



PREVALENCE OF LOW BACK PAIN IN THE HEALTH CARE WORKERS IN THE THEATER IN BAQUBA HOSPITALS

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Article Received on
16 Dec. 2017,

Revised on 05 Jan. 2018,
Accepted on 26 Jan. 2018

DOI: 10.20959/wjpps20182-10969

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ABSTRACT

Objective: Medical health provider is one of the occupations with a high risk for back pain. The cause of low back pain(LBP) among medical health provider is usually multifactorial, probably because job demands in medical personnels is a mixture of physically demanding and mentally demanding tasks. **Aim of study:** The aim of this study was to determine the prevalence of low back pain in health care workers in Baquba and Al-Batool teaching hospitals and to assess relation of LBP with Multiple factors that related to individual or

environment of work and house. This is study was performed at at Baquba Teaching Hospital and Al-Batool Teaching Hospital at Diyala health directorate. study was performed from 1st January to 31th July 2017. And studied one hundred fifty Participants. This study includes participants working in theater. Across-sectional study was employed at Al-Batool Teaching Hospital and Baquba Teaching Hospital health care workers in theater with(150) participants(45) females(30%) and 105 males(70%). Data collection was performed through a 39 question, 27 question were multiple choice with yes /no. **Results:** Low back pain was significantly correlated with Body mass index, age, period of work, working posture, shift of work, extra house work, family history of LBP, smoking, floor of the theater and light of the theater show correlation with Low back pain. **Conclusion** We conclude that the Prevalence of low back pain among health personnels in the theater lead to impairment of their work and many risk factors were identified that should avoid to reduce LBP incidence and related costs.

KEYWORD: Low back pain, Baquba.

INTRODUCTION

Low back pain(LBP) could be a disorder involving the muscles, nerves and bones of the back, Low back pain remains a condition with a comparatively high incidence and prevalence. Low back pain could be a nonspecific condition of acute or chronic pain within the lumbosacral spines that may be caused by inflammatory, chronic, neoplastic, medicine, traumatic, metabolic, or alternative disorders.

Low back pain could be a universal ill health. It's a standard expertise within the lifetime of virtually each creature, further as a growing reason for direct and indirect prices for the social organization(Maharty DC, et al., 2012).

In the USA, the prevalence of low back pain has been calculable from fifteen to forty five % in keeping with cross- sectional studies. In UK, low back pain has been the most cause of absence from work.(Deyo R et al., 1987).

Potential risk factors for back pain older age, lower academic attainment, raised physical work demands, and emotional disorders. Avoirdupois has additionally been connected with low back pain(Maharty DC, et al., 2012).

Low back pain is very common and the leading cause of disability worldwide, and not all who suffers from LBP will have chronic LBP(more than 3 months' duration), in fact, most do not.

Although 60% of people who have LBP recover in a few weeks, and with minimal intervention, for the other 40%, recovery is slow and the risk of long-term symptoms, or chronic LBP, is high. For patients who develop chronic LBP(Croft C, et al., 2003).

In the common presentation of low back pain, pain develops after movements that involve lifting, twisting, or forward-bending. The symptoms may start soon after the movements or upon waking up the following morning. The description of the symptoms may range from tenderness at a particular point to diffuse pain. It may or may not worsen with certain movements, such as raising a leg, or positions, such as sitting or standing. Pain radiating down the legs(known as sciatica) may be present. The first experience of acute low back pain is typically between the ages of 20 and 40. This is often a person's first reason to see a medical professional as an adult(Casazza BA.et al.,2012).

AIM OF STUDY

This study aimed to determine the prevalence of LBP in medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospitals, as well as identify risk factors and how individual and occupational characteristics would contribute to the risk of LBP.

Patients and Method

A cross-sectional study was employed at Al-Batool Teaching Hospital and Baqubah Teaching Hospital medical personnel in theater with male 105(70%) and female 45(30%).

Face to face interview questionnaire was done to theater medical personals about personal, sociodemographic, general risk factors or specific risky activities, and LBP characteristics were obtained. Descriptive, cross-tabs, and univariate and multivariate logistic regression tests were employed.

Adequate information was distributed on a sheet given to each medical personnel. The research objectives were explained to each one separately. The questionnaires distributed in this study showed no personal identifiers and so the confidentiality of participants was maintained.

Data collection was carried out through a 39 question, adapted from self administered questionnaire of the previous work of(Karahan *et al.*,2006).

