

Prevalence of Sickness Absence due to Low Back Pain among Female Teachers in Secondary School, Jeddah, Saudi Arabia

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ABSTRACT

Background: Low back pain (LBP) is very prevalent amongst general and working populations and is a significant health problem due to its serious economic and social impact.

Objectives: To determine prevalence of sickness absence due to low back pain as well as to identify potential risk factors associated with low back pain among female teachers in secondary school, Jeddah 2013.

Subjects and Methods: A cross-sectional study was conducted included a representative sample of female teachers working in female Jeddah secondary governmental schools during the academic year 1434-1435 H. Multistage random sampling technique was applied. A self-administered questionnaire was used for data collection. The dependent variable is low back pain while the independent variables were personal characteristics, load of work at home, work-related factors, life style (practicing physical exercise), medical history, and sick leave because of low back pain.

Results: The study included 184 female secondary school teachers. Their age ranged between 22 and 53 years with a mean of 36.5 years and standard deviation of 7 years. Sick leave because of lower back pain was reported among exactly half of the participants. Sick leave was more than three times among 45.7% of them. Regarding its duration, it was more than three days among more than half of them (55.5%). Majority of them (83.2%) reported low back pain with its different frequencies. Among 9.8% of them, it was continuous for years. Slightly more than half of them (52.3%) claimed that LBP increase during work whereas 43.1% of them reported that it increases during both vacation and work. Results of multivariate logistic regression analysis revealed that female teachers who had longer experience in schoolwork were more likely to develop LBP. Considering those with an experience of five years or less as a reference category, those who had

experience of 6-10 years, 11-15 years and >15 years were at higher risk to develop LBP (Adjusted ORs were 5.81, 12.71 and 6.68. respectively). Compared to underweight teachers, overweight and obese teachers were at higher significant risk for LBP (OR ranged between 8.32 for overweight to 16.15 for sever/morbid obesity). Teachers who depended on private cars, rented cars and school bus were more likely to have LBP opposed to those who depended on walking as a method of transportation (OR ranged between 5.5 for school bus to 13.36 for private cars).

Conclusion: Low back pain is a common health problem among high school female teachers in Jeddah city, Saudi Arabia. Longer work experience, high body mass index and using cars for school transportation were significant predictors for LBP among female school teachers. Low back pain is an important cause of sickness absence among participants.

Keywords: Low Back Pain, Females, Teachers, Prevalence, Risk Factors.

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INTRODUCTION

Low back pain is pain, stiffness, or muscle tension localized below the costal margin and above the inferior gluteal folds, without or with sciatica.¹ There are three general types of low back pain by cause: mechanical back pain (including herniated discs, nonspecific musculoskeletal strains, compressed nerve roots, joint disease or degenerative discs, and broken vertebra), non-mechanical back pain (tumors, inflammatory conditions such as

spondyloarthritis, and infections), and referred pain from internal organs (gallbladder disease, kidney stones, kidney infections, and aortic aneurysm, among others).²

Mechanical or musculoskeletal problems underlie most cases (around 90% or more), and do not have a specific cause identified of those, most (around 75%), but are thought to be due to muscle strain or injury to ligaments.^{2,3}

Low back symptoms (LBS) are very prevalent amongst the general and working populations and are a significant health problem due to their serious economic and social impact.^{4,5} The social consequences of LBS, including its severity, may be assessed in terms of the extent to which people are prevented from carrying out their normal activities (i.e. reduced activities) and absenteeism.⁶

Previous studies have identified physical and psychosocial risk factors for reduced activities and absenteeism due to LBS.^{7,8}

School teachers, in general, have been demonstrated relative to other occupational groups, to report a high prevalence of musculoskeletal disorder (MSD),⁹ with prevalence rates of between 40% and 95%.⁹⁻¹⁵ During the course of their work, teachers may be subjected to conditions that cause physical health problems.¹² The work of a teacher does not only involve teaching students, but also preparing lessons, assessing students' work and being involved in the extracurricular activities such as sports. Teachers also participate in different school committees. These may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions.¹²

Despite this, the impact of MSD specifically within the teaching profession has not been given sufficient attention in the literature. Furthermore, comparatively little research has investigated the prevalence of MSD in the teaching profession.

This study was carried out to determine the prevalence and potential risk factors associated with sickness absence due to low back pain among female teachers in secondary school, Jeddah 2013.

