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## **PREVALENCE OF BACK PAIN OF CASUAL DOCKWORKERS AMONG NIGERIAN PORTS**

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### **ABSTRACT**

The study evaluated the prevalence of back pain among casual dockworkers within Nigerian ports. Using 284 participants as the sample size, a cross-sectional study methodology was adopted. Data were gathered using a questionnaire that was prepared by the researcher. The Cronbach alpha reliability method resulted in an accuracy coefficient of 0.70. processing of variance was employed to assess the research hypothesis, and SPSS version 26.0 was utilized to make data processing easier. Results indicated that back discomfort is a common occupational health problem among casual dockworkers in Nigerian ports. This population has a higher risk of back discomfort due to physical demands and particular occupational considerations. The results of the study highlight the urgent need for improvements and interventions to alleviate the high prevalence of back pain among casual dockworkers in Nigerian ports. To lower the risk of musculoskeletal injuries, ergonomic principles must be applied, such as by providing motorized equipment for heavy lifting duties and encouraging safe lifting practices. Enhancing training initiatives to inform dockworkers about ergonomics, good body mechanics, and the value of rest periods can also help prevent and treat musculoskeletal health issues. To provide a secure working environment for casual dockworkers, Nigerian port authorities and pertinent stakeholders must prioritise enforcement, occupational health and safety rules. By addressing these problems, Nigerian ports can lessen the detrimental effects that musculoskeletal conditions have on the health and well-being of temporary dockworkers, boosting industry wide productivity and occupational outcomes.

**Keywords:** Prevalence, Back Pain, Casual Dockworkers, Nigerian Ports.

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## INTRODUCTION

The majority of dockworkers' waking hours are spent at work in modern-day society. While working has many positive social, economic, and other effects, there are frequently unfavourable events that occur carelessly or suddenly and may result in loss, harm, or damage. Dockworkers must load and unload cargo, which involves several occupational risks and strenuous physical labour daily. These pressures may have a major negative effect on their musculoskeletal health and raise their risk of musculoskeletal health problems. A variety of problems affecting the muscles, tendons, ligaments, joints, and other supporting elements of the body are referred to as musculoskeletal health issues.

Previous studies carried out in various nations have emphasized the prevalence and consequences of musculoskeletal health issues among workers. For instance, Balogh et al. (2012) documented a significant prevalence of back pain among dockworkers at a Canadian port, highlighting the vitality of this issue within the business. The incidence of musculoskeletal problems among dockworkers has also been shown by studies carried out in different contexts, such as Iran (Shariat et al., 2016) and Brazil (Miranda et al., 2020). Similarly to this, Akpoghme (2012) found that issues with musculoskeletal health typically result in body weakness or exhaustion, both of which lead to the most serious car accidents ever documented in historical records. Therefore, those who deal with long-term health issues should refrain from driving for longer periods.

However, little literature explicitly concentrates on casual dockworkers in Nigerian ports and their musculoskeletal health concerns within the Nigerian environment. The majority of current research on musculoskeletal health in Nigeria is more general or covers a wider range of occupational categories. The development of focused interventions and strategies to address the particular musculoskeletal health issues faced by casual dockworkers in Nigerian ports is hampered by this gap in the literature. By filling in this knowledge vacuum, the study hopes to further the body of knowledge by offering insightful information about the musculoskeletal health issues faced by casual dockworkers in Nigerian ports. The results will help to establish focused interventions and policies that will enhance workplace safety, improve musculoskeletal health outcomes, and advance the general well-being of dockworkers in this particular occupational group.

It is necessary to do a comparative analysis that takes into account the variations in working circumstances, procedures, and policies across various ports, to comprehend the musculoskeletal health issues faced by casual dockworkers in Nigerian ports. The prevalence and seriousness of musculoskeletal problems among dockworkers may vary depending on the specific characteristics of each port. As a result, doing a comparative study can help uncover specific risk factors and areas for improvement while also giving a thorough grasp of the musculoskeletal health issues that casual dockworkers confront.