That also includes adding and rephrasing some questions concerning society and work experience at our hospitals. Twenty-seven questions were multiple choice ones including some binary(yes/no) questions. The questionnaire was composed of the following sections.

Questions concerning personal and sociodemographic information: age, gender, height, weight, specialty, etc.

Questions concerning general LBP risk factors: smoking, psychological stress, standing time, etc.

Questions concerning specific risky activities: lifting, transferring, or pulling patients or objects, etc.

The exclusion criteria include all the following

- 1-patient with liver disease.
- 2-renal disease.
- 3-peptic ulcer.
- 4-pregnancy

Questions about LBP: presence of LBP, severity, duration, treatment etc. The questionnaires were numbered before distribution to ensure tracking and to calculate the response rate. All the available theater's staff were invited including specialists ENT, orthopedics, cardiologist, cardiothoracic, general surgeons, anesthesiologists, urosurgeon, neurosurgeon, ophthalmologist, nurses, anesthesia technicians, surgeon assistant or technicians.

The questionnaire was delivered to the surgeons' departments if they didn't have duty in theater, For the rest of the questionnaires were distributed in the theater.

For the purpose of this study LBP was defined as "pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without leg pain(Koes BW.et al., 2006).

Low back pain(LBP) and obesity are major public health problems.^[43] All medical personnel underwent height and weight measurement by Stadiometer(China) and electronic digital scale(Sayona TM), after removing the shoes and heavy clothes in both measurements. Body mass index(BMI) was estimated by applying the following formula: Body mass index(BMI) = weight(kg) / height(m)² ; which is classified in table(1).

Table 1: Nutritional status classification(BMI classification". World Health Organization. 2014).

BMI(kg/m ²)	Nutritional status
Below 18.5	Under weight
18.5-24.9	Normal weight
25.0-29.9	Pre-obesity
30.0-34.9	Obesity class I
35.0-39.9	Obesity class II
Above 40	Obesity class III

Data management and statistical analysis

Data entered and analyzed by computer using SPSS to calculate correlation, percentage and frequency.

Correlation is highly significant at level of 0.01 level(2-tailed). Correlation is significant at level of 0.05 level(2-tailed).

RESULTS

The total number of the health care workers in this study(150). The prevalence of LBP of the most age group between(21-30) years(52)(34.7%) and prevalence of the most gender were in male(105)(70%), of the most smoking among smoker(77)(51.3%) and of the most marital status among married(114)(76%).

The prevalence of the most educational levels among bachelor degree(72)(48%) and of the most specialist among nurse(52)(34.7), intensity of pain was mild(69)(46%), relieved by rest(89)(59.3), not affected on daily life(67.3%), with duration less than 1 year(42.7%), with no hospital admission(88%), with no sick leave(82%), with no complication(78.7%).

The prevalence of LBP according to work environment and related other factors the most period of work in theater(2-5)years(26%), the most common working posture was prolonged standing(53.3%), mixed shifting work(60%), house related work(22.7%), slipping floor (54.7%), lifting and transferring manually(72.7%).

The prevalence of body mass index affected on low back pain were among over weight(64%), and of the most gender were in male in Baquba teaching hospital larger than Al-Batool teaching hospital.

The total number of the medical personnel in this study(150). the prevalence of the most commonly affected age group involved were between (21-30)years old shown by age between(31-40)years old shown by table(2).

Table 2: age distribution of Medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Age	NO.	(%)
21-30 years	52	34.7
31-40 years	49	32.7
41-50 years	35	23.3
more than 50 years	14	9.3
Total	150	100%

According to gender the prevalence of most commonly affected gender in male(105)(70%) shown by table(3).

Table 3: gender distribution medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Gender	NO.(%)
Male	105(70)
Female	45(30)
Total	150(100)

Table(4) shows smoking habit among medical personnel with about 51% of them are smoker.

Table 4: Smoking among medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

smoker	No	%
Yes	77	51.3
No	73	48.7
total	150	100

While table(5) shows marital status of health care workers as about 76% of them married.

Table 5: marital status of medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Marital status	NO.(%)
Yes	114(76)
No	36(24)
Total	150 100

Table(6) show the prevalence of the most common education level of medical personnel were among bachelor(72)(48%).

Table (6): education level of medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Educational level	NO .(%)
Diploma	23(15.3)
Bachelor	72(48)
Post-graduate	55(36.7)
Total	150 100

Table(7) show the prevalence of the most specialist were among nurses (34.7%).

