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RESEARCH ARTICLE

HEALTH BELIEFS ABOUT OSTEOPOROSIS AND OSTEOPOROISIS RADIOLOGICAL SCREENING IN OLDER WOMEN AND MEN IN JEDDAH CITY 2016.

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Key words:-
Osteoporosis, Knowledge, Practice, Jeddah, Health Beliefs.

Abstract

Background: Osteoporosis has been recognized as a major public health problem by healthcare providers in Saudi Arabia.
Objective: The present study was designed to examine health beliefs about osteoporosis and osteoporosis radiological screening in a large group of older women and men to determine barriers to screening.
Methodology: This is a self-administrated questionnaire conducted among a sample of 460 man and women in Jeddah, Saudi Arabia.
Results:The majority of the subjects had poor knowledge about osteoporosis and 50.4% of the subject had no practice to avoid the disease. The level of education showed a significant correlation with knowledge of osteoporosis. Also, the young age, higher level of education and females had significantly higher correlation with good practice.
Conclusion: This study indicated a lack of awareness and practice about osteoporosis. There was a significant association between knowledge and practice with level of education. Also, the female gender and age showed higher practice scores. All these results showed the significance of more health staff involvement regarding to awareness campaign about osteoporosis.

Introduction:-

Osteoporosis is systemic skeletal disease affecting bone density and its quality leading to bone strength weakening. It is now an established fact that low bone mineral density increases the frequency of bone fractures systemic skeletal disease affecting bone density and its quality leading to bone strength weakening[1].Osteoporosis is a major public health problem in Saudi Arabia and the contributor of mortality and morbidity among elderly people [2, 3].According to the International Osteoporosis Foundation (IOF) reports 1,461,401 Saudi persons aged 50 years or more, 8768 would suffer femoral fractures yearly at a cost of $1.14 billion[4].After 30 years there is a 1% - 2% decline in bone mass each year until menopause, in which 40% of their total bone mass decrease rapidly due to low estrogen levels[5].Most individuals with osteoporosis are asymptomatic, undiagnosed, and untreated[6].Men appear to be diagnosed and treated less often than women[7].Previous studies suggest that health beliefs are important determinants of whether individuals participate in health screening[8, 9].Lack of concern and knowledge can be attributed to lower perceptions of susceptibility[10, 11].

The Health Belief Model is a widely used conceptual framework to explain and predict health-related behaviors. This model indicates that patient-level factors related to undertaking health-related action such as disease screening

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include perceived susceptibility to a condition, perceived severity of the condition, perceived benefits to taking a health-related action, perceived barriers to taking action, cues to action (external events that prompt the desire to make a health change), and self-efficacy (belief in one's ability to improve health by taking action)[12, 13]. Despite the magnitude of this preventable health problem, osteoporosis preventive care has not been incorporated into standard primary care practice[14]. Forexample, a 2002 survey of 1,500 women ages 40–69 ina managed care health plan showed that only 49% hadever discussed osteoporosis with a health care provider,and only 12%–34% of high-risk women had bone densitytesting[15].Although evidence-based guidelines support routine osteoporosis screening in women age 65 and older[16].Low levels of risk factor assessment, bone density testing, counseling, and prescription of osteoporosis medications have been documented in primary care practices[6, 17, 18].

Diagnostic imaging and interventional radiological techniques are increasingly used to diagnose a wide range of diseases, and to give life-saving treatment for many diseases. The use of radiation in medical practices has evolved since its beginning and 30% to 50% of medical decisions are based on radiological examinations[17, 18].

Our study was designed to examine health beliefs about osteoporosis and osteoporosis radiological screening in a large group of older women and men to determine barriers to screening.

Rationale:-
Osteoporosis has been recognized as a major public health problem by healthcare providers in Saudi Arabia,according to the International Osteoporosis Foundation (IOF)reports 1,461,401 Saudi persons aged 50 years or older adults demonstrate several beliefs that may be barriers to osteoporosis screening, including low belief in susceptibility to osteoporosis.
These beliefs should be targeted with patient education to improve radiological screening rates.

Objectives:-
General objectives:-
To examine older adults' beliefs about osteoporosis and osteoporosis radiological screening to identify barriers to screening.

Specific objective:-
The goal of this study was to examine elderlyhealth beliefs regarding osteoporosis and their perceptions related to radiological screening for the disease, andevaluate the role of demographic factors in shaping elderly beliefs about osteoporosis and assess possible associations between demographic characteristics with the preventive behavior of interest.

Methods:-
Setting and data collection:
This survey analysis was performed among elderly population in Jeddah city. A pre-formed self-administered questionnaire will be distributed to male and female.

Sample:
Subjects were chosen according to geographical and sex distribution. Sample size was calculated based on web-site calculator[19],taking the total size of Jeddah population (3,976,000)[20], confidence level (95%) and margin error (5%) to be 385, additional 20 % was added to cover the missing data. The total sample obtained was **460**.

Study population:
Both old age male and female in Jeddah citywere included in this study.

