

ORIGINAL ARTICLE

Prevalence of low back pain and its association with obesity and wrong occupational behavioral factors among school teaching females in Ha'il, Saudi Arabia.

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ABSTRACT

Low back pain (LBP) is the most common musculoskeletal disorders (MSD). The teaching is considered one of the occupations to suffer from MSD and teachers are known to have different health complications. Several factors causing high prevalence of back pain among schoolteachers were lifting heavy objects, long time sitting, high anxiety level, wrong posture and high workload. The aim of the study for measuring the prevalence of LBP and its relationship with obesity and wrong occupational behavioral factors among school teaching females in Ha'il, Saudi Arabia and using this research results to help in enhancing work methods and promote work-lifestyle. Across-sectional study conducted from december 2019 to march 2020; on 601 public school teaching women. Data analyzed by using SPSS version 22 and (Chi-Square Test considering level of significance $P \leq 0.05$). Majority of respondents had back pain of moderate to severe intensity (83%), which was for more than 6 months (84%). Sleep duration is less than 7 hours in a day in 65% of cases. In 84% of cases, the back pain gets aggravated while taking the teaching sessions and it hence affected their quality of work as answered by 39%. For that problem, 61% consulted doctors for treatment. The study has shown that 83% of respondents experienced LBP explained by its association with obesity, duration of teaching years, working hours over the day and sleeping disturbance, therefore lifestyle modifications to limit the occurrence of obesity. Furthermore, addressing work-related and individual factors are essential for decreasing the burden.

KEY WORDS: Prevalence, Low back, Pain, Obesity, School, Teacher, Occupational

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INTRODUCTION

Back pain is a common seriously behaved in work environment. It is a frequent health issue resulting with a high prevalence among teachers, and it influences by many factors. [1]. Low back pain (LBP) is the most common musculoskeletal disorders (MSD) and can be really painful [2]. It can be difficult to deal with the severe back pain but fortunately, it is rarely due to serious disease and more related to wrong behaviors. [3]. The teaching occupation considered one of the occupations to suffer from MSD and teachers known to have different health complications [4].

Several factors causing high prevalence of back pain, among school teachers include lifting heavy objects, long time sitting, high anxiety level, wrong posture and high workload [5], [6]. LBP prevalence represented by 40 - 75% relative to other MSD among teachers [6]. LBP is a frequent problem in both heavy and light manual workers; this confirmed by research studies [7], [8].

Schoolteachers have many tasks other than teaching students; these include preparing lessons, assessing students' work and being involved in extracurricular activities. In addition, they are involved in different school committees. All of these can lead to physical and mental problems [9]. Measuring the prevalence of LBP and its relationship with obesity and wrong occupational behavioral factors among school teaching females in Hail, Saudi Arabia. By using this research results we aim to help in enhancing work methods and promote work-lifestyle.

MATERIAL AND METHODS

Across-sectional study conducted from December 2019 to March 2020; on 601 public school teaching women in Hail, Saudi Arabia. Our target population was teaching women in public schools from 23-60 year old those from elementary, middle and high schools. Participants, who were in private school or retired, teach out of Hail Region and those with incomplete data excluded from the study. An online questionnaire designed and distributed through social media to public schools teaching which included close-open-ended questions. It consisted of 21 questions, which guided by study objectives.

Statistical Analysis

All data collected; analyzed using (SPSS) V 23.0. The observations for each question were tabulated. Statistical comparison was done using SPSS (Chi-Square Test considering level of significance $P \leq 0.05$) for interpretation of results.

RESULT

Demographic profile of the respondents

In this study, most of the respondents (83%) were between 30-49 years of age. Majority of respondents were overweight (31%) and obese (63%). Most of them were married (84%) and did not do exercise (81.4%) as shown in table no. 1.

Table No.1: Demographic Profile of Respondents (n=601)

Variable		Frequency	Percentage
Age in years	23-29	46	7.5
	30-39	187	31
	40-49	311	52
	50-60	57	9.5
B.M.I.	1 (18.5-24.9 = Normal)	38	6
	2 (25-29.9 = Overweight)	184	31
	3 (30 and above = Obese)	379	63
Social Status	Unmarried	38	6
	Married	507	84
	Divorced	17	3.5
	Widowed	39	6.5
Doing exercise	Yes	112	18.6
	No	489	81.4

Information regarding academic Institution

Most of the teachers in our study teach in elementary schools (54%) of main city Hail (77%). Forty-nine percentage were having teaching experience of more than 15 years ($P=0.045$). About 16-20 hours of classes per week were taken by 37% of them ($P=0.058$), however they quoted that working environment in their academic institutions is comfortable as shown in table no. 2.

