Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/14510
DOI URL: http://dx.doi.org/10.21474/IJAR01/14510

RESEARCH ARTICLE

PREVALENCE OF LOW BACK PAIN AMONG MALE SCHOOL TEACHERS IN AL-MADINAH AL-MUNAWARA CITY IN 2021-2022

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Manuscript Info

Manuscript History
Received: 05 February 2022
Final Accepted: 11 March 2022
Published: April 2022

Key words:-
Low Back Pain, Disability, Male, Teachers, Saudi Arabia

Abstract

Background: School teachers are at high risk of low back pain as a result of their work nature, which include long standing, prolonged sitting, bending their posture and preparing for lessons.
Objectives: To estimate the prevalence and identify the associated factors of low back pain among male school teachers.
Subjects And Methods:A descriptive cross-sectional study was conducted between October of 2021 and March of 2022 among secondary and high male school teachers working at Al-madinah Al-munawara city, Saudi Arabia. The data were collected by using the self-administered valid Arabic version of Oswestry Disability index questionnaire.
Results: The study included 362 teachers. The age of 41.7% of them ranged between 41 and 50 years. The prevalence of low back pain among male teachers was 35.1%. Teachers aged between 51 and 60 years, those who sleep on the average <6 hours/day, more experienced teachers, those who work on the average <10 hours/week, and did not work standing most of the time were more likely to have LBP compared to others. Disability due to low back pain was moderate or severe among 14.1% and 2.8% of male school teachers, respectively.
Conclusion:LBP is a relatively common problem among male teachers with a considerable proportion of them had moderate or severe disability.

Introduction:-

Low back pain (LBP) is one of commonest musculoskeletal disease which are common issue in working people [1-3] which musculoskeletal disordersdefined by the World Health Organization (WHO) as "typicallycharacterized by pain (often persistent) and limitations in mobility, dexterity and functional ability, reducing people's ability to work and participate in social roles with associated impacts on mental wellbeing, and at a broader level impacts on the prosperity of communities."[4].

Low back pain divided to specific which represent 10% of low back paincases, which commonly caused by such us infection, fracture, cancerandcauda equine syndrome, and non-specific types which represent 90% of the cases of low back pain which classified by the duration of the pain into acute (less than 12 weeks) and chronic (more than 12 weeks).[5]

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Patient who had history of low back pain likely to be recurrent in future.[6]. Low back pain is the most common reason for disability inindividuals who are under 45 years of age, the second of commonestcause for visiting of physician and the third commonest of diagnosis for surgery.[7].

Seventy percent of the population experience low back pain at some time in their life.[8]. prevalence of low back pain among general population is estimated to be 18.8% according to study was done in Al-Qaseem.[9]

According to work nature of school teachers which include long standing, prolonged sitting, bending their posture and preparing for lessons, they are at high risk of low back pain.[10]

This research is conducted to measure how much percent of male school teacher have low back pain and effect on their performance.

Rational:

1. Based on my search, there are no published studies about prevalence of low back pain among male school teachers in Al-madinah Al- munawara city and in Saudi Arabia ingeneral.
2. The researcher is interested in low backpain.

Aim of study:

To estimate the prevalence of low back pain among male school teachers in Al- madinah Al-munawara

Specific Objects:

1. To determine the prevalence of low back pain among male school teachers in Al-madinah Al-munawara city, Kingdom of Saudi Arabia (KSA) in2021
2. To search for other associated risk factor for low back pain among male school teachers in Al-madinah Al-munawara city, KSA in2021.
3. To asses of disability of male school teachers due to low backpain.

Literature Review:-

Prevalence:

According to my search there are no published studies about prevalence of low back pain among male school teachers in Saudi Arabia or gulfcountries.

Internationally:

1. Study was done in Botswana in 2012 found prevalence of low back pain among teachers was 55.7%.[11]
2. Study was done in Iran showed prevalence of low back pain among teachers was 21.8%.[12]
3. Study was done in Rural Kenya showed prevalence of low back pain among teachers was64.98%.[13]
4. Study was done in Putrajaya in Malaysia in 2015 found prevalence of low back pain among teachers was72.9%.[14]
5. Study was done in Manila in Philippines in 2005 showed prevalence of low back pain among teachers was53%.[15]

Risk factor:

Age, marital state, school level, work experience, prolonged standing during teaching, working hours per week, sleeping time per day, sleeping disturbance, regular physical exercise, chair comfortably and history of low back pain

Disability:

1. Study was done in Botswana in 2012 find 67.1 % have minimal disability amongteachers.[11]
2. Study was done in Rural Kenya showed 70 % have minimal disability among teachers.[13]

Methodology:-

Study design:

This study was a descriptive cross-sectional study.

Study area:
Al-madinah Al-munawara city which located in western region of kingdom of Saudi Arabia

Study time:
From October of 2021 to March of 2022

Study population:
The study was done on secondaryand high male school teachers in Al-madinah Al- munawara city. According to Ministry of Education statistics, the total number of male school teachers are 5763 working in 281 schools; divided on secondary and high schools in 2018.[16]whichmean average of teachers per school if 16 to 24.

Inclusion criteria:
Secondary and high school teachers in Al-madinah Al-munawara

Exclusion criteria:
Elementary school teachers
Private school teachers

Sampling technique:
Multistage technique within stratified random sampling as follow:

First stage:
The public secondary and high schools were divided according to numbers of teachers proportionally as following:

Secondary schools:
179 schools include 3071 teachers = 12 school

High schools:
102 schools include 2692 teachers = 6 schools Second stage:

Male schools in Al-madinah geographically divided to three sectors (East, West and North), according to statistics of the ministry website.

