

Study to Find Out the Frequency of Low Back Pain and Its Associated Factors among Boys College Teachers of Twin Cities (Rawalpindi and Islamabad), Pakistan

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Abstract

Background: Back pain in an occupational group stands for one of the most ordinary and most costly work-related health problems in both developed and developing countries. Its reasons have been described as multi-factorial and prevalence rate changes between body sites and location of study.

Objective: The objective of study to find out the frequency of low back pain and its associated factors in boy's college teachers working at twin cities (Rawalpindi and Islamabad) of Pakistan.

Methodology: A cross sectional survey based on self-administered pre tested questionnaire among 450 college teachers. Non probability purposive sampling was used to recruit teachers from their institutions in which they work. Duration of study was 6 months (July to December 2015) and data was analyzed using SPSS 20.

Results: Frequency of back pain was 44% as there were total 200 teachers who experienced it out of 450 teachers in selected colleges. There were 180 (90%) teachers who reported that they spend 3 hours on class preparation and self-study and the daily work burden was 4-12 hours.

Conclusion: This study showed high prevalence of low back pain among male teachers associated with increased standing time and higher workload which have negative impact on their performance and daily activities.

Keywords: Low back pain; Male teachers; Musculoskeletal disorder; Occupational discomforts

Introduction

Low back pain (LBP) is a most common musculoskeletal disorder which occurs from a combination of chronic over use and injury to the muscles, ligaments, tendons, intervertebral disc, nerves or vertebrae of the lumbar spine [1]. This is restricted between the coastal margin (bottom of ribs) and above the inferior gluteal folds (top of legs), with or without radiating leg pain [2,3]. The WHO has defined a work related musculoskeletal disorders depending upon number of factors, ranging from posture to environment and presentation of work contribute significantly [4]. LBP is one of the top three work-related problems in this category [5]. Many authors have stated that LBP is most precisely classified as pain associated with serious pathology, pain linked with nerve compression, or non-specific low back pain (NSLBP) [6,7]. It has been anticipated that work-related exposures accounted for 37% of the global trouble of disease from low back pain. Fraction of pain in men is greater than for women (41% versus 32%), because men were more often occupied in occupations that uncovered them to risk

[8]. Low back pain occurrence is somewhat superior in the richer countries than developing countries (42% vs. 35%) [9]. It is argued that the impact of LBP includes: decrease of physical function, worsening of general health and reconditioning; loss of muscle tone and weight gain; regular or period pain or increase in the level of pain, loss of social functioning manifested as decreased involvement in social and relaxation activities, family tension, or loss of group and community relations (often linked with decreased income and/or job loss); and disturbance of psychological functioning manifested as insomnia, bad temper, anxiety, depression and somatic complaints. So, worldwide estimates of lifetime prevalence of LBP changes from 50 to 84% [10-12].

60-80% of the general population experience backache at least once in their lives, out of which the pain happens again in 30-40% every year [13]. LBP point prevalence was anticipated to be 12% in Sweden, 6.8% in North America, 13.7% in Denmark, 28.4% in Canada, 14% in United Kingdom and 33% in Belgium. Luckily the majority of the backache episodes are self-limiting and about 90% of the patients get well completely within 6 weeks, without any intervention. In the remaining patients some show confrontation to treatments and

develop chronic pain and disability [14]. LBP which remains for more than two months is more likely to develop into chronic LBP (CLBP) which may cause disability. Furthermore there is no single treatment which can be the decisive answer to the problem but the suitable, efficient and well-timed treatment may stop backache to turn into CLBP. The efficacy of being mobile in it has been established in many studies and a current literature review establish that the patients with back pain can live a dynamic life and back to work through physical exercises [15]. Otherwise immobility after an injury causes holdup in collagen maturation, muscle weakness, less joint lubrication, shrunken ligaments, reduced blood supply and bone loss. Study on "comparison of working conditions and psychological health complaints in four occupational groups" establish that there is positive association between high stress of work and higher levels of back pain incidence due to unsuitable techniques of moving and handling due to increased pressure of time management [16].

