

Metabolic Syndrome in Abdominal Obesity in OPC in Naim Health Center.

plan of research
by



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Kingdom of Bahrain.
2004-2005

METABOLIC SYNDROME IN ABDOMINAL OBESITY

Research by Dr. Samaya Al Jowder (Consultant family physician Head of Naim H.C.Council) and Dr. Ali Mohammed Mustafa (family physician. Diploma for family medicine). Kingdom of Bahrain studied (the prevalence of metabolic syndrome in patient with increase waist circumference)

Kingdom of Bahrain has many overweight, obese and also many abdominal obesity patient follow up in OPC which lead to many disease related to obesity the situations need more knowledge and data and analysis data to sit standard when to begin to prevention, control factors increase risk of obesity related comorbidity. This is main cause to study metabolic syndrome in abdominal obesity.

Obesity is chronic relapse disease that required chronic treatment some factor increase risk of obesity. Related co morbidity. Obesity is a condition in which excess body fat may put a person at health risk. Excess body fat results from an imbalance of energy intake and energy expenditure. (Total energy expenditure includes energy expended at rest, in physical activity and for metabolism). Obesity is an illness for which prevention diagnosis and treatment should be made. The World Health Organization has formulated an index for defining obesity .known as the body mass index (BMI), it is based on the patient's height in meters and weight in kilograms; $BMI = \text{weight in kilograms} / \text{height in meters}^2$. BMI is between $20 < 25$, excess weight if BMI is between $25 < 30$ and obesity if BMI is > 30 . Excess weight and obesity are considered as a major health problem in several developed and developing countries as obesity is multifactor, both genetic and environmental factors play a role in its development. it is well established that obesity is associated with several complication including coronary artery disease hypertension, diabetic mellitus, arteriosclerosis hyperlipidaemia and some types of cancer. On the other hand, weight reduction, which is a possibility in most cases, is associated with significant reduction in the frequency of some of the major complication related directly to obesity.

PHYSICIAN'S ROLE The rising prevalence of obesity has given physician an increase role in its identification and the management. Considering the public health complication of obesity, it is essential that physician increase their knowledge of obesity and related co morbidities and recognize it as a complex disorder that required long-term follow-up and care.^{1'2'3'}

WAIST CIRCUMFERENCE Body fat that accumulate in the stomach area (describe as “abdominal obesity”) is more of a health risk than body fat that builds up in buttocks and thigh areas. For this reason, your waistline provides valuable information about your risk for heart disease, high blood pressure, high cholesterol, type 2 diabetes. Doctors consider a waist circumference too high if it is more than 40 inch (102cm) in men and more than 35 inches (89 cm) in women increase waist circumference can also be a marker for increase risk even in persons of normal weight.

METABOLIC SYNDROME A high waist circumference can be one sign of a condition called metabolic syndrome. Although most people have never heard of it, this syndrome is quite common; it affects about one out of every four adults in the United States. Metabolic syndrome often progresses to type 2 diabetes –and treating the syndrome can help prevent this from becoming diabetes. A person has metabolic syndrome if they have at least 3 of the 5 conditions listed. Abdominal obesity (measured by waist circumference) men greater than 40 inches, women greater than 35 inches, high blood pressure 130/85mm Hg or greater, low HDL (good) cholesterol men less than 1mmol/L, women less than 1.2 mmol/L, high triglycerides level 1.5 mmol/L or greater, high blood sugar 5.5 mmol/L fasting. In this research used questionnaire to 658 patients age from 20 years up to 50 years measurement height, weight then calculate BMI, waist circumference, calculation of blood pressure, investigation of cholesterol, LDL, triglycerides, fasting blood sugar only in patients with increase waist circumference then metabolic syndrome or x syndrome component obtain

Aims

Evaluation prevalence of obesity in out patient clinic in Naim health center in patient age 20 up to 50 years both Bahraini and non Bahraini, prevalence of increase waist circumference (abdominal obesity) of them and prevalence of metabolic syndrome in abdominal obesity.

MATERIALS AND THE METHODS

In Naim health center evening clinic-Manama which service patients of capital and north governorate only this research for patient register only in Naim health center. Study prospective to patients 20 years up to 50 years about 658 patients Bahraini and non Bahraini at Naim health center room 1 evening clinic from 24th July 2004 to 4th March 2005 work hours clinic from 17.00 to 24.00. All patients except pregnant women, early delivery and patient refuse. Collection of information by questionnaire, measurements of weight height waist circumference, blood pressure and laboratory investigation data analysis and statistics by SPSS program and ethical consideration agreements taken before including in the study.

THE RESULT

The research about 657 cases. BAH 389 cases(59.2%) and non BAH 268 cases(40.8%), male 458 cases(69.8%), female 198 cases(30.2%) and age groups are 20 thru 29 years 168 cases (25.5%), 30 thru 39 years 289 cases(43.9%), 40 thru 50 years 201 cases(30.1%) show in table 1,2,3

BMI different class. Under wt. 3.32%, normal wt, 37.9%, over wt. 36.5%, obese 22.2% show in table 5,6a

BMI to bah, non bah. The results are bah. More in over wt. 37.79% and obese 27% and non bah. More in normal wt. 46% show in table 6b

Metabolic syndrome component; waist circumference 151 cases 23.1% from all cases of research, blood pressure 58 cases 38.4% from cases of waist circumference, cholesterol HDL about 10 cases 27.8% from all cases investigated 1.6 cases, Triglyceride 53 cases 50% from cases investigated 1.6 cases and fasting blood sugar about 49 cases 49% from cases investigated 100 show in table 8a,b,c,d,e,f.

The difference between BAH and non BAH in metabolic syndrome component BAH more in Waist circumference 27%, non BAH 17% but non BAH more in Blood pressure 42%, BAH 37% and HDL non BAH 46%, BAH 17% and triglycerides non BAH 58%, BAH 44% and fasting blood sugar both 50% show in table 8h,i.

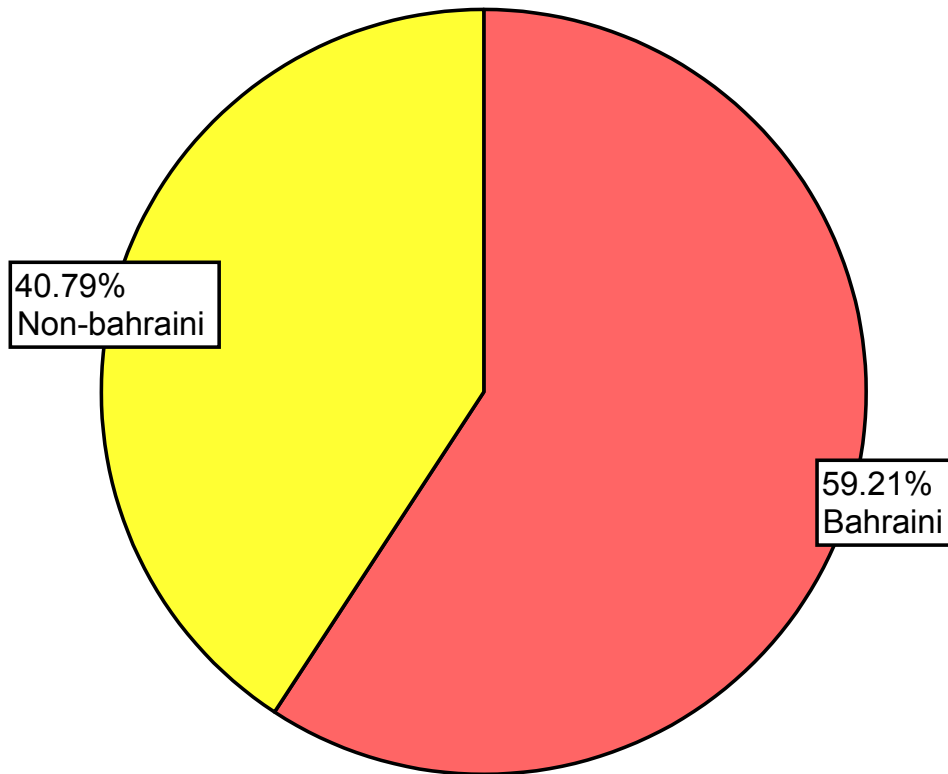
The metabolic factor and metabolic syndrome about 38% from cases of increase waist circumference 151 cases show in table 14.

