoms (OR= 0.09; 95% CI: 0.02-0.52) compared with those always have chest pain during GERD symptoms. Those who complained that they did not have sleeping disturbances due to GERD episodes were less likely to have severe GERD symptoms compared to those who usually have sleeping disturbances(OR= 0.05; 95% CI: 0.007-0.40).(see table 4.7 below for more details)

Table 4.7: Multivariate logistic regression for the factors associated with GERD severity

Variable	N (%)*	GERD Severity Classification**		P value	AOR (95%CI)!
		Mild/ moderate	Severe		
Site of diagnosis					1.33 (0.27-6.54)
- Al Watani Hospital	54 (45)	13(24.1)	41(75.9)		5.32
- Al Arabi Hospital	21 (17.5)	8(38.1)	13(61.9)	0.730	(0.844-33.54)
- An Najah Hospital	4 (3.3)	3 (75)	1(25)	0.075	3.04
- Dr.Yaser Clinic$	41 (34.2)	18(43.9)	23(56.1)	0.565	(0.069-134.93)
				---	---
Family member	23(19.2)	12(52.2)	11(47.8)		0.57 (0.06-5.81)
- <3	34 (28.3)	13(38.2)	21(61.8)		2.86
- 3-5	48 (40)	11(22.9)	37(77.1)	0.631	(0.35-23.67)
- 6-8	15(12.5)	8(53.3)	7(46.7)	0.329	9.26
- > 8 $				0.052	(0.98-87.20)
				---	---
Height					3.20
- ≤ 165	73(60.8)	21 (28.8)	52 (71.2)	0.074	(0.89-11.46)
- > 165$	47(39.2)	23 (48.9)	24 (51.1)	---	---
Co-morbidity Type@					11.31 (0.30-424.69)
-Diabetes	16 (13.3)	1(6.2)	15 (93.8)	0.190	14.12
-Hypertension	43(35.8)	9 (20.9)	34 (79.1)	0.093	(0.65-309.11)
Taking drugs for other health problem					0.13
-Yes	44(36.7)	23(52.3)	21 (47.7)	0.153	(0.008-2.12)
-No $	76(63.3)	21(27.6)	55 (72.4)	---	---
Co-morbidity Therapy@					0.66 (0.02-26.29)
-Anti hypertensive drug	32(26.7)	7(21.9)	25(78.1)	0.822	5.72
-NSAID	47(39.2)	11(23.4)	36 (76.6)	0.159	(0.50-64.88)

*****Data are expressed as number (percent) of each group.

****** GERD severity classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .

@Each co morbidity and co morbidity therapy has been categorized into yes/ no categories , only Yes answer is presented (no category is the reference category).

$ Reference category.**!**AOR: Adjusted odds ratio. CI: confidence interval. Enter method was used in the model.

Table 4.7: Multivariate logistic regression for the factors associated with GERD severity(cont.)

Variable	N (%)*	GERD Severity Classification**		P value	AOR (95%CI)!
		Mild/ moderate	Severe		
Symptoms after fatty food					
-Not at all	13(10.9)	9(69.2)	4(30.8)	0.077	0.09(0.006-1.30)
-Occasionally	22(18.3)	13(59.1)	9(40.9)	0.105	0.29(0.07-1.30)
-Always $	85(70.8)	20(23.5)	65(76.8)	---	---
Symptoms after coffee consumption					
-Not at all	54(45)	22(40.7)	32(59.3)	0.124	4.65(0.66-33.06)
-Occasionally	32(26.7)	14(43.8)	18(56.2)	0.403	0.45(0.07-3.90)
-Always $	34(28.3)	6(17.6)	28(82.4)	---	---
Chest pain during symptoms					
-Don't feel	41(34.2)	23(56.1)	18(43.9)	**0.007**	**0.09(0.02-0.52)**
-Occasionally	46(38.3)	14(30.4)	32(69.6)	0.502	0.54(0.09-3.26)
-Always$	33(27.5)	5(15.2)	28(84.8)	---	---
Sleeping disturbance					
-Not at all	28(23.3)	20(71.4)	8(28.6)	**0.004**	**0.05(0.007-0.40)**
-Occasionally	29(24.2)	11(37.9)	18(62.1)	0.395	0.50(0.10-2.53)
-Always$	63(52.5)	13(20.6)	50(79.4)	---	---
Work Disturbance					
-Not at all	43(35.8)	19(44.2)	24(55.8)	0.223	2.73(0.54-13.70)
-Occasionally	29(24.2)	14(48.3)	15(51.7)	0.844	1.21(0.19-7.84)
-Always$	48(40)	11(22.9)	37(77.1)	---	---

*****Data are expressed as number (percent) of each group.

****** GERD severity classification defined as low as 2 mild episodes of heartburn per week and as high as 5 daytime episodes and 1 nighttime episode per week .

$ Reference category.**!**AOR: Adjusted odds ratio. CI: confidence interval. Enter method was used in the model.

4.10 Summary

This chapter introduced the results of the statistical analysis. It showed the distribution of the socio-demographic variables in study population and the association of GERD disease severity with exposure factors, GERD symptoms and consequences symptoms.

Finally, a multivariate logistic regression model was developed to assess the variables associated with GERD severity and to control for the confounding factors.

Chapter Five

Discussion

5.1 Main study findings

The aim of the present study was to assess the determinants of severity and frequency regarding GERD symptoms among the Palestinian population in Nablus district in the West Bank, in order to implement preventive measures for the control of this lifestyle related disease.

The study's main findings were that eating fatty food and coffee consumption were found to be strong predictors for GERD severity episode among Nablus district population. These results are consistent with other studies that identified GERD severity and determinants [1,4,15]. Another important finding of this study was that the use of antihypertensive drug or non-steroidal anti-inflammatory drug (NSAID) increased the risk of GERD episodes. The study also reported a lack of association of GERD with benzodiazepines and use of oral contraceptives or hormone replacement therapy. These findings support other studies that identified the association of GERD with other disease and medication [4,26].

5.2 Socio-demographic factors associated with GERD severity

No significant differences in age, gender, marital status or educational level were observed with the dependent variable. This was in contrast to other studies that showed mild forms of GERD tend to be more common in women than men [4].