Third stage:
Simple random selection of 4 Secondary schools from each sector 2 High school from each sector

Fourth stage:
All the male teachers from selected schools were enrolled in the study at the time of study.

Sample size:
The sample size was calculated by using Raosoft sample size calculator.
Total population –5763 Confidence level
– 95 Margin of error – 5
Recommended sample size is 361+20% = 433

Data collection:
The data were collected by using the self-administered valid Arabic version of Oswestry Disability index questionnaire [17]after taking the author`spermission to determine the prevalence of low back pain among male school teachers in Al-madinah Al-munawara. It is a 10-item self-rating questionnaire; each item has 6 levels of answers scored from 0 to 5. These items are: “pain, personal care, lifting and moving objects, walking, sitting, standing, sleep disorders caused by the low back pain, sex life, social life, and traveling”. A total score was computed, and its percentage will be obtained and named “percentage of disability”. Thus, it ranged from 0% (no disability) to 100% (complete disability). It wascategorized according to that into 5 categories
-From 0 to 20%: no or minimal disability

-From 20 to 40%: moderate disability
-From40 to 60%:severe disability
-From60 to 80% crippling low back pain
-Beyond 80% the person is confined to bed, i.e. excessive incapacity.[18, 19].

Data entry and analysis:
The collected data were analyzed by the Statistical Package for Social Sciences (SPSS) software version 26. Categorical variables were described in the form of frequency and percentage. Chi-square test was adopted to test for the association and/or difference between categorical variables. Statistical significance was considered at $p<0.05$.

Pilot study:
The questioner was applied on 15 teachers and this data was not included in the main study.

Ethical issues:
1. The proposal was presented to the Board Committee for ethical and scientific approval. Consentwas obtained from every subject and the data was confident.
2. A letter from the general supervisor of the training program was issued to director of the department of education in Al-madinah Al-munawara.

Budget:
It is self funded research.

Results:-
The study included 362 teachers. Table 1 summarizes their demographic and personal characteristics. The age of 41.7% of them ranged between 41 and 50 years. Majority of them (88.4%) were married. The average number of sleeping hours/day ranged between 6 and 9 among 59.7% of teachers and 22.9% reported having sleep disturbance.

Regarding their work-related characteristics, 66.6% work at secondary schools. Years of experience as a teacher ranged between 5 and 10 years among 23.3% of them whereas they exceeded 25 years among 10.8% of them. As regards the average number of working hours/week, 38.1% of teachers had between 16-20 hours/week. Almost three-quarters of teachers (75.7%) reported standing at work most of the time. Practicing regular physical exercise was mentioned by only 28.9% of them. Most of them (77.1%) reported uncomfortable chair at school.

Table 1:- Demographic and personal characteristics of male teachers, Al-madinah Al-munawara (n=362).

	Frequency	Percentage
Age in years		
<30	18	5.0
30-40	136	37.6
41-50	151	41.7
51-60	57	15.7
Marital status		
Single	42	11.6
Married	320	88.4
Average number of sleeping hours/day		
<6	88	24.3
6-9	216	59.7
>9	58	16.0
Having sleep disturbance		
No	279	77.1
Yes	83	22.9

Table 2:-Work-related characteristics of male teachers, Al-madinah Al-munawara (n=362).

	Frequency	Percentage
Teaching level		
Secondary schools	241	66.6

High schools	121	33.4
Years of experience as a teacher		
<5	36	9.9
5-10	84	23.3
11-15	83	22.9
16-20	74	20.4
21-25	46	12.7
>25	39	10.8
Average number of working hours/week		
<10	22	6.1
11-15	100	27.6
16-20	138	38.1
21-25	102	28.2
Standing at work most of the time		
No	88	24.3
Yes	274	75.7
Practicing regular physical exercise		
No	259	71.5
Yes	103	28.5
Is school chair comfortable		
No	279	77.1
Yes	83	22.9

Prevalence of low back pain

As displayed from Figure1, the prevalence of low back pain among male teachers was 35.1%.

Factors associated with low back pain

-Demographic and personal factors

Almost two-thirds (64.9%) of teachers aged between 51 and 60 years compared to none of those aged below 30 years had low back pain, p<0.001. Teachers who sleep on the average <6 hours/day were more likely to have LBP compared to those who sleep on the average 6-9 hours/day (44.3% vs. 30.1%), p=0.045. Marital status and having sleep disturbance were not significantly associated with LBP. Table 3

-Work-related factors

More than half (59%) of higher experienced teachers (>25 years) compared to 13.9% of lowest experienced teachers (<5 years) had LBP, p=0.001. Half of teachers who work on the average <10 hours/week compared to 24.5% of those work between 21 and 25 hours/week, p=0.038. More than half (55.7%) of teachers who did not work standing most of the time compared to 28.5% of those work standing had LBP, p<0.001. Teaching level, practicing regular physical exercise and having uncomfortable chair at school were not significantly associated with LBP. Table 4