Table(7): specialty of medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Specialty	NO .(%)
Nurse	52(34.7)
Technician	5(3.3)
anesthesiologist assistant	21(14)
Orthopedic	8(5.3)
obstetrician & gynecologist	12(8)
General surgeon	27(18)
Urosurgeon	1(0.7)
Cardiothoracic	1(0.7)
ENT	8(5.3)
ophthalmologist	4(2.7)

Specialty	NO.(%)
anesthesiologist	8(5.3)
Cardiologist	3(2)
total	150 100

The prevalence of LBP with intensity of pain was mild(46%),relieved by rest(59.3%).

Table(8): LBP risk factors among medical personnel working in theater at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

Parameter	Variables	NO.(%)
Previous history of LBP	Yes	18(12)
	No	132(88)
LBP	Yes	134(89.3)
	No	16(10.7)
Family history of LBP	Yes	67(44.7)
	No	83(55.3)
History of fall	Yes	29(19.3)
	No	121(80.7)
Doing regular exercise	Yes	37(24.7)
	No	113(75.3)
Driving car	Yes	119(79.3)
	No	31(20.7)
Wearing heel(girls)	Regular	17(11.3)
	Occasional	21(14)
Intensity of pain	Mild	69(46)
	Moderate	55(36.7)
	Severe	10(6.7)
Usage of treatment	Yes	48(32)
	No	102(68)
Relieved by	Rest	89(59.3)
	Medication	27(18)

Parameter	Variables	NO.(%)
	Physiotherapy	5(3.3)
	Rest+medication	7(4.7)
	Rest+physiotherapy	1(0.7)
	Medication+surgery	1(0.7)
	Medication+herbal	1(0.7)
LBP impaction on daily life	Yes	49(32.7)
	No	101(67.3)
LBP duration	Less than 1 year	64(42.7)
	2-5 years	45(30)
	More than 5 years	22(14.7)
Hospital admission	Yes	18(12)
	No	132(88)
Sick leave	Yes	27(18)
	No	123(82)
Sleeping hour per day	2-3 hours	15(10)
	4-7 hours	104(69.3)
	More than 8 hours	31(20.7)
Complication of LBP	Yes	32(21.3)
	No	118(78.7)

table(9) shows the prevalence of LBP in prolonged standing(53.3%),period of work in theater(2-5)years(26%),mixed work(60%), house work(22.7%),manually shifting and transferring(72.7%).

Table(9): Low back pain according to work related and other factors.

Factor	Variables	NO.(%)
Period of work in the theater	Equal or more than 1 year	36(24)
	2-5 years	39(26)
	6-10 years	27(18)
	11-15 years	15(10)

Factor	Variables	NO.(%)
	16-20 years	15(10)
	More than 20 years	18(12)
Working posture	Twisting	25(16.7)
	Bending	18(12)
	Prolonged standing	80(53.3)
	Sitting	3(2)
	Twisting+bending	1(0.7)
	Prolonged standing+bending	5(3.3)
	prolonged standing+twisting+bending	18(12)
Shift work	Mixed	90(60)
	Day	51(34)
	Night	9(6)
House related work	House work	34(22.7)
	Childcare	16(10.7)
	Gardening	15(10)
	House work+child care	7(4.7)
	Child care+gardening	1(0.7)
Climbing stairs	Yes	104(69.3)
	No	46(30.7)
Light in theater	Good	95(63.3)
	Poor	55(36.7)
Floor of theater	Slipping	82(54.7)
	Non-slipping	68(45.3)
Usage of Xray and wearing lead	Yes	68(45.3)
	No	82(54.7)
Lifting and transferring	Manually	109(72.7)

Factor	Variables	NO.(%)
	Mechanical equipment	7(4.7)
	Manually+mechanical equipment	8(5.3)
	Manually+vibrating instrument	1(0.7)

The prevalence of of LBP among male in Baquba teaching Hospital larger than in Al-Batool Teaching Hospital.

Table(10): Distribution of low back pain according to gender at Baquba and Al-Batool Teaching Hospitals.

Gender	Baquba Teaching Hospital	Al-Batool Teaching Hospital	Total
Male	Having LBP(73) Not(14)	Having LBP(18) Not (0)	105
Female	Having LBP(20) Not(2)	Having LBP(23) Not(0)	45
Total	109	41	150

And the distribution of low back pain among specialty shown in table(11) with nurse and anesthesiologist assistant mostly having LBP.

