SJ Orthopaedic Research Africa
Vol. 2 No. 6 (2025): August 2025 Issue
https://doi.org/ 10.51168/zkz49104
Original Article

Environmental factors contributing to low back pain among males aged 20 to 35 years at Spinal Clinic, Mulago National Referral Hospital, Kampala District. A Cross-sectional study.

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Abstract

Background:

The influence of lifestyle choices on lower back pain (LBP) among males. The aim of the study is to assess the Environmental factors contributing to low back pain among males aged 20 to 35 years at Spinal Clinic, Mulago National Referral Hospital, Kampala District.

Methodology:

A cross-sectional survey involving the collection of quantitative data from 190 respondents, including 14 Surgeons and other doctors, 40 nursing staff, 19 Administrative and support staff, and 108 patients.

Results:

Poor working conditions, prolonged sitting or standing, heavy lifting or manual labor, lack of ergonomic furniture and equipment, insufficient breaks or rest periods, and environmental stressors were significant contributors to LBP. Poor working conditions are associated with a higher prevalence, with a mean score of 3.97. Prolonged sitting or standing during work, by the mean score, is 3.71. Heavy lifting or manual labor increases the risk of low back pain among young males; the mean score is 4.23. Lack of ergonomic furniture and equipment in workplaces leading to low back pain issues yields a mean score of 3.97. Insufficient breaks or rest periods during work exacerbate low back pain problems. The largest proportions of patients, constituting 30% of the sample, are Boda boda riders, 28% are Manual laborers, and 24% are office workers. Drivers and market vendors represent 14% and 12% of the patients, respectively, suggesting that certain professions may pose a higher risk for developing LBP.

Conclusion:

Addressing these environmental factors through improvements in workplace ergonomics, rest breaks, and environmental conditions will help alleviate the burden of low back pain in this population.

Recommendation:

Employers can implement policies that encourage employees to take short breaks to stretch and move around. Providing designated areas for stretching exercises or organizing group fitness activities during breaks can promote physical activity and relieve tension in the lower back.

Keywords: *Workplace ergonomics, Rest periods, low back pain, Mulago National Referral Hospital.*
Submitted: June 19, 2025 Accepted: July 20, 2025 Published: August 30, 2025
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Background of the study

The influence of lifestyle choices on lower back pain (LBP) among males aged 20 to 35 years has been a topic of considerable scholarly investigation, exploring the potential impact of individual behaviours on musculoskeletal health. The literature offers various perspectives on the relationship between lifestyle choices and the occurrence of lower back pain. Many studies, including the work of, emphasize the role of lifestyle choices such as physical activity, sedentary behaviour, and smoking in the development of lower back pain, revealing that individuals with sedentary lifestyles or those engaged in activities that place excessive strain on the lower back may be at a higher risk of experiencing LBP (Clari et al, 2021). This perspective aligns with the biomechanical model, which suggests that certain movements and postures associated with lifestyle choices can contribute to musculoskeletal issues. The relationship between lifestyle choices and LBP is not universally

consistent, which suggests that individual variations in response to lifestyle factors and the presence of other confounding variables may complicate the understanding of this relationship (Belay et al, 2016).

The role of workplace conditions, such as physical demands, ergonomics, and job-related stress, contributes to the development of lower back pain, where findings show that individuals working in occupations with high physical demands or poor ergonomic design may be at a higher risk of experiencing LBP (Girma, 2016). This perspective aligns with the biomechanical model, which suggests that occupational factors can directly influence the mechanical stresses placed on the lower back. Organizational factors, including workplace culture, leadership support, and the availability of ergonomic resources, may play a crucial role in mitigating or exacerbating the impact of workplace conditions on lower back pain, revealing that organizations that prioritize employee well-being and provide resources for ergonomics may contribute to a healthier work environment (Tefera et al, 2019).

Contradictory perspectives exist in the literature, with scholars challenging the notion that workplace conditions significantly contribute to lower back pain. Previous studies suggest that while certain workplace conditions may be associated with LBP, the impact of these factors may be mediated by individual variations in coping mechanisms and job satisfaction, indicating that individuals with better coping strategies and job satisfaction may experience less severe LBP despite challenging workplace conditions (Tafese et al, 2018). This perspective underscores the need for a more nuanced understanding that considers the interplay between occupational factors and individual characteristics. The aim of the study is to assess the Environmental factors contributing to low back pain among males aged 20 to 35 years at Spinal Clinic, Mulago National Referral Hospital, Kampala District.