Metabolic factors and metabolic syndrome about 53.77% from cases of increase WC and all cases made investigation 106 cases show in table 15.

History of DM about 5.96%, history of hypertension 9.27% from all cases has increase WC 151 cases show in table 16,17.

Nationality		
	Frequency	Percent
Bahraini	389	59.2
Non-bahraini	268	40.8
Total	657	100.0

TABLE 1: SHOW NO.OF CASES CLASSIFIDE ON BAH. & NON BAH

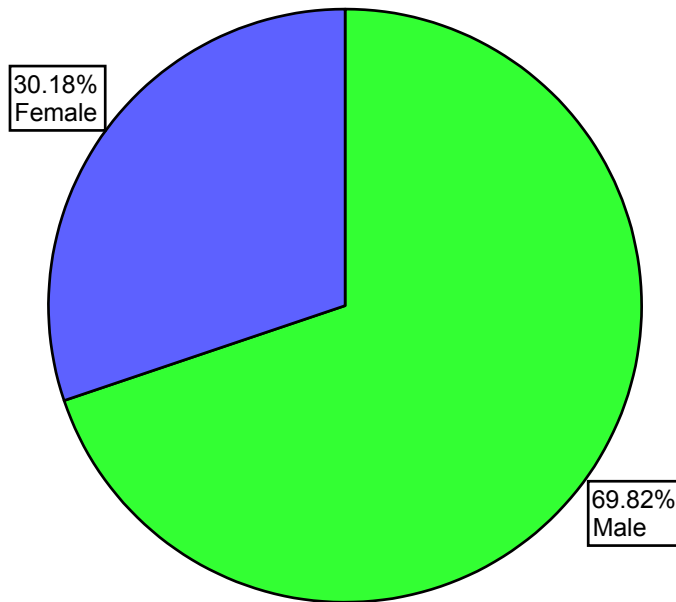


GRAPH 1: SHOW NO OF CASES CLASSIFIED ON BAH& NON BAH

Sex

	Frequency	Percent
Male	458	69.8
Female	198	30.2
Total	656	100.0

TABLE 2 SHOW NUMBER OF CASES CLASSIFIDE MALE & FEMALE

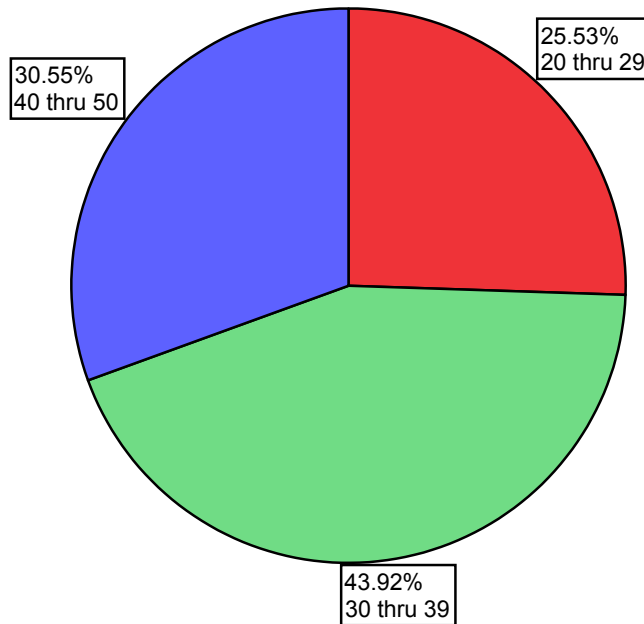


GRAPH 2 SHOW NUMBER OF CASES CLASSIFIDE MALE & FEMALE

Age_groups

	Frequency	Percent
20 thru 29	168	25.5
30 thru 39	289	43.9
40 thru 50	201	30.5
Total	658	100.0

TABLE 3 SHOW NUMBER OF CASES CLASSIFIDE AGE GROUPS



GRAPH 3 SHOW NUMBER OF CASES CLASSIFIDE AGE GROUPS

		Sex		Age_groups				Total
		Male	Female	Total	20 thru 29	30 thru 39	40 thru 50	
Nationality	Bahraini	252	135	387	106	161	122	389
		65%	35%	100%	27%	41%	31%	100%
	Non-Bahraini	203	62	265	61	124	79	264
		77%	23%	100%	23%	47%	30%	100%
Total		455	197	652	167	285	201	653
		70%	30%	100%	26%	44%	31%	100%

Pearson Chi-Square Tests

	Nationality		
	Chi-square	df	Sig.
Sex	9.844	1	.002(*)
Age_groups	2.284	2	.319

Results are based on nonempty rows and columns in each innermost subtable.

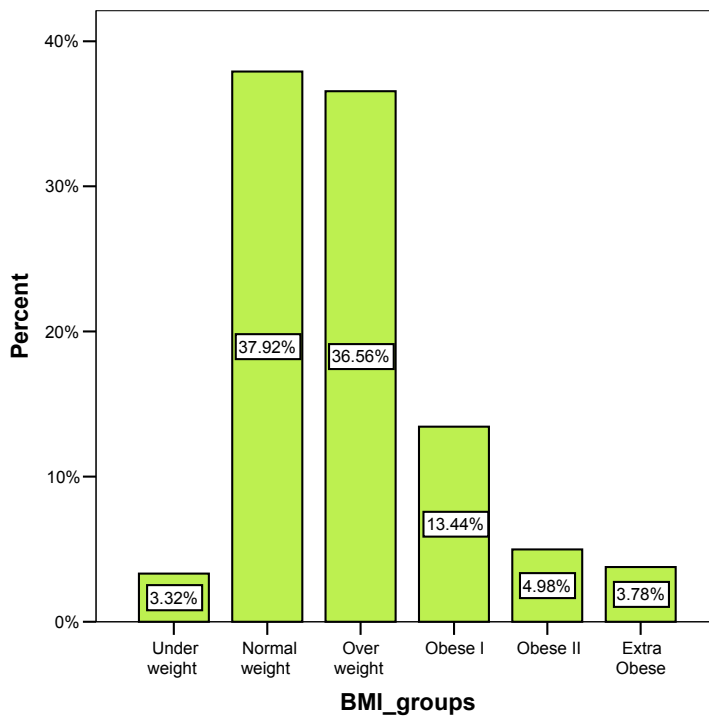
* The Chi-square statistic is significant at the 0.05 level.

TABLE 4 SHOW SEX, AGE GROUPS IN BOTH BAH & NON BAH AND Chi-Square Tests to nationality in the relation to sex, age groups show significant nationality in the relation to sex specially female because less number of female of non BAH most workers in Bahrain males and not significant of nationality in the relation to age group this make research is realistic.

