

Assessment of Knowledge About Acute Cholecystitis and Risk Factors Among Females

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Abstract:

Background: Acute cholecystitis is a critical health problem characterized by acute inflammation of the gallbladder, which leads to upper right quadrant pain and needs emergency intervention.

Aim of the study: To assess knowledge and risk factors of Cholecystitis among participants.

Methods: It was a descriptive study design. The studied population were females employees at university medical collages, selected randomly, and a sample size of 43 participants

A self-administered questionnaire was used for data collection. The questionnaire consists of two sections, demographic data, and data for assessing knowledge and risk factors of such phenomena.

Result: Participants were females' employees at Pharmacy 26%, Nursing College 37%, and. 42% from Applied Medical Sciences. Their age group was between 31 -40years and 77% were at the university level of education, 81% of them were married, 72% were healthy, 16% were hypertensive, 7% were diabetics and 5% had liver and blood disorders. Also, 79% of participants suffered from obesity, overweight and 23% suffered from high cholesterol. Their level of knowledge 75% of participants' knowledge was good about causes while 48% of them their knowledge about risk and prevention factors of acute cholecystitis were low.

Conclusion: This survey has been useful in determining the current regional knowledge towards acute Cholecystitis and emphasizes the need for more efforts that focus on novel preventive strategies to overcome the onset of the problem among the population and further collaboration.

Keywords: Acute Cholecystitis, Risk Factors, Female, Awareness, Causes.

Introduction:

Acute cholecystitis (AC) is an inflammatory disease of the gallbladder is the most common cause of acute pain at the right upper quadrant (RUQ) [1]. Acute cholecystitis is one common cause of acute abdomen, it is associated with moderate to high severity due to its clinical potential to develop pyogenic cholecystitis, which may result in gallbladder necrosis, perforation, abscess, or even peritonitis. In the elderly, the severity of acute cholecystitis increases immensely; thus, it is crucial to determine proper treatment times and methods. Despite its clinical significance, however, we still

lack knowledge of predisposing factors and co-morbidities that may influence disease development and progression. [2'3]. Predisposing factors include female gender, increasing age (> 40 years), obesity, family history, and hemolytic disorders. Gallstones most commonly consist of cholesterol or infection. There are 90% of cases, with secondary E. coli, Klebsiella, Enterobacter bacterial infection, or mixed. Cholelithiasis or present with typical symptoms of the postprandial right upper quadrant (RUQ) pain, nausea, and vomiting. Diagnosis is confirmed by ultrasound [4,5].

Gallstones are the most common cause of acute cholecystitis. Bile can build up in the gallbladder if gallstones obstruct the bile ducts [6]. The gallbladder not only stores the bile but also can concentrate it. Concentrated bile is susceptible to precipitation forming stones when homeostasis is disrupted, which can occur due to bile stasis, supersaturation from the liver of cholesterol and lipids, disruption in the concentration process, and cholesterol crystal nucleation. When cystic duct blockage is caused by a stone, it is called acute calculous cholecystitis. It is important to know, that one can have pain due to temporary obstruction by gallstones, and that is called biliary colic. The diagnosis of biliary colic is upgraded to acute calculous cholecystitis if the pain does not resolve in six hours. If no stone is identified, it is called acute acalculous cholecystitis. Regardless of the cause of the blockage, the gallbladder wall edema will eventually cause wall ischemia and become gangrenous. The gangrenous gallbladder can become infected by gas-forming organisms, causing acute emphysematous cholecystitis; all these conditions can quickly become life-threatening, and rupture has a high rate of mortality [7].

This leads to inflammation. It can also be caused by a severe illness or a tumor. The risk increases with age in men and women, diabetes mellitus, pregnancy, cirrhosis, hemolytic disease, the elevation of blood pressure, smoking, coffee intake, overweight, use of oral contraceptives, in addition, certain drugs, such as estrogen replacement therapy and thiazide diuretics¹. More than 90% of AC cases are associated with gallstones. Gallstones are the primary triggering factors of cholecystitis which present in more than 10% of the population [1].