Study tool:
Pre-formed Self-administered questionnaire that requires information about: (osteoporosis and general health-related characteristics, and beliefs about osteoporosis severity, susceptibility, screening self-efficacy, and screening response efficacy).

Study limitations:
The following limitations are expected:

- Cooperation of elderly
- Recall bias

Ethical considerations:
An informed consent was maintained from all participants before filling the questionnaire.

Statistical analysis:
Data were fed to the computer and analyzed using IBM SPSS software package version 20.0**.** Qualitative data were described using number and percent. Significance of the obtained results was judged at the 5% level.
The used tests were
1 - Chi-square test
For categorical variables, to compare between different groups
2 - Fisher's Exact or Monte Carlo correction
Correction for chi-square when more than 20% of the cells have expected count less than 5.

Results:-
This study was carried out on 460 elderly both male and female in Jeddah city.
Demographic data:
Table (1), show the demographic data of the studied subjects, the most frequent age group was 61-70 years, the females was slightly higher than male, the education of the majority of the population was university educated (Fig. 1-3).

Table 1:- Distribution of the studied patients regarding demographic data.

	Number	**Percent**
Age		
<40	88	19.1
41-50	86	18.7
51-60	97	21.1
61-70	98	21.3
+70	91	19.8
Total	460	100.0
Gender		
Male	216	47.0
Female	244	53.0
Education		
Primary	8	1.7
Middle	56	12.2
Secondary	140	30.4
University	252	54.8
Master	1	.2
PHD	3	.7

