Low Back Pain Among Primary School Teachers In AL-Mukalla District

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Abstract:

Background: More than 80% of the world population will experience an episode of Low back pain (LBP) at some point during their life. It creates a substantial personal, community and financial burden globally. The objective of this study was to determine the prevalence of LBP and associated factors among primary school teachers in AL-Mukalla district.

Methods: A cross-sectional survey of a representative sample of primary school teachers was conducted. A total of 420 teachers were recruited using a validated self-administered questionnaire.

Results: The results of this study showed that the prevalence of LBP was 52.6%. LBP in female teachers is significantly higher than male teachers (57% &41.3% respectively, P-value <0.005). LBP is more common (58%) in the age group (30-40 years). LBP is significantly higher in overweight (62%, P-value < 0.01), married people (56%, P-value < 0.02)and among those who don't exercise(56%, P-value < 0.01), teachers who spent more than 10 years in teaching (60%, P-value < 0.02) and teachers of public schools (57%, P-value < 0.01). LBP was significantly higher among teachers complaining from teaching-related physical activity (87%, P-value <0.001), anxiety & other psycho-social stressors (49%, P-value <.03).

ConClusion & Recommendations: LBP is a common health problem among primary schools teachers in AL-Mukalla. This study highlights the need to increase the care of teachers' health & well-being from the government, media and teachers' unions.

Keywords: Low back pain/ prevalence / association / factors / primary school teachers .

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الخلاصة:

خلفية: ألم أسفل الظهر هو الألم المحسوس في المنطقة الخلفية للأضلاع السفلية حتى العضلات العلوية للفخذين. معظم الحالات غير محددة السبب وأكثر من 80 ٪ من سكان العالم سيعانون من هذا الألم في مرحلة ما من حياتهم. صممت هذه الدراسة بغرض تحديد معدل انتار الام اصفل الظهر لدى مدرسي المدارس الابتدائية بمديرية المكلا باليمن.

الأهداف و طريقة عمل البحث : هذه دراسة مقطعية لـ 420 معلم ومعلمة بالمرحلة الابتدائية من 20 مدرسة مختلفة ،حكومية وخاصة في مديرية المكلا في الفترة ما بين 1مارس – 30 أبريل 2014م.

تم اختيار عينة الدراسة بطريقة الاعتيان متعددة المراحل. تم جمع البيانات عن طريق محكمه ، وتم تسجيل البيانات وتحليلها باستخدام برنامج الحزمة الإحصائية للعلوم لاجتماعية (SPSS, version 20).

النتائج : أظهرت نتائج الدراسة أن معدل انتشار ألم الظهر هو 52,6 ٪ . حيث كانت نسبة المعلمات اللاتي عانين من ألم اسفل الظهر أعلى من المعلمين (57 ٪و41.3 ٪على التوالي، P- value <0.005).وكانت الفئات الأكثر تعرضا لآلام اسفل الظهر(58 ٪) هم أصحاب الفئة العمرية (40–30 سنه(, زائدي الوزن (62 ٪ ، P-value <0.01)،المتزوجون (56 ٪ ، P-value <0.02)، وبين أولئك الذين لا يمارسون الرياضة (56 ٪، P-value < 0.01)، والمعلمين الذين أمضوا أكثر من 10 سنوات في التدريس(60 ٪ ، P-value < 0.02) ومعلمي المدارس الحكومية (57 ٪ ، P-value < 0.01). كما كانت الآم اسفل الظهر أعلى أيضا بين المعلمين والمعلمات الذين يشتكون من بعض النشاطات البدنية المرتبط بالتدريس (87 ٪، P-value < 0.001)، والقلق و الضغوطات النفسية والاجتماعية الأخرى (49 ٪ ، P-value < 0.03).

الاستنتاجات والتوصيات : ألم اسفل الظهر هو مشكلة صحية شائعة بين معلمي ومعلمات المرحلة الابتدائية في مدارس المكلا ونوصي بزيادة الاهتمام والرعاية الصحية للمعلمين من قبل الحكومة ووسائل الإعلام ونقابات المعلمين.

الكلمات المفتاحية : ألم أسفل الظهر, الانتشار, العوامل المتعلقة , معلمي ومعلمات المدارس الإبتدائية .