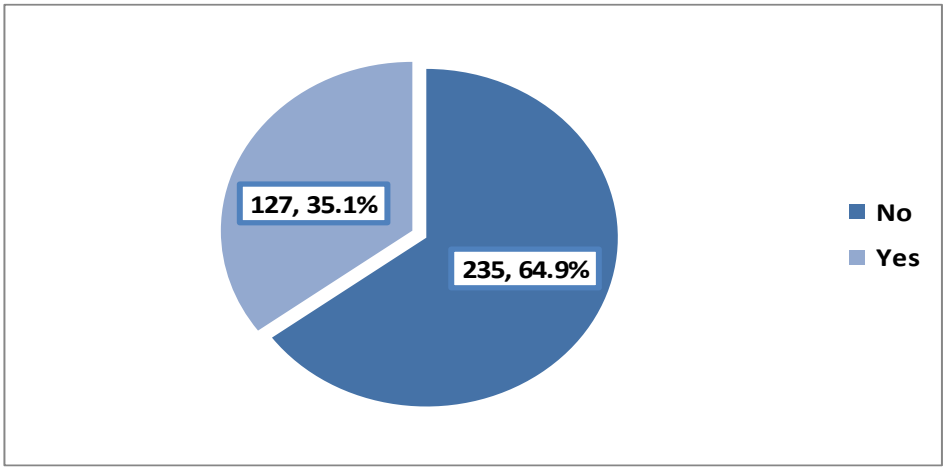

Figure 1:- Prevalence of low back pain among male teachers, Al-madinah Al-munawara.

Table 3:- Demographic and personal factors associated with low back pain among male teachers, Al-madinah Al-munawara.

	Low back pain		p-value*
	No	Yes	
Age in years			
<30 (n=18)	18 (100)	0 (0.0)	
30-40 (n=136)	97 (71.3)	39 (28.7)	
41-50 (n=151)	100 (66.2)	51 (33.8)	
51-60 (n=57)	20 (35.1)	37 (64.9)	<0.001
Marital status			
Single (n=42)	32 (76.2)	10 (23.8)	
Married (n=320)	203 (63.4)	117 (36.6	0.103
Average number of sleeping hours/day			
<6 (n=88)			
6-9 (n=216)	49 (55.7)	39 (44.3)	
>9 (n=58)	151 (69.9)	65 (30.1)	
	35 (60.3)	23 (39.7)	0.045
Having sleep disturbance			
No (n=279)	187 (67.0)	92 (33.0)	
Yes (n=83)	48 (57.8)	35 (42.2)	0.123

*Chi-square test

Table 4:- Work-related factors associated with low back pain among male teachers, Al-madinah Al-munawara.

	Low back pain		p-value*
	No	Yes	
Teaching level			
Secondary schools (n=241)	155 (64.3)	86 (35.7)	
High schools (n=121)	80 (66.1)	41 (33.9)	0.735
Years of experience as a teacher			
<5 (n=36)	31 (86.1)	5 (13.9)	
5-10 (n=84)	57 (67.9)	27 (32.1)	
11-15 (n=83)	60 (72.3)	23 (27.7)	
16-20 (n=74)	46 (62.2)	28 (37.8)	
21-25 (n=46)	25 (54.3)	21 (45.7)	
>25 (n=39)	16 (41.0)	23 (59.0)	0.001
Average number of working hours/week			
<10 (n=22)			
11-15 (n=100)	11 (50.0)	11 (50.0)	
16-20 (n=138)	60 (60.0)	40 (40.0)	
21-25 (n=102)	87 (63.0)	51 (37.0)	
	77 (75.5)	25 (24.5)	0.038
Standing at work most of the time			
No (n=88)	39 (44.3)	49 (55.7)	
Yes (n=274)	196 (71.5)	78 (28.5)	<0.001
Practicing regular physical exercise			
No (n=259)	167 (64.5)	92 (35.5)	
Yes (n=103)	68 (66.0)	35 (34.0)	0.782
Is school chair comfortable			
No (n=279)	176 (63.1)	103 (36.9)	
Yes (n=83)	59 (71.1)	24 (28.9)	0.180

*Chi-square test

-Disability due to low back pain

Disability due to low back pain was moderate or severe among 14.1% and 2.8% of male school teachers, respectively as shown in Figure 2.

Factors associated with disability

-Demographic and personal factors

Moderate disability was observed among 21.1% of teachers aged between 51 and 60 years whereas severe disability was observed among 4.6% of teachers aged between 41 and 50 years compared to 11.1% of moderate disability and none of severe disability among those aged below 30 years, p=0.037. Married teachers were more likely to have moderate disability due to LBP than singles (15.6% vs. 2.4%), p=0.022. Severe disability was more likely to affect teachers who had <6 sleeping hours/day compared to those who had >9 hours/day (4.5% versus none), p=0.029. Similarly, teachers with sleep disturbance were more likely to have severe disability due to LBP compared to their counterparts (4.8% vs. 2.2%), p=0.001. Table 5

-Work-related factors

Moderate disability was observed among 25.6% of teachers who had >25 years of experience as teachers whereas severe disability was observed among 6.5% of teachers whose experience ranged between 21 and 25 years compared to 8.3% of moderate disability and none of severe disability among those whose experience was less than 5 years, p<0.001. Moderate or severe disability were reported by 17.4% and 3.9%, respectively of teachers who did not practice regular physical exercise compared to only 5.8% and none, respectively among those who practiced regular physical exercise, p=0.001. Similarly, moderate or severe disability were reported by 15.4% and 3.6%, respectively of teachers who had uncomfortable school chair compared to only 9.6% and none, respectively among those who had comfortable school chair, p=0.023.Table 6

