Epidemiology and Risk Factors of Low Back Pain among Hospital Cleaners in Resource Limited Settings: A Multi-Centered Cross- Sectional Study

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Abstract
Background: *Cleaners account for a significant portion of the total working population. The occurrences of low back pain are very common among workers which exacerbated by the job characteristics and it varies across numerous occupational categories. The long-term disability, decreased performance at work, lost productivity, and disturbance of general well-being are all caused by low back pain. To the best knowledge of the investigators, there is dearth of study conducted in hospital cleaners in the study area. Therefore, our study aimed to assess the prevalence of low back pain and associated factors among hospital cleaners in resource limited settings.*

Method: *A multi-centered cross-sectional study was conducted from July to November 2022. Data was gathered by conducting structured questionnaire via interview of the study participants by trained data collectors. The participants were chosen using a simple random sampling method. Data analysis was done by SPSS Version-20 statistical software. Both bi-variable and multivariable logistic regression analyses were computed. The chi-square test was checked to interpret the possible differences in the categorical variables based on dependent variables. Multicollinearity among the explanatory variables was checked using Variance Inflation Factor (VIF>10). The Hosmer-Lemeshow goodness-of-fit test was used to assess the fitness of the model. And in the multivariable logistic regression analysis model the AOR with a P value of 0.05 at 95% CI was reported and variables were considered statistically significant.*

Result: *The findings of this study revealed that the prevalence of low back pain among cleaners in the study area was 46.4% (95%CI;41.2%-51.5%) during the last 12 months. Always bend and twist back (AOR:2.07,95%CI:1.86-5.03), Always Working above physical limit (AOR:3.59,95%CI:1.71-7.55) and always adapt awkward posture (AOR:2.91,95%CI:1.35-6.28) were all factors associated with low back pain among cleaners.*

Conclusion: *The prevalence of low back pain among cleaners in the study area was nearly half. Always bend and twist body part, working above physical limit and adapting an awkward posture were all significantly associated with low back pain in cleaners. Provide proper body mechanics for cleaners is helpful to reduce the risks for low back pain in hospital cleaners.*

Keywords: Cleaners, Prevalence, Low Back Pain, Hospital, Resource Limited Setting, Ethiopia.

1. Introduction

Cleaning is a basic service occupation performed worldwide in a variety of settings both indoors and outdoors[1, 2]. The excessive force, repetitive movements, poor body posture, bending, pushing, and lifting weights are all required for cleaning activities those may cause musculoskeletal problems[3, 4].The occurrences of low back pain [LBP] is very common among working populations that exacerbated by the job characteristics and it varies across numerous occupational categories[5-7]. The LBP is one of the most common musculoskeletal disorders that interfere with work performance and the general well-beings The Global Burden of Disease [GBD] estimated that LBP is among the top 10 diseases and injuries that account for disability-adjusted life years worldwide which interfere with work performance and the general well-beings[8-13].Cleaners account for a significant portion of the total working population and they are from lower socioeconomic groups [14,15].

 The prevalence of LBP is varied from 46 to 77% in different parts of the world Globally about 37% of LBP was caused due to work related exposure and it is occupational health problems among cleaners[14,16]. There are several significant differences in the organization of cleaning jobs across geographical areas and their prevailing cultures is mostly done by women in many countries which are related to differences in work conditions and thus occupational hazards [17-19]. In the lack of social and legal protection cleaners are paid on an hourly basis without proper contracts or insurance, Due to those specific characteristics cleaners are likely to evade control measures such as health surveillance and risk prevention [20].

Cleaning work has unfavorable working hours, as well as physical and psychosocial hazards, in many settings not only perform strictly cleaning but also activities like waste disposal[21-23]. Cleaning entails both dynamic and static muscular work performed with the aid of various manual tools that is typically physically demanding and labor-intensive [24]. The current design of buildings, facilities, and furniture, as well as cleaning tools, machines, and methods, all are influence physical hazards [25]. Cleaners frequently work bent forward or with a twisted back, and disposing of heavy or bulky items placed in trash cans are factors for physical risks and musculoskeletal disorders, the most common of which is LBP [26,27] Furthermore, high BMI, smoking, advanced age, being female, sedentary work, and low educational attainment have been identified as risk factors for LBP [6,28]. Long-term disability, decreased performance at work, lost productivity, and general well-being are all caused by LBP [29-31].