## CONCEPTUAL CLARIFICATION

The theoretical framework for the prevalence of back pain among casual dockworkers in Nigerian ports is based on the following key concepts and theoretical perspectives:

**Ergonomics:** Theoretical support for understanding and enhancing the musculoskeletal health of workers is provided by ergonomics. It focuses on maximizing how successfully employees

interact with their workplace to improve worker safety, productivity, and well-being. Ergonomics principles might be used to identify and reduce risk factors for musculoskeletal problems in dockworkers. The studies of Marras and Karwowski (2006) and Karhu et al. (1977) are pertinent to understanding how ergonomics principles are applied in analyzing and improving working postures and situations.

**Biomechanics:** Biomechanics investigates the mechanical components of human movement and the forces placed on the body while performing work-related tasks. Understanding the physical strains put on dockworkers and the stressors that occur in their musculoskeletal system is helpful. In determining the risk factors causing musculoskeletal health issues in dockworkers, considerations of biomechanics, such as weight handling, repeated movements, and body alignment, are crucial. Adams et al.'s study from 1986 offers information on the lumbar spine's stresses throughout the day, which might be useful when analyzing how biomechanical factors affect musculoskeletal health.

**Occupational Health and Safety:** The theoretical framework also integrates occupational health and safety concepts, which seek to avert illnesses and injuries related to the workplace. Frameworks for fostering safe working conditions and reducing occupational hazards are provided by occupational health and safety laws. It is possible to discover the function of organizational policies, training initiatives, and legal compliance in preventing and managing musculoskeletal illnesses by including these frameworks in the investigation of musculoskeletal health issues among dockworkers. The research done by Lee and Ahonen (2009) on how workers perceive and respond to risk offers insight into how occupational health and safety affect musculoskeletal health.

**Socio-Ecological Model:** By taking into account the interaction between personal, interpersonal, organizational, community, and societal elements that affect health outcomes, the socio-ecological model offers a wider perspective. To better understand the multilevel variables, such as individual traits, work environment, organizational policies, and larger social influences, this model is applied to the investigation of musculoskeletal health challenges among dockworkers. This all-encompassing approach offers a thorough comprehension of the intricate interaction of elements affecting musculoskeletal health.

Ergonomics, biomechanics, occupational health and safety, and the socio-ecological model are some of the theoretical frameworks that give a strong foundation for studying and understanding the musculoskeletal health issues among casual dockworkers in Nigerian ports. By using these frameworks, the study can investigate the human, organizational, and environmental aspects that contribute to musculoskeletal illnesses and guide the creation of efficient interventions and policies to enhance dockworkers' musculoskeletal well-being.

## **Review of Related Empirical Study**

According to Louw et al. (2007), adults' mean point severity of low-back pain is 32% in Africa, where it occurs 62% of the time across their lifetimes. In the UK, lower back pain is one of the most common debilitating disorders, especially among those of working age, according to 1994 data from the Royal College of General Practitioners. According to Folletti et al. (2005), 58.8% of hospital staff in Italy reported having low back discomfort. According to the Department of Health for Gauteng (2006), 152 physiotherapists treated 5727 patients with low back pain

between January 1 and August 30 in South African free healthcare institutions in the Central Region.

Van Vuuren et al. (2005) claim that low back pain reduces life quality and leads to both physical and mental distress. According to Van Vuuren et al. (2005), low back discomfort has widespread impacts that include more frequent absences from work and diminished motivation. These effects have a detrimental financial effect. Research on the subject has been done both domestically and abroad, including by the UK's Public Healthcare Service, and it has shown that back discomfort has a substantial financial impact on healthcare systems.

### Causes of Back Pain

The majority of the more than 500,000 cases of musculoskeletal health issues that are diagnosed each year in the United States can be linked to work that requires lifting heavy objects, with improper lifting technique during manual handling is one of the most important contributors to the development of back pain. The following is a summary of the most significant situations or detrimental effects that are connected to the emergence of back problems while performing manual lifting-intensive tasks: Unprofessional body language, such as bending and twisting the body, repeated motions requiring great effort, focused areas of force, and fixed places.