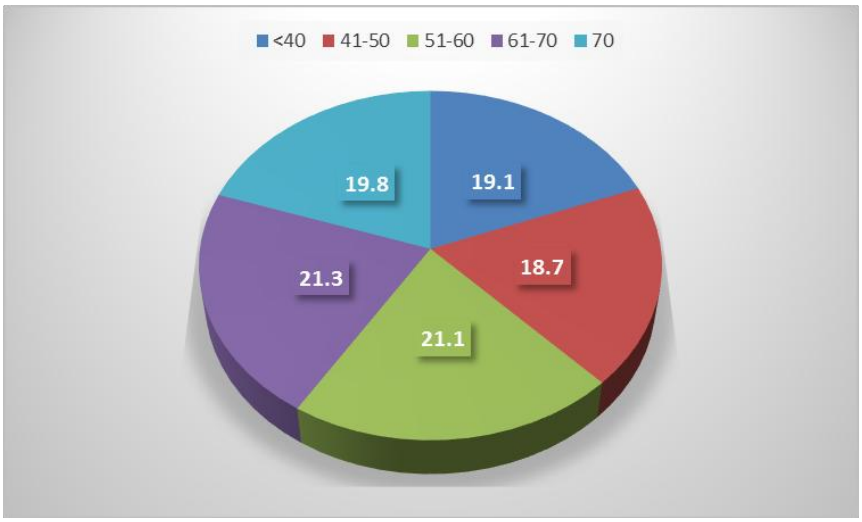

Fig. 1:- Distribution of the studied patients regarding age

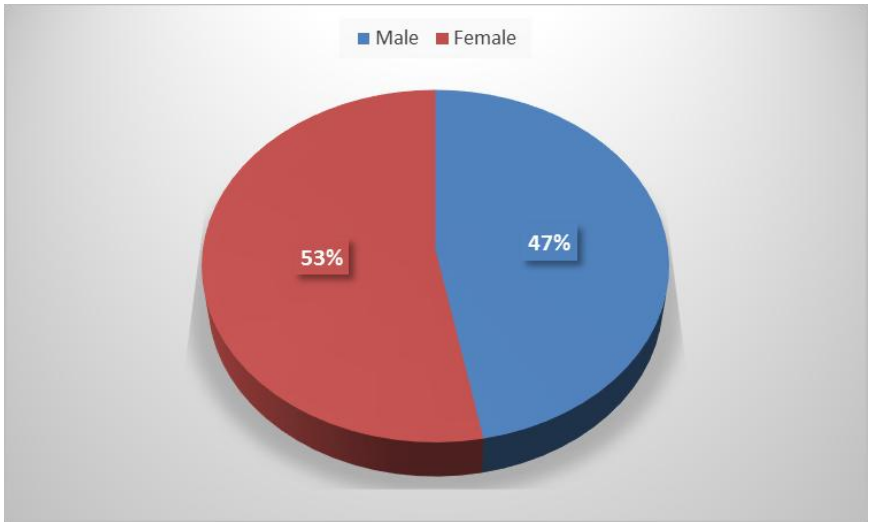

Fig. 2:- Distribution of the studied patients regarding sex

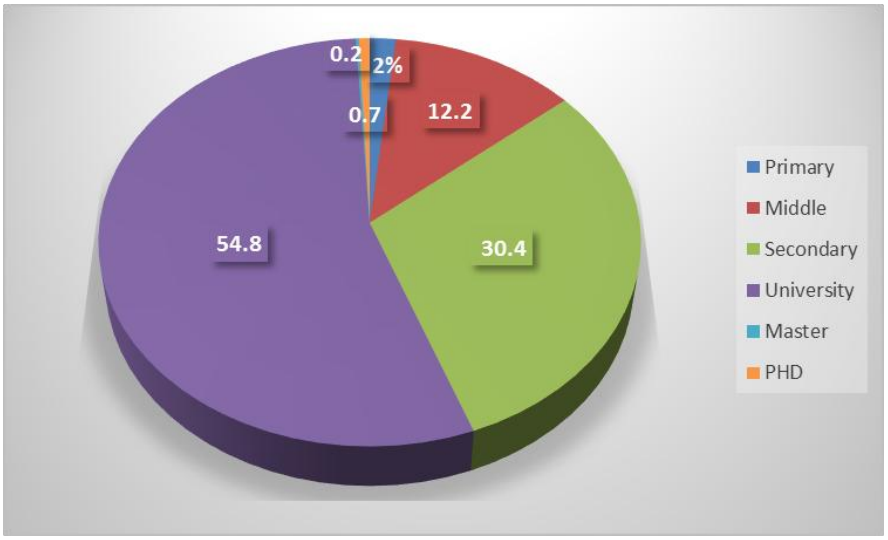

Fig. 3:- Distribution of the studied patients regarding education.

Incidence of osteoporosis:

Table 2:- Incidence of osteoporosis among the sample and their family history.

	Number	Percent
I am suffering from osteoporosis		
No	306	66.5
Yes	48	10.4
Not sure	106	23.0
There are members of my family who is suffering from osteoporosis:		
No	209	45.4
Yes	133	28.9
Not sure	118	25.7

Table (2), show the incidence of osteoporosis among the sample and their family history, from this table it was found that only 10.4% of the studied group suffering from osteoporosis. While 28.9% of them had at least one of his family suffering from osteoporosis (Fig. 4-5).

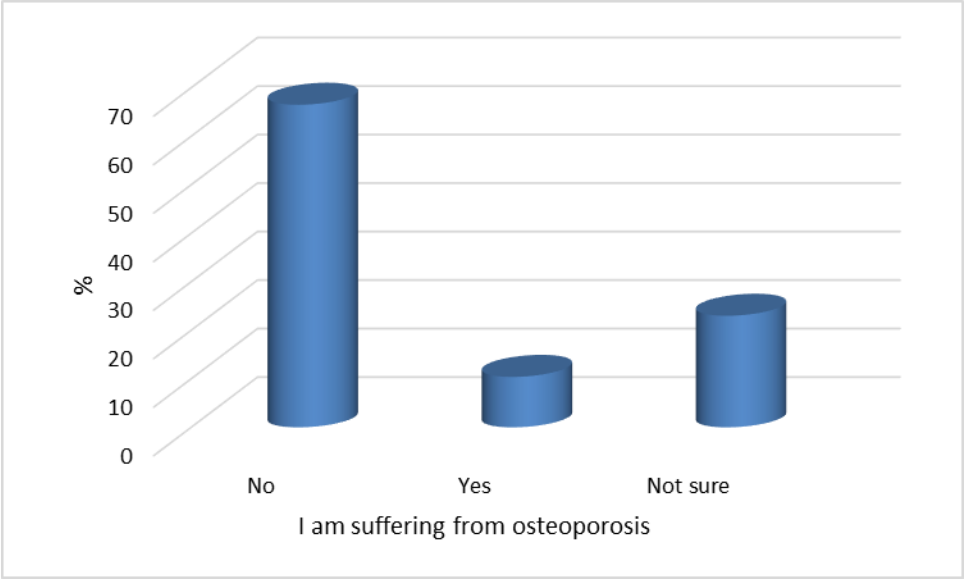

Fig. 4:- Incidence of osteoporosis among the sample.