Prevalence of cholecystitis raised in Saudi Arabia, where cholecystectomy is now one of the commonest major abdominal operations. Incidence of acute Cholecystitis among sex female more than male (♀ > ♂); with ratio (2–3:1) & Peak incidence: > 40 years[4]. Nurses commonly care for patients with cholecystitis, a major health problem with a growing prevalence. Also, nurses can help ease the unpredictability of the experience by providing relevant patient education, prompt pain relief, and an attentive approach to nursing care[8]. The incidence of gallstone disease increases with age and the chief risk factors for it include female gender, obesity, and metabolic dysfunctions such as diabetes mellitus or hyperlipidemia, also known as the four Fs: Female, Forties, Fat, and Fertile [9].

A study in 2012 showed that the rising epidemic of obesity and metabolic syndrome predicts an escalation of cholesterol gallstone frequency. black pigment stones which are composed of calcium bilirubinate⁵.The prevalence of gallstone disease was 11.7% in women than in men (24% vs.12%) in hail Saudi⁴. Although acute cholecystitis medical emergency, if it is not enriched, it can lead to several serious and potentially fatal complications, such as the death of the gallbladder tissue, called gangrenous cholecystitis, Studies have patients with gangrenous acute cholecystitis were found to be older (p = 0.048) which can cause a serious infection and perforated gallbladder. Therefore, if acute cholecystitis is suspected, immediate referral to the hospital is recommended [10].

To reduce the risk of developing acute or chronic cholecystitis by losing weight and eating a healthier diet². Diet plays a key role in gallstones formation. Sugar, a high-fat diet, and alcohol intake increase the incidence of gallstone formation. In contrast, mono-saturated fat found in nuts and olive oil, fiber, and vegetables decreases the risk, of weight loss and exercise. A good understanding of the causes, symptoms, and risk factors associated with AC would play an important role in preventing or decreasing its complications [1, 11].

This study aimed to assess knowledge and risk factors of acute Cholecystitis among females, which achieve by assessing knowledge regards acute cholecystitis, identifying risk factors, and determining the prevalence of acute cholecystitis among participants.

Material and methods

Study Design: This is a descriptive study design. Conducted from April 2018 to March 2019, among university female employees at three medical colleges, Pharmacy, Nursing, and Applied Medical Sciences.

Inclusion and Exclusion criteria

The study was included participants' female gender, age more than 25years, employed at Pharmacy, Nursing, and Applied Medical Sciences, and willingness to participate in the study. And excluded male gender, age less than 25 years, not employed at Pharmacy, Nursing, and Applied Medical Sciences, and not willing to participate in the study.

Sampling and sample size:

The total sample of the study was 43 participants selected from the three University colleges (Pharmacy, Nursing, and Applied Medical Sciences). A probability sampling technique followed to select a sample size of participants using equation; $n = \frac{N}{1+N(D^2)}$ and calculated the proportion of participants randomly used stratified sample formula (Sample size of the strata = size of entire sample/population size * layer size) [12,13]

Data collection instruments:

A self-administered questionnaire was used for data collection. The questionnaire consists of two sections. The first one is about participants' demographic data and the second section consists of the questions for assessing knowledge about causes, clinical manifestations, prevention, and risk factors of acute cholecystitis. Also, a checklist for recording participants' height and weight was used to calculate Body Mass Index (BMI) based on standard equation [BMI = weight in kilograms divided by the square of height in meters and categories for interpretation of BMI to classify each participant] [14].

Pilot study:

The pilot study was carried out among similar study populations and the setting covered 20% of the study sample before data collection then required correction and modification were done.

Research Procedure:

The questionnaire was distributed to the participants by direct contact, and a self-administered method was used, height and weight were measured following the standard criteria of measurement, and body mass index (BMI) for entire participants was calculated to detect the risk of obesity [15].

Ethical considerations:

The study was approved by the institutional review board of the University, at nursing college, a formal agreement was provided from the Pharmacy and Applied Medical Sciences colleges, and informed written consent was obtained from each participant. The procedure for data protection and privacy was maintained following Australian Principles and Guidelines for ethical research and evaluation in development 2016[16].

Statistical analysis:

Statistical analyses were done using SPSS v20 and quantitative data was represented in frequency and percentages tables format. Knowledge of participants about acute Cholecystitis was tested based on the Likert scale as very poor, poor, fair, good, and very good.¹⁶ Mean and SD Deviation for risk factors of acute cholecystitis were also analyzed. In addition to Pearson's Chi-Square test to examine associations between participants' background information and their knowledge was used and the significance of the result was adopted at the p-value of <0.05.