Some groups of workers, due to work-related distinctiveness, are more uncovered to work related musculoskeletal pain [17]. Teachers are one of these groups. Sometimes, teaching is done in unfavorable conditions, in which teachers activate their physical, cognitive, and affective capacity to reach teaching production objectives, over challenging or generating over effort of their psycho-physiologic functions [18]. Thus, teaching leads to stress, with cost to physical and mental health and an impact on professional performance communal transformations, educational reforms and new teaching models have influenced current circumstances of teaching, leading to changes in the profession [19-22].

There are many risk factors of LBP, but none is credibly causal. Risk factors include genetic factors, age, and smoking. Others include back pain history, job discontent, heavy physical work, static work postures, lifting, vibration, obesity, and psychosocial factors [23]. Largely LBP is due to our sedentary life style. The job nature of school teachers includes frequent reading, marking of assignments, writing on board, poor posture and improper techniques of lifting or carrying, twisting such as turning from board to the class and back again, prolonged sitting when marking and preparing notes, prolong standing in the class while teaching make teachers more prone to back pain. Working with computer also causes musculoskeletal problems, such as neck pain and upper limb pain [24,25].

So, the purpose of current study was to find out the prevalence/frequency and work linked risk factor in male teachers. The term low back muscles pain refers to the region between the lower ends of rib cage to the gluteal crease.

Methodology

Study design profile

This study was conducted on teachers working at boys' colleges of twin cities. The data was collected from following government colleges situated in Rawalpindi Islamabad:

- National College of arts Rawalpindi
- Army medical college Rawalpindi
- Gov. Post Graduate college Asghar mall Rawalpindi
- Gov. Gordon College Rawalpindi
- Gov. Post Graduate College for boy's satellite Town Rawalpindi
- Gov. Institute of information technology Rawalpindi
- Rawalpindi College of commerce and science

- Gov. Hashmata li Islamia degree college Rawalpindi
- Rawalpindi Cantt College of commerce
- Federal Government College of commerce Islamabad
- College of physicians and surgeons of Pakistan Islamabad
- Jinnah College of commerce Islamabad
- National textile institute Islamabad
- Federal medical and dental college Islamabad
- National College of business administration and management sciences Islamabad
- Nishat degree college Islamabad
- Islamabad federal college
- Federal institute of modern languages Islamabad
- Federal Government College of Home economics and Management sciences
- National institute of science and arts Islamabad
- National management college Islamabad

Study design

The descriptive cross sectional study was designed after getting permission from the ethical review board of Riphah College of rehabilitation sciences, Riphah international university Islamabad, to collect data about the back pain and associated factors which were based on self-administered questionnaire. Hence in descriptive method there is no manipulation of variables and no attempt to establish causality. Only male participants with age of 25-55 years were included in the study. Sample size was 450 teachers and data presented in form of frequencies and percentages. The individuals have to rank themselves for back pain. It helped us to identify the areas where the teachers felt back pain and its intensity. To select the study participant's non probability purposive sampling technique was employed based on their institution.

Study Period: The study had duration of 6 month after approval of proposal started from July to December 2015. Activities undertaken included: data collection, analysis, making inference about the result and providing recommendations based on study findings.

Data collection process

Data on low back pain, socio demographic characteristics, environmental factors, and co morbidity were collected using self-administered. The questionnaire was pre-tested to identify potential problem, unanticipated interpretations and cultural objections to any of questions on (5%) respondents having similar characteristics with the study subjects. Based on the pre-test results, the questionnaire was additionally adjusted contextually and terminologically, and administered on the whole sample of teachers by data collectors. Counter checking of daily filled questionnaire and regular supervision were made by supervisor.

The following considerations were undertaken: Permission was being taken from the concerned colleges of twin cities. Detailed information was provided to the participants and then informed consent was taken from them. Apart from principal investigator, research assistant conducted the surveys who were physiotherapists. They were trained and guided by the principal investigators accordingly. In questionnaire, every individual had ranked himself in term of low back pain and its intensity.