Introduction:

The World Health Organization has defined the work related disorders one that results from a number of factors, where the work environment and the performance of the work contribute significantly, but in varying magnitude, to the causation of the disease[1]. Musculoskeletal disorders are among the most common causes of long-term disability in the work area. They represent a group of diverse conditions that affect the bones, joints and soft tissue structures around the joint. They also utilize a considerable proportion of healthcare resources[2].

Low Back Pain (LBP) is defined as non-specific low back pain that has lasted for more than 6 weeks, but for less than 12 months. The lower back is the area between the bottom of the rib cage and the buttock creases. Some people with non-specific low back pain may also feel pain in their upper legs, but the low back pain usually predominates.[3]

Several structures in the back, including the joints, discs and connective tissues may contribute to symptoms[3]. The minority of LBP cases are due to specific causes such as trauma, infections , tumors, spondyloarthritis, metabolic disorders and osteoporosis. These causes accounting for less than 20% of the cases of LBP , most cases are non-specific with no apparent cause even with X-ray and different other investigations[5,6].

LBP is a major clinical and governmental health problem reaching epidemic proportions, more than 80% of the world population will experience an episode of LBP at some time during their life[7]. LBP was identified by the WHO as one of the top three occupational health problems and it has been estimated that the occupational exposures accounted for 37% of the global burden from LBP [8,9].

In Brazil and Malaysia, the prevalence of LBP among elementary school teachers are 41% & 43% respectively[10,11]. In Saudi Arabia, the prevalence of musculoskeletal pain disorders in teachers was 79.17% and main site of pain was the low back (63.8%)[12]. LBP is a multi-factorial disease; sex, age, occupational, physical and psychosocial factors are amongst them [13,14]. A study done in Malaysia among primary school teachers revealed that the prevalence of LBP was higher among women (48.1%) than men (39.6%)[15]. A study conducted in Ethiopia stated that the majority of teachers(42.9%) suffering from LBP were in the age group of 40-59 years [16].

Being overweight causes an increase in the pressure on the structures of the lower back and that may lead -among other things- to lumbar disc herniation and subsequent LBP, different studies support that by reporting an association between being overweight and experiencing LBP[14,17].

Some studies have highlighted the role of smoking in LBP, as smoking can be a predisposing factor for LBP, these studies were conducted in Canada & Slovenia and showed that LBP prevalence is higher in smoking & ex-smoker population. [17,18]

It had been observed that individuals who suffered from LBP problems might develop major physical, social and mental disruptions, which could affect their occupations [17].

The psychosocial impacts of LBP are manifested through insomnia, irritability, anxiety and depression [19]. Almost half the teachers participating in a study in Ethiopia reported having some sort of a psychosocial complaint associated with their LBP [16].

Teachers often endure a marked load of teaching related physical activities, such as prolonged sitting of frequent reading &marking of assignments, prolonged standing up teaching in class and lifting heavy loads of books during their working hours, all of these teaching related physical factors make teachers more susceptible to the development of LBP[20,21,22].

We found that many researches were conducted globally & regionally to evaluate LBP among the general population and teachers specifically, yet we couldn't find one that addresses that issue among local teachers in Al-Mukalla. The aim of this study is to determine the prevalence of LBP and its associated factors among primary school teachers in AL-Mukalla district during 2013- 2014.

Methods:

Study design, population and sampling

It is cross-sectional study, conducted in primary schools (governmental & private) in Al-Mukalla district during the period from 10th May, 2013 to 30 April, 2014. The sampling frame was all primary school teachers. A **multi-stage** sampling was used. The list of names of schools was obtained from the Ministry of Education office in the district. The total number of teachers was 2539 teachers, distributed in 48 governmental and 27 private primary schools. In stage one; twenty schools out of 75 schools were selected randomly after arranging them by teacher's gender as: schools with only male teachers, schools with only female teachers. In Stage two; the available teachers in each school were approached.

The study was approved by the educational authorities in Al-Mukalla district.

Self-administered questionnaire was used and contained open and closed questions about Personal data, teacher's career, habits "smoking – exercise, questions regarding LBP, teaching related physical activity and regarding the psychosocial stressors& work environment.