However, nearly 40% of the study population reported that having (6-8) family members , and that was significantly associated with GERD severity. Nearly 60.8% of the population who were less or equal to 165cm height have also shown a statistically significant association with GERD severity, we could interrupt that by; Low height lead to high BMI, and high BMI has a positive association with gastro-esophageal reflux disease(GERD) as reported in other studies[6,19]. However, all other demographic variables did not show significant association with GERD severity.

5.3 Association of GERD severity with exposure factors

In Palestine, data about GERD risk factors is lack. Therefore, the present study tried to establish the determinants and exposure factors related to increased prevalence of GERD among population. The present study found that eating fatty food and coffee consumption were the predominant factors lead to GERD among our study population. These results are consistent with studies that identified GERD severity and determinant of GERD[1]. It is also in accordance with a cross sectional study that showed high dietary fat intake is associated with an increased risk of GERD symptoms[1,15]. However, trying to interpret these findings; fatty food usually sets in stomach longer, that will induce the stomach to produce more acid, and caffeinated products such as coffee may irritate the esophagus and weekend the lower esophageal sphincter (LES) muscle. On the other hand, taking anti-hypertensive drugs and Non-steroidal Anti-inflammatory drugs were

also found to be associated with GERD severity, that may be related to regular use of NSAID could weekend the lower esophageal sphincter (LES) muscle, while anti hypertensive drug relaxes the lower esophageal sphincter (LES) muscle, making it easy for the acid moves back from the stomach. But hormonal therapy and central nervous system drug didn't show a significant association with GERD severity. These findings support other studies that identify the association of GERD with other disease and medication[4,26]. Moreover, nearly half of the study cases have other health problem in addition to GERD (n=61, 50.8%). A borderline significant association was found between GERD severity and the presence of co-morbidity in general, but patients with diabetes or hypertension problems were more likely to have GERD problem. Our results therefore, suggest a consistency with other studies. For example, a study conducted on outpatient of Toho University Omori Hospital (Japan) suggested that ischemic heart disease might be found, although a patient was referred to the hospital with a complaint of GERD symptoms [26].

All other exposure factors did not show significant difference with GERD severity. In contrary to our study, other studies found modest but statistically significant associations between cigarette use and GERD symptoms[4] and hookah smoking has been reported to had statistically significant associations with mild and moderate GERD[12]. Regarding physical activity, studies showed that the absence of regular physical activity represent important risk factors for the development of GERD[8]. Adding to that the family history, a cross sectional study showed the

association between having an immediate family member with heartburn and having GERD symptoms, that result suggested a genetic factor related to GERD[29].

The negative results of our study could be related to; small sample size, and to nearly similar habits of the study population due to narrow geographical distribution of the study. According to the association of GERD symptoms with severity, chest pain found to be significant with GERD severity. Concerning consequences of GERD, those who were not complaining of sleeping or work disturbances were less likely to have sever GERD symptoms (OR: 0.11; 95% CI: 0.04-0.31), (OR: 0.30; 95% CI: 0.12-0.76) respectively.

5.4 Association of the significant variables with GERD severity

Among participants, multivariate logistic regression model for the association of the significant variables with GERD severity showed that GERD symptoms were associated with some factors, such as chest pain (OR:0.09; 95% CI: 0.02-0.52) those who were not having chest pain during or after GERD episodes were less likely to have sever GERD symptoms compared with those who always have. And those who were not complaining of sleeping disturbances due to GERD episodes were less likely to have sever GERD symptoms compared to always complain(OR:0.05; 95% CI: 0.007-0.40). All other variables did not remain significant after adjusting for other variables in the model. However, the

relation of these variables and even the variables that were not significant in the binary regression are well documented in the literature and given the importance that the health care providers should give awareness and education about its relation with GERD symptoms. Our results suggested a lack of information about determinants of GERD among the Palestinian population. Perhaps, this could be related to that most of the studies were conducted in developed countries like Iran and UK with very large sample size.

5.5 Limitation

Like most of the epidemiological studies, this study has some limitations. Our study could be limited by its cross sectional design, where we can't generate causal relationships between the symptoms of GERD and exposure factors or lifestyle habits. The second limitation of this study was the relatively small number of subjects. Another possible limitation could be attributed to the nature of this health problem, because GERD patients usually are outpatients and therefore, they don't have to stay in healthcare center, so there may be a researcher bias of missed cases who have been come while the researcher was not present in the health care center in the period of data collection. In addition, patients consider symptoms of GERD as benign problem that doesn't need healthcare, thus, under-estimation of the reported determinants could have been occurred. Moreover, this is a recall study where an over or underestimation of reported symptoms could have been occurred. Furthermore, the resulted GERD symptoms could have

been attributed to some other factors or other confounders that haven't been taken into account in this study.

Despite these limitations we believe that this study provided a baseline data as it enables us to develop intervention programs to control GERD symptoms in Palestine, and it provided important findings necessary to generate hypothesis on the GERD and its associated lifestyle factors among population in the West Bank using another study designs like cohort studies.

5.6 Conclusions

We could conclude that GERD disease is a very real problem among people in Nablus district. The severity of GERD disease symptoms illustrates the need for increasing patients compliance and education in order to minimize the occurrence of GERD disease symptoms and its complications. Finally, this study improved our understanding in a way that might help to overcome the factors that may lead to GERD symptoms occurrence. Moreover, this study increased our knowledge regarding daily habits or lifestyle behaviors and their associated adverse health effects especially GERD symptoms. On the other hand, and in order to decrease the morbidity from GERD disease symptoms, further research is considered necessary to explain great issues in the understanding of GERD disease determinants.

5.7 Recommandations

This study has the following recommendations for both the population and the future researches in order to minimize the occurrence of GERD and its symptoms:

5.7.1 Recommandations for population

It is apparent that awareness of this issue is minimal among population, with most instances of GERD disease related daily life factors arising through lack of knowledge. Therefore, media program, public lectures are needed to increase education and awareness about bad dietary intake habits, lifestyle behaviors and health concerns especially that related to gastro-intestinal system problems.

5.7.2 Recommandations for future studies

Large prospective controlled trials are warranted to recommend more precise dietary and lifestyle factors that could be associated with GERD symptoms among Palestinian population. We also recommend to apply further studies that investigate the relationship between GERD severity and other factors, such as environmental factors. Therefore, further future studies in all Palestinian governmental and private hospitals and clincs are recommended.