Data analysis

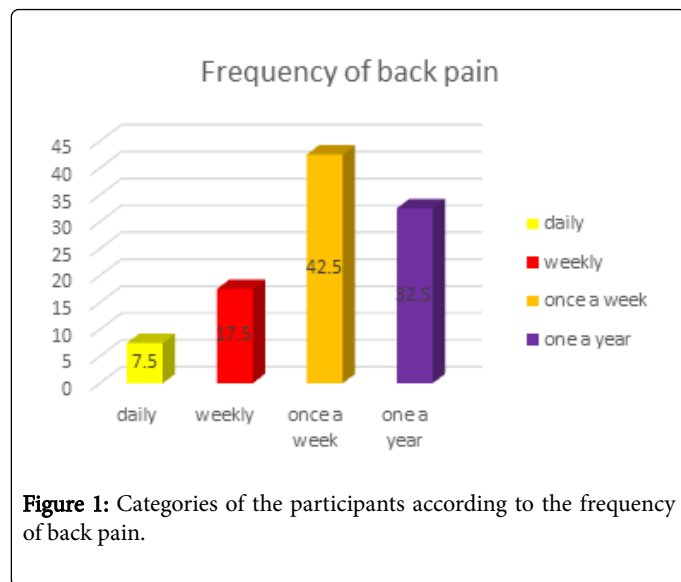
Data was collected, entered and exported to SPSS version 20 for further analysis. Descriptive statistics of the collected data were done for most variables in the study using statistical measurements. Frequency tables, graphs, percentages, means and standard deviations were used.

Results

Analysis of demographic data

Demographic profiles of the teachers were analyzed using the nominal and ordinal scale measurement. The nominal data was organized into different categories and each category was given a label. Numbers were allocated to the ordinal scale to identify the different responses within the variable. The result was presented in the form of frequency, percentage, mean, and standard deviation for general characteristics, while each variable of associated factors was presented in frequencies and percentages.

Respondents according to the job scale: The respondents had six different classes ranging from job scale BPS 16 to BPS 21. Majority 180 (40%) were from grade 17, followed by 112 (25%), 56 (12.5%), 45 (10%), 34 (7.5%), and 23 (5%) from grade 16, 19, 18, 21 and 20 respectively. Prevalence/frequency of LBP: Out of 450 college teachers, 200 were having back pain which account a prevalence of 44.4%. 85 (42.5%) teachers reported that they got LBP once a month, 65 (32.5%) got once a year, while 35 (17.5%) suffered weekly and only 15 (7.5%) reported of having back pain daily as shown in figure (Figure 1).



Intensity of back pain

To determine intensity of back pain among teachers we used NPRS scale (numeric pain rating scale). On this scale 27 (13.5%) respondents marked 2, 50 (25%) marked 3, while 28 (14%), 50 (25%) 20 (10%) and 25 (12.5%) marked 4 to 8 respectively as shown in Table 1. According to NPRS scale description out of 200 respondents, 175 were having mild to moderate back pain while 25 were having moderate to severe back pain.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	27	13.5	13.5
	3	50	25	38.5
	4	28	14	52.5
	5	50	25	77.5
	6	20	10	87.5
	8	25	12.5	100
	Total	200	100	100

Table 1: Categories of participants according to the intensity of back pain.

Respondents according to work burden

The result indicated that 25 (12.5%) teachers were found working 4 hour, 121(60.5%) teachers found working 8 hours while 40 (20%) for 10 hours and 14 (7%) for 12 hours on the basis of academic activities including teaching, reading, writing, presentation and miscellaneous office work.

Respondents according to self-study duration per day

Teachers were asked about how much time they spent on self-study and results obtained are 180 (90%) teachers spent 3 hours, 15 (7.5%) teachers spent 4 hours and only 5 (2.5%) teachers spent 5 hours on self-study (Table 2).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3 hours	180	90	90
	4 hours	15	7.5	97.5
	5 hours	5	2.5	100
	Total	200	100	100

Table 2: Categories of participants according to self-study duration per day.