Result

Table/Figure: background information of participants.

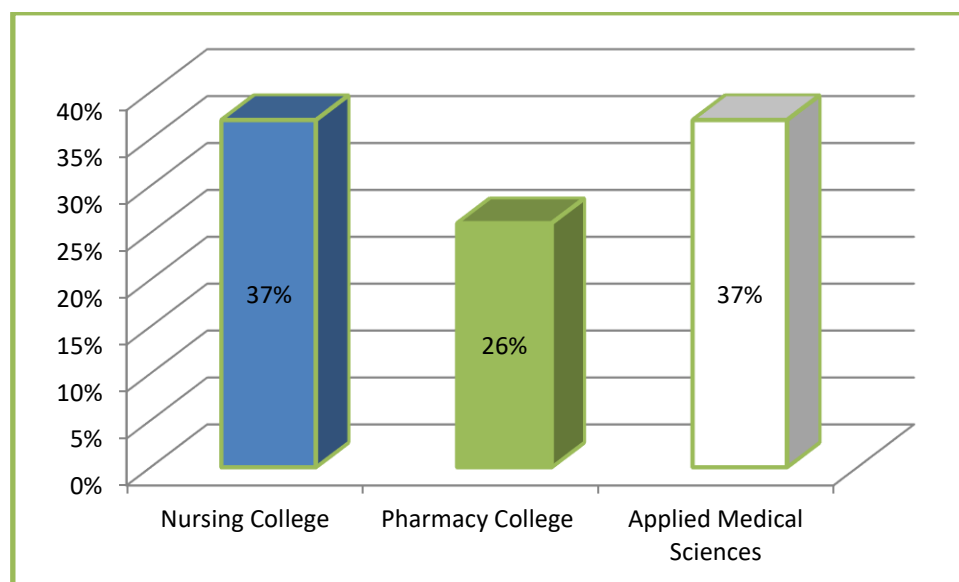


Fig. (I): Colleges participated in this study

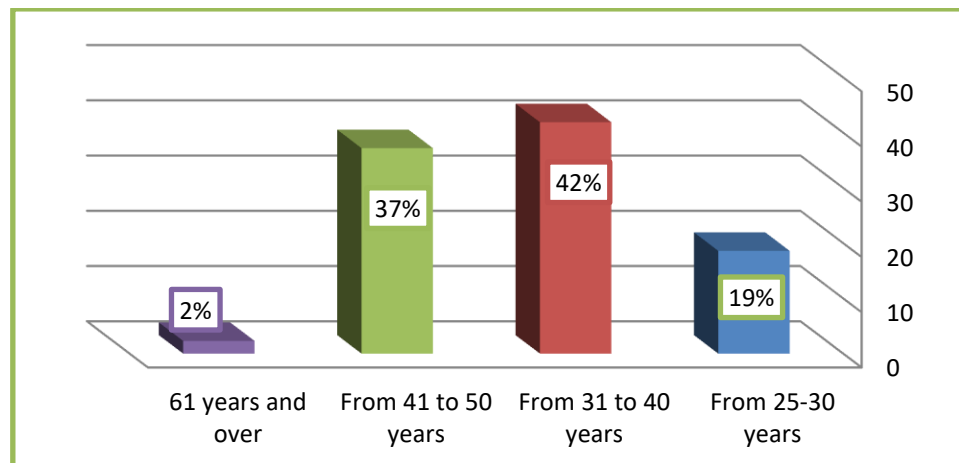


Fig. (II): Age group of participants:

This figure showed the ages of the studied sample, 19% were aged between (25-30 years), 42% were aged between (31 to 40 years) and 37 % at age group (41 to 50 years), and 2% were (61 years and over).

