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RESEARCH ARTICLE

PHYSICAL ACTIVITY LEVELS AMONG FEMALE TEACHERS AT EDUCATIONAL SCHOOLS OF NATIONAL GUARD KING FAISAL RESIDENTIAL CITY IN JEDDAH CITY, SAUDI ARABIA, 2018: A CROSS-SECTIONAL STUDY.

Badr A Aljasir [1], Hani Saad Al-Mugti [1], Weam M Al-Ahdal [2], Hana J Gadah [2], Majed Naif Alosaimi [1], Jumana H Khouja [1], Mohammed S Kutbi [1], Malik S Al-muqati [3] and Waleed O Al-Gregari [3].

1. Community & Preventive Medicine Department, King Abdullah International Medical Research Center, King Saud bin Abdul-Aziz University for Health Sciences, Western Region, Ministry of National Guard Health Affairs, Jeddah city, 21577, Saudi Arabia.Fax number: 00966126552667.
2. Medical college, Umm Al-Qura University, Western Region, Makkah city, 21955, Saudi Arabia.
3. Laboratory and Molecular pathology Department of King Fahd Armed Forces Hospital. Western region, Jeddah city, 21543, Saudi Arabia.

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Abstract

Background: Physical inactivity is considered one of the leading risk factors for non-communicable diseases. Saudi Arabia has just begun to address physical inactivity as recent studies that have shown an alarming prevalence of insufficiently physically active adults. Determining the prevalence of physical inactivity among Saudi women employed in sedentary jobs based on previous studies is limited. Female teachers are good models for their students and if they were in healthy life style thus will reflect in their health and the attitude of their students.

Methods: A cross- sectional study was conducted on 118 Saudi Female teachers to measure the prevalence physical activity levels and assess its association with socio-demographic factors among female teachers at Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city by using the The Global Physical Activity Questionnaire (GPAQ) version 2.0.

Results: Low, moderate and high levels of physical activity were reported by 72 %, 21% and 6.8 % of the sample, respectively. Low level of physical activity had significantly associated if the participants were married and age more than 36 years ($p = 0.001$), have at least master degree ($p = 0.001$). Salary income, School Type and Service time by Years were not significantly associated with PA level ($p > 0.05$).

Conclusion: high level of physical inactivity among female teachers at Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city. Physical inactivity were positivity correlated to old age, marital status (married) and high level of education.

Corresponding Author:-Hani Saad Almugti.
Address:-Consultant Community and preventive medicine Community and Preventive Medicine Department, King Abdullah International Medical Research Center, King Saud bin Abdulaziz University for Health Sciences, Western Region, Ministry of National Guard Health Affairs, Jeddah City, 21577, Saudi Arabia.

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Introduction:-

Physical activity defined as any bodily movement produced by skeletal muscles that requires energy expenditure.[1] The term "physical activity" should not be confused with "exercise", which is a subcategory of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness. Beyond exercise, any other physical activity that is done during leisure time, for transport to get to and from places, or as part of a person's work, has a health benefit.[2]

Physical inactivity is a modifiable risk factor and has been identified as the fourth leading risk factor for global mortality.[1] People who are insufficiently physically active have a 20% to 30% increased risk of all-cause mortality compared to those who engage in at least 150 minutes of moderate intensity physical activity per week, or equivalent, as recommended by WHO.[2]

Documented health benefits of regular physical activity among people include reduction of symptoms of anxiety and depression[3], reduction of body fat, thus reducing the risk of cardiovascular diseases[4] and diabetes.[5] Based on the researches, physical activity has a positive role in risk reduction of different kind of cancer[6, 7, 8] and more than that physical activity has positive health effects on patients already diagnosed with cancer.[9]

The prevalence of physical activity varies widely by country, the highest being reported in Sweden and Denmark, and the lowest in Brazil, Thailand and Kingdom of Saudi Arabia.[10] The prevalence of physical activity in the countries of the Gulf Cooperation Council was reported to range from 39.0% to 42.1% for men and 26.3% to 28.4% for women.[11]

In Saudi Arabia, overall (male and female) physical inactivity was found to be 66.6%, for male 60.1% and 72.9% for females. The northern and central regions reported the highest prevalence of no physical activity at work, leisure and transportation.[12]

Determining the prevalence of physical inactivity among Saudi women employed in sedentary jobs based on previous studies is limited. The aim of this study is to fill a gap in the Saudi literature regarding female population in area of physical activity and socioeconomic correlates. Female teachers are good models for their students and if they were in healthy life style thus will reflect in their health and the attitude of their students.