To the best of the investigators' knowledge, there has been very little research of LBP among hospital cleaners. As a result, the goal of this study was to determine the prevalence and risk factors of LBP among hospital cleaners working in resource-limited settings. The study's findings would help clinicians, health care providers, and concerned bodies act in that area. It would be useful to policymakers in developing appropriate LBP prevention strategies for cleaners. This research could also help physiotherapists make appropriate screening, evaluation, intervention and rehabilitation of LBP in hospital cleaners. In general, the findings of this study provided useful information about the burden of LBP and its risk factors in hospital cleaners, and it would attempt to identified potential prevention mechanisms.

2. Methods
2.1 Study Design and Period
A Multi-centered cross-sectional study was conducted from July to November 2022 to assess the prevalence and associated factors of LBP among hospital cleaners.

2.2 Study Setting and Area
The study was conducted at eight comprehensive referral hospitals in the Amhara region that were university of Gondar hospital, Debre-Tabor hospital, Felege-Hiwot hospital, Tibebe-Gion hospital, Debre-Markos hospital, Woldia hospital, Dessie hospital and Debre-Brhane hospital.

2.3 Sample Size and Sampling Techniques
A single population proportion formula was used to calculate the sample size. Because lack of studies on similar settings were found in our country, any attempt to obtain baseline prevalence from another setting may have an impact on the representativeness of the current study. In order to increase the precision of the study's results, the maximum sample size assumption was used, with P=50% prevalence among hospital cleaners, a margin of error [d] of 5%, and a 95% level of confidence.

$$n = \frac{[Z\alpha/2]^2 p\,[1-p]}{D^2}$$

Where $=z\alpha/2 = 95\% = 1.96$
 p=0.5
q=1-p   =1-0.5 =0.5
D =0.05
N= $1.96^2 \times 0.5 \times 0.5 / 0.05^2$
=3.8416×0.25/0.0025
384.37~384
Taking the 10% non-response rate into account, the final sample size is 422.Proportional allocation was used to determine the number of cleaners in each hospital [Table 1]. A simple random sampling method was used to select the study participants and the lottery technique was employed.

Name of Hospitals	Number of cleaners in each Hospital	Selected study participants in each Hospital
University of Gondar hospital	420	73
Debre-Tabor hospital	214	38
Felege-Hiwot hospital	310	54
Tibebe-Gion hospital	230	40
Debre-Markos hospital	312	55
Woldia hospital	180	32
Dessie hospilal	384	67
Debre-Berhane hospital	362	63

Table 1: The proportional allocation of study participants from eight hospitals (n=422)

3. Variables

The dependent variable is low back pain, whereas the independent variables were: Socio demographic [Age, Sex, working experience, Monthly income], Personal factors [BMI, Height, Weight], Behavioral factors [Smoking, Alcohol drinking, Physical exercise], Ergonomics [Carry heavy load, Repetitive work, Training, Bending and twisting] and Organizational factors [Employment status, working hour, working day and total break].

3.1 The Data Collection Procedure and Tools

The data collection done by physiotherapist who were get training about the data collection procedures and tools. They used a structured Nordic Musculoskeletal Questionnaire [NMQ] [32].
All data collectors always considered the inclusion and exclusion criteria before take any information from the study participants. Written informed consent was obtained from all the participants of the study.

3.2 The Managements of Data Quality Assurance

Before two days of data collection, the data collectors were trained about data collection procedures, tools, and techniques, ensuring the importance of confidentiality of the study participants. The supervision of data collection was done by the investigators. In order to make questionnaire easy for study participants the original English version of the data collection tool was translated into Amharic [local language] and re-translated back into English by language expertise to maintain its consistency. In order to check the understandability, consistency, and appropriateness of the questionnaire the pretest was done on five presents of the study samples [21 street cleaners in Gondar town]. All findings from the pre-test were incorporated into the final questionnaire and necessary amendments were done before to the actual data collection. To ensure the data quality all aspects of the data collection process were supervised by investigators.

3.3 Processing and Analysis of the Data

The completeness of collected data were checked at every day and night, the data coding and clearance were done simultaneously and then entered to EPI info 7 software. For the analysis the entered data export to SPSS version 20 software. The logistic regressions analysis was employed to show the relationship between outcome and independent variables. In the bi-variable logistic regression analysis all possible predictors' p- value < 0.25 were the candidates to the multi-variable logistic regression analysis.