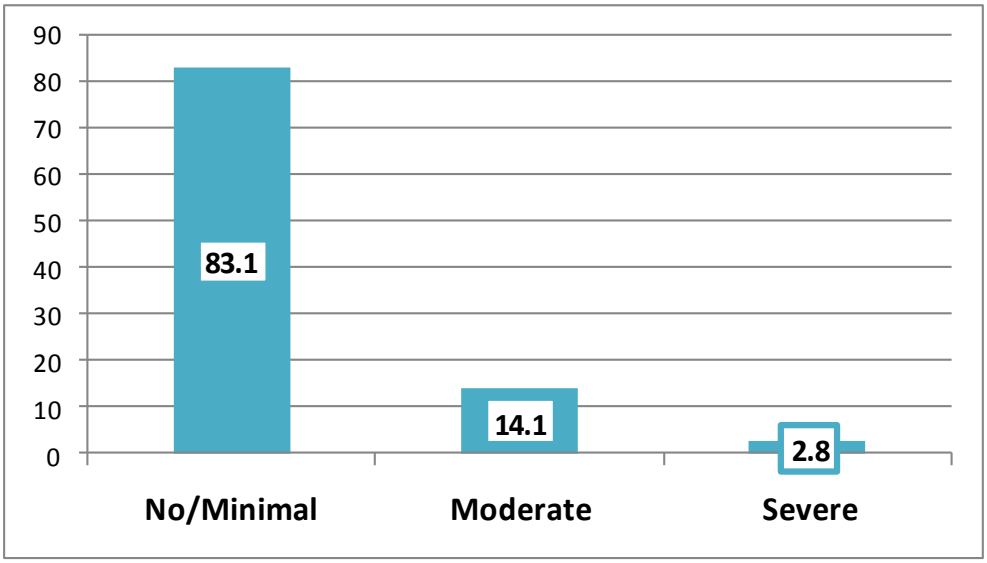

Figure 2:- Disability due to low back pain among male school teachers, Al-madinah Al-munawara.

Table 5:- Demographic and personal factors associated with disability due to low back pain among male teachers, Al-madinah Al-munawara.

	Disability due to low back pain			p-value*
	Minimal N=301 N (%)	Moderate N=51 N (%)	Severe N=10 N (%)	
Age in years				
<30 (n=18)	16 (88.9)	2 (11.1)	0 (0.0)	
30-40 (n=136)	120 (88.2)	14 (10.3)	2 (1.5)	
41-50 (n=151)	121 (80.1)	23 (15.2)	7 (4.6)	
51-60 (n=57)	44 (77.2)	12 (21.1)	1 (1.8)	0.037
Marital status				
Single (n=42)	40 (95.2)	1 (2.4)	1 (2.4)	
Married (n=320)	261 (81.6)	50 (15.6)	9 (2.8)	0.022
Average number of sleeping hours/day				
<6 (n=88)				

6-9 (n=216)	71 (80.7)	13 (14.8)	4 (4.5)	
>9 (n=58)	175 (81.0)	35 (16.2)	6 (2.8)	
	55 (94.8)	3 (5.2)	0 (0.0)	0.029
Having sleep disturbance				
No (n=279)	243 (87.1)	30 (10.8)	6 (2.2)	
Yes (n=83)	58 (69.9)	21 (25.3)	4 (4.8)	0.001

*Chi-square test

Table 6:- Work-related factors associated with disability due to low back pain among male teachers, Al-madinah Al-munawara.

	Disability due to low back pain			p-value
	Minimal N=301 N (%)	Moderate N=51 N (%)	Severe N=10 N (%)	
Teaching level				
Secondary schools (n=241)	203 (84.2)	31 (12.9)	7 (2.9)	
High schools (n=121)	98 (81.0)	20 (16.5)	3 (2.5)	0.630
Years of experience as a teacher				
<5 (n=36)				
5-10 (n=84)	33 (91.7)	3 (8.3)	0 (0.0)	
11-15 (n=83)	76 (90.5)	7 (8.3)	1 (1.2)	
16-20 (n=74)	71 (85.5)	11 (13.3)	1 (1.2)	
21-25 (n=46)	60 (81.1)	11 (14.9)	3 (4.1)	
>25 (n=39)	34 (73.9)	9 (19.6)	3 (6.5)	
	27 (69.2)	10 (25.6)	2 (5.1)	<0.001
Average number of working hours/week				
<10 (n=22)				
11-15 (n=100)	17 (77.3)	3 (13.6)	2 (9.1)	
16-20 (n=138)	81 (81.0)	19 (19.0)	0 (0.0)	
21-25 (n=102)	116 (84.1)	19 (13.8)	3 (2.2)	
	87 (85.3)	10 (9.8)	5 (4.9)	0.086
Standing at work most of the time				
No (n=88)				
Yes (n=274)	78 (88.6)	8 (9.1)	2 (2.3)	
	223 (81.4)	43 (15.7)	8 (2.9)	0.275
Practicing regular physical exercise				
No (n=259)				
Yes (n=103)	204 (78.8)	45 (17.4)	10 (3.9)	
	97 (94.2)	6 (5.8)	0 (0.0)	0.001
Is school chair comfortable				
No (n=279)	226 (81.0)	43 (15.4)	10 (3.6)	
Yes (n=83)	75 (90.4)	8 (9.6)	0 (0.0)	0.023

Discussion:-

As the job nature of school teachers includemany unsafe postures as well as acts likefrequent board writing, repetitive reading and correction of assignments as well as long sitting in front of computer, and the need to stand up in class while teaching[20].In addition to considering teaching as one of the highly stressful occupations [21. 22], several studies indicated anassociation between teaching job and low back pain. However, the prevalence of LBP and their determinants and outcomes among male teachers were not sufficiently studied in Saudi Arabia. Therefore, the present study was carried out to estimate the prevalence and define the predictors of LBP and disability produced by it among malesecondary and high school teachers in Al-madinah Al-munawara city.