5.8 Summary

This chapter has discussed the main study findings from the researchers point of view and in comparison with other similar previous studies. The main findings of the study showed that GERD disease symptoms is a real problem among Palestinian community and therefore effective awareness and educative measures should be implemented. We finally provided conclusions and recommendations in regard to the main study findings.

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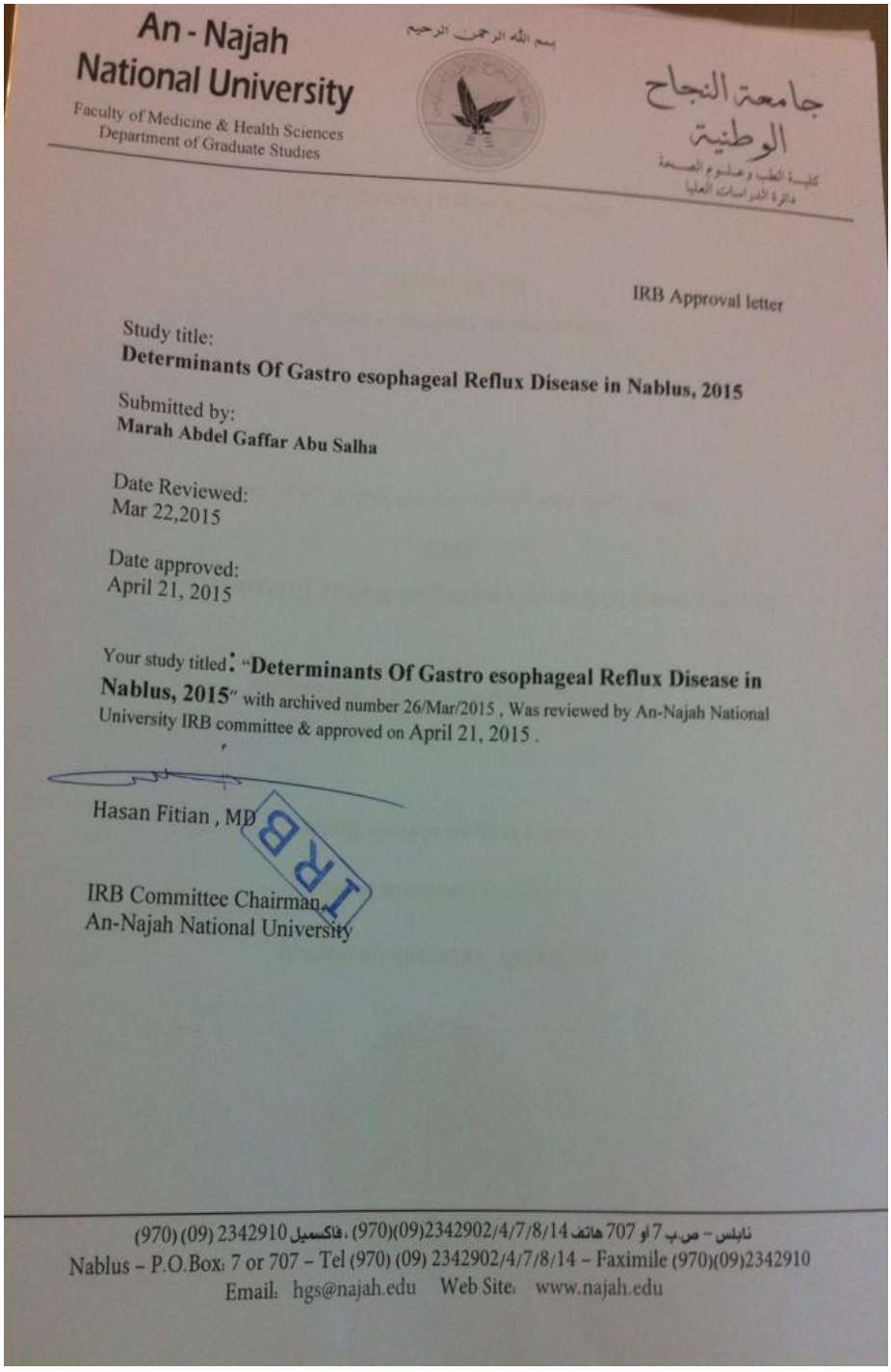
Annexes

Annex (A): Institutional review board (IRB) approval of the study protocol.



An - Najah National University
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Department of Graduate Studies

بسم الله الرحمن الرحيم

جامعة النجاح الوطنية
كلية الطب وعلوم الصحة
دائرة الدراسات العليا

IRB Approval letter

Study title:
Determinants Of Gastro esophageal Reflux Disease in Nablus, 2015

Submitted by:
Marah Abdel Gaffar Abu Salha

Date Reviewed:
Mar 22,2015

Date approved:
April 21, 2015

Your study titled: "**Determinants Of Gastro esophageal Reflux Disease in Nablus, 2015**" with archived number 26/Mar/2015 , Was reviewed by An-Najah National University IRB committee & approved on April 21, 2015 .