Measurements of weight in kg and height in cm were taken for all the participating teachers. BMI was calculated using the following formula:

BMI = weight (kg)/height2 (m)

WHO criteria[23] was used to determine the result of BMI into:

Normal : 18.5 - 24.9

Overweight : 25 and more

Underweight : <18.5

DATA ANALYSIS

All analyses were conducted in SPSS 12.0. Initial analyses present the frequency of LBP different types of disciplinary practice in urban and rural areas. Chi square test was used to investigate the associations between LBP and teacher's socio-demographic, anthropometric characteristics and life style practices. a significant level of 0.05 is the cutoff point used.

Results:

Table No.1 shows the number of all teachers is 420 who responded to the questionnaire, out of them 304 (72.4%) are females and 116 (27.6%) are males. About 70% of teachers are married. Almost half of the teachers (43.3%) were in the age group of 30-40 years. About 54% of teachers were teaching for more than 10 years 75% of teachers worked in governmental schools and 25% in private schools.

When asked about LBP, 221 teachers (52.6%) reported that they have experienced LBP for at least one day during the last 12 months. Among those, 91 teachers (41%) said that they know the exact cause of their LBP and have consulted a doctor about it.

Female teachers with LBP were significantly higher than male teachers (57% & 41.3% respectively, P<0.005).

Married teachers who had LBP were significantly higher than single teachers (56% & 41% respectively, P<0.02).

LBP was significantly higher (59.5%) among both male & female teachers who had more than 3 children comparing to teachers with no children & teachers with 1-3 children [42%&57% respectively, (P<0.01)].

LBP was significantly higher in teachers who spent more than 10 years in teaching comparing to teachers who spent less than 10 years in teaching [60% & 40% respectively , (P<.002)].

Regarding the type of school, LBP was higher among teachers of governmental schools comparing to teachers in private schools (57%&36%respectively, P< .001).

More teachers (58%) complained from LBP in the age group [30-40 years] , comparing to (42% & 55%) in the age groups [<30 years ,>40 years respectively] , a result showing the significance of age in LBP (P<0.03).

Table No.2 showed that the teachers' BMI mean was 24.9 "overweight" (±SD,10.3). About 54% of teachers were overweight. LBP is significantly associated with overweight measured by BMI (P<0.001), it is found that 62% of overweight teachers had LBP, comparing with LPB in normal weight teachers (43%).

Although 95% of the teachers are non-smokers, unfortunately no significance association exist between LBP and smoking (P-value >0.05), but there is a significant association regarding exercise (P-value <0.003) where 35.3% of teachers did exercise had LBP, comparing to 56% among those who didn't exercise.

Regarding the teaching-related physical activities, teachers with LBP reported the following: 87% suffered from LBP after prolonged standing (P-value<0.001), 73% after prolonged sitting (P-value <0.003), 67% after using the stairs (P-value <0.003), 88% after sitting on uncomfortable chairs (P-value<0.001) while lifting loads is not significant (P-value > 0>0.1). [Graph No. 1] .

Regarding the psycho-social factors and the work environment, teachers; the study revealed that only asleeping disorder and anxiety is significantly associated with LBP: 42% of teachers have sleeping disorder (P-value <0.002) and 49% experienced anxiety or stress (P-value <0.03). Other factors are not significant (P-value >l0.05), they are: suffered from stressful duties related to school (68%), unsatisfied with their job situation (51%), lack of support from supervisors (50%) and had problems with colleagues (9%)[Graph No.2].

Discussion:

The prevalence of LBP in this study is 52.6%, which is almost similar to the prevalence among Ethiopian teachers (53.8%). The prevalence is less in Chinese & Malaysian teachers with 45.6% and 47.8% respectively, the lesser prevalence among Chinese & Malaysian teachers could be attributed to the fact that their sample contained less female teachers (67% for both studies) comparing to more female percentage in this study (72.4%), a fact that will be explained further in the next points in this discussion .[16 ,24,22]

This study showed that 41% of teachers with LBP know the cause of their LBP, more Ethiopian teachers claimed they know the cause (60.5%) while the percentage is much lower in the WHO-LBP initiative in 1999 which was 20%. The wide gap in the figures is probably due to the different sophisticated diagnosing tools in different countries, which will rule out most of the suspected causes of LBP and turn them into non-specific pain with no known cause. [16 , 5]