SUBJECTS AND METHODS

A cross-sectional study was carried out among female teachers working in female Jeddah secondary governmental schools during the academic year 2013-2014. Jeddah is the second largest city in Saudi Arabia; it is the main port of the Kingdom on the Red Sea. Area inhabited is more than 1,500 km, and the population is more than 3.4 million.

In Jeddah, there are 153 female secondary governmental schools distributed over four educational sectors (north, east, west, and south). They included 4532 female teachers.

Assuming that, from the literature review of the same subject, the prevalence of low back pain among female secondary school teachers was 93%.¹⁶ Setting the confidence interval of 99% and sample error of 5%, using the Raosoft sample size calculator program, 40 the sample size calculation was 167 female teachers. This sample was increased by 10% to compensate for dropout to be 184 female teachers.

Multistage random sampling technique was applied. In the first stage, one educational sector out of the four sectors was randomly selected through a simple random technique. In the second stage, 6 secondary schools were selected randomly as each school was reported to have nearly 30-40 teachers. In the third stage, all female teachers from different specialties, working in the selected schools were invited to participate in the study till we reached the required sample size.

A self-administered questionnaire was used for data collection. It has been previously used in a similar study conducted in Jeddah, KSA and proved to be valid and reliable.¹⁶ The dependent variable is low back pain while the independent variables were personal characteristics (age, marital status, number of children, mode and

number of deliveries), load of work at home, work-related factors (number of working hours, size and type of work, specialty and duration of working as a teacher), life style (practicing physical exercise), medical history, and sick leave because of low back pain.

Permissions from Joint program of family and community medicine in Jeddah, Ministry of Education and headmasters of selected schools were obtained.

Data were entered and analyzed using SPSS version 20. Continuous variables were presented as mean and standard deviation (SD) while categorical variables were presented as frequency and percentage; Chi-square test was used to compare 2 or more qualitative variables. Multivariate logistic regression analysis was performed in order to control for confounders where significant variables from bivariate analysis entered into the logistic regression model with backward elimination. Significant variables remained in the final model. Significance was determined at p-value < 0.05 and 95% confidence interval that do not include 1.

RESULTS

The study included 184 female secondary school teachers. Table 1 summarizes their socio-demographic characteristics. Their age ranged between 22 and 53 years with a mean of 36.5 years and standard deviation of 7 years. Almost two-thirds of them (66.8%) were married. Age of marriage ranged between 15 and 40 years with a mean of 23.5 years and standard deviation of 4 years. Number of children ranged between one and four among more than half of them (51.2%). Similarly, number of normal deliveries ranged between one and four among more than half of them (56.8%). Almost one-third of them (33.6%) had one or two cesarean sections. Their family size ranged between 6 and 8 persons to 53.3% of them. Almost half of them (48.4%) had one house maid whereas 12% had two or more house maids. Almost one-third of them (32.6) had a private home whereas 29.9% of them live in an apartment. About one-quarter of them (24.5%) claimed that they are doing all home works by themselves without the help, and 40.4% of them claimed that they were taking care completely of their children.

Work-related characteristics of the female teachers are presented in Table 2. Working hours per day ranged between 5 and 7 hours to 62.5% of them and working days per week were five among almost three-quarters of them (77.7%). Days of emergency leave were five or more among 44% of them. Sick leave because of lower back pain was reported by exactly half of the participants. Sick leave was more than three times among 45.7% of them. Regarding its duration, it was more than three days among more than half of them (55.5%). Science teachers represent almost one-fifth of them (19%) whereas social sciences and Arabic teachers represent 15.8% and 13% of them. Their work experience ranged between one and 32 years with a mean of 10.3±7.3 years. Almost two-thirds of them (68.8%) considered their work load as much or too much whereas only 29.9% of them considered their work load as suitable. Mode of transportation was a private car among 59.2% of teachers whereas 8.2% of them reported walking as a mean of transportation.

As demonstrated in Table 3, 41.3% of the female teachers had no chronic diseases whereas diabetes mellitus, rheumatic diseases,

and internal diseases were reported in 14.1%, 11.4% and 11.4% of them, respectively. Majority of them (83.2%) reported low back pain with its different frequencies. Among 9.8% of them, it was continuous for years. Slightly more than half of them (52.3%) claimed that LBP increase during work whereas 43.1% of them reported that it increased during both vacation and work. Analgesics were the commonest method used for treatment of LBP (42.4 %), followed by consulting a general practitioner

(21.6%). More than one-fifth of them (22.2%) didn't care and pay attention to LBP. Among more than half of them (51.6%), no investigations were done whereas x-ray, MRI and blood analysis were done for 17.6%, 9.8% and 9.8% of them respectively. Results of the investigation done were abnormal among 44.6% of those having LBP. These abnormal results were commonly reported with x-ray (33.3%), MRI (30.3%) and blood analysis (21.2%).