Hasan Fitian , MD

IRB Committee Chairman
An-Najah National University

IRB

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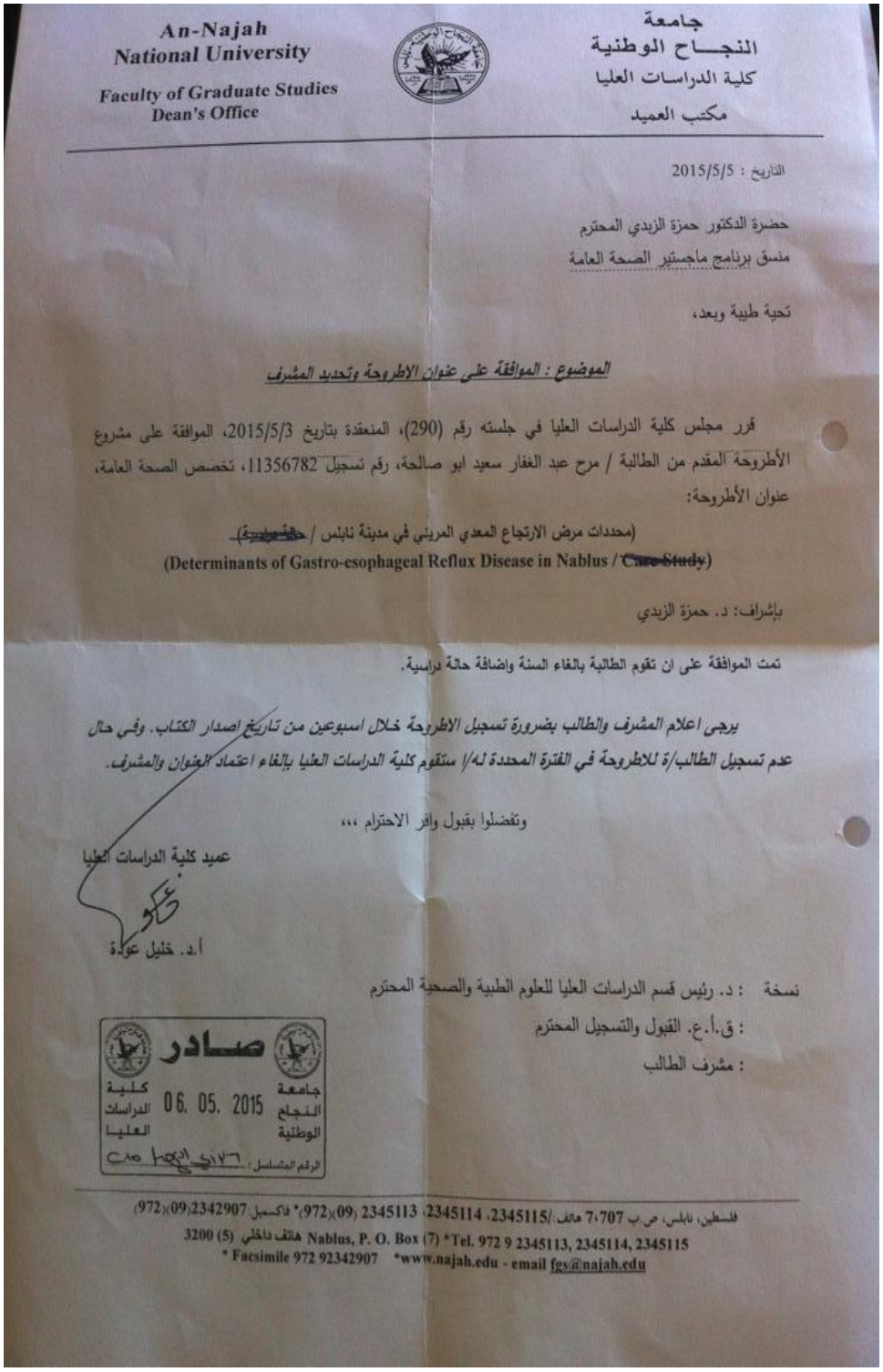
Email: hgs@najah.edu Web Site: www.najah.edu

Annex (B): Faculty of graduate studies scientific research board at An-Najah National University approval.



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جامعة
النجـــاح الوطنية
كلية الدراسات العليا
مكتب العميد

التاريخ : 2015/5/5

حضرة الدكتور حمزة الزيدي المحترم
منسق برنامج ماجستير الصحة العامة

تحية طيبة وبعد،

الموضوع : الموافقة على عنوان الاطروحة وتحديد المشرف

قرر مجلس كلية الدراسات العليا في جلسته رقم (290)، المنعقدة بتاريخ 2015/5/3، الموافقة على مشروع الأطروحة المقدم من الطالبة / مرح عبد الغفار سعيد ابو صالحة، رقم تسجيل 11356782، تخصص الصحة العامة، عنوان الأطروحة:

(محددات مرض الارتجاع المعدي المريئي في مدينة نابلس / ~~حالة دراسية~~)
(Determinants of Gastro-esophageal Reflux Disease in Nablus / ~~Case Study~~)

بإشراف: د. حمزة الزيدي

تمت الموافقة على ان تقوم الطالبة بالغاء السنة واضافة حالة دراسية.

يرجى اعلام المشرف والطالب بضرورة تسجيل الاطروحة خلال اسبوعين من تاريخ اصدار الكتاب. وفي حال عدم تسجيل الطالب/ة للاطروحة في الفترة المحددة له/ا ستقوم كلية الدراسات العليا بالغاء اعتماد العنوان والمشرف.

وتفضلوا بقبول وافر الاحترام ،،،

عميد كلية الدراسات العليا

أ.د. خليل عوادة

نسخة : د. رئيس قسم الدراسات العليا للعلوم الطبية والصحية المحترم
: ق.أ.ع. القبول والتسجيل المحترم
: مشرف الطالب