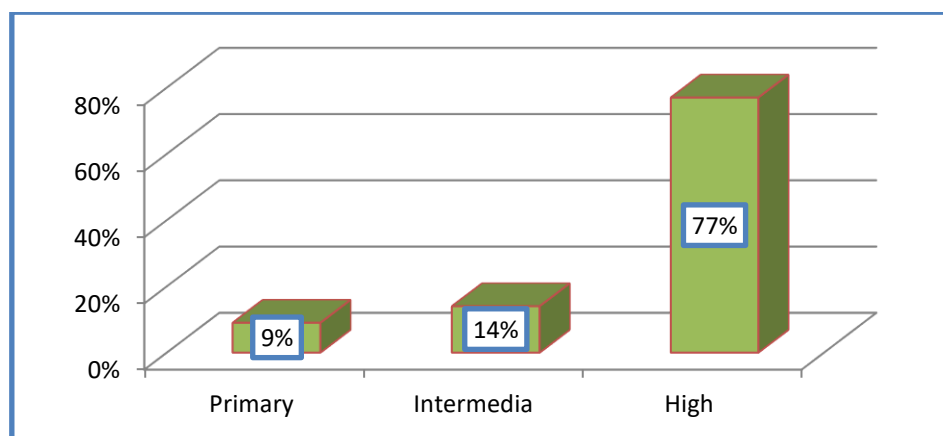


Fig (III): The educational level of the sample members

The educational level of participants was 9.0 %, primary, 14% intermedia, and 77.0 % high education level.

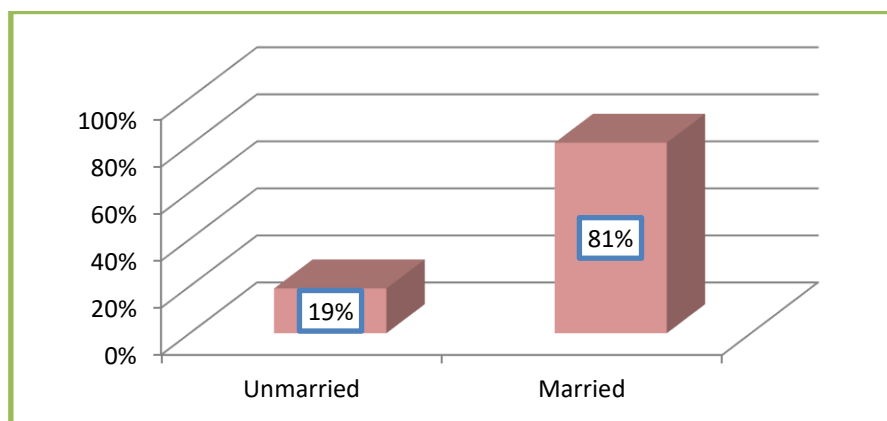


Fig (IV): Marital status of participants

This figure showed that the marital status of the studied sample was 19.0% unmarried and 81.0 % married.

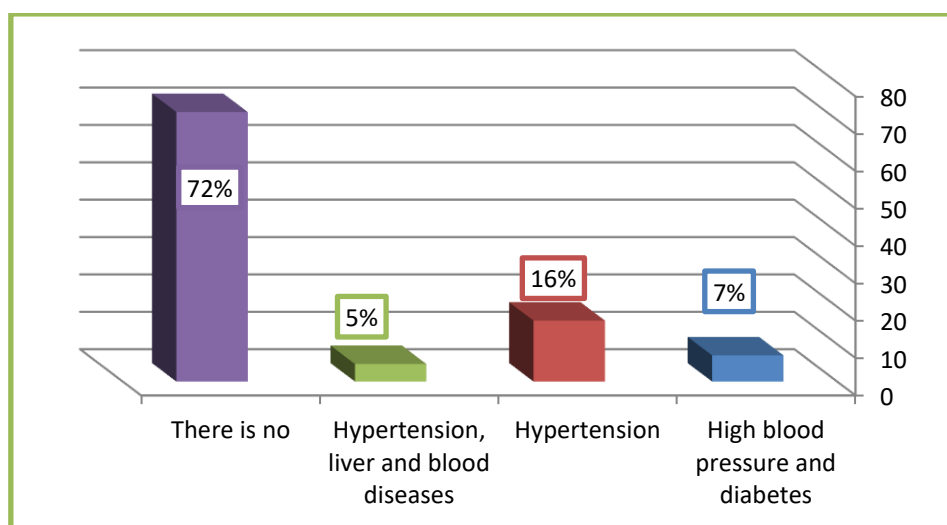


Fig (V): Participants suffering from chronic diseases.