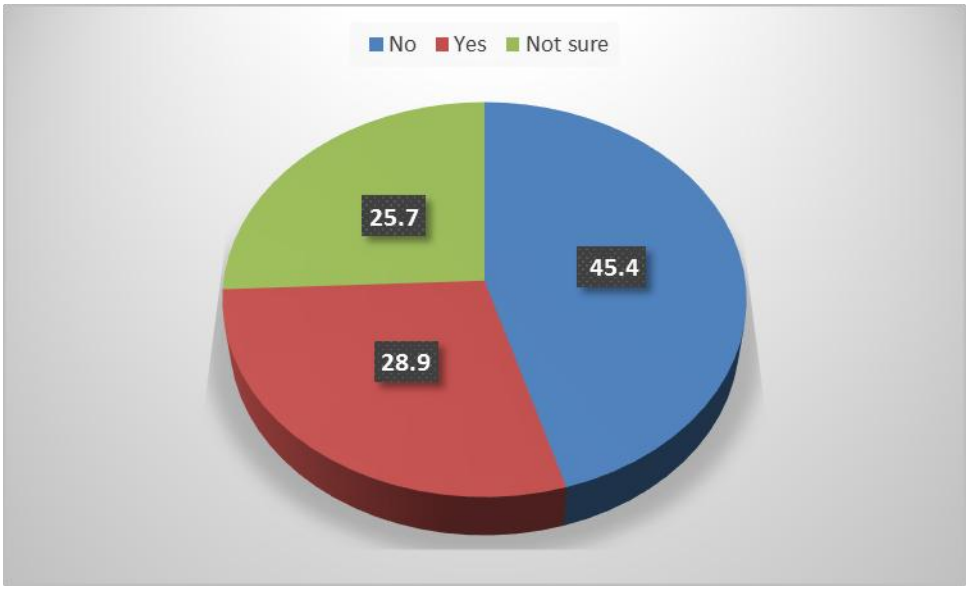

Fig. 5:- Incidence of osteoporosis among their family.

Knowledge assessment:-

Table 3:- Responses to questions on assessment level of knowledge toward osteoporosis.

	Number	Percent
I understand the concept of osteoporosis:		
No	98	21.3
Yes	217	47.2
Not sure	145	31.5
Know the symptoms of osteoporosis		
No	129	28.0
Yes	247	53.7
Not sure	84	18.3
I am familiar with the seriousness of osteoporosis:		
No	111	24.1
Yes	275	59.8
Not sure	74	16.1
I know that the females has a high risk to injury osteoporosis		
No	70	15.2
Yes	316	68.7
Not sure	74	16.1
I know that old age has a high risk to injury osteoporosis:		
No	41	8.9
Yes	360	78.3
Not sure	59	12.8
I know that a lack of exposure to the sun radioactive influential in a injury disease:		
No	103	22.4
Yes	268	58.3
Not sure	89	19.3
I know that steroids increase the risk of injury disease:		
No	170	37.0
Yes	204	44.3
Not sure	86	18.7

Table. 3 showed that the knowledge about osteoporosis is low however higher percentage have good knowledge regarding to the higher risk of osteoporosis among females, old age and lack of exposure to the sun.

Table 4:- Distribution of the studied group regarding their Knowledge score

		Number	Percent
	Poor knowledge	324	70.4
	Good Knowledge	136	29.6
	Total	460	100.0

Table (4):- show the distribution of the studied group regarding their Knowledge score, the majority of the subjects had poor knowledge about osteoporosis (Fig. 6).

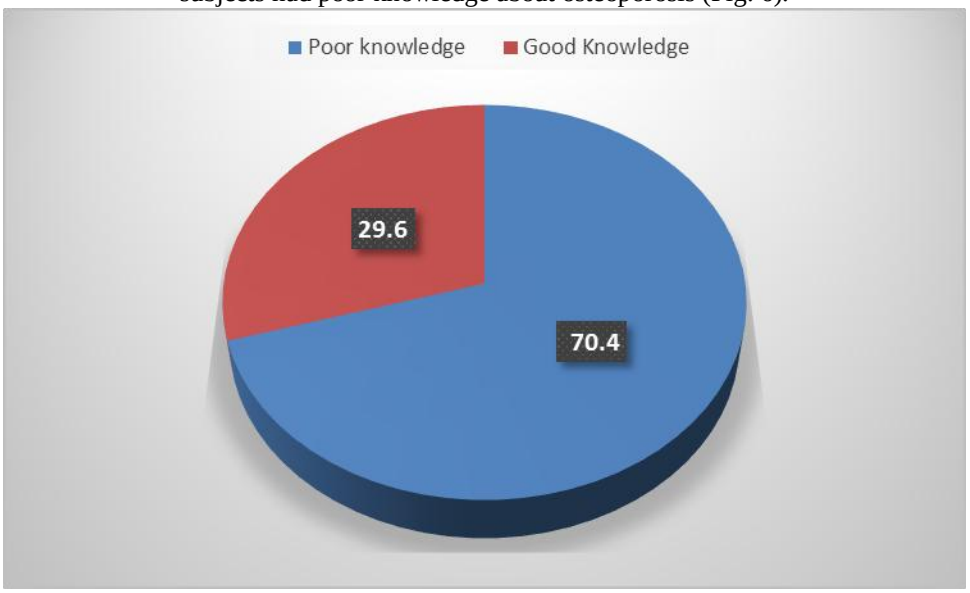

Fig. 6:- Distribution of the studied group regarding their Knowledge score

Level of practice Assessment:-

Table 5:- Responses to questions on assessment level of practice toward osteoporosis.

	Number	Percent
Have you ever attended awareness about the programs injury osteoporosis		
No	374	81.3
Yes	86	18.7
Sports practice well:		
No	306	66.5
Yes	154	33.5
Exposed to sun well:		
No	210	45.7
Yes	250	54.3
Be sure to eat foods rich in vitamin D		
No	256	55.7
Yes	204	44.3
Be sure to visit the medical examinations		
No	366	79.6
Yes	94	20.4
Early screening and radiological examination decrease the risk of osteoporosis and complications.		
No	96	20.9
Yes	364	79.1

Table 5 indicated the practice of participants toward osteoporosis. The majority of participants have never attended awareness programs, practicing sports, eating foods rich in vitamin D as well as visiting the medical examinations. On the other hand, 79.1% of participants know that early screening and radiological examination decrease the risk of osteoporosis and complications.