صادر
جامعة النجاح الوطنية
كلية الدراسات العليا
06. 05. 2015
الرقم المتسلسل: ٢٧٦

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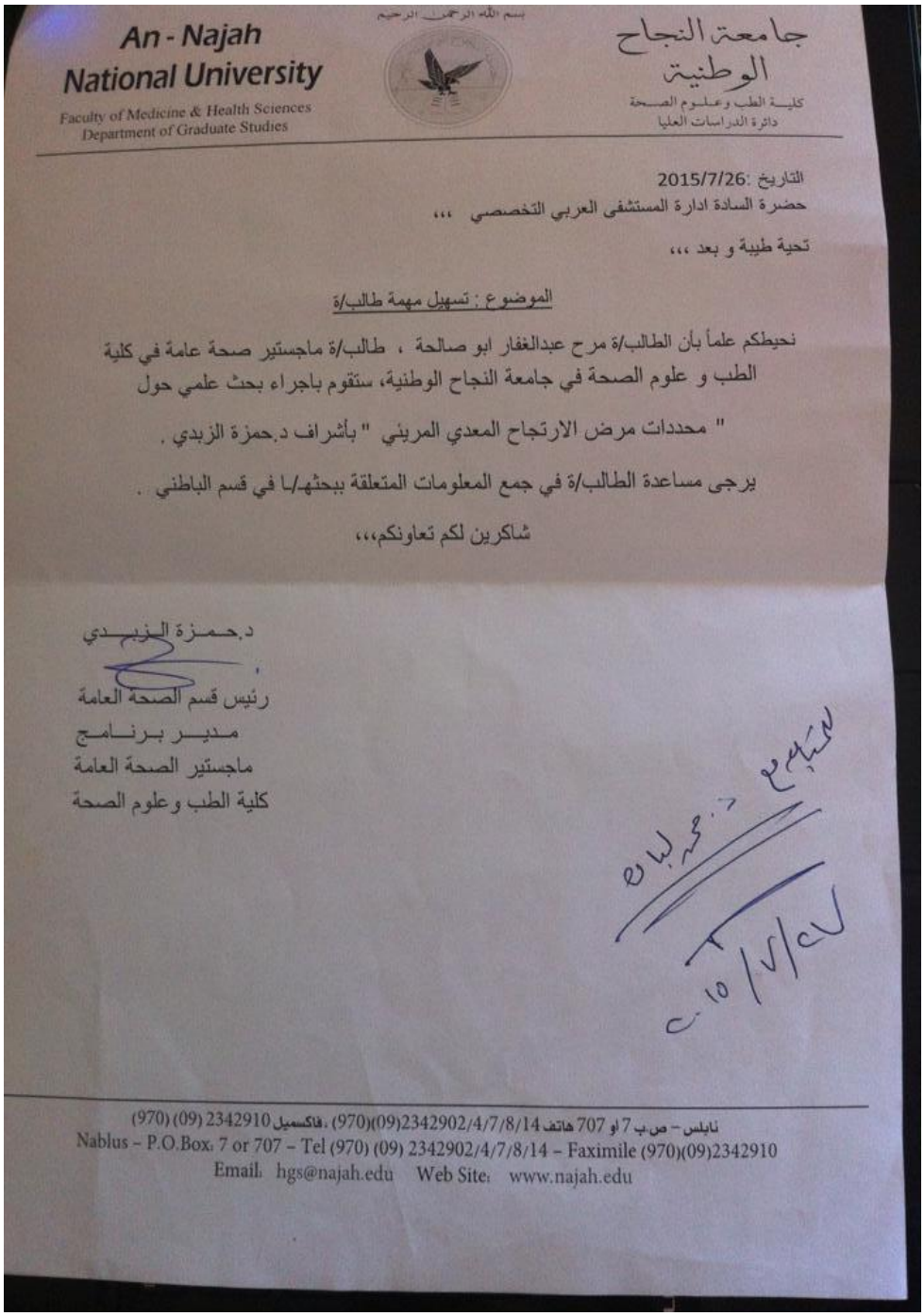
Annex (C): The An-Najah national university letter to Al Arabi specialized hospital to facilitate the student's mission



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جامعة النجاح الوطنية
كلية الطب وعلوم الصحة
دائرة الدراسات العليا

التاريخ :2015/7/26

حضرة السادة ادارة المستشفى العربي التخصصي ،،،

تحية طيبة و بعد ،،،

الموضوع : تسهيل مهمة طالب/ة

نحيطكم علماً بأن الطالب/ة مرح عبدالغفار ابو صالحة ، طالب/ة ماجستير صحة عامة في كلية الطب و علوم الصحة في جامعة النجاح الوطنية، ستقوم باجراء بحث علمي حول

" محددات مرض الارتجاع المعدي المريئي " بأشراف د.حمزة الزبدي .

يرجى مساعدة الطالب/ة في جمع المعلومات المتعلقة ببحثه/ا في قسم الباطني .

شاكرين لكم تعاونكم،،،

د.حمزة الزبيدي
رئيس قسم الصحة العامة
مدير برنامج
ماجستير الصحة العامة
كلية الطب وعلوم الصحة

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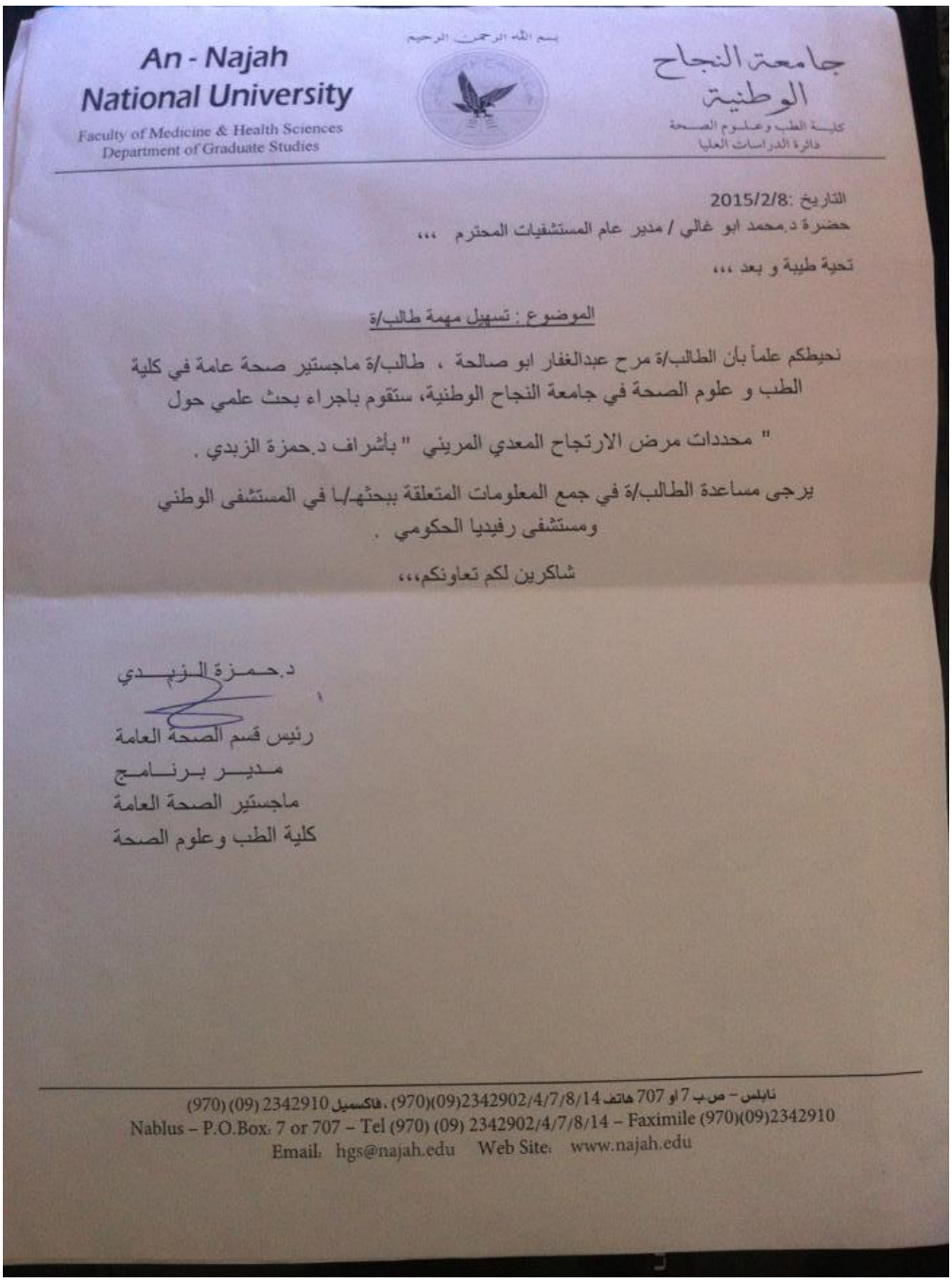
Annex (D): The An-Najah national university letter to the governmental hospital to facilitate the student's mission.