Table(11): Distribution of low back pain according to specialties.

Speciality	Male	Female	LBP
Nurse	31	21	Yes
	0	0	No
Technician	1	0	Yes
	4	0	No
Anesthesiologist assistant	19	2	Yes
	0	0	No
Orthopedic	6	0	Yes
	2	0	No

Speciality	Male	Female	LBP
obstetrician & gynecologist	1	10	Yes
	0	1	No
General surgeon	22	2	Yes
	2	1	No
Urosurgeon	0	0	Yes
	1	0	No
Cardiothoracic	1	0	Yes
	0	0	NO
ENT	6	0	Yes
	2	0	No
Ophthalmologist	1	1	Yes
	2	0	No
Anesthesiologist	1	7	Yes
	0	0	No
Cardiologist	2	0	Yes
	1	0	No

Table(12) shows classes of Body mass index, as shows 64% of the participants are over weight,34% normal weight while only 2% under weight.

Table(12): body mass index of participants at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

BMI(kg/m ²)	NO(%)
Under weight	3(2)
Normal weight	51(34)
Over weight	96(64)
total	150 100

Table 13 shows correlation between factors and LBP, intensity and complication.

Table(13): correlation of factors and LBP, intensity and complication at Baquba Teaching Hospital and Al-Batool Teaching Hospital.

LBP and Factor correlation	P value
BMI	P=0.02
Marital status	P=0.6
Period of working	P=0.001
Working posture	P=0.02
Extra house work	P=0.001
family history	P=0.02
Smoking	P=0,02
Regular exercise	P=0.9
Environment of floor of work	P=0.01
Lighting of the theater	P=0.03
Intensity of LBP	
BMI	P=0.02
Age	P=0.003
Period of working	P=0.001
Shifting work	P=0.04
Extra house work	P=0.01
Environment of work of the floor	P=0.01
Complication of LBP	
Age	P=0.001
Period of working	P=0.001
Environment of work of the floor	P=0.009

DISCUSSION

In the common presentation of low back pain, pain develops after movements that involve lifting, twisting, or forward-bending. The symptoms may start soon after the movements or upon waking up the following morning. The description of the symptoms may range from tenderness at a particular point to diffuse pain. It may or may not worsen with certain movements, such as raising a leg, or positions, such as sitting or standing(Casazza BA.et al.,2012).

We study the lower back pain among medical personals working in theater and what factor that correlate to pain. Study of 150 participants from different specialities and educational level at Baqubah Teaching Hospital and Al-Batool teaching hospital done.

In this is study, nurses, general surgeon mostly effected(52 and 24) respectively, also study of Homaid et al., Show different distribution of as anesthesiologist assistants and anesthesiologists mostly invloved with LBP(Homaid MB.et al.,2016).

In our study sex distribution as male 70% and female 30%, which also similar to study of Homaid et al., As show distribution of male 74.2 and female 25.8%.^[45] While differ in that with study of Abdulmujeeb et al.,as show distribution of male 44% and female 56% (Abdulmujeeb AB.et al.,2017).

Also there is another study with slight similar distribution of gender, Cougot et al., study show that distribution of male is 72.88% and female 27.12%(Cougot B.et al.,2015).

Age distribution of our sample with 34.7% at range of (20-30 years) and 32.7% at range of (31-40 years), that similar to study of Abdulmujeeb et al, Which show 37% and 31% respectively for range of(20-29 years) and range of (30-30 years) (Abdulmujeeb AB.et al.,2016).

Also other study show very little similarity in age distribuatiun, Homaid et al., study show 46.7% of range(25-34 years)(Homaid MB.et al.,2016).

Marital status distribution in our study shows distribution of single 24% and married 74%, which is similar in Homaid et al., As shows distribution of single 25% and 75% married.^[45] and that also similar to Abdulmujeeb et al., As shows distribution of single 29% and married 64% (Abdulmujeeb AB.et al.,2017).

Education level of our study as follow(diploma 15.3%,bachelor 48% and post-graduate 36.7%) while that not similar with study Homaid et al., As follow(diploma 17.6%, bachelor 34.5 and post-graduate 47.9%)(Homaid MB.et al.,2016).