Table 6:- Distribution of the studied group regarding their Practice score.

		Number	Percent
	Good practice	42	9.1
	Moderate practice	186	40.4
	Low practice	232	50.4
	Total	460	100.0

Table (6), show the distribution of the studied group regarding their Practice score, only 9.1% of the sample had a good practice to avoid the disease, while 40.4% had moderate practice, while the other 50.4% of the subject had no practice to avoid the disease (Fig. 7).

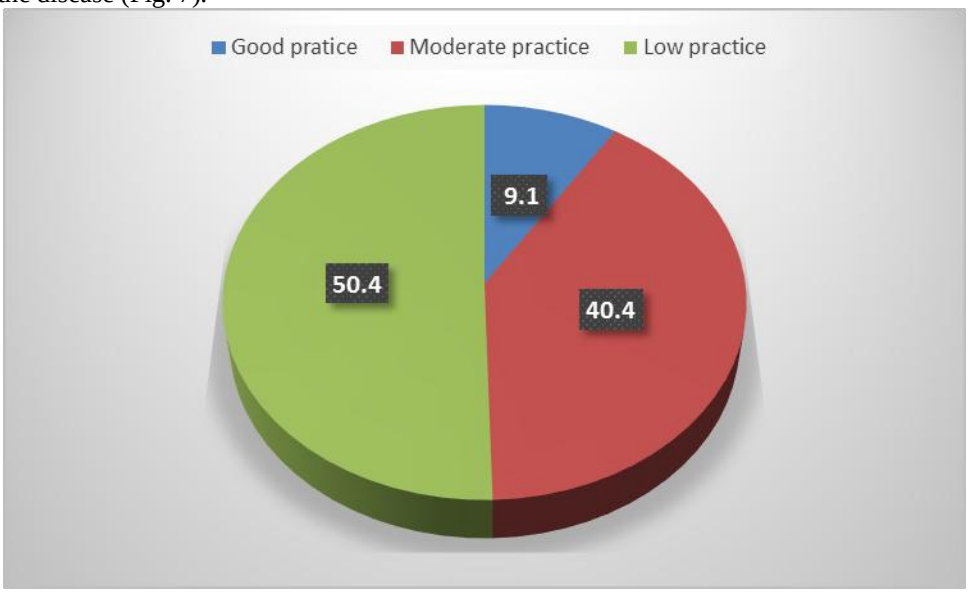

Fig. 7:- Distribution of the studied group regarding their Practice score

Correlation studies between demographic data and participants knowledge:

Table 7:- Relation between level of knowledge and age.

	Knowledge scale				**Total**	
	Good knowledge		**Poor knowledge**			
	No.	**%**	**No.**	**%**	**No.**	**%**
<40	56	41.2	32	9.9	88	19.1
41-50	42	30.9	44	13.6	86	18.7
51-60	32	23.5	65	20.1	97	21.1
61-70	3	2.2	95	29.3	98	21.3
+70	3	2.2	88	27.2	91	19.8
Total	136		324			
X^2 P	28.15 0.001*					

Table (7), show the relation between level of knowledge and age, it was found that the young age subjects had a good knowledge than the old age subjects ($p < 0.05$) (Fig. 8).

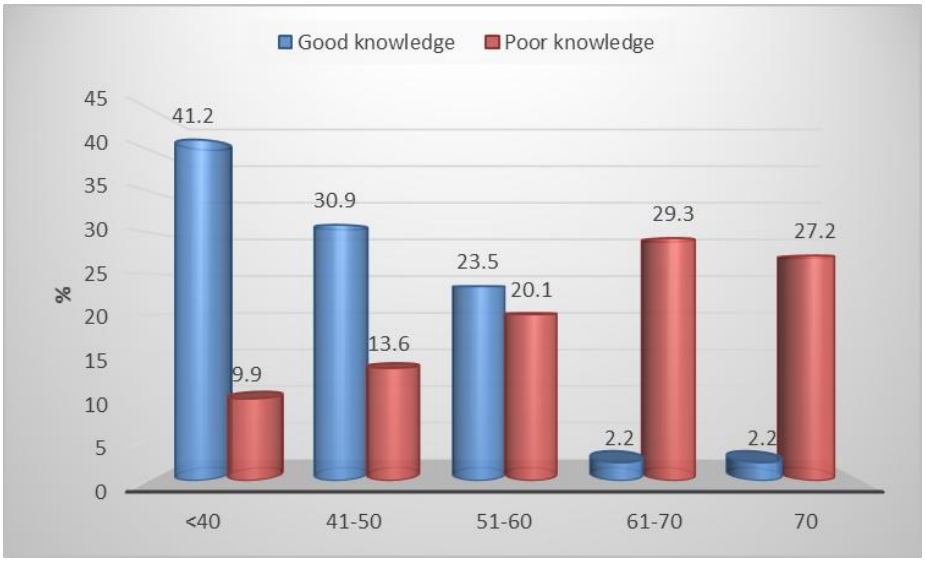

Fig. 8:- Relation between level of knowledge and age.