Methodology

Research Design

A cross-sectional survey design, as proposed by Amin (2005), was employed to ensure a robust exploration of factors associated with lower back pain among males aged 20 to 35 years at Spinal Clinic, Mulago National Referral Hospital, Kampala district. This approach allowed for the collection of data at a single point in time, optimizing efficiency and minimizing costs associated with data collection. The quantitative component of the research involved the administration of structured questionnaires to gather numerical data, enabling rigorous statistical analysis to draw reliable conclusions. Quantitative analysis facilitated the identification and quantification of specific individual, socioeconomic, and environmental factors contributing to lower back pain among the target demographic. The selection of a cross-sectional design was motivated by its ability to provide a snapshot of the current situation, allowing for the examination of relationships between variables at a specific point in time. This design choice enabled the study to capture a wide range of factors associated with lower back pain among males aged 20 to 35 years, supporting correlation studies and the exploration of associative measures.

Description of setting and rationale

The study was carried out at the Spinal Clinic in Mulago National Regional Referral Hospital, located in the heart of Kampala, the capital city of Central Uganda. It was a government national referral hospital. It had a bed capacity of 3000 beds. The spinal ward, the only one of its kind in Uganda, was established in 2009 and handled all spine-related illnesses, such as surgeries and infections, in the country. The spinal ward at Mulago National Referral Hospital was to be fully renovated, courtesy of the Rotary Club of Kampala Metropolitan. The spinal ward, the only one of its kind in Uganda, was established in 2009 and handled all spine-related illnesses, such as surgeries and infections, in the country. In charge of the spine unit, the hospital admitted between 600 and 700 patients annually, and about 300 patients were operated on annually. The victims of spine-related injuries were mainly accident victims who ended up paralyzed, patients with infections like bacteria and tuberculosis of the spine, children with congenital abnormalities (children born with deformities), and senior citizens who had developed degenerative spine conditions.

Study Population

The study targeted employees of Spinal Clinic, Mulago National Referral Hospital. The questionnaires were administered to 15 Surgeons and other doctors, 45 Nursing staff, 20 Administrative and support staff, and 150 patients, making a total of 230 individuals.

Sample Size

A sample size determination table developed by Krejcie and Morgan (1970) was used to develop a sample size for this study. Therefore, considering the distribution of the target population, a total sample size of 181 respondents was used and was distributed as follows: 14 Surgeons and other doctors, 40 nursing staff, 19 Administrative and support staff, and 108 patients. This is shown in Table 1.

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Table 1: The distribution of the population and sample size

No.	Details	Study Population	Sample size
1.	Surgeons and other doctors	15	14
2	Nursing staff	50	44
3	Administrative and support staff	25	24
4	Patients	150	108
Total		**240**	**190**

Source: Primary data

Sampling Techniques

Stratified Random Sampling

Stratified random sampling involves dividing the population into subgroups or strata based on certain characteristics and then randomly selecting samples from each stratum. Surgeons and other doctors had varying schedules, responsibilities, and expertise. Stratified sampling ensured representation from different subgroups, allowing for a more comprehensive understanding of the entire medical team's perspectives. The list of surgeons and doctors was divided into strata based on their specialization and experience levels. Random samples were then selected from each stratum.

Simple Random Sampling

Simple random sampling involved selecting samples randomly from the entire population, where each member had an equal chance of being chosen. Nursing staff, having similar roles and responsibilities, were considered as a homogenous group. Simple random sampling ensured that every nurse had an equal opportunity to be included, preventing bias in the selection process. A complete list of nursing staff was created, and individuals were randomly selected from this list.

Convenience Sampling

Convenience sampling involved selecting individuals who were easiest to reach or were readily available for participation. Administrative and support staff may have had limited availability due to their non-clinical responsibilities. Convenience sampling was practical when accessibility was a priority, and the focus was on gathering insights from this group without strict representation. Administrative and support staff who were available during the study period were approached for participation.

Systematic Sampling

Systematic sampling involved selecting every nth member from a list after a random start. Patients visiting the spinal clinic may have had diverse conditions, and systematic sampling ensured that every nth patient was included, providing a representative sample of the patient population. Patients were approached at regular intervals during the study period, starting with a random selection, to ensure a systematic and unbiased representation.

Data Collection Sources

Primary sources

The acquisition of firsthand information was facilitated through primary data, involving direct interactions with respondents. This encompassed engaging respondents in discussions, interviews, and soliciting their perspectives on various issues. The process aimed to gather comprehensive insights into their experiences and challenges, with subsequent discussions on potential solutions.

Secondary Sources

Supplementary information was derived from secondary sources such as university public libraries and other resource centres. Utilizing materials like textbooks, journals, newsletters, manuals, dissertations, and annual reports contributed to a more extensive understanding of the study. This method broadened the scope of available information and supported a more comprehensive analysis.