### METHODS

**Sample Selection:** A sample size of 284 casual dockworkers was obtained from different ports in Nigeria.

**Surveys and Questionnaires:** Standardized surveys and questionnaires were developed to collect quantitative data on musculoskeletal health challenges, including the prevalence, types, and severity of musculoskeletal disorders.

**Comparative Analysis:** To examine the musculoskeletal health issues faced by casual dockworkers in various Nigerian ports, the obtained data were evaluated using the relevant statistical methods. The prevalence, severity, and types of musculoskeletal problems varied significantly among the ports, which were determined by statistical tests like analysis of variance (ANOVA).

The respondents received a total of 284 questionnaires, of which 250 copies were completed and returned. Of those, 231 copies were correctly completed, accounting for 81% of the total number of instruments distributed.

Table 1: Gender Distribution of the Respondents

		Per cent	Per cent	Valid Percent	Cumulative Percent
Valid	Male	214	92.6	92.6	92.6
	Female	17	7.4	7.4	100.0
	Total	231	100.0	100.0	

The respondents' gender breakdown is seen in Table 1 above. According to the data, 214 of the 231 respondents—or 92.6% of the total—are male, while the remaining 17—or 7.4%—are female.

Table 2: Age Distribution of the Respondents

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Below 20	3	1.3	1.3	1.3
	20-30	76	32.9	32.9	34.2
	31-40	137	59.3	59.3	93.5
	Above 40	15	6.5	6.5	100.0
	Total	231	100.0	100.0	

Table 2 shows the age distribution of the respondents and the percentage they represent in the sample. Respondents within the age bracket of 31-40 years were 137(59.3%) which accounted for more than half of the total respondents followed by respondents within the age bracket of 20-30 which accounted for 76(32.9%) of the total respondents, while those within the age bracket of below 20years were 3(1.3%) and those respondents within the age bracket of 40 and above accounted for 6.5% of the population.

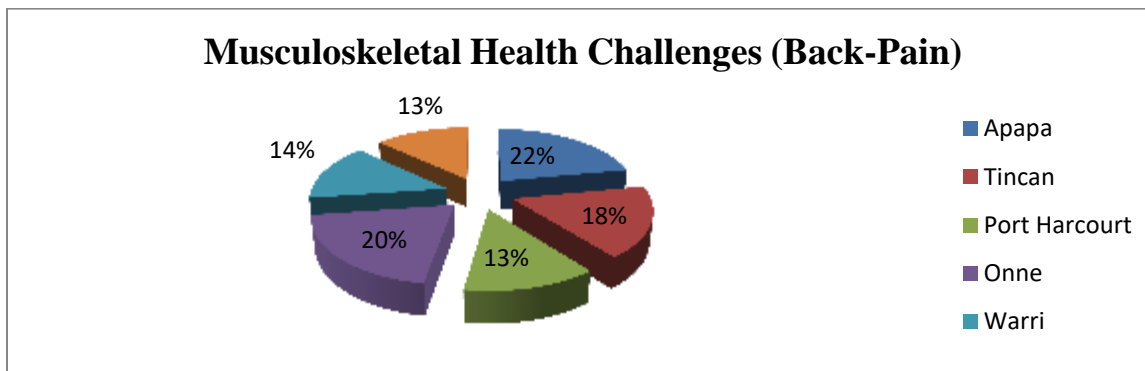


Figure 1: Summary of Back pain among Casual Dockworkers in Nigeria (2010-2020)  
Source: Maritime Workers Union of Nigeria, 2021

Figure 1 summarizes the back pain dockworkers in Nigerian ports reported from 2010 to 2021. Out of 914 respondents, or 22%, who reported back discomfort within this time frame, 14% reported working at Warri Port, 14% at Tincan Port, 18% at Apapa Port, 20% at Onne Port, and 13% each at Port Harcourt and Calabar.