Table 8:- Relation between level of knowledge and gender.

	Knowledge scale				**Total**	
	Good knowledge		**Poor knowledge**			
	No.	**%**	**No.**	**%**	**No.**	**%**
Male	65	47.8	151	46.6	216	47.0
Female	71	52.2	173	53.4	244	53.0
Total	136		324			
X^2 P	0.05 0.815					

Table (8), show the relation between level of knowledge and gender, it was found that there was no significant effect of gender on the knowledge about osteoporosis ($p > 0.05$) (Fig. 9).

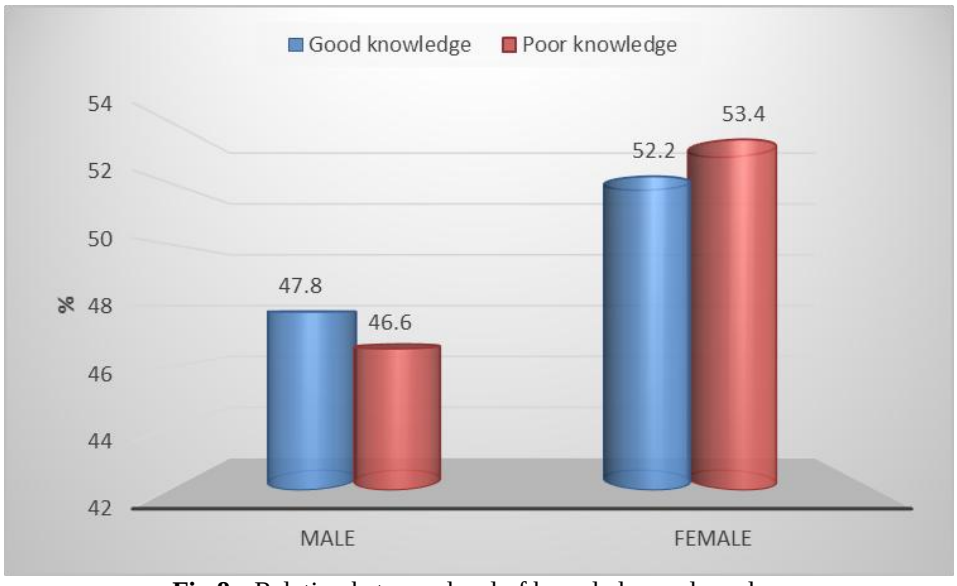

Fig 8:- Relation between level of knowledge and gender.

Table 9:- Relation between level of knowledge and education

	Knowledge scale				Total	
	Good knowledge		Poor knowledge			
	No.	%	No.	%	No.	%
Primary	0	0.0	8	2.5	8	1.7
Middle	7	5.1	49	15.1	56	12.2
Secondary	25	18.4	115	35.5	140	30.4
University	100	73.5	152	46.9	252	54.8
Master	1	0.7	0	0.0	1	.2
PHD	3	2.2	0	0.0	3	.7
Total	136		324			
X^2	42.32					
P	0.0001*					

Table (9), show the relation between level of knowledge and education, it was found that there was a significant effect of level of education on the level of knowledge ($p < 0.05$) (Fig. 10).

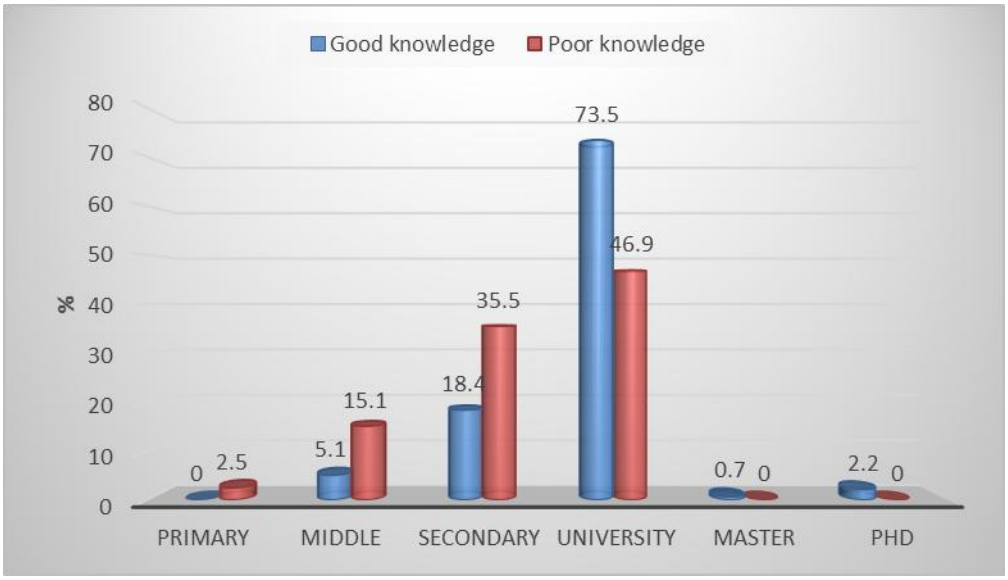

Fig. 10:- Relation between level of knowledge and education

Table 10:- Relation between level of practice and age.