Respondents according to site of back pain

Teachers were asked about the site of their back pain.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mid back	72	36	36
	Low back	108	54	90
	Buttocks and legs	20	10	100
	Total	200	100	100

Table 3: Categories of participants according to site of back pain.

About 72 (36%) teachers responded that they were having pain at mid back region and 108 (54%) majority of teachers complained at low

back region but only 20 (10%) responded about pain at buttocks and legs (Table 3).

Respondents according to back pain effect on their lives

We asked the teachers about the effect of back pain on their lives and results obtained were following. 130 (65%) teachers responded that back pain restricts their activities of daily life, 25 (12.5%) responded to frequent absent from work and 45 (22.5%) teachers were thinking to leave the teaching profession (Table 4).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Restrict your activities	130	65	65	65
	Frequent absent from work	25	12.5	12.5	77.5
	Leaving the teaching profession	45	22.5	22.5	100
	Total	200	100	100	

Table 4: Categories of participants according to back pain effects on their lives

Respondents according to back pain timing of day

We asked the teachers about time when they suffer more LBP. 25 (12.5%) teachers responded mostly during morning time, 20 (10%) said during afternoon, 110 (55%) suffered during evening and 45 (22%) throughout the day (Table 5).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Morning	25	12.5	12.5	12.5
	Afternoon	20	10	10	22.5
	Evening	110	55	55	77.5
	Throughout the day	45	22.5	22.5	100
	Total	200	100	100	

Table 5: Categories of participants according to back pain timing of day.

Respondents according to standing time

We asked the teachers about their daily standing timing.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4 hours	25	12.5	12.5	12.5
	5-8 hours	131	65.5	65.5	78
	9-12 hours	39	19.5	19.5	97.5
	13-16 hours	5	2.5	2.5	100
	Total	200	100	100	

Table 6: Categories of participants according to standing time.

The result we got was 25 (12.5%) teachers responded that they have to stand about 4 hours daily, 131 (65.5%) teachers stand about 5-8 hours, 39(19.5%) stand about 9-12 hours and 5 (2.5%) teachers responded about 13-16 hours (Table 6).

Respondents according to interference caused by back pain

We asked the teachers that over the past week, how much has your LBP interfered with your daily activities (housework, washing, dressing, walking, climbing stairs, getting in/out of bed/chair) and the result we obtained were: 9 (4.5%) teachers responded that there is no interference, 96 (48%) told that there is mild interference in their daily activities, 80 (40%) talked about moderate interference and 15 (7.5%) had faced severe interference (Table 7).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No interference	9	4.5	4.5	4.5
	Mild interference	96	48	48	52.5
	Moderate interference	80	40	40	92.5
	Severe interference	15	7.5	7.5	100
	Total	200	100	100	

Table 7: Categories according to interference caused by LBP in their daily activities.

Respondents according to anxiety level with back pain

We asked the teachers that over the past week, how anxious (tense, uptight, irritable, difficulty in concentration/relaxing) have you been feeling. 25 (12.5%) teachers responded that they have no anxiety associated with back pain, 25 (12.5%) responded about mild anxiety but majority 130 (65%) suffered moderate anxiety with LBP and only 20 (10%) were having severe anxiety level (Table 8).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	25	12.5	12.5	12.5
	Mildly	25	12.5	12.5	25
	Moderately	130	65	65	90
	Severely	20	10	10	100
	Total	200	100	100	

Table 8: Respondents according to anxiety level with back pain.

Respondents according to relieving factor from back pain

We asked the teachers that how do they get relief from back pain and the following results were obtained: 20 (10%) teachers responded that they get relief by taking rest, 30 (15%) teachers got relief by taking analgesics, 145 (72.5%) got by taking rest and analgesics both and only 5 (2.5%) teachers said that they get relief by physiotherapy.