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Department of Graduate Studies

جامعة النجاح الوطنية
كلية الطب وعلوم الصحة
دائرة الدراسات العليا

التاريخ :2015/2/8

حضرة د.محمد ابو غالي / مدير عام المستشفيات المحترم ،،،

تحية طيبة و بعد ،،،

الموضوع : تسهيل مهمة طالب/ة

نحيطكم علماً بأن الطالب/ة مرح عبدالغفار ابو صالحة ، طالب/ة ماجستير صحة عامة في كلية الطب و علوم الصحة في جامعة النجاح الوطنية، ستقوم باجراء بحث علمي حول

" محددات مرض الارتجاح المعدي المريئي " بأشراف د.حمزة الزبدي .

يرجى مساعدة الطالب/ة في جمع المعلومات المتعلقة ببحثه/ا في المستشفى الوطني ومستشفى رفيديا الحكومي .

شاكرين لكم تعاونكم،،،

د.حمزة الزبيدي
رئيس قسم الصحة العامة
مدير برنامج
ماجستير الصحة العامة
كلية الطب وعلوم الصحة

نابلس – ص.ب 7 او 707 هاتف 14/8/7/4/2342902(09)(970) ،فاكسميل 2342910 (09) (970)
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Annex (E): The An-Najah national university letter to An najah national university hospital to facilitate the student's mission.

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Faculty of Medicine & Health Sciences
Department of Graduate Studies

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جامعة النجاح الوطنية
كلية الطب وعلوم الصحة
دائرة الدراسات العليا

مستشفى النجاح الوطني الجامعي
وارد 27-07-2015
الرقم:

التاريخ :2015/7/26
حضرة البروفيسور سليم الحاج يحيى / المدير العام لمستشفى النجاح الوطني الجامعي ،،،

تحية طيبة و بعد ،،،

الموضوع : تسهيل مهمة طالب/ة

نحيطكم علماً بأن الطالب/ة مرح عبدالغفار ابو صالحة ، طالب/ة ماجستير صحة عامة في كلية الطب و علوم الصحة في جامعة النجاح الوطنية، ستقوم باجراء بحث علمي حول

" محددات مرض الارتجاح المعدي المريئي " بأشراف د.حمزة الزبدي .

يرجى مساعدة الطالب/ة في جمع المعلومات المتعلقة ببحثه/ـا في العيادات الخارجية .

شاكرين لكم تعاونكم،،،

د.حمزة الزبدي
رئيس قسم الصحة العامة
مدير برنامج
ماجستير الصحة العامة
كلية الطب وعلوم الصحة

المدير الطبي
Chief Medical Officer

لا مانع

نابلس – ص.ب 7 أو 707 هاتف 14/8/7/4/2342902(09)(970) ،فاكسميل 2342910 (09) (970)
Nablus – P.O.Box: 7 or 707 – Tel (970) (09) 2342902/4/7/8/14 – Faximile (970)(09)2342910
Email: hgs@najah.edu Web Site: www.najah.edu

Annex (F): An najah national university hospital approval to facilitate the student's mission.

مستشفى النجاح الوطني الجامعي
An-Najah National University Hospital

Office of Chief Medical Officer
مكتب المدير الطبي

التاريخ:2015/07/28
الرقم:ص خ/0715/193

حضرة الدكتور حمزة الزبدي المحترم
رئيس قسم الصحة العامة/ كلية الطب وعلوم الصحة
تحية طيبة وبعد،،،

الموضوع: تسهيل مهمة الطالبة مرح أبو صالحة

استناداً لكتابكم المرسل بتاريخ 2015/07/26 و بالإشارة للموضوع المذكور أعلاه ، نودُ اعلامكم انه لا مانع لدينا من استضافة طالبة الماجستير مرح عبد الغفار أبو صالحة بغرض اجراء بحث علمي حول " محددات مرض الارتجاع المعدي المريئي " في مستشفى النجاح الوطني الجامعي.

و تقبلوا بقبول فائق الإحترام و التقدير

د. كمال عابد
المدير الطبي
مستشفى النجاح الوطني الجامعي

نسخة:
- مدير الموارد البشرية المحترم.
- الدكتور قصي عمره المحترم.
- الملف.

المدير الطبي
Chief Medical Officer

Palestine - Nablus - Asera St. Tel: 00970 9 2389687 Fax: 00970 9 2389683 فلسطين -نابلس – شارع عصيرة

Annex (G): Arabic version of the consent form

بسم الله الرحمن الرحيم

Consent Form

الموضوع: الموافقة على المشاركة في دراسة علمية لرسالة ماجستير في الصحة العامة.

عنوان الدراسة: محددات مرض الارتجاع المعدي المريئي في مدينة نابلس .

الطالبة : مرح عبد الغفار أبو صالحة

المشرف الأكاديمي: د.حمزة الزبدي .

تحية طيبة وبعد:

أنا الطالبة مرح عبد الغفار أبو صالحة من مدينة نابلس أقوم بدراسة محددات مرض الارتجاع المعدي المريئي في مدينة نابلس كمتطلب لاستيفاء درجة الماجستير في الصحة العامة / جامعة النجاح الوطنية

تهدف هذه الدراسة إلى معرفة العوامل المرتبطة بحدوث مرض الارتجاع المعدي المريئي . تتطلب تلك الدراسة القيام بتعبئة استبانه من قبل 120 مريض .