Methodology:-

Objectives:-

1. To measure the prevalence physical activity levels and assess its association with socio-demographic factors among female teachers at Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city by using the The Global Physical Activity Questionnaire (GPAQ) version 2.0.
2. To measure the prevalence of waist circumference and body mass index categories according to world health organization (WHO) categories.

Study Design:

This study was cross-sectional.

Study Settings:

The study conducted at Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city, Saudi Arabia.

Study Population:

The inclusion criteria were as follows:

1. Saudi Female teachers who are teaching at the National Guard's schools.
2. Saudi Female teachers who are teaching elementary, intermediate and high school classes.

The exclusion criteria were as follows:

1. Teachers who are not teaching in National Guard's schools

2. Teachers who are not teaching elementary, intermediate and high school classes.
3. Any teacher with physical disability or pregnant.

Sample Size:
All the female teachers (118) who are teaching at the National Guard's schools recruited in our study.

Data Collection:
A self-administered questionnaire was used to collect demographic information, physical activity data and anthropometric measurements (Body Mass Index and Waist Circumference).

Work plan:
National Guard King Faisal Residential city in Jeddah city has two elementary schools, two intermediate schools and one high school. Data collection was during school hours. After taken permission from every school's administration, the research team consisted of a physician and two nurses who were trained employees in the National Guard Health Affairs and oriented concerning the study's objectives.

For the subject's privacy, each school provided a private room and the subject entered the room one by one. After signing an informed consent, subjects had been asked to fill the translated and Arabic version of IPAQ questionnaire. The questionnaire contains two Parts; the first part included personal and demographic information (Age, marital status, income and level of education), Workload (duration of service in education, number of classes per week) and clinical history. The second part included questions to measure the level of physical activity (vigorous and moderate activities, and the time spent on walking or sitting). Appropriate time gave for the subjects to fill in the questionnaire. After completing the questionnaire the researcher measured the waist circumference using a measuring tape, height and weight to calculate the BMI.

Outcome Measures:
1. Physical activity level measured by The International Physical Activity Questionnaire (IPAQ) which is a valid, reliable and widely used international standardized instrument.[13]
2. Body mass index (BMI) is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m2). BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals. According to WHO classification, a BMI greater than or equal to 25 is considered as overweight, a BMI greater than or equal to 30 is obesity.[14]
3. Waist circumference. Taken below the ribs (usually at the level of the navel). Normal reading is less than 88 cm. Waist circumference is used to identify abdominal obesity which reflect central adiposity.[15] Compared with the total amount of adipose tissue, excess fat in the abdominal region with (≥88 cm for women and ≥102 cm for men), is a better predictor of coronary heart disease (CHD) and type 2diabetes and of their risk factors (i.e. dyslipidemia, glucose intolerance).[16]
4. The subject was considered hypertensive if she was on antihypertensive medications or had been diagnosed as hypertensive by a physician.
5. The subject was considered to have DM if she was on antidiabetic medications or a physician had diagnosed him with DM.
6. The subject was considered to have thyroid disorder if she was on thyroid medications or a physician had diagnosed him with thyroid disorder.
7. The subject was considered to have lipid disorder if she was on medications or a physician had diagnosed him with lipid disorder.
8. The subject was considered to have depression if she was on anti-depression medications or a physician had diagnosed him with depression.

Ethical Consideration and Confidentiality:
Approval for research data collection of required authorities and institutions was obtained. These data will be confidential and used just for research purposes.

Data Analysis:
SPSS 20.0 statistical software package (IBM Corporation, Somers, New York) was used. Quality control was done at the stages of coding and data entry. Data were presented using descriptive statistics in the form of frequencies and

percentages for qualitative variables and means and standard deviations, medians, and interquartile ranges for quantitative variables. Chi-square test used to record the statistical Signiant between the physical activity levels and age, BMI and other socioeconomic variables.

