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Heart health screening and gender difference on heart health among young adults

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Abstract
Cardio Vascular Disease (CVD) is global foremost cause of death and the world's number one killer. Based on WHO latest data published that the heart diseases are blamed for 24 percent of all deaths in the Kingdom Saudi Arabia. Fortunately, CVDs are largely preventable and the burden of the disease can be reduced. American heart Association has recommended certain heart health screening tests begin at age 20. A comparative study undertaken to screen heart health among young adult patients admitted in Aseer general hospital, Abha. The primary aim of the study was to screen and to find the gender difference among young adults. The study subjects were aged 20 – 40 years and recruited according to fulfillment of the sampling criteria using convenient sampling method. The overall cardiovascular health of the study participants were measured using heart health screening questionnaire which developed by researcher based on AHA life's simple 7 steps guidelines. The questionnaire was validated by experts in same field and ethical clearance obtained from hospital research department. Data collected by self reports and hospital current records. Data coded and analyzed using MS excel. The findings show that the mean heart health score is 5.5 in male and 6 in female. Typically Females' dietary habits are better than male in terms of consuming whole grains (60%) and fish (29%) sufficiently. Males were moderately active (98%) and also maintaining normal BMI (36%) than females whereas 63% of Females were maintaining optimal level of serum cholesterol, 58% of them having normal blood sugar and 49% of them were normal blood pressure than males. The major similarity found in both a gender was consumption of sugar added beverages. The gender difference is calculated using t' test score (0.037) which is statistically significant at 0.05 level. Thus there is a significant difference in heart health score of both the gender and specifically females' heart health is comparatively more than males.

Keywords: Cardiovascular disease, heart health screening and body mass index

1. Introduction
Cardio Vascular Disease (CVD) is global foremost cause of death and the world's number one killer. Although CVDs are common amongst men and the elderly, approximately half of the 17.3 million annual deaths occur in women [1]. In Kingdom of Saudi Arabia, nutritional transition, life-style transformation and increased urbanization is highly noticeable over last three decades due to rapid socioeconomic growth from oil resources. This transition has led in to the emergence of non-communicable diseases (NCD) and increases in morbidity and mortality attributable to CVD [2]. It was estimated that CHD accounted for more than 26% of total death in Eastern province of Saudi Arabia.

CVDs are a growing health concern in the middle-eastern region and the Gulf Council Countries (GCC), specifically among the six GCC countries [3]. Based on WHO latest data published that the heart diseases are blamed for 24 percent of all deaths in the Kingdom whereas 55 percent of the Saudi population is prone to face high cholesterol blood levels [4]. Fortunately, CVDs are largely preventable and the burden of the disease can be reduced. People age between 30's and 40's are more susceptible to heart diseases nowadays. Evidently, anyone over the age of 50 already has a weak heart.

A healthy diet and lifestyle are the best way to fight cardiovascular disease. Heart screening is an essential aspect of reducing the cardiovascular disease risk. American heart Association has recommended that certain heart health screening tests begin at age 20. The test includes Blood pressure, Weight / Body Mass Index (BMI),

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Cholesterol, waist circumference and Blood glucose test [3]. Heart health is the overall cardiovascular health scored out of 10 that is measured using heart health screening questionnaire. AHA developed simple 7 steps to maintain heart health which includes get active, eat better, lose weight, stop smoking, control cholesterol, manage blood pressure and reduce blood sugar. It is good to have everyone that at least 150 minutes of moderate physical activity or 75 minutes of vigorous physical activity – or an equal combination of both – each week [5].

Andrew soergel conducted survey to gauge that self-reported levels of optimism and general state mental health. The study found that those with the highest self-reported levels of optimism were about twice as likely to score strongly in terms of cardiovascular health. The optimists in the study were found to have better blood sugar and cholesterol levels than their more negative counterparts. Optimism also correlated with higher levels of physical activity, healthier body mass indexes and lower rates of smoking and tobacco use, Blood pressure, dietary intake all factored into an individual subject's heart health analysis [6].

1.1 Aim
The aim of the research is to screen the heart health and to find the gender difference among young adults.

1.2 Objectives
- To assess heart health among young adult patients admitted in Aseer hospital.
- To find the gender difference in heart health among young adults.

2. Materials and Methods
A quantitative approach and descriptive comparative design is adopted for this study. The study subjects are Young adult patients admitted in Aseer hospital, Saudi Arabia. Totally 100 study subjects' aged 20 – 40 years were recruited by convenient sampling method. The following criteria applied for sample selection: Patients who are not having history of co-morbidities such as IHD, heart failure, atherosclerosis, Myocardial infarction, and congenital heart disease. Additionally the Patients who doesn't have history of CABG, dialysis and other infectious heart diseases also considered. All the Patients who are critically ill are excluded for the research.