نرجو من حضرتكم التكرم بالموافقة على المشاركة في تلك الدراسة حيث لا يوجد مخاطر من الاشتراك بها، والمعلومات التي سنحصل عليها ستبقى سرية ولن تستخدم إلا لأغراض البحث العلمي فقط ولك الحق في الانسحاب متى تشاء من الدراسة .

مع وافر الاحترام

الطالبة : مرح عبد الغفار أبو صالحة .

الجوال : 0599152402

البريد الالكتروني :marahnablus@gmail.com

لقد قرأت التوضيح أعلاه وبناءا عليه أوافق على المشاركة بمحض إرادتي :

الاسم: .....

التوقيع :.....

التاريخ :.....

Annex (H) : English version of the consent form

Consent Form

Subject: consent to participate in a scientific study for the Master of Public Health program.

Study Title: Determinants Of Gastro esophageal Reflux Disease in Nablus.

Student: Marah Abdel Gaffar Abu Salha

Academic supervisor: Dr. Hamzeh Al Zabadi

Hello,-

I am Marah Abdel Gaffar Abu Salha from Nablus, I am conducting a study research to assess the risk factors related to severity and frequency of GERD disease's symptoms among the Palestinian population in Nablus, as a requirement for a Master's degree in Public Health from An-Najah National University.

The aim of this study is to analyze the association between GERD symptoms and background variables, especially focused on lifestyle ones in the West Bank. This study requires also taking a sample of 120 GERD patients. This study requires filling a face-to-face administered questionnaire by 120 GERD patients.

We hope that you will kindly agree to participate in this study where there is no risk due to participation and that all the collected information will remain confidential and for research purposes only. You have also the right to withdraw from the study whenever you want.

Respectfully,

Student: Marah Abdel Gaffar Abu salha
Mobile: 0599152402
E-mail: marahnablus@gmail.com

I have read the explanation above, and based upon I agree to participate voluntary in the above mentioned study:

Name: ..... .
Signature:.....
Date:..... ...

Annex (I) : The study questionnaire.

بسم الله الرحمن الرحيم

أخي المواطن/ أختي المواطنة ،،

تحية وبعد،،

دراسة إحصائية/ صحية.

تهدف هذه الدراسة إلى دراسة " **محددات مرض الارتجاع المعدي المريئي في نابلس**"، وقد تم اختياركم لتكونوا جزءاً من عينة الدراسة، لذا نأمل منكم الإجابة بموضوعية على أسئلة الاستبيان، بوضع إشارة على الإجابة التي ترونها مناسبة في المكان المخصص لها.

مؤكدين اقتصار استخدام المعلومات الواردة في هذه الاستبيان على أغراض البحث العلمي، ومراعاة السرية التامة والحرية الكاملة بعدم الإجابة عن أي سؤال، مع إمكانية الانسحاب من المشاركة في الدراسة دون أن يؤثر ذلك على العناية الطبية المقدمة.

(شاكرين لكم حسن تعاونكم)

2015

الباحث / مرح عبد الغفار أبو صالحة

جامعة النجاح الوطنية

جوال 0599152402

بريد الكتروني marahnablus@gmail.com

*** يرجى وضع إشارة (√) تحت الخيار المناسب للحالة.**
*** لكل فرع إجابة واحدة فقط.**

الجزء الأول:- معلومات شخصية:

1	الجنس	ذكر	أنثى			
			حامل	غير حامل		
			يرجى التوقف			
2	العمر	30-20	40-31	50-41	أكثر من خمسين	
3	مكان الإقامة	مدينة	قرية	مخيم		
4	المستوى التعليمي	أمي	أساسي أو ثانوي	دبلوم	بكالوريوس	دراسات عليا
5	الحالة الاجتماعية	متزوج	أعزب	أرمل	مطلق	
6	1-الوظيفة					
	2- طبيعة العمل	يتطلب منك القيام بمجهود بدني كبير(كالمشي والصعود وحمل الأثقال)	يتطلب منك القيام بمجهود بدني متوسط	عمل مكتبي فقط		
7	عدد أفراد الأسرة	أقل من3 أفراد	(5-3)	(8-6)	أكثر من 8 أفراد	
8	الدخل الشهري/ شيكل	أقل من (2500)	(2500) وأكثر			
9	المنطقة التي تسكن بها	منطقة مرتفعة	متوسطة الارتفاع	منطقة منخفضة		
10	الطول (متر)	.....				

الجزء الثاني : معلومات حول الحالة الصحية:

11	التدخين	مدخن حالي	مدخن سابق	غير مدخن
12	إذا كنت مدخن كم عدد السجائر التي تدخنها يومياً؟	(5-1)	(10-6)	أكثر من 10
13	الأرجيلة	مدخن حالي	مدخن سابق	غير مدخن
14	شرب القهوة	لا أبدا / قليلاً	في بعض الأحيان	يومياً وبانتظام
15	عدد مرات شعورك بحرقة في المعدة	نوبتين خفيفتين أسبوعيا على الأقل	خمس نوبات أسبوعيا نهاراً على الأقل ومرة ليلا أسبوعيا على الأقل	
16	هل يصاحب هذه الأعراض ألم في الصدر؟	لا أشعر بذلك	أحياناً	دائماً

17	هل لديك عادة تناول الطعام بسرعة؟	لا أبداً	أحياناً	دائماً
18	هل تشعر بهذه الأعراض بعد تناول وجبة دسمة؟	لا أبداً	أحياناً	دائماً
19	هل تشعر بهذه الأعراض بعد شرب القهوة؟	لا أبداً	أحياناً	دائماً
20	هل تشعر بهذه الأعراض بعد تعرضك للضغط النفسي(ضغط العمل مثلاً)	لا أبداً	أحياناً	دائماً
21	تناول الطعام قبل النوم	في الغالب اذهب للنوم مباشرة بعد الأكل	أذهب للنوم بعد اقل من ساعتين من الأكل	أذهب للنوم بعد أكثر من ساعتين من الأكل
22	هل تؤدي هذه الأعراض إلى اضطراب في النوم ؟	لا أبداً	أحياناً	دائماً
23	هل تؤدي هذه الأعراض إلى اضطراب في العمل ؟	لا أبداً	أحياناً	دائماً
24	هل تؤدي هذه الأعراض إلى اضطراب في الأكل ؟	لا أبداً	أحياناً	دائماً
25	هل عانى أو يعاني أحد أفراد العائلة من نفس الأعراض؟	لا	نعم	
26	هل تقوم بأي نشاط رياضي خلال الأسبوع؟	لا	أقوم ولكن ليس بشكل يومي	نعم يومياً
27	هل تعاني من مشاكل صحية أخرى؟	لا	نعم	