BMI_groups

	Frequency	Percent
Under weight	22	3.3
Normal weight	251	37.9
Over weight	242	36.6
Obese I	89	13.4
Obese II	33	5.0
Extra Obese	25	3.8
Total	662	100.0

TABLE 5 SHOW BMI GROUPS

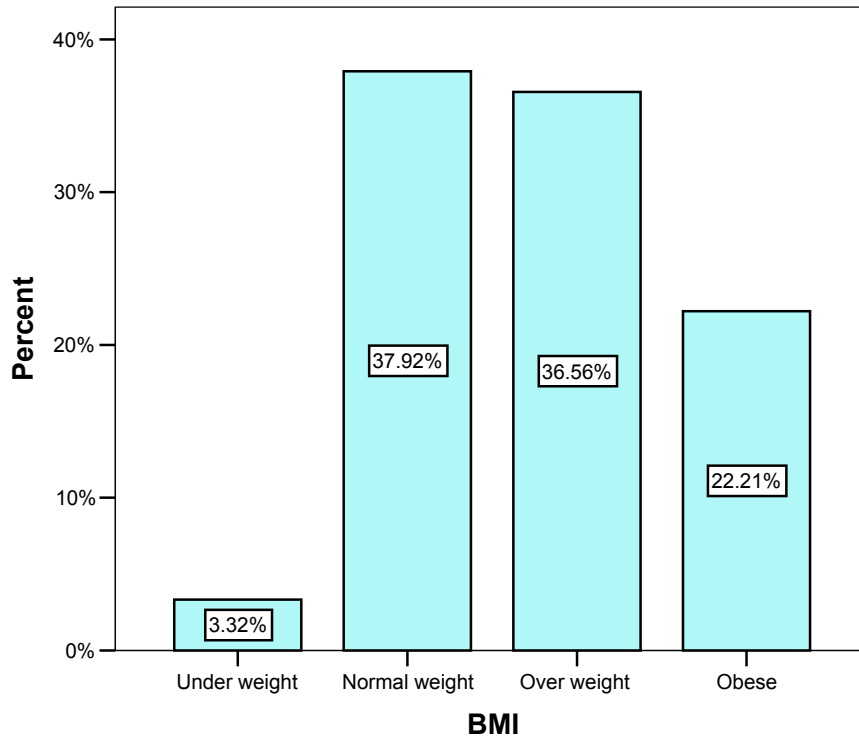


GRAPH 4 SHOW BMI GROUPS

BMI New

	Frequency	Percent
Under weight	22	3.3
Normal weight	251	37.9
Over weight	242	36.6
Obese	147	22.2
Total	662	100.0

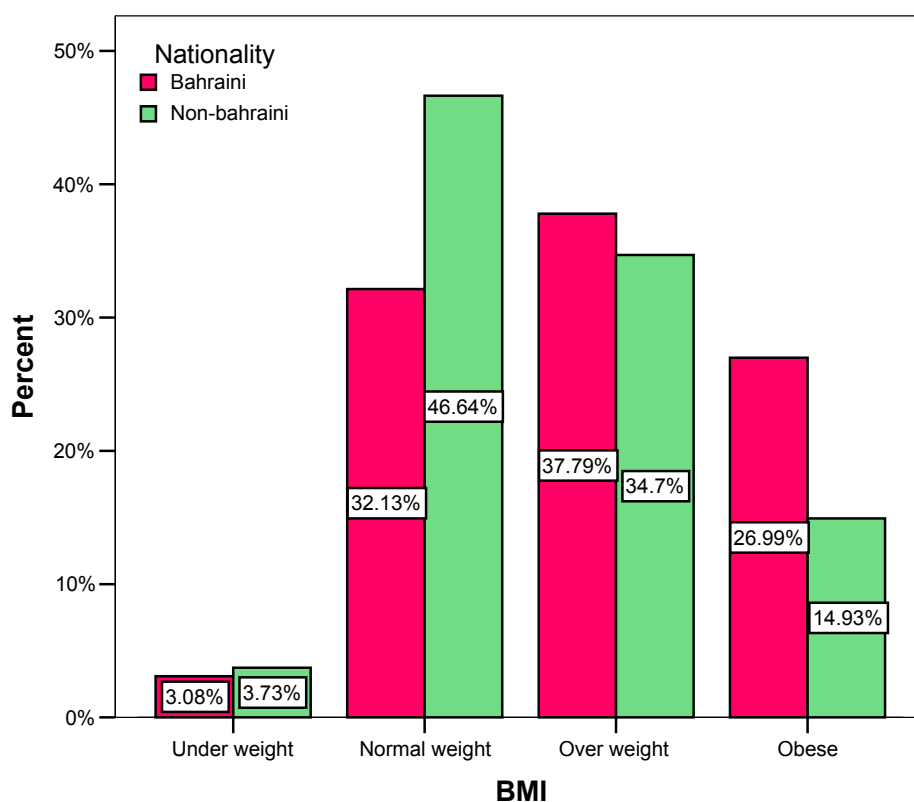
TABLE 6a SHOW BMI GROUPS Obese 22.21%



GRAPH 5 SHOW BMI GROUPS Obese 22.21%

			BMI_groups					Total	
			Under weight	Normal weight	Over weight	Obese I	Obese II	Extra Obese	
Nationality	Bahraini	Count	12	125	147	61	27	17	389
		% within Nationality	3.1%	32.1%	37.8%	15.7%	6.9%	4.4%	100.0%
	Non-Bahraini	Count	10	125	93	26	6	8	268
		% within Nationality	3.7%	46.6%	34.7%	9.7%	2.2%	3.0%	100.0%
Total		Count	22	250	240	87	33	25	657
		% within Nationality	3.3%	38.1%	36.5%	13.2%	5.0%	3.8%	100.0%

TABLE 6,b SHOW BMI GROUPS BETWEEN BAH & NON BAH, BAH MORE IN OVER WEIGHT AND Obese, NON BAH MORE IN NORMAL WEIGHT.



GRAPH 6 SHOW BMI GROUPS BETWEEN BAH & NON BAH, BAH MORE IN OVER WEIGHT AND Obese, NON BAH MORE IN NORMAL WEIGHT.

Nationality * BMI_groups Crosstabulation

		BMI_groups				Total	
			Under weight	Normal weight	Over weight	Obese	
Nationality	Bahraini	Count	12	125	147	105	389
		% within Nationality	3.1%	32.1%	37.8%	27.0%	100.0%
	Non-Bahraini	Count	10	125	93	40	268
		% within Nationality	3.7%	46.6%	34.7%	14.9%	100.0%
Total		Count	22	250	240	145	657
		% within Nationality	3.3%	38.1%	36.5%	22.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.859(a)	3	.000

TABLE 7 SHOW Chi-Square Tests BETWEEN NATIONALITY AND BMI GROUPS IT IS SIGNIFICANT STRONG +V RELATIONSHIP P<0.0005

W.C

		Frequency	Percent	Valid Percent
Valid	Low W.C	503	76.0	76.9
	Large W.C	151	22.8	23.1
	Total	654	98.8	100.0
Missing	NA	8	1.2	
Total		662	100.0	

TABLE 8a SHOW % OF W.C ABOUT 23.1%

Blood_pressure

		Frequency	Percent	Valid Percent
Valid	Less than 130/85	93	14.0	61.6
	130/85 or more	58	8.8	38.4
	Total	151	22.8	100.0
Missing	NA	511	77.2	
Total		662	100.0	

TABLE 8b SHOW % OF BLOOD PRESSURE 38.4% FROM CASES OF INCREASE W.C

Cholesterol

		Frequency	Percent	Valid Percent
Valid	Less than 5.3	63	9.5	59.4
	5.3 or more	43	6.5	40.6
	Total	106	16.0	100.0
Missing	NA	556	84.0	
Total		662	100.0	

TABLE 8c SHOW % OF Cholesterol 40.6% FROM CASE INVESTGATE 1.6 CASES

HDL

		Frequency	Percent	Valid Percent
Valid	High HDL	26	3.9	72.2
	Low HDL	10	1.5	27.8
	Total	36	5.4	100.0
Missing	NA	626	94.6	
Total		662	100.0	

TABLE 8d SHOW % OF HDL 27.8% FROM CASES OF Cholesterol 5.3 MMOL/L OR MORE(43 CASES)