BMI distribution of our study shows 64% of the participants are over weight, 34% normal weight while only 2% under weight, that similar to study of Homaid et al., Shows 67.8% over weight, 30% normal and 2.2% underweight(Homaid MB.et al.,2016).

Pain intensity in our study classified into mild(46%), moderate(36.7%) and severe(6.7%).that slightly similar to Homaid et al.. As shows(mild 36%, moderate 53.9%, severe 7.9 and very severe 2.2%)(Homaid MB.et al.,2016).

In our study 32% of participants used treatment to relive low back pain, 39.8 of Homaid et al.. Used treatment to relieve LBP(Homaid MB.et al.,2016).

While LBP reliever as follow in our study rest 59.3%, medication 18%, physiotherapy 3.3% while in study of Homaid et al.. As follow rest 51.7%, medication 43.6%, physiotherapy 9.2%(Homaid MB.et al.,2016).

LBP impact on daily life on our study as 32.7% that slight similar to Homaid et al.. As 39.5% (Homaid MB.et al.,2016).

In our study there was significant correlation between Body Mass Index and LBP($p=0.005$), that agree with Chou et al.. that show correlation between BMI and LBP($p=0.001$)(Chou LO.et al.,2016).

Also there was correlation between BMI with intensity of low back pain($p=0.02$) that agree with Chou et al.. that show correlation between BMI and intensity of pain($P=0.001$)(Chou LO.et al.,2016).

There was significant correlation between age and intensity of pain($p=0.003$) and also there was correlation between age and complication of LBP($p=0.00$), that agree with study of Chou et al.,that show correlation between age and intensity of pain($p=0.002$)(Chou LO.et al.,2016).

There was no correlation between marital status and LBP($p=0.6$) that agree with study of Panahi et al.. That show no correlation between marital status and LBP($P > 0.05$)(Panahi RA.et al.,2006).

There was no correlation between gender and LPB($p=0.1$) that agree with study of Panahi et al.. That show no correlation between gender and LBP ($P > 0.05$)(Panahi RA.et al.,2006).

Also working posture show significant correlation with LBP($p=0.02$) in our study that agree with study of Abou El-Soud et al.,^[52] and study of(Wong et al.,2005).

There is also correlation between shifts of work in theater and intensity of LBP($p=0.04$) that agree with study of(Abou El-Soud et al.,2017).

There was correlation between family history of LBP and LBP($p=0.02$) that agree with study of Fujii et al., That show correlation between LBP and family history of low back pain(Fujii T.et al.,2013) and agree with study of Matsui et al., That also found correlation between family history of low back pain and low back pain(Matsui H.et al.,1997)

In our study there was correlation between smoking and LBP($p=0.02$).

There was correlation between smoking and LBP($p=0.02$) that agree with Karahan et al., That show relation between smoking and LBP(Karahan A. et al.,2009).As smoking impairs nutrition in the disk, making it more vulnerable against outside influences and disturbing blood flow(Mendelek F.et al.,2011).

While study of Ovayolu et al., disagree as show no relation between smoking and LBP(Ovayolu OZ.et al.,2015).

There was no correlation between regular exercise and LBP($p= 0.9$) that agree with study of Homaid et al., As show no correlation between exercise and LBP($p=0.9$)(Homaid MB.et al.,2016).

In our study also there was correlation between environment of work of the floor intensity of LBP($p=0.01$),correlation between environment of work of the floor complication of LBP($p=0.009$) and correlation between lighting of the theater and LBP($p=0.03$).

CONCLUSIONS

We conclude that the prevalence of LBP among medical personnels in Baquba Teaching Hospital larger than Al-Batool Teaching Hospital,. Many risk factors were identified that would avoid involvement to reduce LBP incidence and related costs.

The prevalence of LBP the most age group between(21-30) years and of the most gender were in male, of the most smoking among smoker and the most marital status among married. The prevalence of LBP the most educational levels among bachelor degree, of the most specialist among nurse, intensity of pain was mild, relieved by rest, not affected on daily life,

with duration less than 1 year, with no hospital admission, with no sick leave, with no complication and body mass index affected on low back pain were among over weight.

Recommendation

1-We recommend that education programs on prevention and strategies for musculoskeletal disorders applied for medical personnels in order to reduce the rate of work-related musculoskeletal disorders, including LBP, and promote efficiency in patient care.

2-Decrease period of duties of medical personnel in theater.

3-Better floor of theater will be of advantage.

4-better lighting of theater will be of advantage.

5-further study with large sample size.

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