Logistic regression analyses were conducted with physical inactivity (a low level was considered physically inactive, whereas the moderate and high levels were considered active) as the dependent variable and each of the sociodemographic variables as the independent variables. The independent variables were entered in the logistic regression model if they had a significant association with physical activity in the bivariate analysis.

Result report:-

There were 118 participants in the study sample. The sociodemographic characteristics of the sample are presented in Table 1.

All participants are Female teachers at general educational schools of National Guard King Faisal Residential city. 42 % of them were from primary school, 39% from intermediate and 26% from high school.

Majority of participants were married and (74%) of them were in age category of 36 to 45 years.

The vast majority of the respondents (85 %) had at least a college degree. 66 % of participants had monthly salary more than ten thousands Saudi riyals and more than two-third of the participants were in the service for more than ten years.

Table 1:-Demographic characteristics of the participants (n=118).

Demographic characteristics	Frequency	Percent
Age		
25–35 years	9	7.6
36- 45years	88	74.6
> 45 years	21	17.8
Marital Status		
Single	13	10
Married	105	90
Educational level		
Diploma degree	6	5.1
Bachelor degree	100	84.7
Master and PHD	12	10.2
Salary Income		
< 10,000 SR	39	33.1
10,000 – 15,000 SR	78	66.1
> 15,000 SR	1	0.8
School Type (work place)		
Primary	50	42.4
Intermediate	37	31.4
High School	31	26.2
Service time by Years		
< 5 Years	12	10.1
5 – 10 Years	19	16.1
> 10 Years	87	73.8

From the medical history, it was found that only 6% of the participants had diabetes, and 11% had hypertension. Meanwhile, 12 % had a lipid disorder and 12 % had thyroid dysfunction. Regarding depression, slightly 3 % of the participants were on antidepressant medication. (Figure 1)

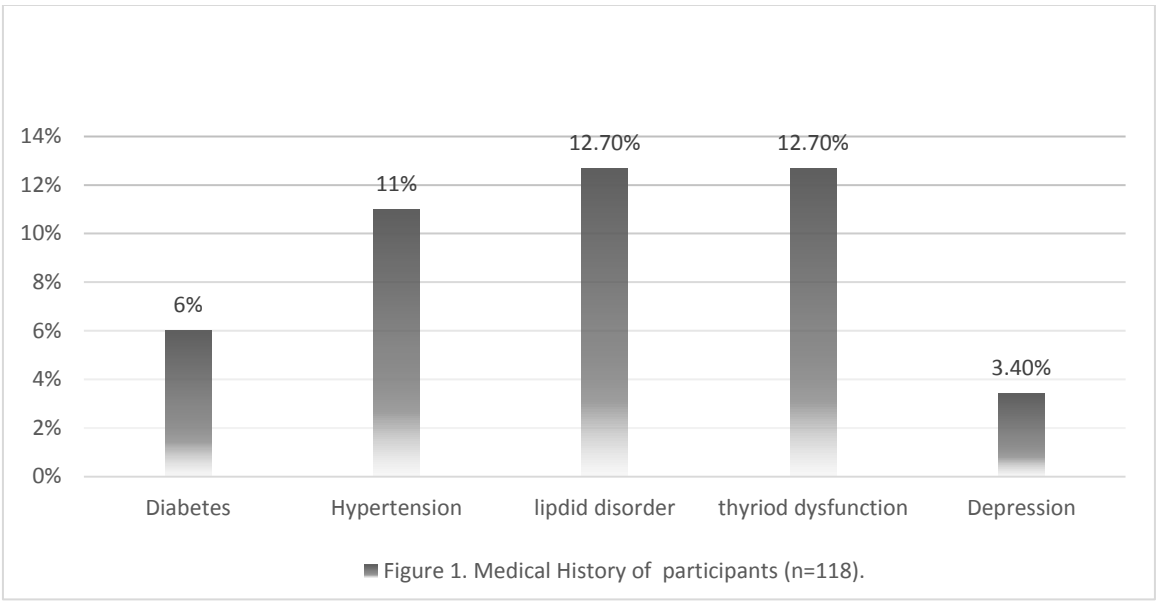

Figure 1:-Percentages of participants in common medical conditions (Diabetes, Hypertension, Lipid disorder, Thyroid dysfunctions and Depression)

As shown in **Figure 2**, the greatest proportion of respondents were 'normal' weight (40 %); however, over fifty percent of the sample were either 'overweight' or 'obese' (57 %). In addition, two third of participants were with normal waist circumference.