This figure showed participants who suffered from chronic diseases were 7.0% diabetics, 16.0% hypertensive, 7.0% had blood and liver disease, and 72.0% were healthy.

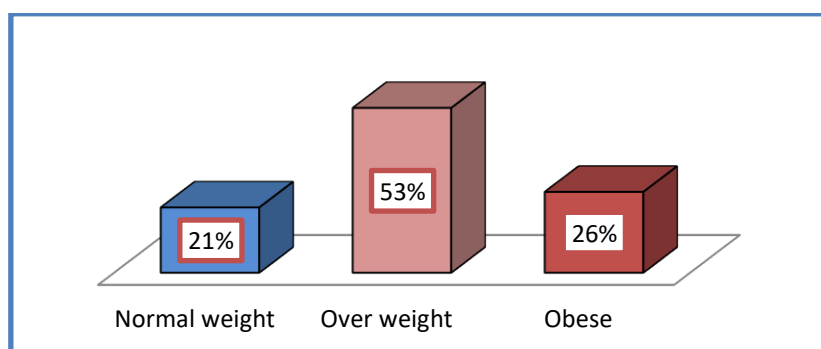


Fig. (VI): Body Mass Index of Participants

This figure showed that the body mass index among participants was 21.0%, at normal body mass index, while 53.0%, were overweight and 26.0%, Obese. This reveals that these populations were at high risk.

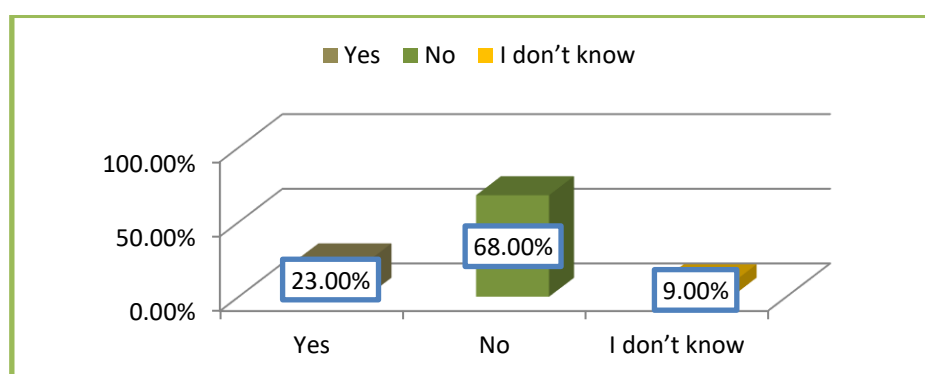


Fig (VII): Participants know that they suffered from high blood cholesterol and triglyceride

This figure showed that participants suffered from high blood cholesterol and triglycerides as following 23.0 %, 67.0% within normal level while 9.0% didn't know their blood cholesterol and triglycerides levels.