Discussion

The estimation of frequency in the current study was based on self-reporting. While the studies indicated that the occurrence of certain types of self-reported pain (such as back pain) may decline with age that of other types (such as large joints pain) [26,27]. According to data collected by our research, the frequency of low back pain among boy's college teachers in twin cities of Pakistan was 44.4% compared to previous studies conducted in Amhara Region, Ethiopia which indicated 57% while six different studies in general population of Africa ranged from 28% to 74% [28,29]. The global review published in 2000 of LBP point frequency in adults was 12–33% and 1-year frequency 22–65% [30]. However, its higher than the studies conducted in Klang Valley, Malaysia (40.4%), Salvador, Bahia, Brazil (41.1%) and Shanghai, People's Republic of China (40%) [9,18,31,32].

One of the possible reasons causing difference in frequency of LBP could be the facility provided for the teachers at their institution or social and economic differences between Pakistan and the countries of the studies mentioned, the way in which work was organized and the protective factors involved contribute to the differences observed in comparison to the present study. The other possible reason could be the combination of study participant since this study covered all teachers ranging from grade 16 to 21.

Our study has now provided evidence that the frequency of pain that interferes with everyday life increases incrementally with age because osteoarthritis, with its specific impact on back pain, is likely to dominate the overall experience of pain [33]. The increasing frequency of non-musculoskeletal comorbidity may influence the level of restriction and limitation of daily activities which people attribute to pain [33]. Hirohito Tsuboi et al. investigated on associated factors of LBP among school personnel and teachers of both genders. Male teachers showed significantly higher LBP and among female participants, frequency at schools, kindergarten personnel, and school nurses displayed higher LBP frequency than other female staff. It demonstrated that low social support and low job satisfaction were related to LBP [34].

Previous studies correlated the LBP with mechanical work which produce strain during work e.g. college teachers remain busy all the time by using muscles in strain. Nourbaksh et al. conducted about relationship between mechanical factors and incidence of LBP and concluded that muscle endurance and weakness are associated with LBP [35]. A study conducted on obstetricians and gynecologists concluded that they adopt awkward postures during clinical examination and surgery which prolong the standing (static posture), bending and twisting of the trunk like teachers do and they suffer LBP and significant disability. They suggested that ergonomic practices and proper body weight have reduced LBP incidence [36]. The use of muscles irregularly leads to LBP approved by a research conducted on Iranian industrial workers and concluded that age, gender as well as certain work-related physical and psychosocial factors influenced the prevalence of LBP even in developing countries [37].

37% of LBP was attributed to occupation. The proportion attributable was higher for men than women, because of higher participation in the labor force and in occupations with heavy lifting or whole-body vibration [18]. Levent Altinel with co-authors conducted a study on frequency of LBP and risk factors among adult population in Turkey and concluded that depression, anxiety and increased body mass index (BMI) was found to be the risk for LBP, whereas smoking, hypertension or diabetes was not correlated with the prevalence of LBP

[18,38]. According to data collected by present study, the participants also had experiences of other comorbidities like anxiety, tension and psychological problems other than LBP. Chong EY and Chan AH conducted a self-reported survey based on subjective health complaints of teachers from primary and secondary schools in Hong Kong and got the result that, the 10 most frequently reported health complaints among the teachers were tiredness, eyestrain, anxiety, sleep problems, voice disorder, shoulder pain, neck pain, headache, cold/flu, and LBP [39]. This observation was also supported by our data and said that LBP has a positive contribution to increase the anxious, low spirits and pessimistic state of body.

The preset study indicated that college teacher's give more time to self-study, teaching and academic activates which in turn aggravated the intensity of pain and participant felt discomfort in their daily activities and supported by the results of Graham Brennan research which concluded that physical education teachers who spent more than 35 hours per week in teaching suffered high incidence of LBP [40]. Hartvigsen et al. in their study evaluated the sitting at work place is a risk factor for LBP and revealed negative association for sitting compared diverse workplace exposures, e.g. standing, driving, lifting bending, or diverse occupations.

Conclusion

It is concluded in reference to the results of the recent study that the frequency of LBP among boys' college teachers was high which was aggravated with the nature of work assigned, teaching activities including self-study, class preparation, teaching and other academic activities. The lower health status related to pain among teachers was considerable and led to the aggression, discomfort, anxiety and contributed to the poor performance and dissatisfaction.