In the present study, the prevalence of LBP among male secondary and high school teachers was 35.1%. It has been documented that the teaching profession have many job demands and therefore LBP develops over time and is caused by either the work demands or by the working environment[23].This might explain the considerable

prevalence observed in the present study. However, lower rates have been reported in similar studies carried out in India where the overall prevalence of LBP was 23%[24],Iran (21.8%)[12] and Japan,where the total prevalence of LBP was 20.4% in male teachers[25].On the other hand, higher rates were observed in Turkey, where 60.3% of teachers had work-related pain; low back pain was the commonest (74.9%)[26],Rural Kenya where prevalence of low back pain among teachers was 64.98%[13],in Putrajaya (Malaysia), prevalence of low back pain among teachers was 72.9%[14],in Manila (Philippines), the prevalence of low back pain among teachers was 53%.[15],and Botswana, where the prevalence of LBP among teachers over 12 months was 55.7%[11].Difference in the prevalence of LBP between various studies could be explained by using different tools to assess LBP; in the present study we depended on a direct one question, which could be not accurate, so we used additionally the Oswestry Disability index questionnaire to assess the disability produced by LBP among male teachers.

In the current study, teachers aged between 51 and 60 years, those who sleep on the average <6 hours/day, more experienced teachers, those who work on the average <10 hours/week, and did not work standing most of the time were more likely to have LBP compared to others. These findings are interesting; particularly those related to having less working hours/week and did not work standing most of the time and call for further study to explain this association, which seemsunusual.It has been documented that teaching is a monotonous job in nature, therefore it is highly lead to LBP, particularly among teachers with high working capacity. Therefore, it has been recommended that once the first signs of work ability reduction are observed, we should start immediate preventive measures for less adverse outcomes[27].In accordance with our finding, studyfromSaudi Arabia[28],reported thatage was a significant predictor for LBP among teachers. Additionally, some international studies revealed that older teachers who are 40 orabovehada higher rate of LBP than younger teachers[29-31];while other Saudi studies revealed no association between teachers` age and prevalence of LBP[32, 33].

In accordance with others,[34-37] the present study observed that the rate of LBP increases with advancing in teachers` experience of teaching as a result of cumulative effect.

The present study observed a significant association between the lower number of sleeping hours and LBP. The same has been observed by Alsaeed A, et al in their study carried out in Qassim Region, Saudi Arabua.[33]Howevwe, others in Saudi Arabia revealed that sleep was not associated with developing LBP.[38]

In the current study, disability due to low back pain was moderate or severe among 14.1% and 2.8% of male school teachers, respectively while the majority (83.1%) had no or minimal disability. In a similar Indian study, although the prevalence of LBP was low, it adversely impacted more than one-third of teacher`s routine performance and general psychological well-being.[24]Also in Botswana, 67.1% of teachers complained of minimal disability while 27.9% and 4.3% had moderate and severe disability, respectively.[11] In Rural Kenya, 70 % of teachers had minimal disability.[13]In a recent Saudi study done in AlQassim, 79.8% of the teachers had mild, moderate, or severe LBP while 19.7% and 3.4% had moderate and severe disability, respectively.[33] Therefore, prompt action is needed to reduce this burden.

Some limitations of the present study should be addressed including the fact that causality cannot be ascertained as a result of the cross-sectional design adopted in this study. Also, carrying out the study among only male teachers is considered one of the limitations as it could impacts the generalizability of findings.Using a self-administered questionnaire in this study increases the likelihood of recall bias as well as using only one subjective question to consider LBP is an evident limitation of the study. However, we applied of a valid tool to assess a disability produced by LBP.

Conclusion:-

Low back pain is a relatively prevalent health problem among male school teachers in Al-madinahAl-munawara city, Saudi Arabia. Teachers aged between 51 and 60 years, those who sleep on the average <6 hours/day, more experienced teachers, those who work on the average <10 hours/week, and did not work standing most of the time were more likely to have LBP compared to others. Furthermore, a considerable proportion of them had disability of moderate or severe degrees due to low back pain.

Recommendations:-

According tothe main findings of the current study, we recommended the following:

1. Applying surveillance systems for musculoskeletal disorders at schools` teachers.
2. Special attention should be given to older and more experienced teachers through reconsidering their working environment.
3. Further larger longitudinal study including both male and female teachers working at Al-madinah Al-munawaracityis needed.
4. Inclusion of information about details of school environment, vitamin D level, psychological factors and level of satisfaction with working environment in further studies to include most of possible factors associated with LBP among teachers.