Table 1: Socio-demographic characteristics of female secondary school teachers, Jeddah (n=184)

Characteristics		Frequency	Percentage
Age in years	≤30	46	25.0
	31-40	84	45.7
	>40	54	29.3
	Range		22-53
	Mean±SD		36.5±7.0
Marital status	Single	24	13.0
	Married	123	66.8
	Divorced	25	13.6
	Widowed	12	6.6
Age at marriage	≤20	36	22.5
	21-25	87	54.4
	>25	37	23.1
	Range		15-40
	Mean±SD		23.5±4.0
Number of children	None	14	8.8
	1-4	82	51.2
	≥5	64	40.0
Number of normal deliveries	None	15	10.3
	1-4	83	56.8
	≥5	48	32.9
Number of cesarean sections	None	83	56.8
	1-2	49	33.6
	≥3	14	9.6
Family size	≤5	69	37.5
	6-8	98	53.3
	>8	17	9.2
Number of home maids	None	73	39.6
	One	89	48.4
	Two or more	22	12.0
Type of residence	Villa	44	23.9
	Apartment	55	29.9
	Private	60	32.6
	Rented	25	13.6
Volume of home work done by you	All work	45	24.5
	Helped by the house maid	83	45.1
	Helped by other family members	23	12.5
	Never	33	17.9
Child care by you	Complete	59	40.4
	Helped by the house maid	69	47.3
	Helped by other family members	13	8.9
	Only by home maid or others	5	3.4

When female teachers were asked about their opinion regarding the factors responsible for LBP, school work, and house work were the commonest reported factors as reported by 39.9% and 39.2% of them, respectively. Overweight and social responsibilities were, as responsible factors for LBP, by 10.5% and 7.8% of female teachers, respectively. Regarding drug history

among female teachers who had LBP, most of the female teachers (77.1%) reported taking of analgesics. Only 8.5% reported no taking of any drug. The prevalence of sciatica among secondary school female teachers was 15.2%. The commonest presenting symptoms were numbness (42.9%), leg pain on walking (35.7%) and weakness (14.3%). Loss of sensation was

reported by 7.1% of them. Around 44.6% of secondary school female teachers in Jeddah reported practicing physical activity. Walking was the commonest reported physical activity (64.6%), followed by home exercise (22%). Vigorous activities such as

running and swimming were reported by only 4.9% and 3.7% of them, respectively. Almost one-third (30.5%) of those reported practicing physical activities practiced them irregularly whereas only 15.9% practiced them on a daily basis.

Table 2: Work-related characteristics of female secondary school teachers, Jeddah (n=184).

Characteristics	Frequency	Percentage	
Working hours/day	≤4	24	13.0
	5-7	115	62.5
	>7	45	24.5
Working days/week	<5	15	8.2
	5	143	77.7
	>5	62	14.1
Days of emergency leave	None	62	33.7
	1-4	41	22.3
	≥5	81	44.0
Sick leave because of lower back pain	No	92	50.0
	Yes	92	50.0
Frequency of sick leave because of LBP	Once	15	16.3
	Twice	22	23.9
	Three times	13	14.1
	>three times	42	45.7
Duration of sick leave because of LBP	One day	14	15.2
	Two days	13	14.1
	Three days	14	15.2
	More than three days	51	55.5
Specialty subject	Arabic	24	13.0
	Islamic studies	23	12.5
	Social Studies	29	15.8
	Science	35	19.0
	Mathematics	23	12.5
	Physical Education	12	6.5
	Others	38	20.7
Work experience (years)	≤5	64	34.8
	6-10	40	21.7
	11-15	32	17.4
	>15	48	26.1
	Range		1-32
Mean±SD		10.3±7.3	
You consider your work load	Too much	45	24.5
	Much	81	44.0
	Suitable	55	29.9
	Little	3	1.6
Mode of transportation to school	Walking	15	8.2
	School bus	14	7.6
	Private car	109	59.2
	Rented car	40	21.7
	Others	6	3.3

When female teachers were asked what they prefer to be if they have the right to choose, 47.8% of them preferred to be both house wife and teacher at the same time whereas almost a third of them (32.6%) preferred to be only house wife and the remaining 19.6% preferred to be only teachers. More than one-third of female teachers (37.5%) were overweight whereas obesity with its all degrees was reported among 20.6% of them. On the other hand, 7.1% of them were underweight.