Recommendations

Doing regular physical exercise, provisions of comfortable working environment, division of work accordingly, relieve of having stress may decrease the back pain among teachers. They need to reduce the morbidity; activity limitation and participation restriction associated with pain in among college teachers should be a high public health priority. Further research is recommended to know the correlation of different factors with the back pain among the college teachers in twin cities.

References

1. Manusov EG (2012) Lowback pain diagnosis and treatment. *Prim Care* 39: 11-13.
2. Smith E, Hoy DG, Cross M, Vos T, Naghavi M, Buchbinder R, et al. (2014) The global burden of other musculoskeletal disorders: estimates from the Global Burden of Disease 2010 study. *Ann Rheum Dis* 73: 1462-1469.
3. Storheim K, Zwart JA (2014) Musculoskeletal disorders and the Global Burden of Disease study. *Ann Rheum Dis* 73: 949-950.
4. Darwish MA, Al-Zuhair SZ (2013) Musculoskeletal Pain Disorders among Secondary School Saudi Female Teachers. *Pain Res Treat* 2013: 878570.
5. Zhang M (2013) National system for recording and notification of occupational diseases-practical guide, ILO, Geneva, pp: 5-7.
6. Claeys K, Brumagne S, Dankaerts W, Kiers H, Janssens L (2010) Decreased variability in postural control strategies in young people with non-specific low back pain is associated with altered proprioceptive reweighting. *Eur J Appl Physiol* 111: 115-123.