Triglyceride

		Frequency	Percent	Valid Percent
Valid	Less than 1.5	53	8.0	50.0
	1.5 or more	53	8.0	50.0
	Total	106	16.0	100.0
Missing	NA	556	84.0	
Total		662	100.0	

TABLE 8e SHOW % OF Triglyceride 50% OF ALL CASES INVESTIGATED 1.6 CASES

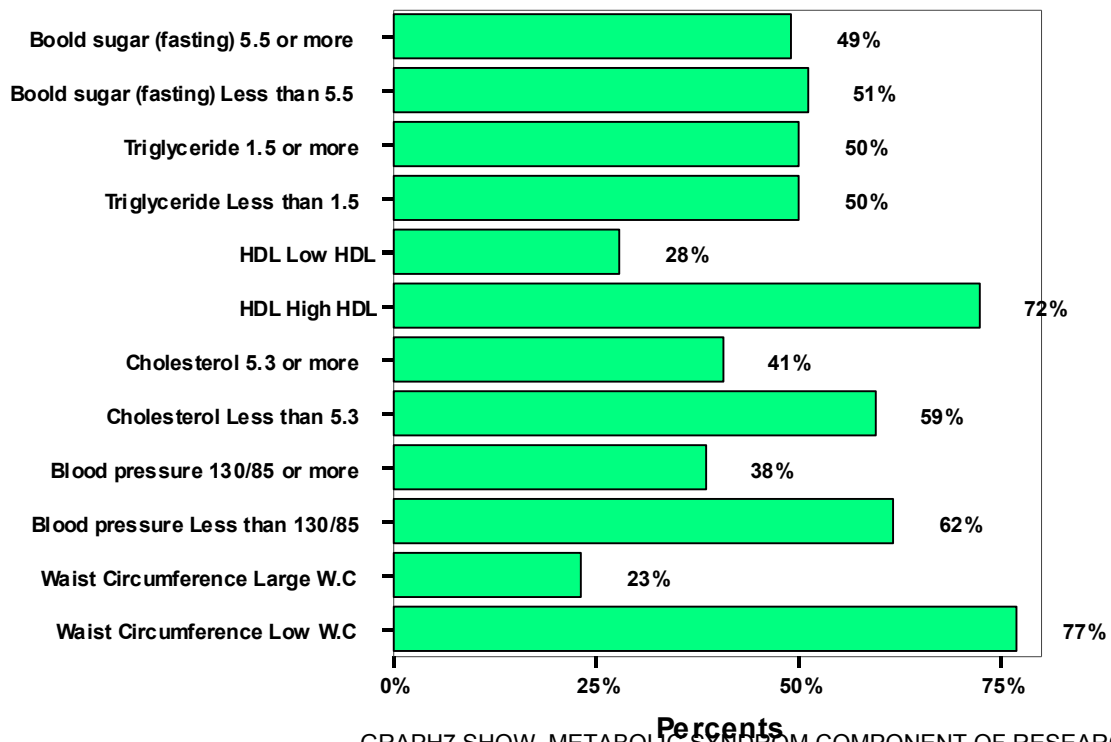
Blood sugar (fasting)

		Frequency	Percent	Valid Percent
Valid	Less than 5.5	51	7.7	51.0
	5.5 or more	49	7.4	49.0
	Total	100	15.1	100.0
Missing	NA	562	84.9	
Total		662	100.0	

TABLE 8f SHOW % OF FASTING BLOOD SUGURE 49% OF CASES INVESTIGATED 100 CASES

		Count	%
Waist Circumference	Low W.C	503	76.9%
	Large W.C	151	23.1%
Blood pressure	Less than 130/85	93	61.6%
	130/85 or more	58	38.4%
Cholesterol	Less than 5.3	63	59.4%
	5.3 or more	43	40.6%
HDL	High HDL	26	72.2%
	Low HDL	10	27.8%
Triglyceride	Less than 1.5	53	50.0%
	1.5 or more	53	50.0%
Boold sugar (fasting)	Less than 5.5	51	51.0%
	5.5 or more	49	49.0%

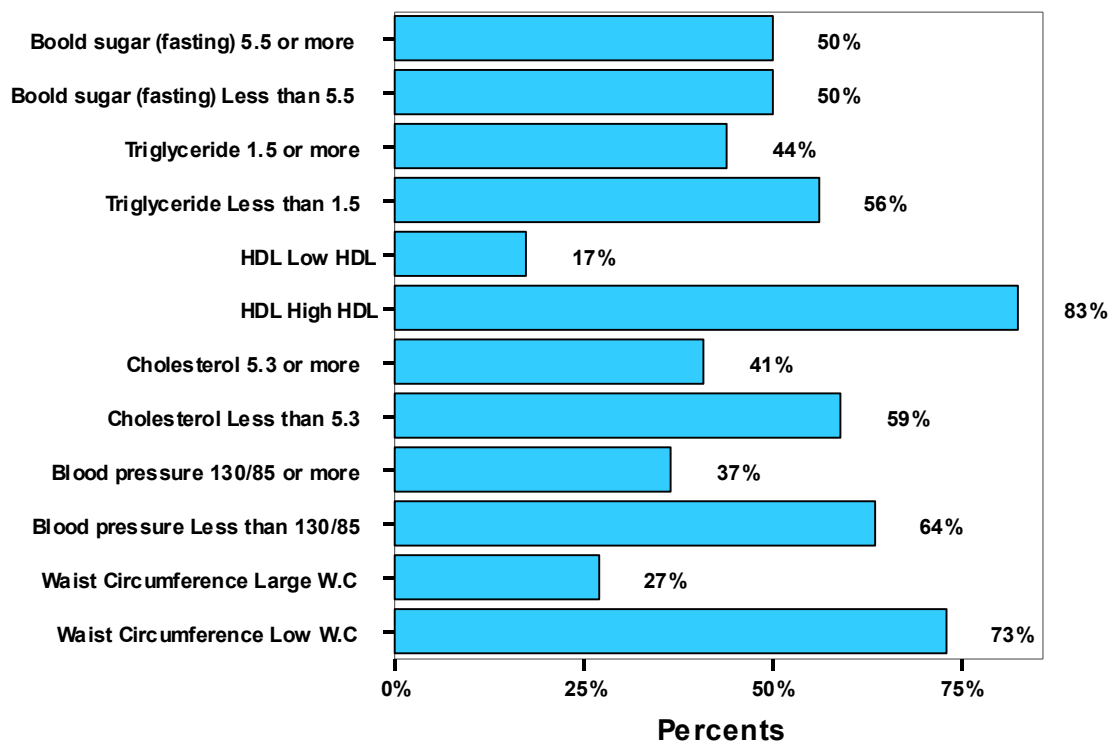
TABLE 8g SHOW METABOLIC SYNDROME COMPONENT OF RESEARCH



GRAPH7 SHOW METABOLIC SYNDROM COMPONENT OF RESEARCH

		Nationality			
		Bahraini		Non-bahraini	
		Count	%	Count	%
Waist Circumference	Low W.C	281	73.0%	220	83.0%
	Large W.C	104	27.0%	45	17.0%
Blood pressure	Less than 130/85	66	63.5%	26	57.8%
	130/85 or more	38	36.5%	19	42.2%
Cholesterol	Less than 5.3	39	59.1%	22	57.9%
	5.3 or more	27	40.9%	16	42.1%
HDL	High HDL	19	82.6%	7	53.8%
	Low HDL	4	17.4%	6	46.2%
Triglyceride	Less than 1.5	37	56.1%	16	42.1%
	1.5 or more	29	43.9%	22	57.9%
Boold sugar (fasting)	Less than 5.5	31	50.0%	18	50.0%
	5.5 or more	31	50.0%	18	50.0%

