

## Research Article

# Prevalence of Chronic Back Pain Among Health Workers at Bashir Teaching Hospital - 2022

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## Introduction

### Background

Chronic Back Pain (CBP) is defined as pain that continues for 12 weeks or longer is the second most pain reported after headache. It is a very common symptom affecting nearly everyone at certain time in their lives [1]. It occurs in high-income, middle-income, and low-income countries and all age groups from children to the elderly population mainly because of population increase and ageing, with the biggest increase seen in low-income and middle-income countries. CBP is now the leading cause of disability worldwide [2]. It is an important public health issue, being of widespread and of a considerable negative social, psychological, and economic influence. It is being one of the main causes of seeking medical help worldwide with high treatment cost and association with feeling sick and suffering [3,4]. CBP is common global problem that affect both work and quality of life, it's a one of the leading causes of disability worldwide.

## Abstract

**Introduction:** Chronic back pain is defined as pain that continues for 12 weeks or longer is the second most pain reported after headache. It is a very common symptom affecting nearly everyone at certain time in their lives. Chronic back pain is a significant problem for healthcare workers as it contributes to missed participation time, disability and serious emotional issues.

**Objectives:** The purpose was to measure the prevalence of chronic back pain and prevalence related with speciality, gender, time spent in work and the effect on daily activities and performance among health care workers in Bashir teaching hospital.

**Method:** A cross sectional study using self-administered closed ended online questionnaire by google form, stratified random sampling was conducted among Bashir hospital health workers. The questionnaire collected data regarding having chronic back pain, Speciality, duration of working, working hours and affection of daily activities.

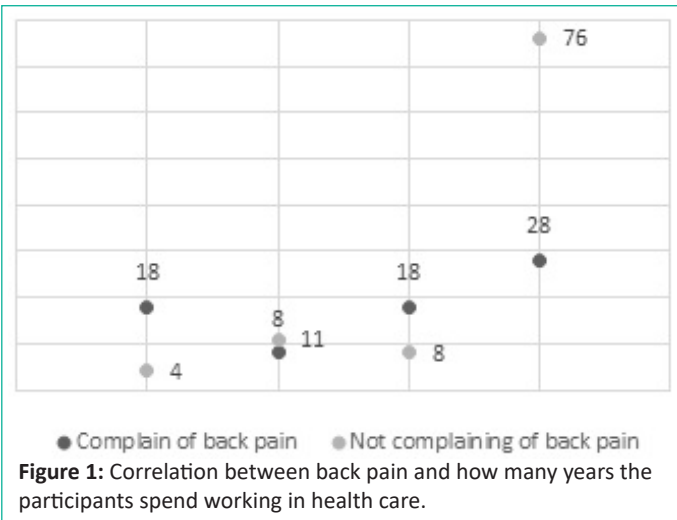
**Results:** Out of 171 participants, the overall prevalence of chronic back pain amounted to 72 (42.1%), prevalence in males was 38.3% while in females was 63.7%. Prevalence in doctors was 59.1%, nurses 28.7%, lab doctors 5.8%, midwives 4.1% and pharmacist 2.3%. participants less than 24years was 24%, between 24 and 35 years was 56.1%, more than 35years 19.9%.

**Conclusions:** The prevalence of chronic back pain is more than 40% of the participants, doctors mostly affected while the nurses come second. female higher involved than male. CBP had rule on reduction of daily activities and psychological health aspects although most of participants had mild to moderate back pain.

**Keywords:** Chronic back pain; Bashir Hospital; Health workers; Sudan

In sever form it may lead to missing of working days with negative impact on individual and community productivity [5] Frequently, it is more common among individuals with exhausting occupations; in the world, 37% of CBP is related to occupations in which professionals are exposed to vibrations or prolonged periods of standing, such as miners, Health Care Workers (HCWs) cause working with patients often involves excessive strain on low back resulting from the need to maintain a forced body position [2].

The systematic analysis of the Global Burden of Diseases suggested that among 369 diseases and injuries, Low Back Pain (LBP) is one of the top four causes of Disability-Adjusted Life-Years (DALYs) in the 25-year to 49-year age group, Chronic Back Pain has also become a major cause of productivity loss [6].



**Figure 1:** Correlation between back pain and how many years the participants spend working in health care.

There has been a rapid increase in the number of published papers investigating the prevalence and risk factors of chronic back pain across different categories of health workers in different parts of the world. With studies reporting a wide range of chronic back pain prevalence rates.

CBP is a significant problem for healthcare workers as it contributes to missed participation time, disability and serious emotional issues.