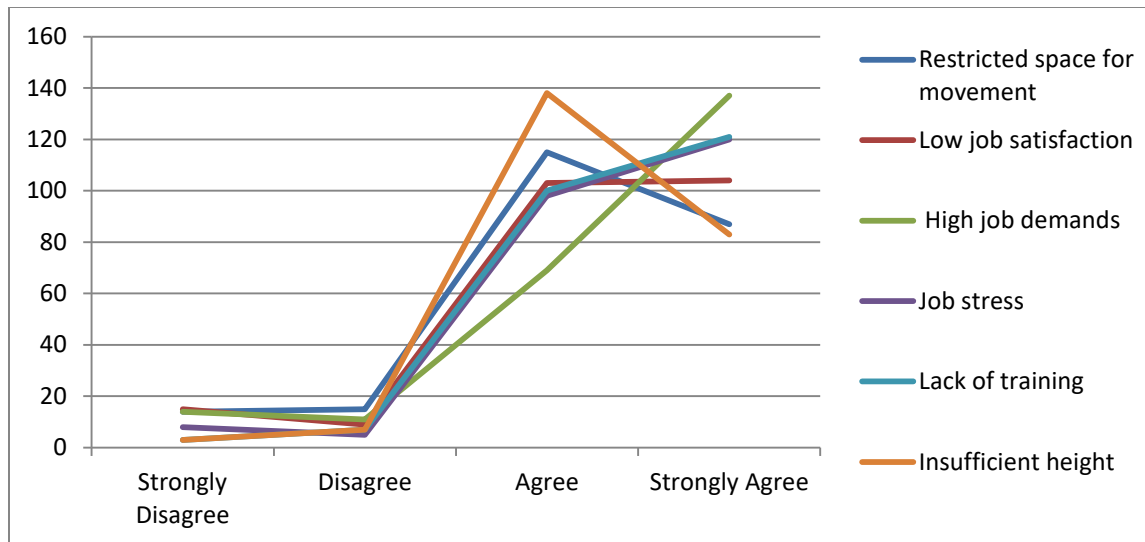


Figure 2: Factors that can increase musculoskeletal health challenges  
Source: Researcher Field work, 2021

Figure 2 shows respondents' answers to the probing question on circumstances that might make it harder for Nigerian port casual dockworkers to maintain good musculoskeletal health. According to the graph above, 87 respondents (37.7%) strongly agreed that insufficient space could raise musculoskeletal health difficulties for casual dockworkers in Nigerian ports, 115 (49.8%) agreed, and 12.5% disagreed. Similarly, 103 (44.6%) and 104 (45%) respondents strongly agreed that low job satisfaction could raise musculoskeletal health issues among casual dockworkers in Nigerian ports. 10.4% disagreed that low job satisfaction could worsen musculoskeletal health issues. Meanwhile, 137 (59.3%) respondents strongly agreed that high job demand could increase musculoskeletal health challenges among casual dockworkers in Nigerian ports, 69 (29.9%) agreed, and 10.8% disagreed. Again, 120 respondents (51.9%) strongly agreed that job stress is one of the main causes of musculoskeletal health issues among casual dockworkers in Nigerian ports, 98 (42.4%) strongly agreed that low job stress is a major cause, and 5.7% disagreed. 121 (52.4%) of respondents strongly agreed that lack of training causes musculoskeletal health issues, 100 (43.3%) agreed, and 95.7% agreed that insufficient height causes issues for casual dockworkers in Nigerian ports. Lack of training could potentially aggravate musculoskeletal health issues among Nigerian port casual dockworkers.

### Analysis Of Variance (ANOVA) Computation on Variati Back Pain-Pain among Casual Dockworkers in Nigerian Ports

**Objective 1:** To examine the prevalence of back pain among casual dockworkers in the Nigerian port

#### Hypothesis 1:

$H_0$ : There is no statistically significant variation in back pain among casual dockworkers in Nigerian ports

$$\text{i.e. } \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6$$

$H_1$ : There is a statistically significant variation of back pain among casual dockworkers in Nigerian ports  
i.e. At least, one mean is different from the others.