References:-

1. Hermans V. Luxemburg, Belgium: Office for official publications oftheEuropean communities; 2000. Research on work-related low backdisorder.January 2011, http://eropaeuint.
2. Santos Pataro SM, Fernandes RP. Heavy physical work and lowback pain: the reality in urban cleaning. RevistaBrasileira de Epidemiologia. 2014;17(1):17-30. doi: 10.1590/1809-4503201400010003eng.
3. Ruhe A, Fejer R, Walker B. Center of pressure excursion as a measureofbalance performance in patients with non-specific low back pain compared tohealthy controls: a systematic review of the literature. European SpineJournal. 2011;20(3):358–368. doi: 10.1007/s00586-010-1543-2.
4. World Health Organization, Musculoskeletal conditions. Available at: https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions. [last cited 8 February 2021]
5. Nisha JM, MacGregor AJ. Epidemiology of back disorders:Prevalence, risk factors, and prognosis. CurrOpinRheumatol. 2005. April; 17:134-140.
6. Lemeunier M, Leboeuf-Yde C, Gagev O. The natural course of lowback pain: A systematic critical literature review. Chiropractic Manual Therapies. 2012. October; 20(33). 10.1186/2045-709X-20-33
7. Noori S, Ghasemi GH, Khaiambashi K, Karimi A, Minasian V, AlizamaniS.Effect of Exercise Therapy and Physiotherapy on Patients with Chronic LowBack Pain (In persian). J Isfahan Medical School. 2011;151:1091–7.
8. Chou R. Low back pain (Chronic). BMJ. 2011 August;84(4):403-405
9. Al-Arfaj AS, Al-Saleh SS, Alballa SR, Al-Dalaan AN, BahabriSA,Al-Sekeit MA, et al. How common is back pain in Al-Qaseem region. Saudi Med J. 2003;24(2):170–3.
10. Erick PSD. Musculoskeletal disorder risk factors in theteaching profession: A critical review. OA Musculoskel Med. 2013 December;1(3):385–386.
11. Erick PN, Smith DR. Low back pain among schoolteachers in Botswana, prevalence and risk factors. BMC musculoskeletal disorders 2014;15(1): 359
12. Bandpei MAM, Ehsani F, Behtash H, Ghanipour M. Occupational low back pain inprimary and high school teachers: prevalence and associated factors J Manipulative PhysiolTher. Nov-Dec 2014;37(9):702-8. doi: 10.1016/j.jmpt.2014.09.006.
13. Elias HE, Downing R, Mwangi A. Low back pain among primary school teachers in Rural Kenya: Prevalence and contributing factors.African journal of primary health care & family medicine 2019;11(1): 1-7
14. Anuar NF, Rasdi I, Saliluddin SM, Abidin EZ. Work task and job satisfaction predicting low back pain among secondary school teachers in Putrajaya. Iranian Journal of Public Health 2016;45(Supple 1):85-92
15. Atlas AP, Bondoc RG, Garrovillas RA, Lo RD, Recinto J, Yu KJ. Prevalence of low back pain among public highschool teachers in the City of Manila. Philippine Journal of Allied Health Sciences 2007;2(1):34-40.
16. Ministry of Education, Saudi Arabia. Statistics, 2018. Available at: https://www.moe.gov.sa/ar/Pages/StatisticalInformation.aspx
17. Algarni AS, Ghorbel S, Jones JG, Guermazi M. Validation of an Arabic version of the Oswestry index in Saudi Arabia. Ann PhysRehabil Med. 2014 Dec;57(9-10):653-63. doi: 10.1016/j.rehab.2014.06.006.
18. Fairbank JC, Couper J, Davies JB, O'Brien JP. The Oswestry low back pain questionnaire. Physiotherapy 1980; 66:271–3.
19. Guermazi M, Mezghani M, Ghroubi S, Elleuch M, OuldSidi Med A, Poiraudeau S, et al. Traduction en arabe et validation de l'indiced'Oswestrydansune population de lombalgiquesnord-africains. Ann Reabil Med Phys 2005; 48:1-10.
20. Chaiklieng S, Suggaravetsiri P. Risk factors for repetitive strain injuries among school teachers in Thailand. Work 2012; 41: 1051-9815.
21. Kaur S. Comparative study of occupational stress among teachers of private and governmental schools in relation to their age, gender and teaching Experience. Int J EducPlann Admin 2011; 1: 151-60.
22. Aftab M. Demographic differences and occupational stress of secondary school teachers. EuSci J 2012; 8: 159-