Table No.2: Information regarding academic institution from respondents (N=601)

Variable		Frequency	Percentage
Level of Teaching	Elementary	324	54
	Secondary	120	20
	High School	86	14
	More than one level	71	12
Teaching Experience (Years of Teaching)	Less than 5 years	59	10
	5 to 9 years	132	22
	10 to 15 years	113	19
	More than 15 years	297	49
No. of classes in hours / week	01 - 05	38	7
	06 - 10	102	17
	11 - 15	177	29
	16 - 20	227	37
	21 - 25	57	10
Working environment in institution	Comfortable	380	63
	Not Comfortable	221	37
Location of Teaching Institute	Hail	464	77
	Governorates of Hail	137	23

Do you have a maid at home?

66% of respondents had facility of a maid at home (said yes66% and said no 34%) as shown in figure no.1.

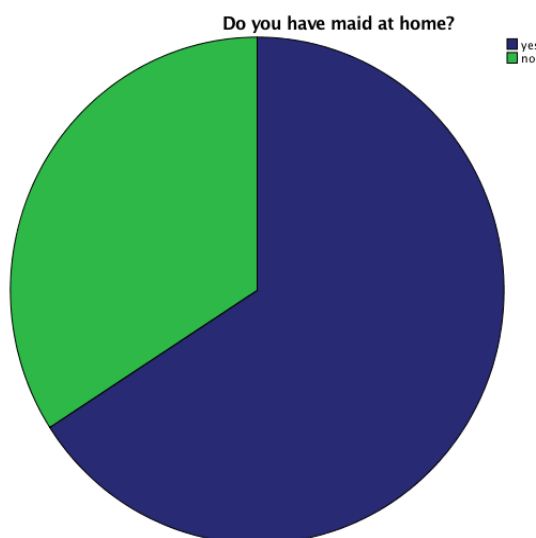


Figure No.1: Facility of Maid at Home (N=601)

Mode of Transport of Respondents

Most of the study participants (72.4%) reached their respective academic institute by private transport as shown in figure no.2.

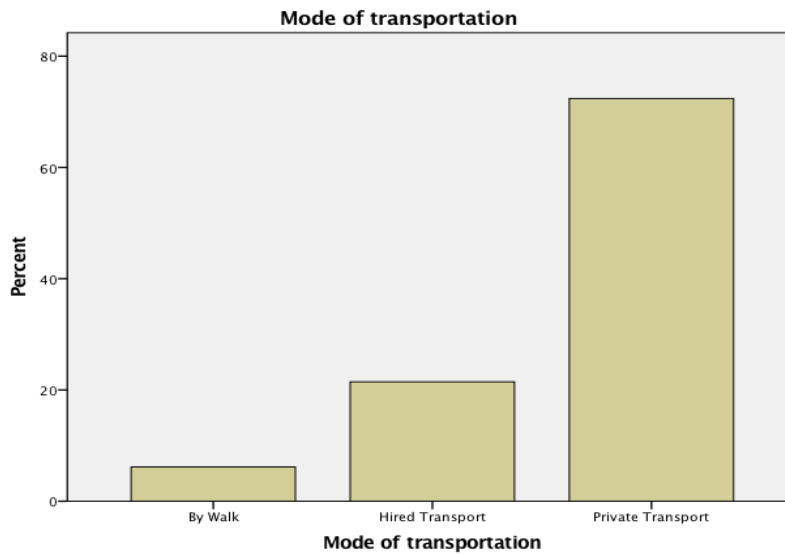


Figure No.2: Mode of Transport of Respondents (N=601)

Do you have low back pain?

Sample size in table no. 3 was 457 as only those who had LBP were asked certain questions related to their LBP. Majority of respondents had LBP of moderate to severe intensity (83%), which was for more than 6 months (84%). Sleep duration was less than 7 hours in a day in 65% of cases. In 84% of cases, the LBP aggravated while taking teaching sessions and it hence affected their quality of work as answered by 39%. For that problem, 61% consulted doctors for treatment. 33% of our study population had associated chronic diseases, such as diabetes mellitus (29%), hypertension (20%), hypothyroidism, vitamin D deficiency and migraine (each of 10%) and others.