To the best of our knowledge, no research has yet been conducted on CBP in the health professional sector in Sudan. As health professionals are individual workers who work for patients from different settings, it is difficult to envision that Sudan medical council laws alone would suffice to protect their health issues. Instead, introducing health guidelines along with laws and promoting those guidelines among health workers could be an effective strategy to tackle the burden of chronic back pain among this group. Therefore, the present study focused on quantifying the prevalence of chronic back pain and identifying the associated individual and occupational factors among health workers in Bashir hospital in Sudan.

**Objectives**

**General Objectives:** To assess prevalence of chronic back pain among health workers.

Specific objectives:

1. To assess the prevalence of chronic back pain among different health workers in Bashir hospital.
2. To determine the difference in prevalence of chronic back pain according to gender.
3. To Test the association between time spent in work and chronic back pain.
4. To estimate the effect of chronic back pain on daily activities and performance at work.

**Methodology**

**Study Design and Setting**

A Descriptive, cross sectional, hospital-based study conducted in Bashair teaching hospital, Khartoum, Sudan. Targeting health care workers including doctors, nurses, pharmacists, laboratory doctors and midwives. With exclusion criteria include: have back pain before working, known to have history of trauma, known to have rheumatoid arthritis or osteoarthritis,

have any disorder of the back, health workers who are not hospital staff.

**Sample Size and Technique**

Calculated using Yamane formula found to be 170. Collected through stratified random sampling

$$n = N/(1+N(e)^2)$$

Where:

n is the sample size to be computed

N is the population size = 592

e is the accepted marginal error (0.05)

$$n = 592/1+592(0.05)^2$$

$$n = 238$$

we used adjusted sample size equation to minimize of small population.

$$n = n0/(1+(n0-1/N))$$

$$n = 238/(1+(238-1/529)) = 170$$

**Data Collection and Analysis**

The data collected through structured, self-administered, closed ended online questionnaire by google form. Then analysed using Statistical package of social services (SPSS). Version22

**Ethical Considerations**

Ethical approval and permission obtained from Al Neelain institutional review board and Bashir teaching hospital. Also informed consent written from participants was obtained.

**Results**

171 participants were recruited into this study. Most of them were female (63.7%) and aged 24 – 35 (56.1%) Table.1

The prevalence of back pain was found to be 72 (42.1%) Table 2.

**Table 1:** Individual factors of participants.

| Variable               |                   | NO. | Present % |
|------------------------|-------------------|-----|-----------|
| Gender                 | Male              | 62  | 36.3%     |
|                        | Female            | 109 | 63.7%     |
| Age                    | Less than 24      | 41  | 24.0%     |
|                        | 24 - 35           | 96  | 56.1%     |
|                        | 35 - 45           | 13  | 7.6%      |
|                        | 45 - 55           | 8   | 4.7%      |
|                        | 55 - 65           | 8   | 4.7%      |
|                        | More than 65      | 5   | 2.9%      |
| What is your specialty | Doctor            | 101 | 59.1%     |
|                        | Nurse             | 49  | 28.7%     |
|                        | Laboratory doctor | 10  | 5.8%      |
|                        | Midwife           | 7   | 4.1%      |
|                        | Pharmacist        | 4   | 2.3%      |

**Table 2:** Prevalence of back pain.

| Variable                        |                              | NO. | %     |
|---------------------------------|------------------------------|-----|-------|
| Are you Complain from back pain | Complain of back pain        | 72  | 42.1% |
|                                 | Not complaining of back pain | 99  | 57.9% |

**Table 3:** Prevalence of back pain among participants and demographic characteristic.

|                          |                   | Are you Complain from back pain |        |                              |        | P value  |
|--------------------------|-------------------|---------------------------------|--------|------------------------------|--------|----------|
|                          |                   | Complain of back pain           |        | Not complaining of back pain |        |          |
|                          |                   | NO.                             | %      | NO.                          | %      |          |
| Gender                   | Male              | 28                              | 38.90% | 34                           | 34.30% | P =.326  |
|                          | Female            | 44                              | 61.10% | 65                           | 65.70% |          |
|                          | Total             | 72                              | 100%   | 99                           | 100%   |          |
| Age                      | Less than 24      | 12                              | 16.70% | 29                           | 29.30% | P =0.001 |
|                          | 24 - 35           | 37                              | 51.40% | 59                           | 59.60% |          |
|                          | 35 - 45           | 5                               | 6.90%  | 8                            | 8.10%  |          |
|                          | 45 - 55           | 6                               | 8.30%  | 2                            | 2.00%  |          |
|                          | 55 - 65           | 8                               | 11.10% | 0                            | 0.00%  |          |
|                          | More than 65      | 4                               | 5.60%  | 1                            | 1.00%  |          |
|                          | Total             | 72                              | 100%   | 99                           | 100%   |          |
| What is your speciality? | Doctor            | 45                              | 62.50% | 56                           | 56.60% | P =.010  |
|                          | Nurse             | 13                              | 18.10% | 36                           | 36.40% |          |
|                          | Laboratory doctor | 5                               | 6.90%  | 5                            | 5.10%  |          |
|                          | Midwife           | 5                               | 6.90%  | 2                            | 2.00%  |          |
|                          | Pharmacist        | 4                               | 5.60%  | 0                            | 0.00%  |          |
|                          | Total             | 72                              | 100%   | 99                           | 100%   |          |