This study showed that LBP is much more common in females comparing to males (57% & 41.3% respectively), the result is consistent with the Chinese study(51.7% vs. 42.7%), also in Ethiopia and KSA more female teachers complained from LBP (75.9% , 63.8%). The higher LBP prevalence in females could be explained by the lower pain thresh holds comparing to males, it could be also due to more households shores that females usually do in those communities. [24 ,16 ,12]

This study showed that teachers at higher age groups suffered more LBP (P=.02), this is consistent with studies conducted in Ethiopia & China. [16 , 24]

This study showed that BMI is a significant factor in LBP (P= .000), this result is also found in studies among Japanese, Malaysian and Ethiopian teachers. [25, 22, 16]

This study showed that being married will increase the probability of having LBP (P=.009), this result is supported by researches conducted in Tunisian& Nigerian hospitals [26,27].

This study also showed that teachers with more children tend to suffer more LBP (P=.009), this result is supported by studies conducted among teachers in Brazil & Salvador [10].

This study showed that the increased number of teaching years is associated with increased LBP , this result is supported by studies done in KSA, Brazil &China. The type of school was significant too, as more teachers complained from LBP in governmental schools, a result consistent with teachers of KSA , this could be due to the difference in job demand, school facilities and number of pupils between governmental & private schools , rendering the latter to be more relaxing & friendly environment . [12 ,10 , 24]

This study showed no significance between smoking and LBP, a result that contradicts the Tunisian, Ethiopian and Malaysian studies [26,16,22]. This could be due to the fact that the vast majority of this study's sample were females and none of them smoke, comparing to 8.6% male teachers who smoke, this rationale is supported by a study conducted in Hadramout coastal districts during 2004 –2005 among high school teachers showed the prevalence of smokers was 8% with no female smokers at all.[28]

This study showed that exercise helps in reducing the chance of experiencing LBP; this result was in line with a study conducted in Greece among physical education teachers. The possible explanation might be that shortened and weak muscles can cause LBP as they can cause misalignment of spine. Exercises can strengthen, lengthen and make muscles of back strong to support and keep spine in perfect alignment for proper functioning [29].

Regarding the teaching-related physical activityand its association with LBP, this study showed a significant statistical role of prolonged standing, prolonged sitting, using the stairs and sitting on uncomfortable chairs, all these results are supported by the studies among teachers in Malaysia,China and Ethiopia. The only non significant teaching-related physical activity was lifting loads , a result in line with the Ethiopian study but in contrast with the Malaysian study , the reason to that is probably the higher teaching physical demand in more developed countries .[22 , 24 , 16]

Regarding the psycho-social factors, this study showed a significant statistical between sleeping disorders, anxiety stress and LBP. This result is supported by studies done in Malaysia& the WHO LBP Initiative. [22, 6]

This study showed no significant LBP among teachers who suffered from stressful duties related to school , this result contradicts the Chinese study which was done on high school teachers, this might be due to the increased load of responsibilities at high schools "exams, activities" comparing to primary schools.[25]

This study showed no significant LBP among teachers who were unsatisfied with their job situation, this results contradict a Japanese study, which stated that the more psychological demands needed for a certain task, the greater the possibility to develop musculoskeletal disorder.[24] .This study also showed no significant LBP among teachers who complained from lack of support from supervisors, in contrast to studies in Hong Kong &Japan, this could be due to the difference in norms and expectations among teachers from these countries [30, 25].

Finally, this study showed no significant LBP among teachers who had problems with their colleagues (P=.604), a result in line with the Ethiopian study[16].

Conclusions::

LBP is a common health problem among primary schools teachers in AL-Mukalla district. Many individual characteristics proved to be significantly associated with increased risk of LBP, they were: female gender, old age, overweight BMI, being married and having children.

Teachers who exercise regularly have a significant lower chance in having LBP comparing to teachers who don't exercise. Teaching in governmental schools, spending more than a decade in the teaching profession and enduring the agonizing teaching related physical activities, proved to be significantly associated with LBP.