To reduce possible confounding and identify independent associated factors for work related LBP final multi-variable logistic model was built. The fitness of final model was checked by Hosmer-Lemeshow goodness-of-fit test. Multicollinearity among the independent variables were checked using Variance Inflation Factor [VIF>10]. At the final model a p-value of less than 0.05 was considered as statistical significance and to show the strength of association between each independent and the dependent variable Adjusted odds ratio with its 95% CI was used. We were used descriptive texts and tables to present the results of study analysis.

4. Results

4.1 Socio Demographic Characteristics of Cleaners

From a total of four hundred twenty hospital cleaners, the 371 cleaners were participated in our study with a response rate of 88.3%. Of those the majority 282[76%] were female, the age of the participants ranges from 18 to 55 years, more than half [76.5%] of them being below 30 years, among our participants the majority 342[92.2%] were orthodox in religion,199[53.6%] were single in marital status,163[43.9%] had completed secondary level of education, 296 [79.7%] had a monthly income above 1500 Ethiopian birr, and regarding to body mass index [BMI] most of the study participants 367 [98.9%] had normal weight [Table 2].

Variable	Category	frequency(n)	Valid percent (%)
Age	<30	284	76.5%
	>30	87	23.5%
Sex	Female	282	76%
	Male	89	24%
Religion	Orthodox	342	92.2%
	Muslim	9	2.4%
	Protestant	17	4.6%
	Catholic	3	0.8%
Marital status	Single	199	53.6%
	Married	161	43.4%
	Divorced	5	1.3%
	Widowed	6	1.7%
Educational status	No formal education	18	4.9%
	Primary school	130	35%
	Secondary school	163	43.9%
	Higher education	60	16.2%
Monthly income	<1500	75	20.2%
	>1500	296	79.7%

Table 2: Socio demographic characteristics of hospital cleaners 2022(n=371)

4.2 Working Time and Work-Related Conditions of Cleaners

The majority of the study participants 335[90.3%] were work above five days per a week, regarding working hours 228[[61.5%] had less than eight hours, in related to experience 262[70.6%] had between one and five years of work experience,82 [22.1%] of the study participants were change their job due to low back pain, only 33[8.9%] participants were seen physiotherapists or doctors and related health condition of the study participants 21 [5.7%] were had other co-morbid conditions [Table 3].

Variable	Category	Frequency	Percent
have you ever faced low back pain	yes	172	46.4%
	No	199	53.6%
how severe is it (intensity of LBP)	Mild	50	13.5%
	Moderate	93	25.1%
	Severe	29	7.%
how many days does you work in a week	<4days	36	9.7%
	>5days	335	90.3%
how many hours does you work in a day	<8hrs	328	88.4%
	≥8hrs	43	11.6%
work status	Daily	228	61.5%
	Alternatively,	129	34.8%
	Occasionally	12	3.2%
years of working experience	1-5 years	262	70.6%
	5-10 years	98	26.4%
have you ever been hospitalized because of low back pain trouble	Yes	45	12.1%
	No	323	87.1%
have you ever had to change jobs because of low back pain	Yes	82	22.1%
	No	287	77.4%

do you have low back pain trouble at any time during the last 7 days	Yes	95	25.6%
	No	271	73.0%
have you seen doctor or physiotherapist because of low back pain trouble during last 12 months	Yes	33	8.9%
	No	334	90%
do you have chronic co-morbid condition	Yes	21	5.7%
	No	347	93.7%
type of chronic co-morbid do you have	hypertension	7	1.9%
	DM	3	0.8%
	Others	11	3.0%

Table 3: Work related conditions for low back pain hospital cleaners 2022(n=371)

4.3 The Body Mechanics and Activities of the Hospital Cleaners

Above half of the study participants 243[65.5%] were always perform the same activities repeatedly, 86[23.1%] participants always and 262 [70.6%] participants sometimes carry heavy load, 170[45.8] participants always maintain the same position for long period,89[23.9%] participants always and 241 [64.9%] participants sometimes bend and twist their boy during work, 79 [21.3%] participants always and 218[58.8%] participants sometimes work above their physical limit,89 [24.0%] participants always and 221 [59.6%] participants sometimes attain awkward position in their work,61[16.4%]participants always and 185[49.9%] participants sometimes continue their work with the injury and most of the study participants 355 [95.7%] had never get training for injury prevention [Table 4].