7. Minghelli B, Oliveira R, Nunes C (2014) Non-specific low back pain in adolescents from the south of Portugal: prevalence and associated factors. *J Orthop Sci* 19: 883-892.
8. WHO (2002) Preventing disease through healthy environments.
9. Samad NIA, Abdullah H, Moin S, Tamrin SBM, Hashim Z (2010) Prevalence of low back pain and its risk factors among school teachers. *Am J Applied Sci* 7: 634-639.
10. Mousavi SJ, Akbari ME, Mehdian H, Mobini B, Montazeri A, et al. (2011) Low back pain in Iran: a growing need to adapt and implement evidence-based practice in developing countries. *Spine* 36: E638- E646.
11. Sjølie AN (1976) The epidemiology of low back pain in the rest of the world. *Spine* 23: 960-961.
12. Volinn E (1997) The epidemiology of low back pain in the rest of the world. *Spine* 1: 1798.
13. Volinn E (1996) The epidemiology of low back pain in the rest of the world. A review of surveys in low- and middle-income countries. *Spine* 22: 1747-1754.
14. Cheng KK, Leung SF, Thompson DR, Tai JW, Liang RH, et al. (2007) New measure of health-related quality of life for patients with oropharyngeal mucositis: development and preliminary psychometric evaluation. *Cancer* 109: 2590-2599.
15. Clinton-McHarg T, Carey M, Sanson-Fisher R, D'Este C, Shakeshaft A (2012) Preliminary development and psychometric evaluation of an unmet needs measure for adolescents and young adults with cancer: the Cancer Needs Questionnaire - Young People (CNQ-YP). *Health Qual Life Outcomes* 10: 13.
16. Roh H, Lee D, Kim Y (2014) Prevalence of work-related musculoskeletal symptoms and their associations with job stress in female caregivers living in south korea. *J Phys Ther Sci* 26: 665-669.
17. da Luz MA, Jr Costa LO, Fuhro FF, Manzoni AC, Oliveira NT, et al. (2014) Effectiveness of mat Pilates or equipment-based Pilates exercises in patients with chronic nonspecific low back pain: a randomized controlled trial. *Phys Ther* 94: 623-631.
18. Cardoso JP, Ribeiro IQB, Araujo TM, Carvalho FM, Dos-Reis EJB (2009) Prevalence of musculoskeletal pain among teachers. *Revista Brasileira Epidemiologia* 12: 1-10.
19. Punnett L, Ustun AP, Nelson DI, fingerhut MA (2005) Estimating the global burden of low back pain attributable to combined occupational exposures. *Am J Ind Med* 3: 1-14.
20. Bihari V, Kesavachandran C, Pangtey BS, Srivastava AK, Mathur N (2011) Musculoskeletal pain and its associated risk factors in residents of National Capital Region. *Indian J Occup Environ Med* 15: 59-63.
21. Keyserling WM (2000) Workplace risk factors and occupational musculoskeletal disorders, Part 1: A review of biomechanical and psychophysical research on risk factors associated with low-back pain. *AIHAJ* 61: 39-50.
22. Larsson B, Björk J, Börsbo B, Gerdle B (2012) A systematic review of risk factors associated with transitioning from regional musculoskeletal pain to chronic widespread pain. *Eur J Pain* 16: 1084-1093.
23. Saxena P, Gupta SK, Jain S, Jain D (2013) Work-related musculoskeletal pain among dentists in madhya pradesh, india: prevalence, associated risk factors, and preventive measures. *Asia Pac J Public Health* 26: 304-309.
24. Erick PN, Smith DR (2014) Low back pain among school teachers in Botswana, prevalence and risk factors. *BMC Musculoskelet Disord* 15: 359.
25. Yue P, Liu F, Li L (2012) Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors. *BMC Public Health* 12: 789.
26. Gibson SJ, Helme RD (2001) Age-related differences in pain perception and report. *Clin Geriatr Med* 17: 433-456.
27. Helme RD, Gibson SJ (2001) The epidemiology of pain in elderly people. *Clin Geriatr Med* 17: 417-431.
28. Beyen TK, Mengestu MY, Zele YT (2013) Low back pain and associated factors among teachers in gondar town, north gondar, amhara region, ethiopia. *Occup Med Health* 1: 1-5.
29. Louw QA, Morris LD, Grimmer-Somers K (2007) The prevalence of low back pain in Africa: a systematic review. *BMC Musculoskelet Disord* 8: 105.
30. Walker BF (2000) The prevalence of low back pain: a systematic review of the literature from 1966 to 1998. *J Spinal Disord* 13: 205-217.
31. Muto S, Muto T, Seo A, Yoshida T, Taoda K, et al. (2006) Prevalence of and risk factors for low back pain among staffs in schools for physically and mentally handicapped children. *Ind Health* 44: 123-127.
32. March LM, Brnabic AJ, Skinner JC, Schwarz JM, Finnegan T, et al. (1998) Musculoskeletal disability among elderly people in the community. *Med J Aust* 168: 439-442.
33. Tsuboi H, Takeuchi K, Watanabe M, Hori R, Kobayashi F (2002) Psychosocial factors related to low back pain among school personnel in nagoya, japan. *Industrial Health* 40: 266-271.
34. Nourbakhsh MR (2002) Relationship between mechanical factors and incidence of low back pain. *J Orthoped Sports Phys Ther* 32: 447-460.
35. Ketan P, Sonali P, Mohammed S, Sanjeev P, Raj B (2005) Low back pain in obstetricians and gynecologists. *J Obstet Gynecol India* 55: 440-442.
36. Ghaffari M, Alipour A, Jensen I, Farshad AA, Vingard E (2006) Low back pain among Iranian industrial workers. *Occupational Med* 56: 455-460.
37. Altinel L, Kose KC, Ergun V, Isik C, Aksoy Y (2008) The prevalence of low back pain and risk factors among adult population in Afyon region. *Turkey Acta Orthop Traumatol Turc* 42: 328-333.
38. Chong EY, Chan AH (2010) Subjective health complaints of teachers from primary and secondary schools in Hong Kong. *Int J Occup Saf Ergon* 16: 23-39.
39. Wong EN, Gregory DE, Winter DA, Callaghan JP (2007) Postural control strategies during prolonged standing: is there a relationship with low back discomfort? University of Waterloo, Waterloo, ON, Canada.
40. Brennan G, Shafat A, Donncha CM, Vekins C (2007) Lower back pain in physically demanding college academic programs: a questionnaire based study. *BMC Musculoskeletal Dis* 8: 67.