Table No.3: Information collected from respondents with low back Pain (N=457)

Variable	Frequency	Percentage
Duration of back pain	Less than 3 months	34
	3 to 6 months	42
	More than 6 months	381
Severity of Pain	Mild	80
	Moderate	283
	Severe	94
Duration of sleep	Less than 7 hours	300
	7 to 9 hours	140
	More than 9 hours	17
Relation of back pain with teaching sessions	Pain aggravates	386
	No relation, remains of same intensity	71
Relation of back pain with your quality of teaching	It gets affected	180
	No affect, remains of same intensity	277
Needs consultation with doctor	Yes	278
	No	179
Presence of any chronic illness	Yes	150
	No	451
If yes, name the disease (N=150)	Diabetes mellitus	43
	Hypertension	30
	Hypothyroidism	15
	Vitamin D Deficiency	15
	Migraine	5
	Joint Pain	3
	Irritable Bowel Syndrome	3
	Asthma	9
	Rheumatoid Arthritis	15
	Allergy	9
	Heart Disease	3

Time spent in transportation

Similarly, for 60.9% of the teachers, traveling time was less than 15 minutes, 15 minutes to 1 hour was 28.1%, more than 1 hour was 11% as shown in figure no.3.

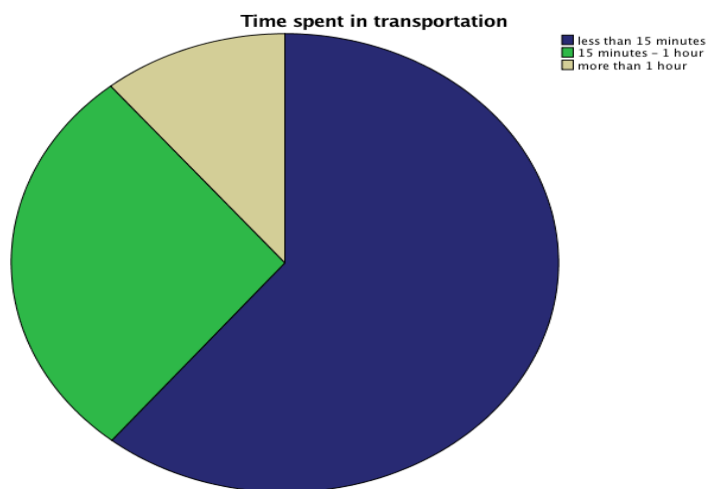


Figure No.3: Traveling Time of Respondents (N=601)

Do you have back pain?

Out of total 601 study participants, 76% (457/601) had LBP and said no (24%) as shown in figure no.4 (P<0.05).

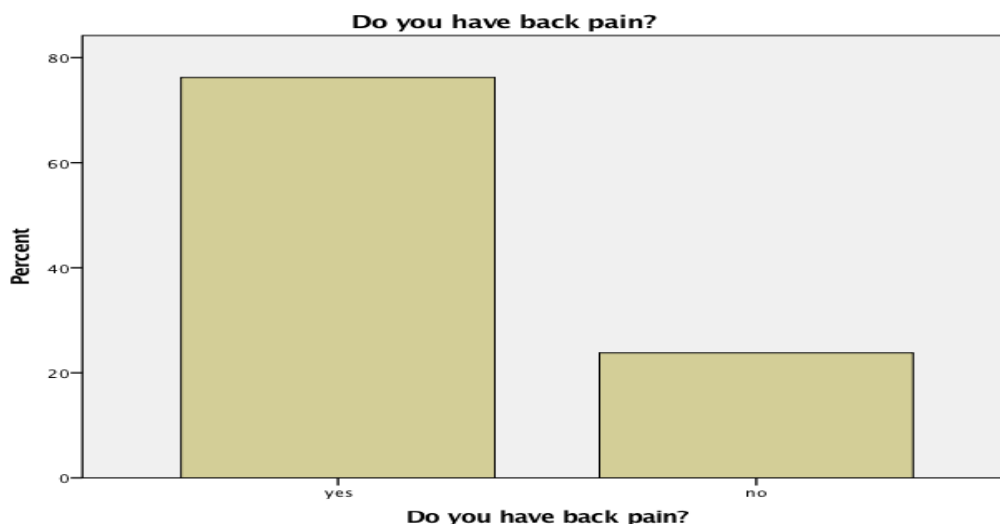


Figure No.4: Percentage of Respondents having Back Pain (n=601)

Association of Back Pain with certain variables

Association of occurrence of LBP was shown with certain relevant variables by applying Chi-Square Test as test of significance and keeping level of significance at (P=0.05).