Variables	Always	Sometimes	Never
work in awkward position	89(24.0%)	221(59.6%)	59(15.9%)
Performing same task over and over	243 (65.5%)	117 (31.5%)	11 (2.9%)
Carrying heavy load	86 (23.1%)	262 (70.6%)	23 (6.1%)
Work in same position for long time	170 (45.8%)	174 (46.9%)	27 (7.3%)
Bending or twisting back	89 (23.9%)	241 (64.9%)	41 (11.05%)
Anticipated sudden fall	35 (9.4%)	192 (51.7%)	144 (38.8%)
Work above physical limit	79 (21.3%)	218 (58.8%)	74 (19.9%)
Continue work when injured	61 (16.4%)	185 (49.9%)	125 (33.7%)
work over time	47 (12.7%)	214 (57.7%)	110 (29.7%)
Training injury prevention	7 (1.9%)	9 (2.4%)	355 (95.7%)

Table 4: The body mechanics and activities for back pain among hospital cleaners'2022(n=371)

4.5 Prevalence of Low Back Pain Among Hospital Cleaners

According to our study area near the half of the study participants 172 [46.4%] were experienced LBP in the last 12 months, while 95 [25.6%] were reported back trouble in the past 7 days; A substantial number of the participants 45 [12.1%] were have been hospitalized because of LBP; only 33 [8.9%] were reported 'Yes' when asked whether they have been seen by a doctor, physiotherapist or other health practitioners because of low back trouble during the past 12 months.

4.6 Factors Associated with Low Back Pain Among Cleaners

In bivariate logistic regression twist and bend the body, anticipated to fall down, working above physical limit, awkward position, carrying heavy loads, continue work with injury, and training for injury prevention were significant factors for low back pain among hospital cleaners at p-value < 0.25 [Table 5]. However, in multivariate logistic regression model low back pain was associated with always bend and twist the body AOR=2.07[1.86-5.03], always maintain awkward position AOR=2.91[1.35-6.28], always work above physical limit AOR=3.59[1.71-7.55] and also sometimes work above physical limit AOR=1.96[1.09-3.55] at p-value < 0.05 with 95% CI [Table 6].

variables/ characters		Back pain		COR (95% CI)
		Yes	No	
Sex	Male	45(26.2%)	44(22.1%)	1ᵃ
	Female	127(73.8%)	155(77.9%)	0.80(0.49-1.29)
Age	18-27	94(54.7%)	102(51.3%)	1ᵃ
	28-37	60(34.9%)	87(43.7%)	0.52(0.22-1.17)
	>38	18(10.5%)	10(5.0%)	0.38(0.17-0.89)
Religion	Orthodox	157(91.3%)	185(93.0%)	0.75(0.34-1.59)
	others*	15(8.7%)	14(7.0%)	1ᵃ
marital status	Single	85(49.4%)	114(57.3%)	0.43(0.12-1.50
	Married	80(46.5%)	81(40.7%)	0.56(0.16-2.00)
	others**	7(4.1%)	4(2.0%)	1ᵃ
educational status	no formal education	12(7.0%)	6(3.0%)	2.14(0.71-6.44)
	primary education	46(26.7%)	84(42.2%)	0.59(0.32-1.09)
	secondary education	85(49.4%)	78(39.2%)	1.17(0.64-2.11)
	diploma and above	29(16.9%)	31(15.6%)	1ᵃ
monthly income	<1500EB	12(7.0%)	38(19.9%)	0.32(0.16-0.63)
	>1500EB	160(93.0%)	161(80.1%)	1ᵃ
BMI	under weight	1(0.6%)	3(1.5%)	1ᵃ
	normal weight	171(99.4%)	196(98.5%)	2.61(0.27-25.40)
physical exercise	Yes	52(30.2%)	48(24.1%)	1.36(0.86-2.16)
	No	120(69.8%)	151(75.9%)	1ᵃ
frequency of exercise	twice per week	29(16.9%)	33(16.6%)	0.40(0.20-0.82)
	three times per week	25(14.5%)	13(6.5%)	1ᵃ
Smoking	Yes	5(2.9%)	0(0%)	1.00(0.001-1.001
	No	167(97.1%)	199(100%)	1ᵃ
drinking alcohol	Yes	24(14.5%)	13(6.5%)	2.34(1.15-4.75)
	No	147(85.5%)	186(93.5%)	1ᵃ
working hours	>8hrs	12(7.0%)	22(11.1%)	0.66(0.26-1.67)
	8hrs	141(82.0%)	154(77.4%)	1.11(0.58-2.12)
	>8hrs	19(11.0%)	23(11.6%)	1ᵃ
working status	Daily	121(70.5%)	109(54.8%	1.55(0.48-5.04)
	every other day	46(26.7%)	83(41.7%)	0.78(0.23-2.28)
	Occasionally	5(2.9%)	7(3.5%)	1ᵃ
work experience	1-5 years	121(72.9%)	142(72.4%)	1.02(64-1.63)
	5-10 years	45(27.1%)	54(27.6%)	1ᵃ
job change	Yes	82(47.7%)	1(0.5%)	1ᵃ
	No	90(52.3%)	198(99.5%)	0.01(0.001-0.40)
had other conditions	Yes	21(12.2%)	0(0%)	0.21(0.001-0.98)
	No	151(87.8%)	199(100%)	1ᵃ
repeat task over and over	Always	116(67.4%)	127(63.8%)	1.60(0.46-5.60)
	Sometimes	52(30.2%)	65(32.7%)	1.40(0.39-5.04)
	Never	4(2.3%)	7(3.5%)	1ᵃ