	Practice						Total	
	Good practice		Moderate practice		Low practice			
	No.	%	No.	%	No.	%	No.	%
<40	20	47.6	39	21.0	29	12.5	88	19.1
41-50	18	42.9	35	18.8	33	14.2	86	18.7
51-60	4	9.5	46	24.7	47	20.3	97	21.1
61-70	0	0.0	60	32.3	38	16.4	98	21.3
+70	0	0.0	6	3.2	85	36.6	91	19.8
Total	42		186		232			
X^2	26.85							
P	0.001*							

Table (10), show the relation between level of knowledge and age, it was found that there was a significant positive effect of the age on good practice to avoid the disease. ($p< 0.01$). The young age had good practice than the old age subjects (Fig. 11).

Fig. 11:- Relation between level of practice and age.

Table 11:- Relation between level of practice and gender.

	Practice						**Total**	
	Good practice		**Moderate practice**		**Low practice**			
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Male	22	52.4	42	22.6	152	65.5	216	47.0
Female	20	47.6	144	77.4	80	34.5	244	53.0
Total	42		186		232			
X^2 P	26.5 0.0001*							

Table (11), show the relation between level of knowledge and gender, it was found that there was a significant positive effect of gender on good practice to avoid the disease. ($p< 0.01$). The male showed low practice than the females (Fig. 12).

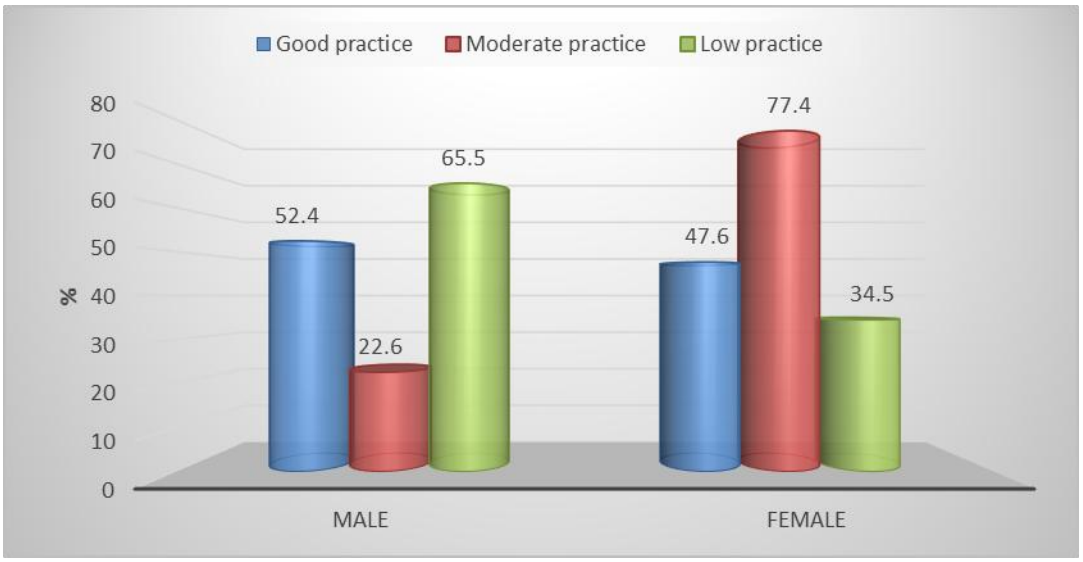

Fig. 12:- Relation between level of practice and gender.

Table 12:- Relation between level of practice and education

	Practice						Total	
	Good practice		Moderate practice		Low practice			
	No.	%	No.	%	No.	%	No.	%
Primary	0	0.0	0	0.0	8	3.4	8	1.7
Middle	0	0.0	19	10.2	37	15.9	56	12.2
Secondary	22	52.4	101	54.3	17	7.3	140	30.4
University	16	38.1	66	35.5	170	73.3	252	54.8
Master	1	2.4	0	0.0	0	0.0	1	0.2
PHD	3	7.1	0	0.0	0	0.0	3	0.7
Total	42		186		232			
X^2	29.85							
P	0.0001*							

Table (12), show the relation between level of knowledge and education, it was found that there was a significant positive effect of level of education on good practice to avoid the disease. ($p < 0.01$). I.e. The high educated had a good practice (Fig. 13).