Results of multivariate logistic regression analysis revealed that female teachers who had longer experience in school work were

more likely to develop LBP. Considering those with an experience of five years or less as a reference category, those who had experience of 6-10 years, 11-15 years and >15 years were at higher risk to develop LBP (Adjusted ORs were 5.81, 12.71 and 6.68, respectively). Compared to underweight teachers, overweight and obese teachers were at higher significant risk for LBP (OR ranged between 8.32 for overweight to 16.15 for severe/morbid obesity).

Teachers who depended on private cars, rented cars and school bus were more likely to have LBP opposed to those who

depended on walking as a method of transportation (OR ranged between 5.5 for school bus to 13.36 for private cars). Teacher's age, marital status, number of children, volume of homework,

consideration of work load and history chronic diseases were not proved to be significant predictors of LBP among female school teachers. (Table 4)

Table 3: Medical characteristics of female secondary school teachers, Jeddah (n=184).

Characteristics	Frequency	Percentage	
History of chronic diseases	No	76	41.3
	DM	26	14.1
	Hypertension	18	9.8
	Rheumatic diseases	21	11.4
	Internal diseases	21	11.4
	Pulmonary diseases	11	6.0
	Others*	22	12.0
History of low back pain	Never	31	16.8
	Sometimes	74	40.2
	Frequent for years	61	33.2
	Continuous for years	18	9.8
Back pain increase during (n=153)	Vacation	7	4.6
	Work	80	52.3
	Both	66	43.1
Method of LBP treatment (n=153)	No attention	34	22.2
	Analgesics	65	42.4
	Consult GP	33	21.6
	Consult specialist	14	9.2
	Hospital admission	5	3.3
	Others	2	1.3
	Investigations done for LBP	No	79
Hormonal assay		8	5.2
X-ray		27	17.6
MRI		15	9.8
CT scan		2	1.3
Blood analysis		15	9.8
Others		7	4.6
Results of investigations		Normal	41
	Abnormal	33	44.6
Investigations done for abnormal results (n=33)	Hormonal assay	3	9.1
	X-ray	11	33.3
	MRI	10	30.3
	CT scan	2	6.1
	Blood analysis	7	21.2

* More than one answer is applicable

Table 4: Predictors of low back pain among secondary school female teachers, Jeddah

	Adjusted OR	95% CI	p-value	
Work experience (years)	≤5 (n=64)a	1.0	---	
	6-10 (n=40)	5.81	2.39-11.28	0.009
	11-15 (n=32)	12.71	4.55-32.28	0.005
	>15 (n=48)	6.68	2.35-13.45	0.006
Body mass index	Underweight (n=13)a	1.0	---	
	Normal (n=64)	3.79	0.96-11.09	0.190
	Overweight (n=69)	8.32	2.09-19.08	0.045
	Obesity (n=31)	8.84	3.12-22.17	0.041
Mode of transportation to school	Severe/morbid obesity (n=7)	16.15	5.66-31.69	0.001
	Walking (n=15)a	1.0	---	
	School bus (n=14)	5.50	1.36-9.11	0.042
	Private car (n=109)	13.36	2.08-21.16	<0.001
	Rented car (n=40)	7.07	2.13-16.03	0.004
Others (n=6)	7.50	0.98-16.13	0.097	

a: Reference category; CI: Confidence interval; OR: Odds ratio;

Terms of teacher's age, marital status, number of children, volume of homework, consideration of work load and history chronic diseases were removed from the final logistic regression model.

DISCUSSION

While LBP is most likely an under researched topic among teachers, teaching itself represents a high risk occupation for it.¹⁷ In the current study, we utilized a self-developed questionnaire for data collection. While questionnaires are an inexpensive and convenient mode of data collection, they can introduce recall bias and make follow up difficult, especially when anonymous reporting is utilized¹⁷ as in the case of the current study. More accurate results might be obtained by physical examination and assessment, although these methods are expensive and time consuming, and therefore, ultimately uncommonly seen in the literature.