TABLE 8h SHOW METABOLIC SYNDROME COMPONENT IN THE RELATION TO NATIONALITY

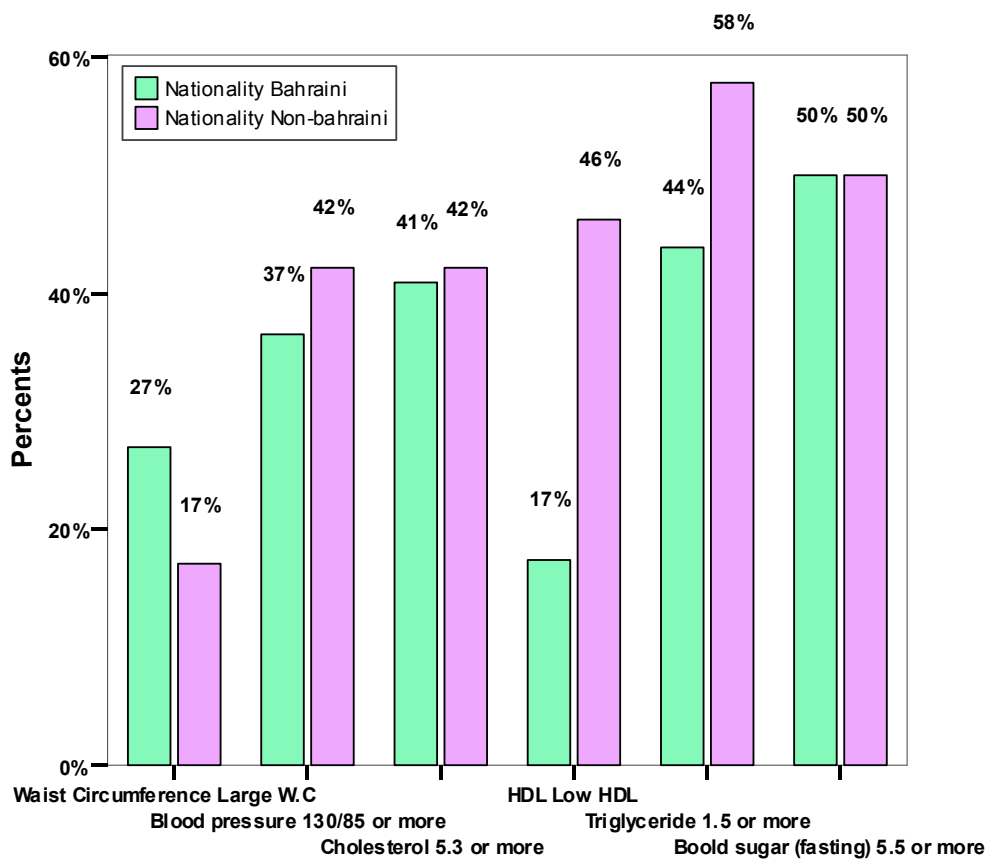


COMPONENT TO BAHRAINI

GRAPH 8 SHOW METABOLIC SYNDROME

		Nationality			
		Bahraini		Non-bahraini	
		Count	%	Count	%
Waist Circumference	Large W.C	104	27.0%	45	17.0%
Blood pressure	130/85 or more	38	36.5%	19	42.2%
Cholesterol	5.3 or more	27	40.9%	16	42.1%
HDL	Low HDL	4	17.4%	6	46.2%
Triglyceride	1.5 or more	29	43.9%	22	57.9%
Boold sugar (fasting)	5.5 or more	31	50.0%	18	50.0%

TABLE 8i SHOW METABOLIC SYNDROME COMPONENT IN THE RELATION TO NATIONALITY



GRAPH 9 SHOW METABOLIC SYNDROME COMPONENTS IN THE RELATION TO NATIONALITY

Sex * Waist Circumference Crosstabulation

		Waist Circumference		Total	
		Low W.C	Large W.C		
Sex	Male	Count	380	77	457
		% within Sex	83.2%	16.8%	100.0%
	Female	Count	123	74	197
		% within Sex	62.4%	37.6%	100.0%
Total		Count	503	151	654
		% within Sex	76.9%	23.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	33.263(b)	1	.000

TABLE 9 SHOW CROSSTABULATION OF WAIST CIRCUMFRENCE IN THE RALATION TO SEX

Sex * HDL Crosstabulation

		HDL		Total	
		High HDL	Low HDL		
Sex	Male	Count	16	5	21
		% within Sex	76.2%	23.8%	100.0%
	Female	Count	10	5	15
		% within Sex	66.7%	33.3%	100.0%
Total		Count	26	10	36
		% within Sex	72.2%	27.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.396(b)	1	.529

TABLE 10 SHOW CROSSTABULATION OF HDL & SEX

Waist Circumference		Sex		Age_groups				Total
		Male	Female	Total	20 thru 29	30 thru 39	40 thru 50	
Low W.C	Bahraini	198	83	281	85	116	80	281
		70%	30%	100%	30%	41%	28%	100%
	Non-Bahraini	181	39	220	52	105	59	216
		82%	18%	100%	24%	49%	27%	100%
Total		379	122	501	137	221	139	497
		76%	24%	100%	28%	44%	28%	100%
Large W.C	Bahraini	53	51	104	20	43	41	104
		51%	49%	100%	19%	41%	39%	100%
	Non-Bahraini	22	23	45	7	18	20	45
		49%	51%	100%	16%	40%	44%	100%
Total		75	74	149	27	61	61	149
		50%	50%	100%	18%	41%	41%	100%

Pearson Chi-Square Tests

	Waist Circumference					
	Low W.C			Large W.C		
	Nationality			Nationality		
	Chi-square	df	Sig.	Chi-square	df	Sig.
Sex	9.343	1	.002(*)	.054	1	.816
Age_groups	3.223	2	.200	.441	2	.802

Results are based on nonempty rows and columns in each innermost subtable.

- The Chi-square statistic is significant at the 0.05 level.

TABLE 11 SHOW CHI-SQUARE TESTS OF WAIST CIRCUMFERENCE IN THE REALATION TO SEX & AGE GROUP.

Blood pressure		Sex			Age_groups			
		Male	Female	Total	20 thru 29	30 thru 39	40 thru 50	Total
Less than 130/85	Bahraini	26	40	66	13	29	24	66
		39%	61%	100%	20%	44%	36%	100%
	Non-Bahraini	11	15	26	5	12	9	26
		42%	58%	100%	19%	46%	35%	100%
Total		37	55	92	18	41	33	92
		40%	60%	100%	20%	45%	36%	100%
130/85 or more	Bahraini	27	11	38	7	14	17	38
		71%	29%	100%	18%	37%	45%	100%
	Non-Bahraini	11	8	19	2	6	11	19
		58%	42%	100%	11%	32%	58%	100%
Total		38	19	57	9	20	28	57
		67%	33%	100%	16%	35%	49%	100%

Pearson Chi-Square Tests

	Blood pressure					
	Less than 130/85			130/85 or more		
	Nationality			Nationality		
	Chi-square	df	Sig.	Chi-square	df	Sig.
Sex	.066	1	.797	.987	1	.321
Age_groups	.038	2	.981	1.046	2	.593

Results are based on nonempty rows and columns in each innermost subtable.