carrying heave object	Always	35(20.3%)	51(25.6%)	0.63(0.25-1.59)
	sometimes	125(72.7%)	137(68.8%)	0.84(0.36-1.96)
	Never	12(7.0%)	11(5.5%)	1ᵃ
enough rest	Always	44(25.6%)	37(18.6%)	0.45(0.21-0.96)
	Sometimes	112(65.1%)	133(66.8%)	0.66(0.34-1.27)
	Never	16(9.3%)	29(14.9%)	1ᵃ
working in awkward posture	Always	51(29.7%)	40(20.1%)	0.41(0.02-6.85)
	Sometimes	104(60.5%)	117(58.8%)	0.32(0.16-0.64)
	Never	17(9.9%)	42(21.1%)	1ᵃ
working long time same position	Always	89(51.7%)	81(40.7%)	0.86(0.36-1.91)
	Sometimes	70(40.7%)	104(52.3%)	1.38(0.61-3.11)
	Never	13(7.6%)	14(7.0%)	1ᵃ
bending and twisting	Always	50(29.1%)	39(19.6%)	0.40(0.19-0.87)
	Sometimes	108(62.8%)	133(66.8%)	0.64(0.32-1.28)
	Never	14(8.1%)	2713.6%)	1ᵃ
anticipated sudden falls	Always	18(10.5%)	17(8.5%)	0.58(0.28-1.23)
	Sometimes	99(57.6%)	93(46.7%)	0.58(0.37-0.90)
	Never	55(32.0%)	89(44.7%)	1ᵃ
moving heavy object	Always	40(23.3%)	34(17.1%)	0.40(0.20-0.83)
	Sometimes	114(66.3%)	126(63.3%)	0.51(0.28-0.94)
	Never	18(10.5%)	39(19.6%)	1ᵃ
work above physical limit	Always	47(27.3%)	32(16.1%)	0.29(0.15-0.56)
	Sometimes	103(59.9%)	115(57.8%)	0.47(0.27-0.83)
	Never	22(12.8%)	52(26.1%)	1ᵃ
continue with injury	Always	36(20.9%)	25(12.6%)	0.39(0.21-0.73)
	Sometimes	91(52.9%)	94(47.2%)	0.58(0.37-0.93)
	Never	45(26.2%)	80(40.2%)	1ᵃ
Overtime	Always	26(15.1%)	21(10.6%)	0.50(0.25-1.99)
	Sometimes	104(60.5%)	110(55.3%)	0.65(0.41-1.04)
	Never	42(24.4%)	68(34.2%)	1ᵃ
training for injury prevention	Always	6(3.5%)	1(0.5%)	0.14(0.02-1.04)
	Sometimes	4(2.3%)	5(2.5%)	1.05(0.28-3.97)
	Never	162(94.2%)	193(97.0%)	1ᵃ

Key: others* was represent Muslim, Catholic and protestant,

others** was represent divorced, widowed and separate.

1ᵃ: was considered as a reference

Table 5: Bivariate association of factors for back pain among hospital cleaners 2022(n=371).