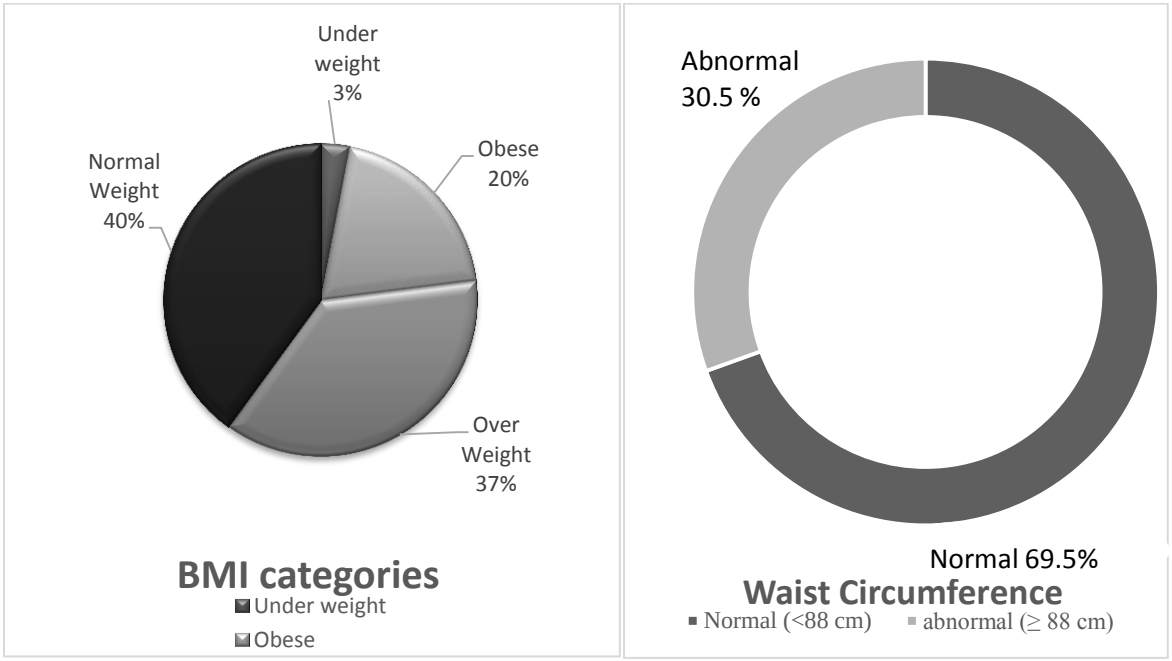

Figure 2:-Percentages of participants with Body Mass Index categories and Waist Circumferences.

The level of total physical activity, work related physical activity, transportation related physical activity and Recreational Activity are presented in **Table 2**. Low, moderate and high levels of physical activity were reported by 72 %, 21% and 6.8 % of the entire sample, respectively.

Table 2. Level of Total, Work-related, Transport-related and Leisure time physical activity (n=118).

	Frequency	Percent
Level of Total Physical Activity		
Low	85	72
Moderate	25	21.2
High	8	6.8
Physical Activity at Work		
Yes	13	10
No	105	89
Transport related Physical Activity		
Yes	8	6.7
No	110	93.2
Recreational Activity		
Yes	9	7.6
No	109	92.4

Bivariate analysis showed a greater proportion of respondents had low level of physical activity if they were married and age more than 36 years (p = 0.001), have at least master degree (p = 0.001). Salary income was not significantly associated with PA level (p = .974). Similarly, no significant relationship was found between PA level School Type and Service time by Years. (Table 3).