**Table 4:** The prevalence of back pain and questions related to back pain.

| Variable            |                                    | NO. | Present % |
|---------------------|------------------------------------|-----|-----------|
| If yes for how long | Less than 3 months                 | 21  | 29.20%    |
|                     | 3 months - year                    | 17  | 23.60%    |
|                     | Year - 5 years                     | 19  | 26.40%    |
|                     | More than 5 years                  | 15  | 20.80%    |
| Total               |                                    | 72  | 100%      |
| The origin of pain  | Confined to the back " localized " | 63  | 87.50%    |
|                     | Radiated to the leg "referred"     | 9   | 12.50%    |
| Total               |                                    | 72  | 100%      |
| Severity of pain    | Mild                               | 39  | 54.90%    |
|                     | Moderate                           | 27  | 38.00%    |
|                     | Severe                             | 3   | 4.20%     |
|                     | Very severe                        | 1   | 1.40%     |
|                     | Worst                              | 1   | 1.40%     |
| Total               |                                    | 72  | 100%      |

Cross tabulation between prevalence of back pain and demographic characteristic showed that there is no significant difference between male and female. Participant with age ranged between 24-25 years are the most affected one with significant association (P=0.001). another significant association was found between speciality and back pain with doctors being the most affected speciality.

Most of the participants had back pain for less than 3 months. With confined pain to the back.

A negative correlation was found between years spend working and complaining of back pain (r=-.363, n=72, P <0.001) as the health workers who were working in the medical filed for less than a year were the most complaining of back pain (Table 5 & Figure 1). Meanwhile no correlation between days the participants worked and complaining of back pain (r=-.058, n=72, P=.453) (Table 5).

**Table 5:** The relationship Occupational factors and back pain.

|  |                    | Are you Complain from back pain |       |                              |       | Correlation | P value  |
|--|--------------------|---------------------------------|-------|------------------------------|-------|-------------|----------|
|  |                    | Complain of back pain           |       | Not complaining of back pain |       |             |          |
|  |                    | NO.                             | %     | NO.                          | %     |             |          |
| How many years you have been working   | 0 - 1              | 28                              | 38.9% | 76                           | 76.8% | r=-.363     | P <0.001 |
|  | 1 - 5              | 18                              | 25.0% | 8                            | 8.1%  |             |          |
|  | 5 -10              | 8                               | 11.1% | 11                           | 11.1% |             |          |
|  | More than 10 years | 18                              | 25.0% | 4                            | 4.0%  |             |          |
| Total                                  |                    | 72                              | 100%  | 99                           | 100%  |             |          |
| How many days per week are you working | 1- 3               | 38                              | 52.8% | 58                           | 58.6% | r=-.058     | P=.453   |
|  | 4- 7               | 34                              | 47.2% | 41                           | 41.4% |             |          |
| Total                                  |                    | 72                              | 100%  | 99                           | 100%  |             |          |
| How many hours you are working per day | Less than 8        | 8                               | 11.1% | 22                           | 22.2% | r=-.182     | P=.017   |
|  | 8 - 12             | 33                              | 45.8% | 50                           | 50.5% |             |          |
|  | More than 24       | 31                              | 43.1% | 27                           | 27.3% |             |          |
| Total                                  |                    | 72                              | 100%  | 99                           | 100%  |             |          |

**Table 6:** The effect of back pain on daily activity and performance at work.

|   |     | Back Pain |       | P value  |
|---|-----|-----------|-------|----------|
|   |     | No,       | %     |          |
| Did you get absence from work due to back pain before                               | Yes | 21        | 29.2% | P <0.001 |
|   | No  | 51        | 70.8% |          |
| Total   |     | 72        | 100%  |          |
| Did you change the specialty or reduce the number of working hours due to back pain | Yes | 18        | 25.0% | P <0.001 |
|   | No  | 54        | 75.0% |          |
| Total   |     | 72        | 100%  |          |
| Did back pain affect your psychological health                                      | Yes | 41        | 56.9% | P <0.001 |
|   | No  | 31        | 43.1% |          |
| Did back pain affect your daily activities and performance                          | Yes | 52        | 72.2% | P <0.001 |
|   | No  | 20        | 27.8% |          |
| Total   |     | 72        | 100%  |          |

Most of the participants who complained from back pain worked between 8-12 hours' shifts 33(45.8%). This finding was found to be statistically significant (P=.017). but didn't indicate a correlation between working hours a shift and back pain (r=-.182, n=72, P=.017) (Table 5).