TABLE 12 SHOW CHI-SQUARE OF BLOOD PRESSURE IN THE RELATION TO SEX & AGE GROUP

Independent Samples Test

t-test for Equality of Means

Sex		Mean (Bahraini)	Mean (Non Bahraini)	Mean Difference	t	P-value
Male	Age	35.30	36.05	-.75	-1.07	.287
	Weight	80.33	70.88	9.45	5.97	.000
	Height	170.82	167.55	3.27	5.00	.000
	BMI	27.43	25.19	2.23	4.60	.000
	W.C	36.33	35.16	1.17	2.44	.015
	HDL	1.24	1.07	.17	1.13	.272
Female	Age	34.74	34.16	.59	.48	.633
	Weight	70.67	69.87	.80	.26	.794
	Height	158.18	159.05	-.87	-.76	.448
	BMI	28.26	27.66	.60	.52	.607
	W.C	34.83	34.01	.82	.98	.330
	HDL	1.45	1.13	.33	1.56	.142

TABLE 13a

Independent Samples Test

t-test for Equality of Means

Sex		Mean (Bahraini)	Mean (Non Bahraini)	Mean Difference	t	P-value
Male	Age	35.30	36.05	-.75	-1.067	.287
	Weight	80.33	70.88	9.45	5.966	.000
	Height	170.82	167.55	3.27	4.997	.000
	BMI	27.43	25.19	2.23	4.602	.000
	W.C	36.33	35.16	1.17	2.443	.015
	B.P1	137.08	136.14	.94	.192	.849
	B.P2	85.38	84.09	1.29	.614	.541
	Cholesterol	5.23	5.31	-.08	-.238	.813
	HDL	1.24	1.07	.17	1.130	.272
	LDL	3.58	3.58	.00	-.006	.995
	Triglyceride	2.07	2.37	-.30	-.884	.381
	Fasting	6.38	6.80	-.42	-.416	.680
	Post	6.27	8.23	-1.96	-.825	.455
	Female	Age	34.74	34.16	.59	.478
Weight		70.67	69.87	.80	.261	.794
Height		158.18	159.05	-.87	-.761	.448
BMI		28.26	27.66	.60	.516	.607
W.C		34.83	34.01	.82	.976	.330
B.P1		125.00	124.78	.22	.037	.971
B.P2		78.10	78.70	-.60	-.201	.842
Cholesterol		4.97	5.18	-.21	-.792	.432
HDL		1.45	1.13	.33	1.564	.142
LDL		3.34	3.96	-.61	-.891	.389
Triglyceride		1.54	1.64	-.09	-.279	.781
Fasting		5.92	5.92	.00	-.007	.994
Post		7.64	4.85	2.79	1.463	.182

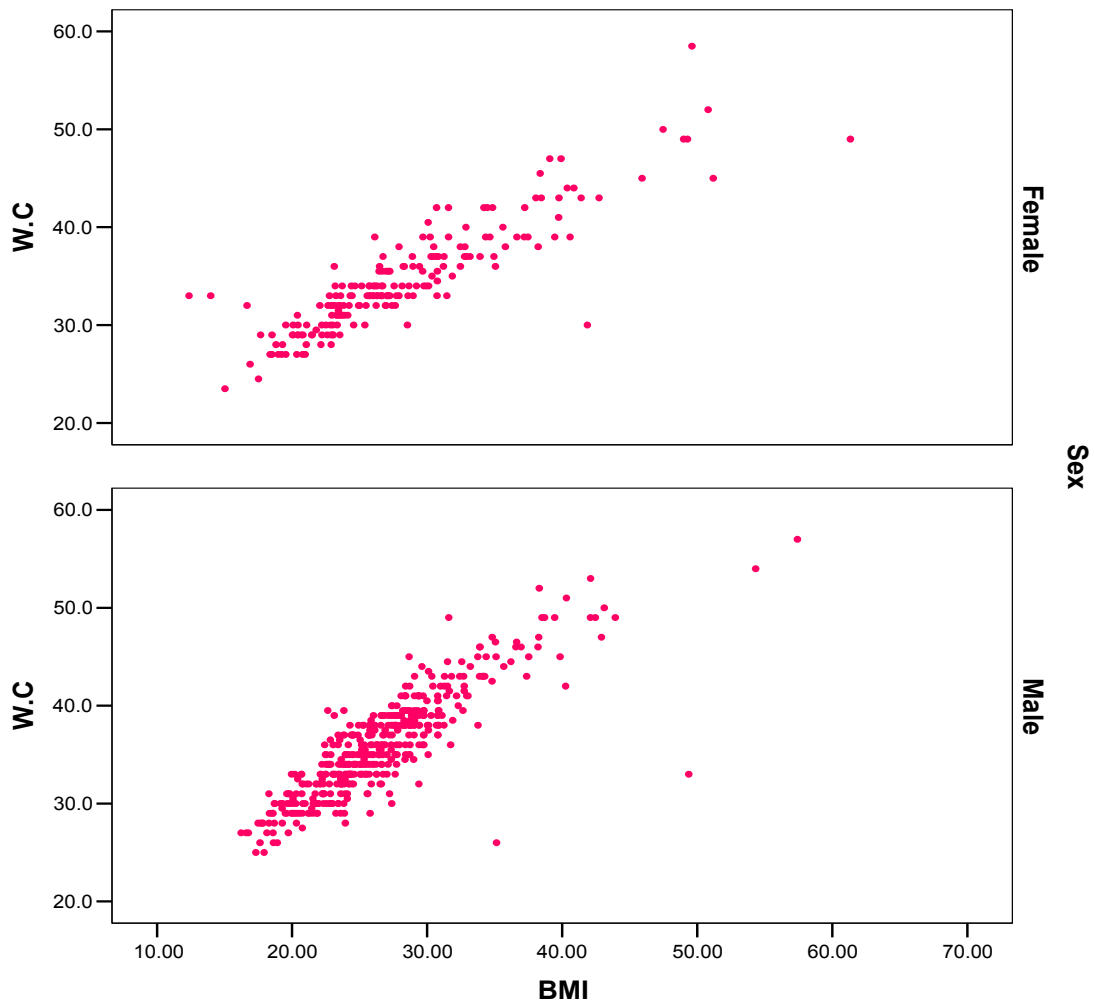
TABLE 13b

Analysis of variance

Sex		Age			F	P-value
		Mean (20 thru 29)	Mean (30 thru 39)	Mean (40 thru 49)		
Male	Weight	72.26	76.25	79.12	4.689	.010
	Height	170.06	169.39	168.82	.950	.388
	BMI	24.91	26.41	27.69	8.775	.000
	W.C	33.80	35.76	37.41	15.984	.000
	B.P1	137.31	132.10	140.45	1.546	.220
	B.P2	84.62	84.68	85.00	.016	.984
	Cholesterol	4.81	5.27	5.32	.627	.539
	HDL	1.10	1.07	1.26	.747	.488
	Triglyceride	2.24	2.23	2.07	.116	.891
	Fasting	5.13	6.16	7.32	1.418	.253
Female	Weight	67.61	71.12	73.13	1.104	.334
	Height	158.84	158.46	157.17	.889	.413
	BMI	26.73	28.40	29.53	1.923	.149
	W.C	33.23	34.76	35.92	3.418	.035
	B.P1	112.67	121.29	135.54	6.018	.004
	B.P2	73.33	77.10	82.25	3.255	.044
	Cholesterol	4.88	4.83	5.30	1.697	.193
	HDL	1.50	1.52	1.29	.555	.588
	Triglyceride	1.07	1.28	2.00	3.082	.055
	Fasting	5.73	5.49	6.46	1.664	.199

TABLE 13c

TABLE 13a,b,c SHOW T-TEST FOR EQUALITY OF MEANS ABOVE



Correlations between W.C and BMI

W.C and BMI	
Pearson Correlation	.841**
P-value	.000
N	660

** Correlation is significant at the 0.01 level (2-tailed).

Correlations between W.C and BMI

Sex	W.C	
Male	Pearson Correlation	.866**
	P-value	.000
	N	457
Female	Pearson Correlation	.890**
	P-value	.000
	N	197