### Find the Critical Value

d.f.N = degree of freedom number of groups =  $k - 1$

d.f.D. = degree of freedom sample sum =  $N - k$

where:  $k$  is number of groups = 6

$N$  is sum of all samples =  $57 + 44 + 29 + 36 + 34 + 31 = 231$

d.f.N. =  $k - 1 = 6 - 1 = 5$

d.f.D. =  $N - k = 231 - 6 = 225$

From Table 4.14, it is evident that the majority of the participants, 57 with a mean score of 3.088 had experienced back pain at Apapa port in the survey while 44, 29, 36, 34, and 31 had experienced back pain at Tincan, Port Harcourt, Onne, Warri, and Calabar respectively

### Analysis of Variance Summary on Back Pain among Casual Dockworkers in Nigerian Ports

Groups	Count	Sum	Average	Variance
Apapa	57	176	3.088	0.760
Tincan	44	132	3.000	-
Port Harcourt	29	102	3.517	0.901
Onne	36	134	3.722	1.006
Warri	34	110	3.235	1.519
Calabar	31	99	3.194	1.895

**Table 4.** ANOVA Test

Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	14.434	5	2.887	3.093	0.010	2.254
Within Groups	209.981	225	0.933			
Total	224.416	230				

Since the computed  $F (= 3.093)$  is greater than the critical value ( $= 2.254$ ), and also since the  $p$ -value ( $= 0.010$ ) is less than  $\alpha (= 0.05)$ , we therefore reject the null hypothesis, and summarise the result as follows:

$H_1$ : There is a statistically significant variation of back pain among casual dockworkers in Nigerian ports  
i.e. At least, one mean is different from the others.

Since there is a significant difference, posthoc analysis will be conducted to determine where the differences lie by employing Tukey HSD

Table 4: Multiple Comparisons with Tukey's HSD of Back-Pain among Casual Dockworkers in Nigerian Ports

(I) Location of Port	(J) Location of Port	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Apapa	Tincan	.08772	.19386	.998	-.4695	.6450
	Port Harcourt	-.42952	.22035	.375	-1.0629	.2039
	Onne	-.63450*	.20566	.027	-1.2257	-.0433
	Warri	-.14757	.20934	.981	-.7493	.4541
	Calabar	-.10583	.21559	.996	-.7255	.5139
Tincan	Apapa	-.08772	.19386	.998	-.6450	.4695
	Port Harcourt	-.51724	.23107	.224	-1.1814	.1469
	Onne	-.72222*	.21710	.013	-1.3463	-.0982
	Warri	-.23529	.22059	.894	-.8694	.3988
	Calabar	-.19355	.22653	.957	-.8447	.4576
Port Harcourt	Apapa	.42952	.22035	.375	-.2039	1.0629
	Tincan	.51724	.23107	.224	-.1469	1.1814
	Onne	-.20498	.24105	.958	-.8979	.4879
	Warri	.28195	.24419	.858	-.4200	.9839
	Calabar	.32369	.24957	.786	-.3937	1.0411
Onne	Apapa	.63450*	.20566	.027	.0433	1.2257
	Tincan	.72222*	.21710	.013	.0982	1.3463
	Port Harcourt	.20498	.24105	.958	-.4879	.8979
	Warri	.48693	.23102	.287	-.1771	1.1510
	Calabar	.52867	.23670	.227	-.1517	1.2091
Warri	Apapa	.14757	.20934	.981	-.4541	.7493
	Tincan	.23529	.22059	.894	-.3988	.8694
	Port Harcourt	-.28195	.24419	.858	-.9839	.4200
	Onne	-.48693	.23102	.287	-1.1510	.1771
	Calabar	.04175	.23990	1.000	-.6478	.7313
Calabar	Apapa	.10583	.21559	.996	-.5139	.7255
	Tincan	.19355	.22653	.957	-.4576	.8447
	Port Harcourt	-.32369	.24957	.786	-1.0411	.3937
	Onne	-.52867	.23670	.227	-1.2091	.1517
	Warri	-.04175	.23990	1.000	-.7313	.6478