75.
23. Doss CAV, Rachel JJ, Jarrar MK, AbuMadini MS, Sakthivel M. A comparative study to determine the occupational stress level and professional burnout in special school teachers working in private and government schools. Global Journal of Health Science 2018; 10(3):42-53 doi:10.5539/gjhs.v10n3p42
24. Gupta G, Sharma A. Prevalence of Low Back Pain among Higher Secondary School Teachers of. 2018;1(1):1-8.
25. Tsuboi H, Takeuchi K, Watanabe M, Hori R, Kobayashi F. Psychosocial factors related to low back pain among school personnel in Nagoya, Japan. Ind Health 2002; 40: 266-71.
26. Durmus D, Ilhanli I. Are there work-related musculoskeletal problems among teachers in Samsun, Turkey? J Back MusculoskeletRehabil. 2012;25(1):5-12. doi: 10.3233/BMR-2012-0304.
27. Tuomi K, Ilmarinen J, Eskelinen L, Järvinen E, Toikkanen J, et al. Prevalence and incidence rates of diseases and work ability in different work categories of municipal occupations. Scand J Work Environ Health 2011; 37: 455-63.
28. Kheshaifaty GH, Surbaya SH. The Prevalence and its determinants of Low Back Pain among Female Secondary School Teachers in Eastern region at Makkah city, Saudi Arabia, January 2020. American Journal of Medical Sciences and Medicine. 2020; 8(6): 217-228. DOI: 10.12691/ajmsm-8-6-3
29. Yue P, Liu F, Li L. Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors. BMC Public Health. 2012;12(1):1. https://doi.org/10.1186/1471-2458-12-789
30. Cardoso JP, Ribeiro ID, Araújo TM, Carvalho FM, Reis EJ. Prevalência de dormusculoesqueléticaemprofessores. Rev Bras Epidemiol. 2009;12:604–14. https://doi.org/10.1590/s1415-790x2009000400010
31. Korkmaz NC, Cavlak U, Telci EA. Musculoskeletal pain, associated risk factors and coping strategies in school teachers. Sci Res Essays. 2011;6(3):649–57. https://doi.org/10.5897/SRE10.1064
32. Abdulmonem A, Hanan A, Elaf A, Haneen T, Jenan A. The prevalence of musculoskeletal pain & its associated factors among female Saudi school teachers. Pak J Med Sci. 2014;30(6):1191–6. https://doi.org/10.12669/pjms.306.5778
33. Alsaeed A, Alresaini I, Alsaeed A, Alawaji Z, Alammar A, Alajlan A. Prevalence of low back pain among Saudi teachers, Qassim, Saudi Arabia. International Journal of Medicine in Developing Countries. 2021;5(9):1626–1633. doi.org/10.24911/IJMDC.51-1626540662
34. Feske S. Low Back Pain. Off PractNeurol Second Ed. 2003;81(03):1430-7.
35. Turgut AT, Sönmez I, Cakıt BD, Koşar P, Koşar U. Pineal gland calcification, lumbar intervertebral disc degeneration and abdominal aorta calcifying atherosclerosis correlate in low back pain subjects: A cross-sectional observational CT study. Pathophysiology. 2008 Jun; 15(1):31-9.
36. Yilmaz E, Dedel O. Effect of physical and psychosocial factors on occupational low back pain. Health science journal 2012; 6: 598-609.
37. Erick P, Smith D. Risk factors of musculoskeletal disorders among teachers: A critical review. OA Musculoskeletal Medicine 2013; 1: 29.
38. Darwish MA, Al-Zuhair SZ. Musculoskeletal pain disorders among secondary school Saudi female teachers. Pain Res Treat. 2013;2013:13–8. https://doi.org/10.1155/2013/878570

Appendix 1: questionnaire

انا طبيب في برنامج طب الأسرة بالمدينة المنورة ارغب في عمل بحث الغرض منه قياس معدل انشارألام اسفل الظهر بين المعلمين في المدارس ونرغب منكم المشاركة في الاستبيان بعد موافقتكمأرجو التكرم بالإجابة عن الأسئلة الآتية بوضع إشارة صح على الخيار الأكثر مناسبة من كل مجموعةمن الفقرات اللآتية
(اختر إجابة واحدة من كل فقرة من الفقرات الاتية تكون الاكثر مناسبة في وصف حالتك اليوم)

الجزء الأول : البيانات العامة :

1. العمر .... .

2. في أي مرحلة دراسية تعمل :
أ) المتوسطة ب) الثانوية
3. هل انت متزوج ؟
أ) نعم ب) لا
4. كم ساعه تنام في اليوم :
أ) اقل من 6 ساعات ب) من 6 الى 9 ساعات ج) اكثر من 10 ساعات

5. هل لديك اضطرابات في النوم
أ) نعم ب) لا
6. كم عدد سنوات الخدمة كمعلم ..... .
7. كم عدد ساعات العمل (الحصص) في الاسبوع

أ) اقل من 10 ب) من 11 الى 15 ج) من 16 الى 20

د) من 21 الى 25 هـ) اكثر من 26

8. هل تشرح للطلاب واقفا في معظم الوقت ؟
أ) نعم ب) لا
9. هل تقوم بالتمارين الرياضية بشكل منتظم ؟
أ) نعم ب) لا
10) هل كرسي الجلوس في المدرسة مريح ؟
أ) نعم ب) لا

11) هل كنت تعاني من الأم في أسفل الظهر في الماضي ؟
أ) نعم ب) لا

الجزء الثاني : استبانة أوسويسترى لقياس العجز (النسخة السعودية)
الفقرة 1 : شدة الالام :
0 ليس لدي آلالام في أسفل ظهري حاليا . -
1 أشعر حاليا بآلالام خفيفة في أسفل ظهري . -
2 أشعر حاليا بآلالام متوسطة في أسفل ظهري . -
3 أشعر حاليا بآلالام شديدة الى حد ما في أسفل ظهري . -
4 أشعر حاليا بآلالام شديدة جدا في أسفل ظهري . -
5 أشعرحالياباآلالام في اسفل ظهري أكثر مما يمكن تصورها . –

الفقرة 2 : العناية الشخصية كالإغتسال ولبس الثياب : –
- 0 يمكنني أن أعتني بنفسي واهتم بأموري الخاصة بشكل طبيعي دون أن يزيد ذلك في آلالام أسف ل ظهري .
1 يمك ننى أن أعتني بنفسي واهتم بأموري الخاصة ولكن ذلك يزيد في آلالام اسفل ظهري . -
2 يمكنني أن أعتني بنفسي واهتم بأموري الخاصة ولكن يأخذ ذلك مني وقتا أطول من المعتاد . -
3 أحتاج إلى بعض المساعدة ولكن يمكنني القيام بمعظم أموري الخاصة بنفسي . -
4 أحتاج إلى المساعدة بشكل يومي للقيام بأموري الخاصة . -
5 أبقي في سريري وأغسل بصعوبة ولا أستطيع أن ألبس ثيابي. –

الفقرة 3 : رفع الأشياء ونقلها :
0 أستطيع أن أرفع الأشياء الثقيلة من غير أن يزيد ذلك في آلالام أسفل ظهري . -
1 أستطيع أن أرفع الأشياء الثقيلة ولكن ذلك يزيد في آلالام أس فل ظهري . -
2 آلالام أسفل ظهري تمنعني من رفع الأشياء الثقيلة إذا كانت على الأرض, لكن يمكنني رفعها إذا كانت في مكان مرتفع عال كالطاولة مثلا. -
3 آلالام أسفل ظهري تمنعني من رفع الأشياء الثقيلة, لكن بإمكاني رفع الأشياء الخفيفة ومتوسطة الوزن إذا كانت في مكان مرتفع عال .
4 أستطيع رفع الأشياء خفيفة الوزن فقط .
5 لا أستطيع رفع أو حمل أي شيء على الإطلاق .