The prevalence of LBP in this study was 83.2%, with its different frequencies. Among 9.8% of them, it was continuous for years. Internationally, the reported prevalence of back pain among teachers varied greatly across the literature, ranging from 4.7% to 76.7%.¹⁷ In a local study conducted by Al-Ghamdi, 2002¹⁶ among female high school teachers, ninety three percent of them reported to have experienced low back pain of which, 58% had chronic pain and 12.5% reported of having sciatic pain. In the present study, prevalence of sciatica was 15.2%.

Regarding other occupations, in a study conducted among Nigerian nurses, 12-months prevalence rate of LBP was 73.53%.¹⁸ Our figure is considered high and was even higher than that reported by Maul et al.¹⁹ They reported high annual prevalence varying from 73% to 76% among nurses employed by a large university hospital in Switzerland. The present study also concurs with the findings of Knibbe and Friele²⁰ and Smedley et al.²¹ They reported slightly higher prevalence varying between 56% and 90% among nurses.

Teachers of physically disabled pupils have reported the highest back pain prevalence,²² and this might be attributed to the lifting of the disabled pupils. In the present study, we did not include this category. On the other hand, physical education teachers had reported the lowest back pain prevalence, although, not statistically significant and this may be because they are physically active and may also be involved in leisure-time physical activity.¹⁴

LBP among teachers has been positively associated with female gender in a number of studies.¹⁷ It has been suggested that women might be more likely to report pain than men because women have lower physical strength, pressure from family and career prospects; or simply the fact that men and women have different traditions and thresholds for when and how they report pain.²³ Unfortunately, because of traditional and cultural constraints we investigated only female teachers. Thus, there was no possibility for comparison with male teachers.

In the current study, LBP has been positively associated with length of employment. Worldwide research findings are somewhat inconsistent in this point with some studies in accordance with our finding reporting longer length of employment as being positively associated with LBP,^{24,25} while others have reported that new teachers are more likely to report LBP.^{21,26} It has also been reported that the longer the exposure time to occupational risk factors, the higher the possibility of incurring job-related disorders.²⁷ This association can be interpreted as the effect of aging or a cumulative effect of workload on the musculoskeletal system of workers.²⁵ Where teachers with lesser teaching experience had reported LBP, it has been suggested that this may

occur because new teachers might not be adapting well to the new working environment, and that physical and psychological stress might be affecting the wellbeing of their musculoskeletal conditions.²⁶ Further studies will be needed to investigate such a hypothesis.

Psychosocial factors have been positively associated with LBP among school teachers, and review published by Erick and Smith¹⁷ suggested that psychosocial factors such as high workload/demands, high perceived stress level, low social support, low job control, low job satisfaction and monotonous work are most likely associated with LBP among school teachers. This may occur because teachers often work in stressful conditions with large classes, a lack of educational resources, and limited reward for their work.⁹ In the present study, teachers who considered their work load as too much or much reported higher significant rate of LBP than those described their work load as suitable. However, this significance disappeared in multivariate logistic regression analysis. Generally speaking, in the present study, we did not investigate in depth the psychological factors that could be associated with LBP.

The prevalence of sick leave due to LBS in the present study was 50% among female secondary school teachers. This finding is higher than those reported among general worker population in Germany (9%)²⁸ and in studies by van den Heuvel et al. (2004) (18%)²⁹ and Hoogendoorn et al. (2002) (20%).³⁰ These three studies used company's register sickness absence data. In addition, they selected only those who had absence >1 days (van den Heuvel et al., 2004)²⁹ and >3 days (Hoogendoorn et al., 2002)³⁰ in their analysis while in the present study we did not consider the duration of absenteeism. If we consider absent days of more than three in the present study, the prevalence will be 27.7%. Similarly, while comparing with other specific working population that used self-reported questionnaire, the 50% prevalence in the present study is higher than that reported in a study conducted among Irish hospital workers (9%),³¹ New Zealand veterinarians (9%),³² and dentist in Greece (10%),³³ laundry and dry-cleaning workers in Netherlands (14%),³⁴ Greek shipyard workers (15%),³⁵ and nurse in Greek (17%).³⁶ This may be partially attributed to the different methodologies such as the way in which questionnaire was delivered (interview, online, or mail), study population as well as the definition of sickness leave.