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References:

1. European Agency for Safety and Health at Work. Preventing work related musculoskeletal disorders. 8th edition. Belgium: Office for Official Governmentalations of the European Communities, 2000: 18-19.
2. Girish MM, Anthony D. The Global Burden of Musculoskeletal Disorders. 9th issue. England: Briefing, 2003: 136-141.
3. Haisly John. Early management of persistent non-specific low back pain. 3rd edition. England: NICE, 2009: 4-9.
4. Ehrlich George, Khaltaev N. Low back pain initiative. 2nd edition. Switzerland: WHO, 1999: 4-10.
5. Ehrlich George. Low back pain. In : Bulletin of the World Health Organization .9th edition. Switzerland: WHO, 2003: 671-673.
6. Freburger JK, Holmes GM, et al. The rising prevalence of chronic low back pain. 3rd edition. UK: Arch Med, 2009: 251–258.
7. Choi BC, Tennassee LM, et al. Developing regional workplace health and hazard surveillance in the Americas. 10th edition. Brazil: Rev Panam Salud Publica , 2001: 376-381.
8. Maria Neira, Annette Prüss-Üstün. Preventing disease through healthy environments. Switzerland: WHO, 2006 : 18- 20 .
9. Cardoso JP, Ribeiro Id, et al . Prevalence of musculoskeletal pain among teachers. In: Revista Brasileira de Epidemiologia. 2009 .Volume 12(4) : 123-127.
10. Central Statistical Agency of Ethiopia. Summary and statistical report of population and housing census .Ethiopia : Central Statistical Agency , 2008 : 244- 245 .
11. DarwishM ,Al-Zuhair S . Musculoskeletal Pain Disorders among Secondary School Saudi Female Teachers.KSA: HPC ,2013 . Available at : http://dx.doi.org/10.1155/2013/878570. Accessed in 15\12\2013.
12. Ariens M, Van Mechelen W, et al . Physical risk factors for neck pain. Holland: Scand Health, 2000 : 7–19 .
13. Tavafian S, Jamshidi A, et al. Low back pain education & short term quality of life: a randomized trial. India: BMC, 2007: 8: 21.
14. Samad N, Abdullah H, et al. Prevalence of Low Back Pain and its Risk Factors among School Teachers. In :American Journal of Applied Sciences.2010.volume7: 634-639.
15. Beyen T, MengestuM , et al . Low Back Pain and Associated Factors among Teachers in Gondar Town. Ethiopia: Publication of University of Gondar, 2013 : 5-9 .
16. Clairborne N, Vandenburgh H, et al. Measuring quality of life changes in individuals with chronic low back conditions. Malaysia: Elsevier , 2013 : 61-70.
17. Alkerayf F. Cigarette smoking and chronic low back pain in the adult population. In :Clin Invest Med, 2009. Volume 32 :360 -367 .

18. Shiri R, Karppinen J , et at . The association between smoking and low back pain: a meta-analysis. In : Am J Med, 2010 . Volume 123 (1) : 87 .
19. Omokhodion F, Sanya A. Risk factors for low back pain among office workers in Ibadan. In: OccupMed ,2003. Volume 4 (2) : 287–289.
20. Chiu TT, Lam PK. The prevalence of and risk factors for neck pain and upper limb pain among secondary school teachers in Hong Kong. In : Occupational rehab Journal . 2007, Volume 7: 19–32.
21. Lemoyne J, LaurencelleL , et al . Occupational health problems and injuries among Quebec's physical educators. Canada :Appl Ergon, 2007 : 625–634.
22. NurulIzzah, Haslinda Abdullah et al. Prevalence of Low Back Pain and its Risk Factors among school teacher. In : American Journal of Applied Sciences.2010. Volume7 (5) : 634-639.
23. Global Database on Body Mass Index. World Health Organization. 2006. Available at :http://apps.who.int/bmi/index.jsp?introPage=intro_3.html . Accessed 27\5\2014 .
24. PengyingYue, Fengying Liu, et al. Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors.China :BMC . Available at: www.biomedcentral.com/1471-2458/12/789. Accessed in 4\5\2014.
25. Hirohito Tsuboi, KiyomiTakeushi , et al. Psychosocial Factors Related to Low Back pain among School Personnel in Nagoya, Japan. In: Industrial Health Journal. 2002. Volume 40 :266–271.
26. Younes M, Jamila HB, et al. Prevalence and factors associated to low back pain among hospital staff. USA : NCBI. Available at : www.ncbi.nlm.nih.gov/pubmed/15850998 . Accessed in 5\5\2014 .
27. B. Igbinedion, A. Akhigbe . Correlations of Radiographic Findings in Patients with Low Back Pain. In :Niger Med J. 2011. Volume 52(1): 28–34 .
28. Bin Ghouth AS, Bahaj AA. Prevalence and attitudes of smoking among secondary school teachers in Hadramout coastal districts. India: OJHAS .Available at: www.ojhas.org/issue18/2006-2-1.htm.Accessed in 3\5\2014 .
29. Stergioulas A, Filippou DK, et al. Low back pain in physical education teachers.USA : NCBI. Available at : www.ncbi.nlm.nih.gov/pubmed/15819458 . Accessed in 5\5\2014 .
30. Thomas T. W. Chiu, et al. The Prevalence of and Risk Factors for Neck Pain and Upper Limb Pain among Secondary School Teachers in Hong Kong. In: Journal of Occupational Rehabilitation. 2007. Volume 17 (1): 19-32