2.1 Description of tool
Investigator has used Body mass index calculator (BMI software) and Heart health screening questionnaire for the research purpose. Heart health screening questionnaire developed by researcher based on American Heart Association (AHA) life's simple 7 steps guidelines. It has been validated by the experts in the same field.

2.2 Ethical consideration
Ethical clearance obtained from Aseer general hospital research department to conduct the study.

2.3 Data collection Procedure
Self-report and hospital records used for collecting data from the young adult patients admitted in Aseer General Hospital, Saudi Arabia. Questionnaire includes the following: demographic information, co morbidities, diet, life style factors and other Clinical parameters (BMI, Blood pressure, Weight / Body Mass Index (BMI), blood pressure, Cholesterol, and Blood glucose). Totally 100 young adults recruited for the study that includes 45 males and 55 females whose clinical parameters were obtained from the patient's current records. Data were coded and analyzed by descriptive and inferential statistics using MS Excel. The findings are presented in the form of tables and figures.

3. Results
N= 100

Items	Percentage %
Sex	
Male	45
Female	55
Education	
Illiterate	3
Primary School	11
High School	16
Higher Secondary	32
Graduate	16
Post Graduate	22
Doctorate	0
Occupation	
Labour	13
Technical	1
Medical Professional	0
Business	14
Students	13
Home Maker	18
Agriculture	3
None	35

Out of 100 young adults, 45 were males and 55 were females and 62 % of study subjects had no co morbidities. The Majority was higher secondary level of education and 35% of them had no occupation.
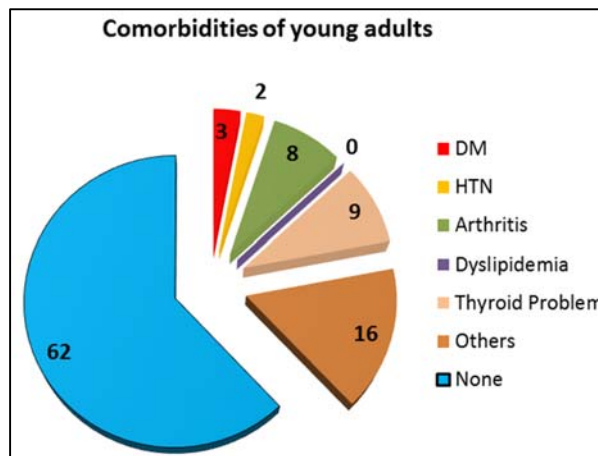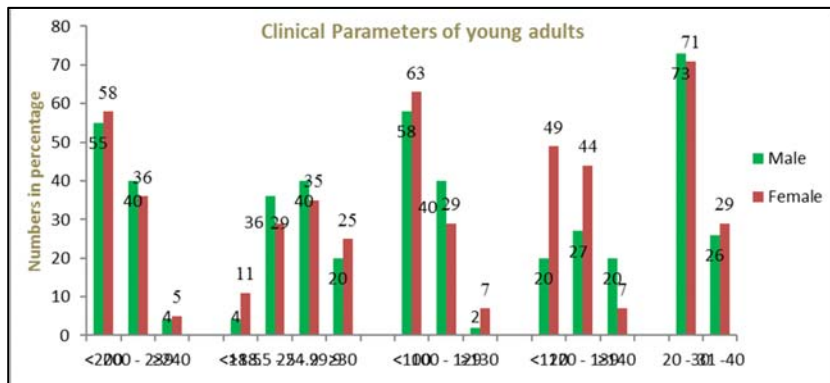

Fig 1

Fig 2

The diagram depicts that the majority of 73% Males were belongs to 20 -30 years age group and of them 20 % had normal blood pressure and only 36 % were having normal body built. The majority 58 % of them had ideal blood sugar level and 55 % of young adults had ideal total cholesterol.
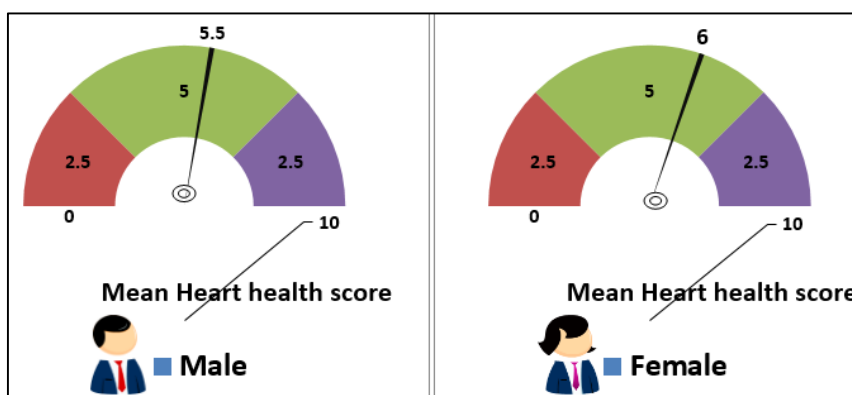