Table 5 demonstrates Multiple Comparisons using Tukey's HSD of Back-Pain among Nigerian Port Casual Dockworkers. Each row compares dockworkers with back discomfort in one port to the other five ports. The first row shows Apapa vs. Tincan, Port Harcourt, Onne, Warri, and Calabar. The sig. column compares dockworkers' back pain in each port. Apapa v. Tincan's comparative significance is .998. These ports are not statistically distinct because this value is bigger than .05. Comparing Apapa v. Port Harcourt, Onne, Warri, and Calabar, their significant levels are .375, .027, .981, and .996. This shows that Apapa v. Port Harcourt, Apapa v. Warri, and Apapa v. Calabarport are not significantly different because their significant level is greater than .05. However, Apapa v. Onne shows a statistically significant difference (sig = .027, less than 0.05).

After comparing Apapa port to the other five ports, the number of dockworkers who experienced back pain was significantly different from Port Harcourt, Warri, Onne, and Calabar ports, but not from Onne port. In Tincan verses (Apapa, Port Harcourt, Warri, and Calabar), dockworkers' back pain is not significantly different since their significant levels are greater than the .05 level required for statistical significance: .998, .224, .894, and .957, respectively, while Tincan versus Onne port results indicate a statistically significant difference (sig = .013 which is



less than .05). In Port Harcourt versus Apapa, Tincan, Onne, Warri, and Calabar, dockworkers' back pain is not significantly different since their significant levels are greater than the .05 level required for statistical significance: 375, 224, 958, 858, and .786. In Onne versus (Port Harcourt, Warri, and Calabar), dockworkers' back pain is not significantly different since their significant levels are greater than the .05 level required for statistical significance (.958, .287, and .227 respectively) while Onne versus Tincan and Apapa port results indicate a statistically significant difference (sig = .027 and .013 respectively, which is less than 0.05).

Table 4: Homogeneous Subsets Back pain

TukeyHSD <sup>a,b</sup>			
Location of	N	Subset for alpha = 0.05	
Port		1	2
Tincan	44	3.0000	
Apapa	57	3.0877	3.0877
Calabar	31	3.1935	3.1935
Warri	34	3.2353	3.2353
Port Harcourt	29	3.5172	3.5172
Onne	36		3.7222
Sig.		.203	.060

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 36.540.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

## INTERPRETATION

Results show that Tukey HSD differentiates two homogeneous groups: The results include means for each port of the independent variable in the homogeneous group. Tincan, Apapa, Calabar, Warri, Port Harcourt, and Onne results are in one homogeneous group, and Onne results are in another. Back-pain subgroups Table 4.17 shows S-N-K post hoc test. The output's first column lists ports from lowest to highest mean. Tincan, Apapa, Calabar, Warri, Port Harcourt, and Onne ports had mean values of 3.0000, 3.0877, 3.1935, 3.2353, and 3.5172. The second column lists dockworkers by port. The last columns show statistically significant differences between ports. Same-column ports are similar. It is also claimed that ports in one column are statistically distinct from those in another. Based on Table 5, Tincan, Apapa, Calabar, Warri, and Port Harcourt are similar because they are both in Column 1. One port is not in column 1. Apapa, Calabar, Warri, Port Harcourt, and Onne ports are not considerably different, unlike Tincan port, which is not shown in column 2.

## CONCLUSION

In conclusion, a comparative examination of musculoskeletal health issues among sporadic dockworkers in Nigerian ports showed a significant frequency of musculoskeletal illnesses, especially back pain, within this occupational category. The study cited heavy lifting, repetitive work, insufficient training, lengthy workdays, and a lack of ergonomics and occupational health and safety procedures as important contributing causes. To overcome these obstacles, ergonomic concepts must be implemented, training programs must be improved, and the creation and

implementation of occupational health and safety standards must be given top priority. By putting these solutions into practice, Nigerian ports can raise the general well-being and musculoskeletal health of casual dockworkers, which would ultimately boost industry productivity and occupational outcomes.

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