A statistically significant finding found (P <0.001) in regard to the effect of back pain in the daily activity of participants with only 21(29.2%) claimed that the pain was severe enough to get absence from work in compare to 51(70.8%) absence of work due to pain (Table 6).

**Discussion**

After through literature review back pain clearly demonstrate one of the most complain that affect health workers worldwide with percentage differ from one nation to another. Statistical analysis of the collected data demonstrated that 42.1% of the health workers at Bashir Teaching Hospital were suffering from chronic back pain. The geographical location of the hospital

as being the nearest public hospital for many citizens habit in that area is considered important factor for this high percent of chronic back pain as this associated with increasing effort of working since the health workers will be busy through all the working hours.

The reported percentage goes in line with many studies conducted in different countries. This finding is attributed to similarity of work setting and health delivery system [7-9]. However, many other studies reported higher incidence of chronic pain [10-12]. Which is justified by differences in methods used, socio-economic status and socio-demographic distribution in these countries.

Female rather than male were found to have a significant association with chronic back pain this variation could be related to the anatomical, physiological, and structural differences between both gender and females tended to do extra professional activities in the household. This association is reported in the previous studies conducted in Egypt, Italy, Saudi Arabia and Turkey [11-13].

The doctors were found to be the most complaining of chronic back pain as they represent 62.5% among health worker. Nurses come the second as they represent 18.1%. This might be because doctors and nurses had direct patient contact with manual handling, transferring, prolonged standing, frequent bending and twisting. Similar finding is reported by another study [14]. Nurses is also found to be the most affected health workers by back pain in another studies [15,16].

Health workers that worked for less than a year were the most complaining of back pain. Maybe due to matter of less experience and skills which results in bad deal and poor knowledge of safety behaviors. The majority of the participants who complained from back pain worked between 8-12 hours' and more than 24 hours' s shifts. This could be due to sustained sitting as compared to those who had not sustained sitting (sitting more than two hours). Working for more than 8 hours also found to be a significant factor associated with back pain a reported in other study [8].

In regard to the effect of back pain in the daily activity. 29.2% of the participants mentioned that the pain was severe enough to get absence from work which is quite similar to study conducted in Denizli reported that 21% of their participants were become off work due to severe back pain [14].

On addition chronic back pain affect the psychological health of most participants as they represented 56.9% of the participants who complaining of back pain. The highly working demanded and critical situations of this field made a more psychological load for each single individual regardless the specialty and with chronic back pain it might be double.

### Limitations

This Study was cross sectional reported just a piece of time and when compared to the annual prevalence may be underestimated or overestimated. The study conducted only on Bashair teaching hospital and if it was including additional hospitals would give more comprehensive results.

### Conclusions

The study conclude that the prevalence of chronic back pain is more than forty percent of the participants. The study focused on different specialties doctor, pharmacist, nurse, mid-

wife and laboratory technician. The doctors were found at the higher line to stuck with complaining of back pain while the nurse at the second line. And according to the gender the female was more affected than male.

The influence of back pain has rule on reduction of daily activities especially if we add the psychological aspects which most of participants were getting affected although most of participants had mild to moderate pain.

It could be checkable that the study reported no relationship found between duration spend working and complaining of back pain it's maybe due to limitations of conducting area of study.

### Recommendations

Chronic back pain negatively affects health and economical status through reduction of activity performance and decreased work hours. Therefore, it is better to equip the hospital with appropriate assistive devices to decrease the frequent bending and twisting of healthcare workers.

### Author Statements

#### Ethical Considerations

Ethical approval and permission obtained from Al Neelain institutional review board and Bashir teaching hospital. Also inform consent written from participants was obtained.

#### Data Availability Statement

The data used in this study is available from the corresponding author on reasonable request.

#### Conflicts of Interest

The authors declare no conflict of interest.

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#### Author Contributions

A.A. and M.M.; conceptualization and methodology, A.A. and A.Abu.; software, H.A.; validation, M.M.; formal analysis, F.S. and A.O.; resources, F.S. and A.O.; data curation, A.A. and A.Abu.; writing—original draft preparation, M.M.; writing—review and editing, M.H.; supervision.

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