Variables	Category	LBP		COR (95% CI)	P value	AOR (95% CI)
		Yes	No			
Bending and twisting the body	Always	50	39	0.40(0.19-0.87)	0.004	2.07(1.86-5.03)
	Some	108	133	0.64(0.32-1.28)	0.055	1.26(1.58-2.75)
	Never	14	27	1ᵃ	1ᵃ	1ᵃ
awkward position	Always	51	40	0.41(0.02-6.85)	0.006	2.91(1.35-6.28)

	some times	104	117	0.32(0.16-0.64)	0.662	1.89(0.11-32.48)
	Never	17	42	1[a]	1[a]	1[a]
anticipated fall	Always	18	17	0.58 (0.28, -1.23)	0.09	1.51(0.93-2.44)
	Some	99	93	0.58 (0.37-0.90)	0.39	1.45(0.65-3.42)
	Never	55	89	1[a]	1[a]	1[a]
Working above physical limit	Always	47	32	0.29(0.15-0.56)	0.001	3.59(1.71-7.55)
	Some	103	115	0.47(0.27-0.83)	0.025	1.96(1.09-3.55)
	Never	22	52	1[a]	1[a]	1[a]
Continue at injury	Always	36	25	0.39(0.21-0.73)	0.35	1.49(0.65-3.42)
	Some	91	94	0.58(0.37-0.93)	0.63	1.14(0.66-1.97)
	Never	45	80	1[a]	1[a]	1[a]
Get training for injury prevention	Always	6	1	0.14(0.02-1.04)	0.23	3.90(0.41-36.74)
	Some	4	5	1.05(0.28-3.97)	0.88	0.90(0.23-3.55)
	Never	162	193	1[a]	1[a]	1[a]

Table 6: Multivariate association of factors for low back pain among hospital cleaners 2022(n=371).

5. Discussion

The finding of our study showed that the prevalence of low back pain among cleaners 46.4% [41.2-51.5%] is lower than when compared to the study done in Nigeria and Thailand that were [78.2%] and 57.7% respectively [33,34].The possible reason could be due to differences in the individual perception of pain, cultural differences and income of the study participants. Another possible reason could be that the work load in Nigeria higher than the workload in Ethiopia that where cleaners work with interchangeable shifts and in Nigeria longer work experience is required as an eligibility criterion, while in this study one-year work experience is also included which probably makes the prevalence lower.

On the other hand, the prevalence of low back pain among cleaners in this study is higher than the study reported in Owo federal medical center that was 35.5 % [35]. The possible reason could be better prevention training was given for cleaners in Owo federal medical center which might helped to reduce the development of low back pain and the difference between exercise habits of the cleaners in our institutions where majority of the cleaners have no habit of physical exercise unlike the cleaners in Owo federal medical center.

On the others hand result of our stud is in line with the study reported in Salvador that was 45.5 % [36]. The possible explanation could be similarities in life style because of resemblances in the economic status of both study areas which could in turn affect the facility to cleaning environment and the eligibility criteria to select the study participants especially with work experience and age were similar to our selection criterion of the study participants.

In our study area the odds hospital cleaners who always bending and twisting their back were 2.07 times more likely prone to low back pain than the cleaners who had never bend and twist their back during working time with AOR=2.07[1.86-5.03] which agrees with the previous studies[37-41]. The possible reason could be bend and twist had the additional impacts for the back. The odds hospital cleaners who always carry load above physical limit were 3.59 times more likely to develop low back pain than who had never carry above their physical limit AOR=3.59[1.71-7.55] which is supported by reports of the studies[11,42,43]. in addition to those the cleaners who always attain awkward posture were 2.91 times more likely to had low back pain than hospital cleaners who had never attain awkward posture during their working time AOR=2.91[1.35-6.28] which agrees with the studies[44,45]. That is positions of the body that deviate significantly from the neutral position while perform cleaning which increase the burden of low back pain in cleaners.

6. Strengths and Limitations of the Study

The strength of the study was assessing the burden and risk factors of low back pain among hospital cleaners. Those population were neglected by researcher and this study was provided valuable data on those population and stud areas. All of the data were collected via of interview forms recall bias may be present.

7. Conclusion

The finding of study revealed that near the half of cleaners in comprehensive specialized hospitals were suffered to low back pain in the study areas. Always carry above physical limit, always bend and twist the back, always and sometimes attain awkward posture were all significantly associated factors for low back pain. Providing ergonomics training about the practice of proper body mechanics for hospital cleaners is recommended to reduce risk factors and long-term disabilities.

Declarations
Ethical approval and consent to participate
All methods were carried out in our study have been performed in accordance with the declaration of Helsinki. The proposal was reviewed, approved and ethical clearance was obtained from the

Authors Contribution
All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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