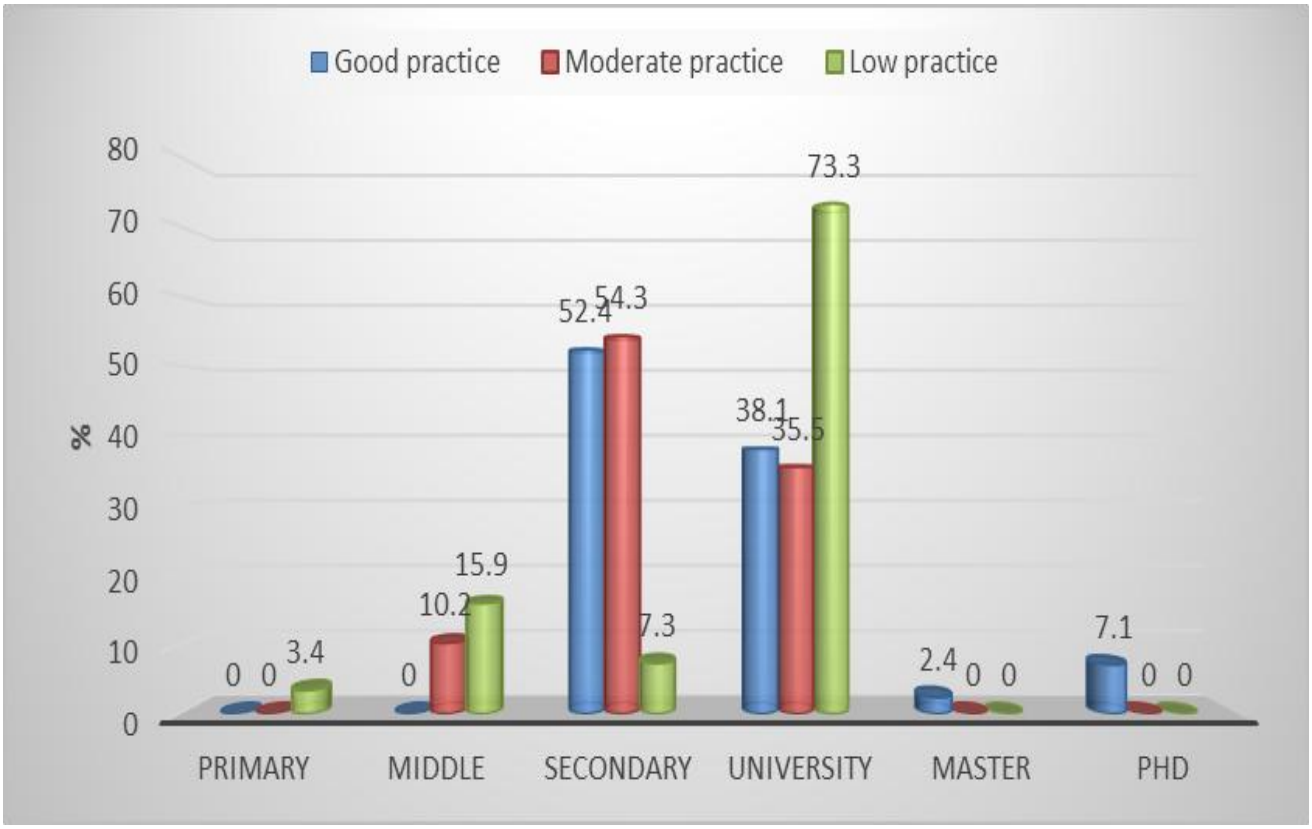

Fig. 13:- Relation between level of practice and education

Discussion:-

Osteoporosis has been recognized as a major public health problem by healthcare providers in Saudi Arabia. Sufficient information about knowledge, health beliefs, and some of the life habits are important toplan for the disease prevention. The present study examined the osteoporosis knowledge, andsome of the life habits of Saudi participants in Jeddah to examine health beliefs about osteoporosis and osteoporosis radiological screening in a large group of older women and men to determine barriers to screening.

\In this study, the majority of the subjects had poor knowledge about osteoporosis and 50.4% of the subject had no practice to avoid the disease. In partial accordance with these results, a recent study in Saudi Arabia showed that themajority of women in this study had a modest knowledge on osteoporosis. Regarding to practices towards preventing osteoporosis, it was inadequate in studied groups [21].

However, another study among adults in Riyadh showed that participants' knowledge score was about 57 % of the total score and practice score was 51.7 %[22]. These scores are higher than our results and this could be attributed to different age and population size between the two studies.

The level of education showed a significant correlation with knowledge of osteoporosis. Also, the young age, higher level of education and females had significantly higher correlation with good practice. In agreement, there were significant associations between the level of awareness, practice and the sociodemographics of the participants including age, female gender and education [23].

In conclusion, this study indicated a lack of awareness and practice about osteoporosis.There was a significant association between knowledge and practice with level of education. Also, the female gender and age showed higher practice scores.All these resultsshowed the significance of more health staff involvement regarding to awareness campaign about osteoporosis.

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