It was shown that occurrence of LBP had a strong significant association (P=0.000) with quality of teaching and working hours. BMI more than 30 (obese) had also a significant association with the occurrence of back pain. Other variables that showed significant association are years of teaching (P=0.045), number of classes/week (P=0.058) and duration of sleep (P= 0.007) as shown in table no.4.

Table No.4: Association of low back pain with certain variables (Chi-Square Test considering level of significance ≤ 0.05)

Comparing Variable	Occurrence of Back Pain
	P - value
Advanced Age (> 40 years)	0.068
BMI (≥ 30)	0.004
Mode of Transportation	0.315
Traveling Time	0.910
Years of Teaching (> 15 years)	0.045
No. of Classes / Week	0.058
Duration of Sleep (< 7 hours/day)	0.007
Quality of Teaching	0.000
Worse during Working Hours	0.000
Facility of having Maid	0.480
Presence of Chronic Disease	0.267

DISCUSSION

In our study we found that out of total 601 study participants 76% of were suffering from LBP, Majority of respondents had LBP of moderate to severe intensity (83%) and it is considered high comparing with other study of [4]found that the percentage of respondent to LBP was (59.9%).

In this study, we found that there was significant relationship between LBP in female, quality and level of teaching and weight. This was the same finding in some studies showed that back pain or musculoskeletal pain is positively associated with female gender [9], [10], and [11]. In addition, other studies showed a significant relationship between back pain, age, weight and the number of children teaching [12],[13].This was also in agreement of [14] who found that prevalence of musculoskeletal pain disorders was 79.17%. main sites of pain were lower back (63.8%), factors that showed significant relationship were type of school ($P = 0.038$), weight ($P = 0.007$), number of children (P value 0.006), teaching years (P value 0.003), and working daily hours (P value 0.027) but in contrast to the age in our study , which showed significant relationship age ($P = 0.002$).

Age relation with LBP showed not significant in this study and, in common with study in different areas in Saudi Arabia [15].

This also in agreement with study that found that 66.7% of total participants experiencing LBP and there was a significant relationship between teaching level, vitamin D deficiency and having a chronic illness related to musculoskeletal pain[15].

In this study, we found significant association between LBP and obese participants($P=0.004$) , most of them were obese 63% and 31% of total participants were overweight and this is in disagreement of the result of study of [15] regarding LBP and body weight .

Others factors such as, presence of chronic diseases ($P=0.267$) showed no significant relation in our study, and this not in harmony with studies in different areas in KSA which their results reveled a significant relation with chronic illness and LBP ($P= 0.03$) [15]. On other study there was an inverse relationship between hours spent on doing exercise and LBP [16].

According to sleep duration and LBP in this study , we found that sleep duration less than 7 hours in a day in 65% of cases had important association with their LBP, and this not coincide with American study , that done in all 50 states, Washington DC , and various US territories . They said quality, duration, and abnormality of sleep had less effect on prevalence of LBP among older adults [17].

On the other hand, About 49% of total participants there teaching experience more than 15 years and had significance relation with LBP.

Around 16-20 hours of classes per week were taken by 37% of total participants they quoted that working environment in their schools was comfortable , so increasing working hours considerable link with LBP .

In this study we found a strong significant association ($P=0.000$) with the occurrence of LBP with a 386 Frequency of respondent said that in relation of LBP with teaching sessions, pain aggravates.

A clear difference in mode of transport was observed between private car transports and walking. Private car transport was the main mode of transport to and from school (72.4%), followed by a hired transport (21.5%) and walking transport (6.2%).

Majority of respondents (28.1%) took about 15 minutes to 1 hour time traveling to and from school. More than half of respondents have a maid facility at home (66%) and the remaining is (34%) on their own.

LBP is a common complain among teachers. The pain is widely caused by occupational activities and influenced by many other sociodemographic factors [18].

CONCLUSION

The study had shown that, 76% of respondents experienced LBP in female school teachers in Hail partly explained by its association with obesity and sleeping disturbance, therefore lifestyle modifications to limit the occurrence of obesity and ultimately promote health and wellbeing to encourage active lifestyles. Other factors that may help to explain LBP like duration of teaching years and working hours over the day. Furthermore, addressing work-related and individual factors are essential for decreasing the burden.

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