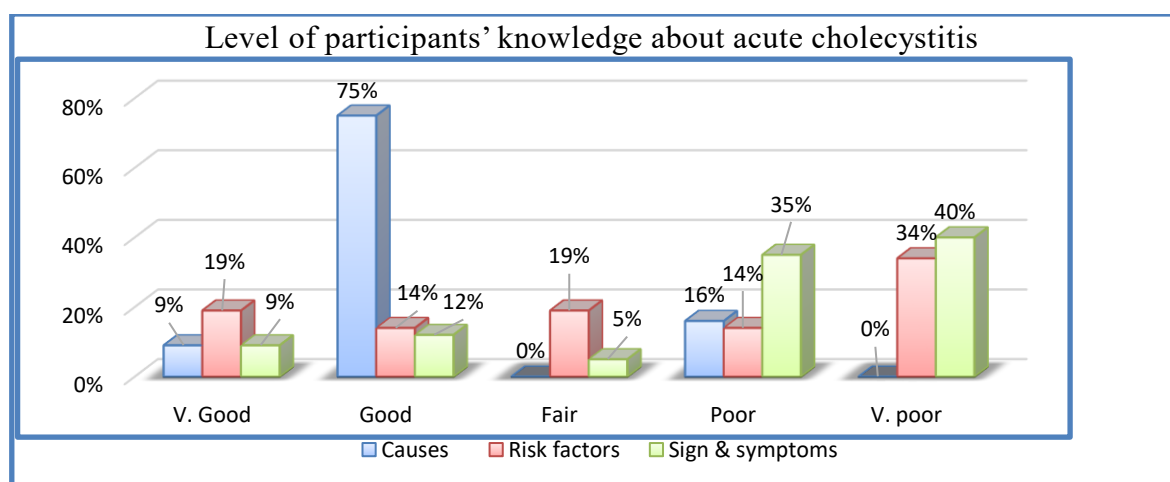


Fig. VIII: Level of participants' knowledge of acute cholecystitis causes, risk factors, signs, and symptoms. (n=43)

The graph above depicted participants' overall knowledge of acute cholecystitis causes risk factors, and signs and symptoms. The study found a higher level of knowledge (75%) was found to be had a good about the causes, while (16%) had poor scores. Also, participants had very poor levels of knowledge of signs and symptoms and risk factors, which were 40% and 34%, respectively.

Table:(1): Participants' knowledge of acute cholecystitis's risk factors (n= 43)

Risk factor	Don't know	know	Total
Family history	44%	56%	100.0%
Gender	67%	33%	100.0%
Elder age	72%	28%	100.0%
Obesity and overweight	67%	33%	100.0%
Diabetes milieus	60%	40%	100.0%
Fatty meals	56%	44%	100.0%
Smoking	60%	40%	100.0%

Table 1: explored participants who did not know the risk factors of acute cholecystitis, such as family history, gender, elderly age, obesity and overweight, diabetes milieus, fatty meals, and smoking, and they reflected various scores of 44%, 67%, 72%, 60%, and 40%, respectively.

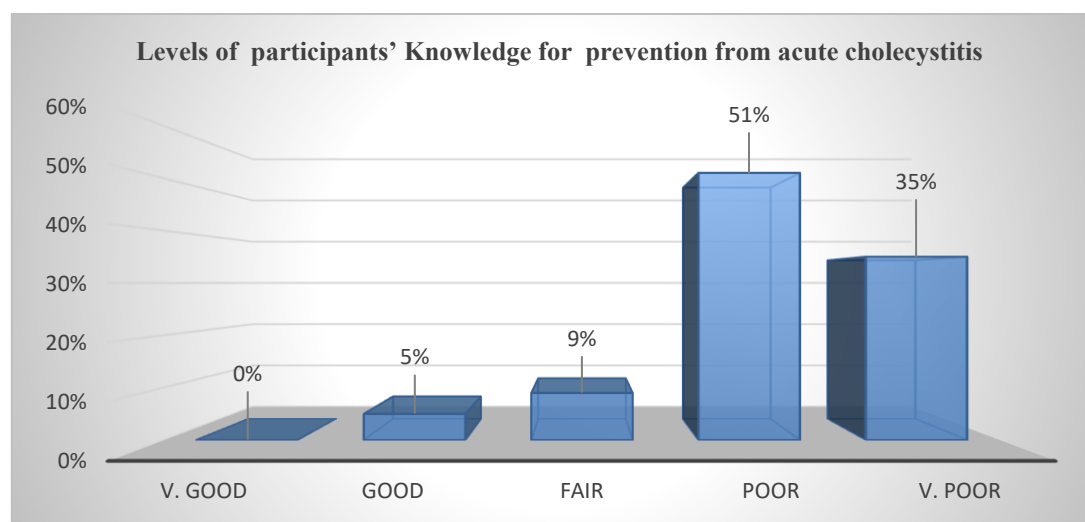


Fig. IX: Levels of participants' knowledge for prevention of acute cholecystitis (n =43)

The figure reflected those participants have a poor level of knowledge about the prevention of acute cholecystitis (51%), while 35% had very poor knowledge, and only 9% had a fair knowledge score.