Tables & Graphis:

Table 1 : Association between LBP &Sociodemographic characteristics among primary school teachers in AL-Mukalla district during the period (2013-2014).

Characteristics		With LBP (n_1 =221)	Without LBP (n_2 =199)	Total (N=420)	P-value*
Gender	Male	48 (41.3%)	68 (58.7%)	116 (27.6%)	0.004
	Female	173 (57%)	131(43%)	304 (72.4%)	
Age group	<30	60 (42%)	75 (58%)	135 (32.1%)	0.004
	30-40	83 (58.2%)	45 (41.8%)	128 (30.5%)	
	>40	78 (54.6%)	59 (45.4%)	137 (32.6%)	
Marital status	Married	164(56%)	129 (44%)	293 (69.8%)	0.017
	Single	43 (41%)	62 (59%)	105 (25%)	
	Others	14 (63.7%)	8 (36.3%)	22 (5.2%)	
Number of children	≥ 4	83 (59.6%)	57 (40.4%)	140	0.009
	1-3	79 (57.4%)	61 (42.6%)	140	
	Non	59 (42.7%)	81 (57.3%)	140	
No of years in teaching	<10	88 (40%)	119 (60%)	207	0.000
	>10	133 (60%)	80 (40%)	213	
Type of school	Governmental	183 (58%)	132 (42%)	315 (74.8%)	0.000
	Private	38 (36.2%)	67 (63.8%)	105 (25%)	

Table 2 : Association between LBP &Anthropometric measures and selective life style practice among primary school teachers in AL-Mukalla district.

Characteristics		With LBP (n_1 =221)	Without LBP (n_2 =199)	Total (N=420)	P-value
Obesity	overweight	100 (62.2%)	46 (37.8%)	146 (34.8%)	0.018
	normal	69 (43.1%)	70 (56.9%)	139 (33.1%)	
	underweight	52 (32.1%)	83 (67.9%)	135 (32.1%)	
Exercise	Yes	78 (35.4%)	111 (55.8%)	189 (45%)	0.000
	No	143(64.6%)	88 (44.2)	221 (55%)	
Smoking	Yes	104 (47.4%)	105 (52.6%)	209 (49.8%)	0.53
	No	117(52.9%)	94 (47.1%)	211 (50.2%)	

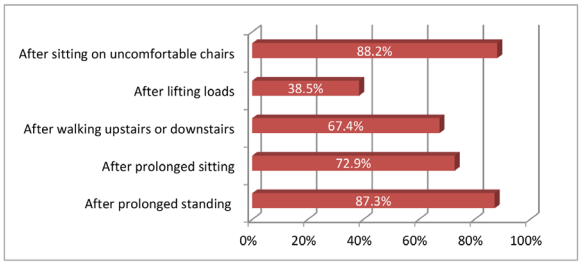

Fig. 1 : Prevalence of LBP & by teaching-related physical activity among primary school teachers in AL-Mukalla district during the period 2013-2014.

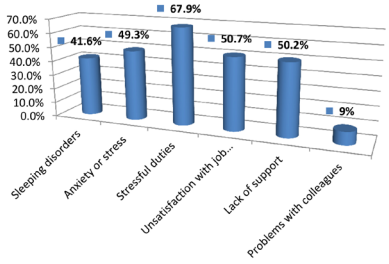

Fig. 2 : Prevalence of LBPby psycho-social stressors among primary school teachers in AL-Mukalla district during the period 2013-2014.during the period (2013-2014).