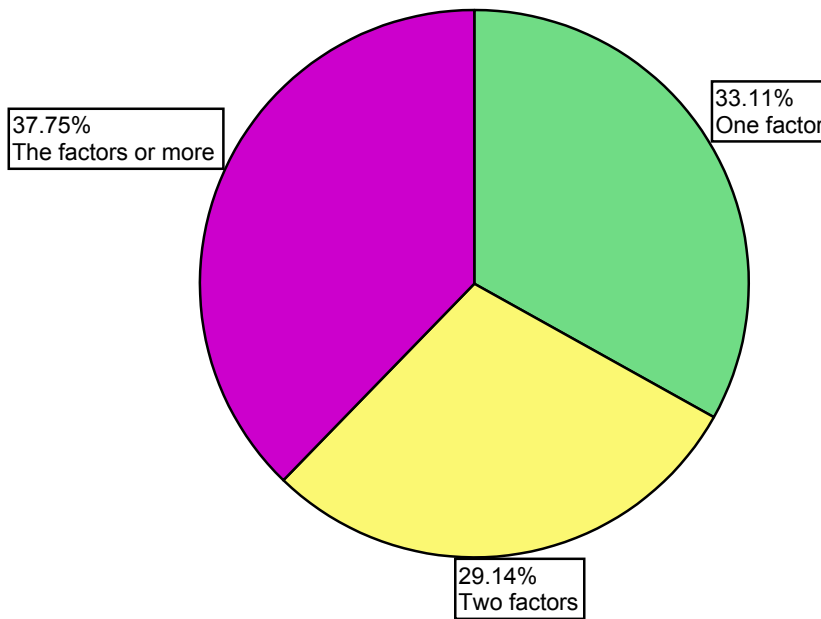
** Correlation is significant at the 0.01 level (2-tailed).

GRAPH 10 SHOW CORELATION BETWEEN W.C & BMI AND W.C & BMI IN THE RELATION TO SEX

Metabolic syndrome

	Frequency	Percent	Cumulative Percent
One factor	50	33.1	33.1
Tow factors	44	29.1	62.3
Three factors	32	21.2	83.4
Four factors	22	14.6	98.0
Five factors	3	2.0	100.0
Total	151	100.0	

TABLE 14 SHOW METABOLIC SYNDROME FACTORS PERCENTAGE IN PATIENT WITH ABDOMINAL OBESITY

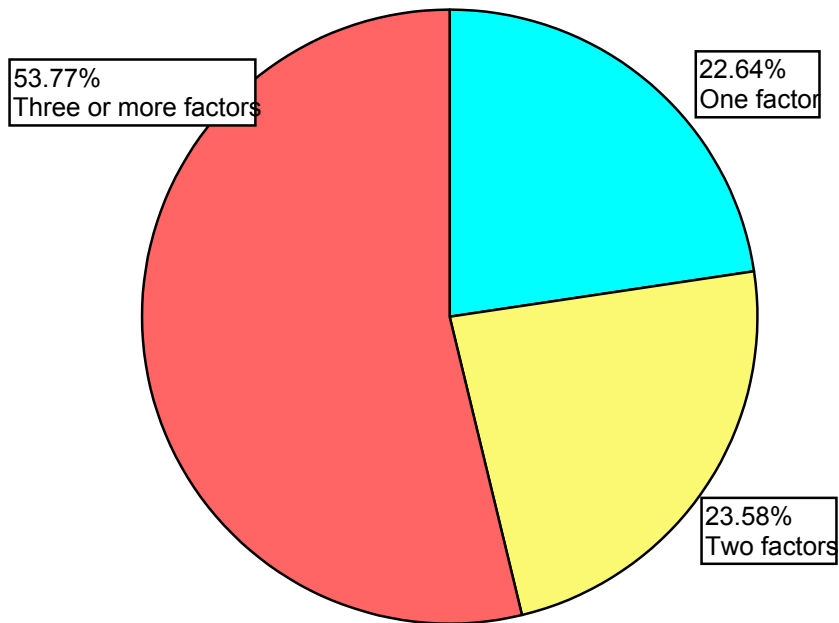


GRAPH 11 SHOW METABOLIC SYNDROME FACTORS PERCENTAGE IN PATIENT WITH ABDOMINAL OBESITY

Metabolic syndrome

	Frequency	Percent	Cumulative Percent
One factor	24	22.6	22.6
Tow factors	25	23.6	46.2
Three factors	32	30.2	76.4
Four factors	22	20.8	97.2
Five factors	3	2.8	100.0
Total	106	100.0	

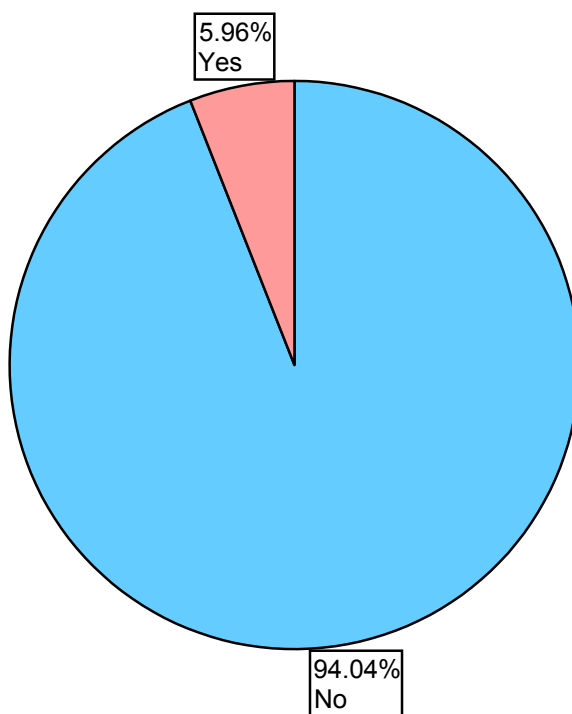
TABLE 15 SHOW METABOLIC SYNDROME FACTORS PERCENTAGE IN PATIENT WHO MAKE COMPLEATE INVESTIGATION AND ALSO WITH ABDOMINAL OBESITY



GRAPH 12 SHOW METABOLIC SYNDROME FACTORS PERCENTAGE IN PATIENT WHO MAKE COMPLEATE INVESTIGATION AND ALSO WITH ABDOMINAL OBESITY

DM				
		Frequency	Percent	Valid Percent
Valid	No	142	21.5	94.0
	Yes	9	1.4	6.0
	Total	151	22.8	100.0
Missing	NA	511	77.2	
Total		662	100.0	

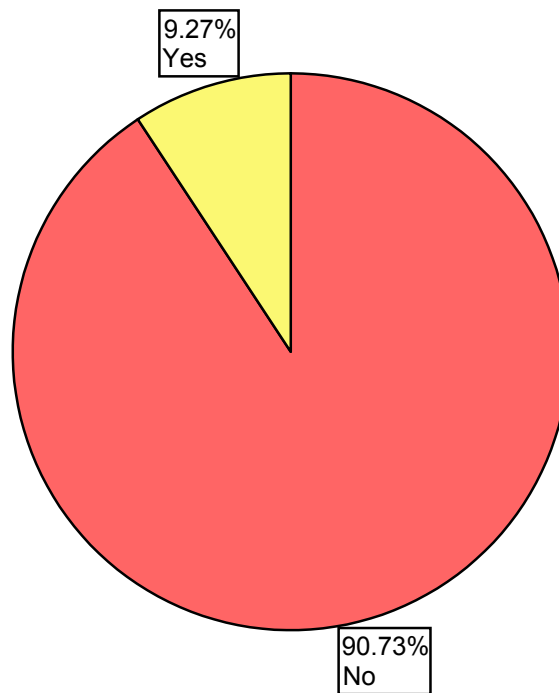
TABLE 16 SHOW THE PERCENTAGE OF PATIENT HAS HISTORY OF DM.



GRAPH 13 SHOW THE PERCENTAGE OF PATIENT HAS HISTORY OF DM.