The prevalence of absenteeism due to LBP in the present study might have been under or over estimated. For example, there may have been a disincentive to take sick leave since absence from work would reduce income. The use of self-report questionnaires could also be associated with under or over reporting and may lack reliability due to recall bias. The use of more objective data (e.g. medical record or absenteeism data from company) may have provided a better estimate of absenteeism. In addition, duration of absence or the number of episodes of absence experienced will have allowed more sophisticated analysis in order to explore more about the economic or social impact of LBS. However, it was not possible to collect such data in the present study. Finally, inclusion of female teachers only because of traditional and cultural reasons is another limitation of the study.

In conclusion, low back pain is a common health problem among high school female teachers in Jeddah city, Saudi Arabia. Longer work experience, high body mass index and using cars for school transportation were significant predictors for LBP among female

school teachers. Low back pain is an important cause of sickness absence among participants. Therefore, planning of prevention programs taking into account all risk factors in order to reduce the frequency of low back burden in teachers and improve their work environment was recommended.

REFERENCES

1. Chou R. Low back pain (chronic). *Clin Evid Handbook* 2011 June:403–405. Available at: <http://www.clinicalevidence.bmj.com>
2. Manusov EG. Evaluation and diagnosis of low back pain. *Prim Care* 2012 Sept; 9(3): 471–9.
3. Cohen SP, Argoff CE, Carragee EJ. Management of low back pain. *BMJ* 2008;337: a2718.
4. Hanson MA, Burton K, Kendall NAS, Lancaster RJ, Pilkington A. The Costs and Benefits of Active case Management and Rehabilitation for Musculoskeletal Disorders (RR 493) Health & Safety Executive Research Report, 2006.
5. National Research Council, Institute of Medicine. *Musculoskeletal Disorders and the Workplace: Low Back and Upper Extremities*. National Academy Press, Washington DC, 2001.
6. Widanarko B, Legg a S, Stevenson M, Devereux J, Eng A, Mannetje A et al. Prevalence and work-related risk factors for reduced activities and absenteeism due to low back symptoms. *Applied Ergonomics* 2012;43: 727-737.
7. Aasa U, Barnekow- Bergvist M, Angquist K-A, Brulin C. Relationship between work-related factors and disorders in the neck-shoulder and low-back region among female and male ambulance personnel. *Journal of Occupational Health* 2005; 47: 481-489.
8. Simon M, Tackenberg P, Nienhaus A, Estry-Behar M, Conway PM, Hasselhorn HM. Back or neck-pain-related disability of nursing staff in hospitals, nursing homes and home care in seven countries-results from the European NEXT-Study. *International Journal of Nursing Studies* 2008; 45:24-34.
9. Cardoso JP, De Queiroz Batista Ribeiro I, Maria de Araújo T, Carvalho FM, José Farias Borges dos Reis E. Prevalence of musculoskeletal pain among teachers. *Revista Brasileira de Epidemiologia* 2009; 12(4):1-10.
10. Allsop L, Ackland T. The prevalence of playing-related musculoskeletal disorders in relation to piano players' playing techniques and practicing strategies. *Music Performance Research* 2010; 3(1):61-78.
11. Brulin C, Goine H, Edlund C, Knutsson A. Prevalence of long-term sick leave among female home care personnel in northern Sweden. *Journal of Occupational Rehabilitation* 1998;8(2):103-111.
12. Chong EY, Chan AH. Subjective health complaints of teachers from primary and secondary schools in Hong Kong. *Int J Occup Saf Ergon* 2010; 16(1):23-39.
13. Korkmaz NC, Caviak U, Telci EA. Musculoskeletal pain, associated risk factors and coping strategies in school teachers. *Scientific Research and Essays* 2011; 6(3):649-657.
14. Pihl E, Matsin T, Jurimae T. Physical activity, musculoskeletal disorders and cardiovascular risk factors in male physical education teachers. *J Sports Med Phys Fitness* 2002; 42(4):466-471.
15. Yoshimura E, Fjellman-Wiklund A, Paul PM, Aerts C, Chesky K. Risk Factors for Playing-related Pain among Piano Teachers. *Medical Problems of Performing Artists* 2008; 23(3):107-113.