Fig 3

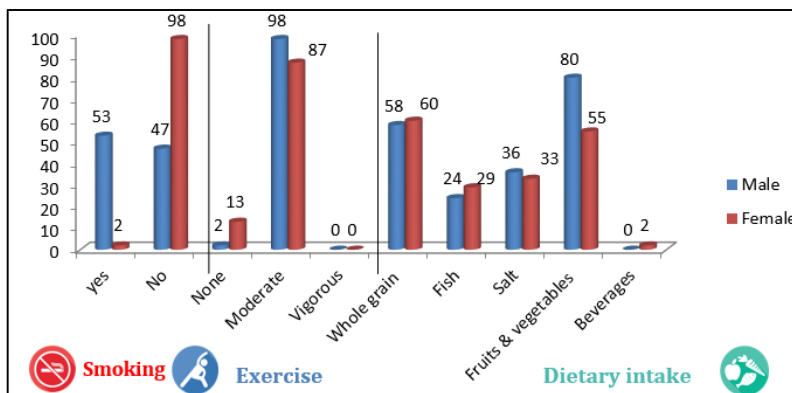This shows that the mean heart health score of males is comparatively less than female.

Fig 4

The life style pattern of the young adults is distributed as follows: the majority (98%) was female non smokers and of them the maximum (98%) were performing moderate exercises such as walking, cleaning, household activities etc. The dietary pattern is distributed in following way, only (2%) of females not consuming sugar added beverages and also (33%) rarely eating salt containing prepackaged and processed foods. And of them 60% had whole grain adequately and 29% had fish adequately in a week while 55 % were taking fruits and vegetables to the sufficiently daily.

Table 2: Comparison between male and female heart health score

Variable	Sample	Mean	Standard Deviation	't' value
Heart health score	Male	5.5	1.32	
	Female	6.0	1.0	0.037*

Significant at 0.05 level

There was a significant difference in the heart health scores for Male (M= 5.5, SD= 1.32) and female (M=6, SD=1). These results suggest that females have better heart health than males.

4. Discussion
A total of 100 participants (55 female and 45 male), had responded. Out of all the population Females 58% had normal cholesterol level and 63% had ideal blood sugar level whereas 55% and 58% males had ideal blood cholesterol and blood sugar levels. Regarding blood pressure only females (49%) had normal level than males (20%) but unfortunately only 29% of females were having normal body built than males 36%. This result is supported with the study conducted by Noha Al Moraie that BMI was lower in men and women from the coastal region 25.1 (2.76) than the inland region 26.3 (3.21), and for Saudis in Newcastle.

The Life style pattern of males (53%) is poor in terms of smoking and all of them consuming sugar added beverages about >3 cups/week. Females were better in eating whole grains (60%) and fish (29%) than males where Males (36%) were rarely eating salt containing prepackaged and processed foods and 80% of them taking adequate quantity of fruits and vegetables. Concerning exercise, the majority 98% of males were performing moderate exercises. Noha. Al Moraie concluded that Men were more physically active than women in cities. The mean heart health score is 5.5 in males but 6 in females and t' test score (0.037) statistically significant. The Results shows that there is a significant difference in heart health score among male and females.

Earl S Ford et.al stated similar results that a total of 13,769 participants (6,433 men and 7,336 women) had completed information to calculate their 10-year risk for CHD. The proportion of the participants with a 10-year risk for CHD of >20% increased with advancing age and was higher among men than among women but varied little with race or ethnicity. Compared with women, men were younger, had lower concentrations of total cholesterol and high-density lipoprotein cholesterol, had higher systolic BP, were less likely to use antihypertensive medication, and were more likely to smoke [7].

The major similarity found in both the gender (male 100% and female 98%) was in consumption of sugar added beverages. These findings are parallel to study done by Sulaiman O. Aljaloud that there was a high prevalence of energy drink usage among students in Saudi Arabia, a majority of these students do not have accurate information about the products' ingredients or potentially detrimental health effects [8].

4. Limitations
This study was conducted with convenient samples who admitted in Aseer government hospital, Abha. This limits the direct generalizability of the results to other settings. Self report was used in this study to obtain dietary intake, exercise and smoking status. Although there was no reason to believe that the study subjects were not sincere in their report which can be affected by many factors.

5.1. Recommendation
A larger population and more sophisticated sampling method would be required for better generalizability of the findings. The clinical parameters data could be obtained by direct observation instead from the patients' hospital records.

6. Conclusion
The overall cardiovascular health is moderately good in both the gender and also females' heart health score is comparatively higher than males.

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