الفقرة 4 : المشي :
0 لاتمنعنيآلالام أسفل ظهري من المشي لأي مسافة (كالمشي بجوار المنزل)
1 آلالام أسفل ظهري تمنعني من المشي أكثر من ألف وخمسمئة متر (كيلو ونصف)
2 آلالام أسفل ظهري تمنعني من المشي أكثر من ألف متر (كيلومتر واحد)
3 آلالام أسفل ظهري تمنعني من المشي أكثر من أربعمئة متر
4 لا أستطيع المشي دون الاستعانة بعصا أو عكاز
5 أبقى في الفراش معظم الوقت وازحف للوصول الى المرحاض (دورة المياه)

الفقرة 5 : الجلوس :

0 يمكنني الجلوس على أي كرسي المدة التي أريدها
1 يمكنني الجلوس فقط على كرسي مريح المدة التي أريدها
2 آلالام أسفل ظهري تمنعني من البقاء جالسا على أي كرسي أكثر من ساعة
3 آلالام أسفل ظهري تمنعني من البقاء جالسا على أي كرسي أكثر من نصف ساعة
4 آلالام أسفل ظهري تمنعني من الجلوس لأكثر من عشر دقائق
5 آلالام أسفل ظهري تمنعني من الجلوس مطلقا

الفقرة 6 : الوقوف :
0 أستطيع البقاء واقفا المدة التي أريد ها دون أن يزيد ذلك في آلالام أسفل ظهري
1 أستطيع البقاء واقفا المدة التي أريدها ولكن ذلك يزيد في آلالام أسفل ظهري
2 آلالام أسفل ظهري تمنعني من الوقوف لأكثر من ساعة
3 آلالام أسفل ظهري تمنعني من الوقوف لأكثر من نصف ساعة
4 آلالام أسفل ظهري تمنعني من الوق وف لأكثر من عشر دقائق
5 آلالام أسفل ظهري تمنعني من الوقوف مطلقا

الفقرة 7 : النوم :
0 نومي لايضطرب أبدا بسبب آلالام أسفل ظهري
1 يضطرب نومي احيانا بسب آلالام أسفل ظهري
2 أنام أقل من - 6 ساعات يوميا بسبب آلالام أسفل ظهري
3 أنام أقل من - 4 ساعات يوميا بسبب آلالام أسفل ظهري
4 أنام أقل من ساعتين يوميا بسبب آلالام أسفل ظهري
5 لا أستطيع النوم مطلقا بسبب آلالام أسفل ظهري

الفقرة 8 : الحياة الجنسية :
0 حياتي الجنسية عادية ولا تسبب زيادة في آلالام أسفل ظهري
1 حياتي الجنسية عادية ولكنها تسبب زيادة في بعض آلالام أسفل ظهري
2 حياتي الجنسية تكاد تكون عادية ولكنها تسبب لي آلالاما شديدة في أسفل ظهري
3 حياتي الجنسية نادرة جداً بسبب آلالام أسفل ظهري
4 حياتي الجنسية تقريبآمقطوعة بسبب آلالام أسفل ظهري
5 آلالام أسفل ظهري تمنعني من الحياة الجنسية مطلقا

الفقرة 9 : الحياة الاجتماعية (زيارة و استقبال الأقارب والأصحاب،الخروج مع ألاصدقاء, المشاركة في الاحتفالات أو الأنشطة الإجتماعية ...) :
0 حياتي الإجتماعية عادية ولا تزيد في آلالام أسفل ظهري
1 حياتي الإجتماعية عادية ولكنها تزيد من حدة آلالام في أسفل ظهري
2 آلالام أسفل ظهري لا تؤثر على حياتي الاجتماعية ولكنها تقلل من اعمالي التي تتطلب مجهودا كبيرا
3 تاثرت حياتي الاجتماعية وتقلصت علاقاتي مع الاخرين بسبب آلالام أسفل ظهري
4 بسبب آلالام أسفل ظهري أصبحت حياتي الاجتماعية منحصرة في المنزل
5 حياتي الإجتماعيةانقطعت بسبب الالام أسفل ظهري

الفقرة 10 : السفر :
0 استطيع السفر إلى أي مكان من غير أن يزيد ذلك في آلالام أسفل ظهري
1 استطيع السفر إلى أي مكان ولكنه يزيد في آلالام أسفل ظهري
2 آلالام أسفل ظهري شديدة ولكني استطيع تحمل السفر في حدود الساعتين
3 آلالام أسفل ظهري تقيد رحلاتي (سفري) لأقل من ساعة
4 آلالام أسفل ظهري تقيد رحلاتي القصيرة الضرورية (سفري القصير) لأقل من نصف ساعة .
5 آلالام أسفل ظهري تمنعني من السفر لأي مكان إلا لتلقي العلاج