16. Al Ghamdi A. Prevalence of low back pain among female high school teachers in Jeddah city. A thesis submitted to fulfill the requirements of Saudi Board of Family Medicine. Joint Program of family and Community Medicine, Jeddah, KSA, 2002.
17. Erick PN, Smith DR. A systematic review of musculoskeletal disorders among school teachers. *BMC Musculoskeletal Disorders* 2011; 12:260.
18. Sikiru L, Hanifa S. Prevalence and risk factors of low back pain among nurses in a typical Nigerian hospital. *African Health Sciences* 2010; 10(1): 26-30.
19. Maul H, Laubli T, Klipstein A, Krueger H. Course of low back pain among nurses: a longitudinal study across eight years. *Occupational and Environmental Medicine* 2003; 60: 497-503.
20. Knibbe JJ, Friele RD. Prevalence of back pain and characteristics of the physical work load of community nurses. *Ergonomics* 1996; 39: 186-198.
21. Smedly J, Egger P, Cooper C, Coggon D. Manual handling activities and risk of low back pain in nurses. *Occup Environ Med* 1995; 52: 160-163.
22. Yamamoto N, Saeki K, Kurumatani N. Work-Related Musculoskeletal Disorders and Associated Factors in Teachers of Physically and Intellectually Disabled Pupils. *Journal of Nara Medical Association* 2003;54(2):83-101.
23. Jensen JN, Holtermann A, Clausen T, Mortensen OS, Carneiro IG, Andersen LL. The greatest risk for low-back pain among newly educated female health care workers; body weight or physical work load? *BMC Musculoskeletal Disorders* 2012; 13:87.
24. Muto S, Muto T, Seo A, Yoshida T, Taoda K, Watanabe M. Prevalence of and risk factors for low back pain among staffs in schools for physically and mentally handicapped children. *Ind Health* 2006; 44(1):123-127.
25. Jin K, Sorock GS, Courtney TK: Prevalence of low back pain in three occupational groups in Shanghai, People's Republic of China. *J Safety Res* 2004; 35(1):23-28.
26. Kovess-Masfety V, Sevilla-Dedieu C, Rios-Seidel C, Nerriere E, Chan Chee C. Do teachers have more health problems? Results from a French cross-sectional survey. *BMC Public Health* 2006; 6(1):101-113.
27. Chiu TT, Lam PK. The prevalence of and risk factors for neck pain and upper limb pain among secondary school teachers in Hong Kong. *J Occup Rehabil* 2007; 17(1):19-32.
28. Hooftman WE, van der Beek AJ, Bongers PM, van Mechelen W. Is there a gender difference in the effect of work-related physical and psychosocial risk factors on musculoskeletal symptoms and related sickness absence? *Scandinavian Journal of Work, Environment & Health* 2009; 35: 85-95.
29. Van den Heuvel SG, Ariens GAM, Boshuizen HC, Hoogendoorn WE, Bongers PM. Prognostic factors related to recurrent low-back pain and sickness absence. *Scandinavian Journal of Work, Environment & Health* 2004; 30:459-467.
30. Hoogendoorn WE, Bongers PM, Vet HCW, Ariens GAM, Mechelen Wv, Bouter LM. High physical work load and low job satisfaction increase the risk of sickness absence due to low back pain: results of a prospective cohort study. *Occupational and Environmental Medicine* 2002; 59: 323-328.
31. Cunningham C, Flynn T, Blake C. Low back pain and occupation among Irish health service workers. *Occupational Medicine-Oxford* 2006; 56: 447-454.

32. Scuffham AM, Legg SJ, Firth EC, Stevenson MA. Prevalence and risk factors associated with musculoskeletal discomfort in New Zealand veterinarians. *Applied Ergonomics* 2010; 41:444-53.
33. Alexopoulos EC, Stathi IC, Charizani F. Prevalence of musculoskeletal disorders in dentists. *BMC Musculoskeletal Disorders* 2004; 5.
34. Ijzelenberg W, Molenaar D, Burdorf A. Different risk factors for musculoskeletal complaints and musculoskeletal sickness absence. *Scandinavian Journal of Work, Environment & Health* 2004; 30(1): 56-63.
35. Alexopoulos EC, Tanagra D, Konstantinou E, Burdorf A. Musculoskeletal disorders in shipyard industry: prevalence, health care use, and absenteeism. *BMC Musculoskeletal Disorders* 2006;7.
36. Alexopoulos EC, Burdorf A, Kalokerinou A. Risk factors for musculoskeletal disorders among nursing personnel in Greek hospitals. *International Archives of Occupational and Environmental Health* 2003; 76:289-294.

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