28	إذا كنت تعاني من مشكلة صحية ما نوع المشكلة؟	السكري	ارتفاع الضغط	ارتفاع الدهون	أمراض عصبية	الأزمة	غير ذلك (الاسم)

29	هل تتناول أي من 20الأدوية التالية؟	أدوية مخفضة للضغط	أدوية مضادة للالتهاب غير سترويدية	أدوية مخفضة للسكر	أدوية لعلاج الأزمة	أدوية عصبية	أدوية مخفضة للدهون	(أسبرين)	هرمونات

30	هل تشعر بأعراض الارتجاع بعد تناول الدواء السابق ؟	لا	نعم
31	هل تستخدم دواء لعلاج أعراض الارتجاع ؟	دواء مضاد للحموضة	وصفات تقليدية من أعشاب وغيرها

شكراً لتعاونكم

جامعة النجاح الوطنية

كلية الدراسات العليا

محددات مرض الارتجاع المعدي المريئي في مدينة نابلس .

إعداد

مرح عبد الغفار أبو صالحة

إشراف

د. حمزة الزبدي

قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في الصحة العامة بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2016

محددات مرض الارتجاع المعدي المريئي في مدينة نابلس .

إعداد

مرح عبد الغفار أبو صالحة

إشراف

د. حمزة الزبدي

الملخص

خلفية لدراسة:

يستخدم مصطلح الارتجاع المعدي المريئي (GERD) لوصف الأعراض والتغيرات في الغشاء المخاطي المريئي الناتجة عن ارتداد محتويات المعدة إلى المريء، والتي تتأثر بعدة عوامل، مثل العمر والجنس ومؤشر كتلة الجسم (BMI)، والسمنة وغيرها.

يعد مرض الارتجاع المعدي المريئي اضطراب شائع يؤثر على الملايين من الناس في جميع أنحاء العالم. ومع ذلك لم يتم البحث عن أسبابه في المجتمع الفلسطيني. لذلك تهدف هذه الدراسة إلى تقييم المحددات المحتملة التي تؤدي إلى رفع حدة وزيادة تكرار أعراض هذه المشكلة الصحية بين السكان الفلسطينيين في محافظة نابلس.

المنهجية:

تم إجراء دراسة مقطعية باستخدام استبيان تم التحقق من صحته مسبقا. حيث تمت تعبئة الاستبيانات من قبل 120 مريض من خلال المقابلات وجها لوجه أو المكالمات الهاتفية . حيث تم استخدام تقنية أخذ العينات غير عشوائية. تم أخذ العينة من العيادة الخارجية لمستشفى النجاح الوطني التعليمي والعيادة الخارجية للمستشفى العربي التخصصي، والعيادة الخارجية للمستشفى الوطني الحكومي، وعيادة الدكتور ياسر أبو صفية (أخصائي الجهاز الهضمي) في مدينة نابلس. وقد أجريت عملية تحليل الاستبيانات باستخدام برنامج SPSS وتم اعتبار درجة الندرة أقل من 0.05 ذات دلالة إحصائية.

النتائج:

لقد تمكنا من مقابلة 120 مشاركا من ثلاثة مستشفيات وعيادة خاصة واحدة في مدينة نابلس. بعد التحليل تبين أنه من بين المشاركين 40 شخصا من الذكور (33.37٪)، في حين بلغ عدد النساء 80 (66.7٪). وأظهر تحليل البيانات أن غالبية المشاركين كان عمرهم أكثر من 50 سنة (34.2٪). في حين لا توجد فروق ذات دلالة إحصائية واضحة بين المشاركين وشدة أعراض مرض الارتجاع المعدي المريئي فيما يتعلق بالعمر والحالة الاجتماعية (قيم P> 0.05). في المقابل وجد أن: المتغيرات الديموغرافية (عدد أفراد الأسرة، وطول المريض) ، والإكثار من تناول الأغذية الدهنية والقهوة بالإضافة إلى تناول الأدوية الخافضة للضغط أو الأدوية المضادة للالتهاب; كان لها دلالة إحصائية واضحة مع شدة أعراض المرض. و بعد إجراء اختبار الانحدار اللوجستي المتعدد تبين أن أولئك الذين ذكروا أنهم عادة لا يشعرون بآلام في الصدر أثناء أعراض ارتجاع المريء كانت أعراض المرض لديهم أقل شدة

(OR:0.09; 95% CI: 0.02-0.52)، وأولئك الذين ذكروا أنهم لم يعانوا من اضطرابات في النوم نتيجة أعراض المرض كانت أعراض الارتجاع المعدي المريئي لديهم أقل شدة أيضا (OR:0.05; 95% CI:0.007−0.40)

استنتاج:

أظهرت نتائج تحليل الاستبيانات زيادة في حدوث أعراض الارتجاع المعدي المريئي بعد التعرض للأغذية الدهنية واستهلاك القهوة وبعض الأدوية. لذلك يجب علينا كمختصي رعاية صحية زيادة الوعي العام وتثقيف السكان حول أسلوب الحياة السيئة والعادات الغذائية الخاطئة التي قد تؤدي إلى حدوث أعراض الارتجاع المعدي المريئي بالإضافة إلى رفع وعي السكان حول الممارسات الوقائية التي تمنع أو تقلل من نسبة حدوث هذه المشكلة الصحية. وأخيرا، فإننا نوصي بإجراء مزيدا من الدراسات المستقبلية في جميع المستشفيات الفلسطينية من أجل التوصل بدقة إلى الأسباب المؤدية إلى حدوث مرض الارتجاع المعدي المريئي في المجتمع الفلسطيني ، وبالتالي إمكانية إجراء التدخل المناسب للتقليل من نسبة حدوث هذا المرض أو التقليل من مضاعفاته .