Table: (2) Participants' level of knowledge about risk factors for acute cholecystitis.versus the level of education. (n =43)

Level of education	knowledge level of participants about risk factors					Value	Sig.
	V. Good	Good	Fair	Poor	V. Poor		
Intermediate	0%	0%	100%	0%	0%	5.907	0.658
Secondary	22%	11%	11%	11%	45%		
University	12%	21%	18%	15%	34%		

Table2: showed a high level of very good knowledge about risk factors was found among participants who had secondary school education, at 22.0%, followed by 12.0% of among participants who had a university education. The p-value for this finding is 0.658, indicating that it is insignificant.

Discussion:

The study was conducted at three medical colleges among female employees. Most of the participants' age group between 31-40 years, married and post graduated from various universities colleges.

This study revealed that the most of participants have a health history free of chronic diseases; but they suffered from overweight and obesity, while 16.0% were hypertensive, 7.0% were diabetics, 5.0% have liver and blood disorders. while 23.0% have high cholesterol levels and 79% suffered from overweight and obesity. As well as having good knowledge about the causes of acute cholecystitis, while their knowledge about the risk factors and symptoms was low and there was an insignificant effect of education on their level of knowledge p-value (0.658).

A similar survey has been conducted among the general population in Albaha city Saudi Arabia to assess knowledge towards acute cholecystitis. A representative sample of 634 subjects from both sexes, aged from 18-80 years. The result showed that only 48 subjects had a history of the disease with a prevalence rate of 7.57%. More than half of the participants (58.7%) recorded a family history of AC in one of their direct relatives. A great percent of the study participants considered obesity, high cholesterol, and high triglycerides responsible for the increased incidence of AC (59.9%, 54.3%, and 66.9%). Also, the study found more than fifty percent of participants did not know the risk factors of acute cholecystitis, such as family history, gender, elderly age, obesity and overweight, diabetes mellitus, fatty meals, and smoking [1].

A previous study was conducted to assess risk factors of acute cholecystitis among 611 patients who underwent laparoscopic cholecystectomy and evaluate co-morbidities, such as hypertension, diabetes mellitus, cardiovascular disease, cerebrovascular accident, and end-stage renal disease for which the prevalence rate has increased in the elderly. The finding reflected the presence of diabetes mellitus and hypertension were significant risk factors for developing the disease at p-value respectively ($p=0.002$) and ($p=0.019$). While this study reflected that 16.0% of participants were hypertensive, 7.0% were diabetics exposed to the risk [3].

Another study was conducted among people to reflect the causes of acute cholecystitis among participants; The diagnosis of biliary colic upgraded to acute calculous cholecystitis if the pain does not resolve in six hours. If no stone identified, it was called acute acalculous cholecystitis but there were 95% of participants diagnosed with acute cholecystitis have gallstones. And 20% among them were asymptomatic for 20 years and approximately 1% of patients with asymptomatic stones develop complications before the onset of symptoms [17]

The participants had a poor level of knowledge about the prevention of acute cholecystitis at fifty percent, and fewer of them had a fair knowledge score. This result was better than found by a previous study conducted to participants' knowledge about the prevention of cholecystitis which was (86%) had poor knowledge, despite the most of participants has a high risk for acute cholecystitis [18].

It's important for all individuals to know well the risk of cholecystitis to protect themselves, regarding this a study reflected that the protective factors included vigorous physical activity, fruits, vegetables, and foods rich in dietary fiber, carbohydrates were inversely associated with GBD risk only among women and Latinos born in South America/Mexico ($p\text{-trend} < 0.003$). Parity was a significant risk factor among women; post-menopausal hormones use was only associated with an increased risk among white women (estrogen-only: HR = 1.24; 95% CI = 1.07–1.43 and estrogen + progesterone: HR = 1.23; 95% CI = 1.06–1.42)[18].

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Recommendation

- Increase the awareness of the community population with the risk factors of acute cholecystitis especially diabetics and hypertensive people.
- Encourage populations lifestyle change.
- Early checkup and diagnosis of people with risk factors for acute cholecystitis and treatment to prevent disease progression to an acute form of cholecystitis.

Conclusion

In conclusion, most participants have a higher risk to develop acute cholecystitis in addition to their low knowledge, particularly about risk factors, symptoms, and methods of cholecystitis prevention. So, it is important to enhance the awareness among the population to change their lifestyle and enforce more efforts that focus on novel preventive strategies to overcome Cholecystitis' risk factors, especially among females in Saudi Arabia.

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