Hypertension				
		Frequency	Percent	Valid Percent
Valid	No	137	20.7	90.7
	Yes	14	2.1	9.3
	Total	151	22.8	100.0
Missing	NA	511	77.2	
Total		662	100.0	

TABLE 17 SHOW THE PERCENTAGE OF PATIENT HAS HISTORY OF HYPERTENSION



GRAPH 14 SHOW THE PERCENTAGE OF PATIENT HAS HISTORY OF HYPERTENSION

DISCUSSION

Total case about 662 BAH about (59.2%) , NON BAH (40.8%) female case of research about 198 cases (30.2%) and male case (69.8%)the female BAH cases 135 cases (68%) female non BAH 62 cases (32%) **this is significant relationship P-value between nationality and sex specially female**. The relationship between nationality and age groups not significant. The age group of BAH 20-29 years (27%) 30-39 years (41%) 40-50years (31%) this is same category like **national nutrition survey of Bahrain 2002** means that age 30-39 years highest groups.

Prevalence of obesity among o.p.c of Naim Health Center both BAH & non BAH BMI underweight (3.3%), normal (37.9%), overweight (36.6%), obese (22%), BAH BMI under weight (3%), normal (32.1%), overweight (37.8%) obese (27%), non BAH BMI underweight (3.7%), normal (46.6%), overweight (34.7%), obese (14.9%) **the relationship between nationality & BMI significant strong +ve relationship P<0.0005** because BAH BMI more in overweight, obese but non BAH more in normal weight. **BMI of national nutrition survey 2002 of BAH** underweight (5.1%), normal (33.8%), overweight (32.5%), obese (28.7%). This means that the result of research realistic in comparison to national nutrition survey although age category of national survey from 20-70yers but research age category from 20-50 years. The relationship between nationality male Bahraini (weight, height, BMI) the average male weight 80.33Kg, height 170.82 cm, BMI 27.42 and non BAH male average weight 70.88 Kg, height 167.55 cm, BMI 25.19, **significant strong +ve relationship P<0.0005**. but not significant in female as average female BAH weight 70.67 Kg, Height 158.18 cm, BMI 28.26 and average non BAH female weight 69.87 Kg, height 159 cm, BMI 27.66. in this research relationship between age groups and average for male weight 20-29 years (72.26Kg)30-39 years (76.25Kg) and 40-50 years (79.12Kg) **significant +ve relationship P<0.010** this means that increase age in male increase weight. Average height in male 20-29 years (170.06 cm), 30-39 years (169.39 cm), and 40-50 years (168.82 cm) not significant this means that new generation or age groups increase in height in male. Average BMI with age in male from 20-29 years (24.91) from 30-39 years (26.41) from 40-50 years (27.69). **significant strong +ve relationship P<0.0005**. increase in age increase BMI in male. Relationship between age groups and female. Weight, height and BMI in female increase by age group but not significant. **The prevalence of abdominal obesity**. The research about 662 cases about 151 cases (23.1%) increase W.C. male abdominal obesity 77 cases (16.8%) from all male cases 457. female abdominal obesity 74 cases (37.6%) from all female cases 196. **significant strong +ve relationship between waist circumference and sex P value P<0.0005** increse waist circumference in female more than male. Male average WC. In the relation to age groups age from 20-29 years (33.8 inch), 30-39 years (35.8 inch),

40-50 years (37.4 inch) **significant strong +ve relationship between WC and age of male P value $P < 0.0005$** . female average WC in the relation to age group age from 20-29 years (33.2 Inch) 30-39 years (34.8 Inch) 40-50 years (35.9 Inch) **significant +ve relationship between increase WC and age groups in female P value $P < 0.035$** .

Abdominal obesity of BAH 385 cases about 104 cases (27%), male BAH (21%) and female BAH (38%)- Abdominal obesity of non BAH 265 cases about 45 cases (17%), male non BAH (10.8%) and female non BAH (37%). **Abdominal obesity among Omani people (24.6%) male Omani (4.7%) female (44.3%)** WC nationality and sex male BAH 35 cases (51%), female BAH 51 cases (49%) and male non BAH 22 cases (49%), female non BAH 23 cases (51%). There is no relation between nationality WC and sex. WC nationality and age groups. BAH 20-29 years 20 cases (19%) 30-39 years 43 cases (41%), 40-50 years 41 cases (39%) and non BAH 20-29 years 7 cases (16%), 30-39 years 18 cases (40%), 40-50 years (44%). There is no relationship between nationality WC and age group.

Correlation between WC & BMI strong +ve relationship P value $P < 0.0005$ when increase BMI increase WC and correlation between WC,BMI in the relation to sex in male or female strong +ve relationship P value in both male, female $P < 0.0005$

The prevalence of metabolic syndrome in patient with increase WC.

Metabolic syndrome component. WC in male > 40 inch or more, female > 35 inches or more, Blood Pressure 135/85 mmHg of both sex, HDL male < 1 mmol/L. female < 1.2 mmol/L, triglycerides ≥ 1.5 mmol/L of both sex and fasting Blood sugar ≥ 5.5 mmol/L of both sex. Metabolic syndrome component WC (23.1%), from all 654 cases, Blood Pressure (38.4%) from 151 cases, HDL (27.8%) from 36 cases, triglycerides (50%) from 1.6 cases and fasting blood sugar (49%) from 100 cases. Cholesterol < 5.3 mmol/L not make HDL or LDL differentiation. BAH and non BAH metabolic syndrome component. WC of BAH (27%) non BAH (17%), BP of BAH (37%), non BAH (42%), HDL BAH (17%), non BAH (46%), triglycerides BAH (44%), non BAH (58%) and Fasting Blood Sugar (50%) for both. This means that only BAH more in WC and non BAH more in BP, HDL, triglycerides and equal in Fasting blood sugar. Metabolic syndrome factors one factor 50 cases (33.1%), two factors 44 cases (29.1%). Three factors 32 cases (21.2%), four factors 22 cases (14.6%), five factors 3 cases (2%) the metabolic syndrome must be three factors or more. This means that (37.8%) in this research (metabolic syndrome in patient with increase WC in OPC of naim health center evening clinic) **Omani low HDL (75.4%) and 20% of population in Oman had Hypertension, hyper triglycerides, increase fasting Blood sugar**. Metabolic syndrome factors in all patient with WC and who made investigation 106 cases one factors (22.64%), two factors (23.58%), three factors (30.2%), four factors (20.8%) and five factors (2.8%) the metabolic syndrome must be three factors or more here (53.77%).**American metabolic syndrome between population one every four.**

Conclusion

Obesity and its related measurement BMI and abdominal obesity WC important measurement in general examination of patient in OPC, metabolic syndrome to every patient can be obtained but easier to obtain metabolic syndrome in patient with abdominal obesity, female is more increase WC than male, BAH more in BMI, WC than non BAH, but non BAH more in BP, HDL, triglycerides but equal in fasting blood sugar, increase in BMI increase in WC in male and female but maybe increase in WC with normal BMI, increase in age groups increase BMI significant only in male, average height of male groups 20-29 years is taller than other groups, this means that new generation is taller.

Recommendation

Used of WC measurement as used of BMI measurement in OPC in routine examination and as basic part of general examination must be every patient know information about BMI and WC. Role of physician in his clinic to fighting obesity and obesity related comorbidity by search about metabolic syndrome to prevent and treatment of chronic disease such DM, hypertension, atherosclerosis; health education and more information about metabolic syndrome by more lecture, session to all health provider, mass media must me play rule in health education off health provider and population by used poster and pamphlet and TV health programs, treatment of metabolic factors and also if one factor present must be treat, every patient with any metabolic syndrome must be a plan for treatment, laboratory investigation to every one has increase waist circumference lastly must me behavior change and style of life change to overcome obesity and obesity related comorbidity.

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