Table 3:-Proportion of participants with low versus moderate/high PA level according to demographic groups (n=118)**.**

Demographic characteristics	Low physical activity level	Moderate/high physical activity level	p-value
Age			
25–35 years	6 (5.1)	3(2.5)	
36- 45years	60 (51.1)	28 (23.7)	<0.001*
> 45 years	18(15.1)	3(2.5)	
Marital Status			
Single	10 (8.5)	3 (2.5)	<0.001*
Married	90 (76.3)	15(12.7)	
Educational level			
Diploma and Bachelor degree	5 (4.2)	87 (73.7)	<0.001*
Master and PHD	19(16.1)	7 (5.9)	
Salary Income			
< 10,000 SR	11 (9.3)	28 (23.7)	
> 10,000 SR	48 (40.7)	31 (50)	P = 0.974
School Type (work place)			
Primary	28(23.7)	11(9.3)	P = 0.798
Intermediate and High School	27(22.9)	52(44.1)	
Service time by Years			
< 10 Years	36 (30.5)	15 (12.7)	P = 0.678
> 10 Years	27 (22.9)	40 (33.9)	

Multivariate logistic regression analysis of the variables that showed a significant association with physical activity in the bivariate analysis; those with age less than 35 had an OR of 2.405 (95 % CI 0.969–5.971) for low PA level while non married participants were four times more likely to be insufficiently active (95 % CI 1.2–7.8). Participants who had Master or PHD degree will three times more likely to be physically inactive compared with those having a diploma degree. (Table 4).

Table 4:-Logistic regression analysis between socio-demographic characteristics (independent variables) and physical inactivity (dependent variable)

	B	SE	Wald	Df	P	OR	95 % CI for OR	
							Upper	Lower
Ag	0.878	0.464	3.578	1	0.059	2.405	0.969	5.971
Marital status (single)	0.768	0.543	12.8	1	0.001	4	1.2	7.809
Education								
Bachelor degree	1.197	0.320	14.028	1	0.100	1.23	1.769	6.190
Master and PHD	0.450	0.274	2.700	1	<0.001	3.321	0.917	4.652

Nagelkerke R Square: 0.05
Hosmer and Lemeshow Test: p=0.551
Omnibus Tests of Model Coefficients: p<0.001
DF, degree of freedom; CI, confidence interval; OR, odds ratio

Discussion:-

Physical inactivity is one of the leading causes of death, disability and morbidity among non-communicable chronic conditions. This study showed that low or physical inactivity in the representative sample was 72%, exceeding previous global and local reports that confirm the high prevalence of physical inactivity among adult female. [11, 17, 18] Cultural and social variables rather than biological factors,[19, 29] more likely cause the lower prevalence of physical activity among females Culturally, women are not expected to practice physical activities in public. The new rules and regulations at the level of high authorities in Saudi government may will overcome these challenges by building up suitable public areas for practicing sports.

This study showed that higher prevalence of physical inactivity among age group of (36 to 45) compared to the other age groups. This finding comes in line with those from previous studies conducted nationally, regionally and internationally, which suggests a general pattern of negative association between age and physical activity. [11, 17, 21] Our results show that people with higher education are less active. Physical activity has been related to educational level in some but not all studies. However, some studies observed that subjects with a lower level of education were more frequently physically inactive.[22,23] As higher educational level is associated with more sedentary professions, this may be an important variable explaining the greater prevalence of inactivity in the present study.

Prevalence of obesity in this sample (20 %) was lower than the 43 % previously reported by the WHO for women in the KSA.[24] It also fell below the 44 % of women reported as obese in a large (n = 17,232) cross sectional household survey conducted between 1995–2000.[25] On the other hand, prevalence of obesity in this sample comes in line with the results of recent study showed that 26 % of sample were obese.[18]

This study has many advantages. First, using the Global Physical Activity Questionnaire (GPAQ) allows comparison with other local and international studies. Second, using the GPAQ allows us to estimate the level of total physical activity as well as the level in various domains.

Our study has some limitations. The estimation of the level of physical activity is based on a self-report questionnaire, which may lead to over- or under-reporting of physical activity in some groups. Secondly, the cross sectional design limits the ability to make causal inferences. Another limitation is that the sample was from Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city which decreases generalizability of the findings to other regions in the country.

Conclusion:-

This study identified high level of physical inactivity among female teachers at Educational Schools (elementary, intermediate and high schools) of National Guard King Faisal Residential city in Jeddah city. Physical inactivity were positivity correlated to old age, marital status (married) and high level of education.

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