Data Collection Methods and Instruments

Quantitative data collection methods

Questionnaire: A questionnaire, a structured research instrument containing a series of inquiries and prompts, was utilized to gather information from nursing staff, patients, and administrative and support staff. The choice of questionnaires was motivated by their ability to elicit more accurate responses to personal questions, especially when respondents could answer at their convenience. The questionnaire aligned with the study's objectives, encompassing both independent variables (specific individual factors, socioeconomic factors, and environmental factors) and the dependent variable (lower back pain among males).

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Quality Control (Validity and Reliability)

Validity of Study Instruments

To ensure the accuracy of the study's findings in representing the researched phenomenon, a comprehensive validity assessment was conducted. Preliminary testing of the instruments involved the identification and rectification of issues such as unclear or ambiguous questions. Collaborating closely with the supervisor, the researcher sought expert judgments to evaluate the content validity index (CVI) for each category of questions. The CVI was calculated using the formula:

$$\frac{\text{Number of items rated correctly X 100}}{\text{Total number of items}}$$

Reliability of Study Instruments

To measure the consistency of the research instruments, the internal consistency method was employed. Questionnaires were administered to a sample of at least 10 respondents, and their responses underwent correlation analysis using Cronbach's Alpha. A reliability threshold of 0.7 and above, as advised by Amin (2005), indicated that the instruments yielded consistent results across repeated trials.

Procedure of Data Collection

Upon receiving approvals from the University (Tutors College Mulago) and securing necessary permissions from Spinal Clinic, Mulago National Referral Hospital, the data collection process was initiated. Initially, the instruments underwent a pilot phase to identify and address any potential challenges. Subsequently, research assistants were trained to ensure standardized data collection procedures. The actual fieldwork involved the distribution of questionnaires by assistants and the conduct of interviews.

Data Analysis

Quantitative Analysis

Quantitative data underwent a systematic analysis process. Initially, the collected data were edited, coded, and entered into the Statistical Package for Social Sciences (SPSS). Univariate analysis techniques were then employed to describe the data, including calculating the mean and standard deviation to identify patterns within it. The Pearson correlation coefficient was utilized to assess relationships between study variables. Descriptive analysis was utilized to examine the distribution of variables, while inferential tests were applied for hypothesis testing.

Ethical Considerations

Anonymity and Briefing: To uphold ethical standards, the research instruments were meticulously designed to omit any mention of the respondent's name. Ethical considerations were paramount, with respondents being thoroughly briefed on the research's purpose, their significance in the process, and what was expected of them.

Permission and Confidentiality: At the initiation of data collection, the researcher provided an introductory letter from the University and formally requested permission for data collection. Informants received assurances regarding the confidential treatment of their provided information, emphasizing that the study findings would be exclusively used for academic purposes.

Bias Avoidance and Objectivity: In a conscious effort to prevent bias and any potential psychological harm to respondents, the researcher refrained from posing questions that may be detrimental. Both during data collection and subsequent analysis, a commitment to objectivity was maintained. Interview bias was mitigated by ensuring that the interviewer remained unaware of the outcome of interest.

Plagiarism Mitigation: Stringent measures against plagiarism were implemented, with the researcher committing to acknowledging every source used in the writing process. Whether paraphrased, summarized, or directly quoted, proper attribution was provided. Any verbatim text borrowed from other authors was clearly delineated within quotation marks. **Paraphrasing and Summarizing**: When paraphrasing or summarizing the work of others, the researcher adhered to a principled approach. The goal was to faithfully reproduce the precise meaning of the original ideas or facts, utilizing the researcher's own words and sentence structure. This ensured integrity in conveying the intended content without deviating from the source's essence.

Anticipated Limitations of the Study

Time Constraints: The research might have faced time constraints due to the busy schedules of medical professionals and staff. To overcome this limitation, the researcher implemented flexible data collection schedules, including evenings or weekends, to accommodate the availability of the participants. Prioritized efficient and quick data collection methods. **Limited Accessibility of Administrative Staff:** Administrative and support staff might have been occupied with non-clinical duties, making them less accessible. To overcome this limitation, convenience sampling was used, but also established communication channels with the administration to identify specific time slots or breaks when staff might be available. Ensured clear communication of the study's importance.

Patient Privacy Concerns: Patients might have been hesitant to share information due to concerns about privacy. To overcome this limitation, confidentiality and anonymized data during analysis were emphasized. The purpose of the study was clearly explained, and how their information would be protected. Obtained informed consent

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and assured participants that their responses would not affect their medical care.

Results

Table 2: *Showing the Demographic Characteristics of patients.*

Category	Options	Frequency	Percentage
Age	20 -25 years	6	6
	26 -30 years	40	37
	31-35 years	62	57
Total		**108**	**100**
Occupation	Manual Laborer	28	26
	Office work	24	22
	Boda Boda riders	30	28
	Drivers	14	13
	Market vender	12	11
Total		**108**	**100**
Marital Status	Single	30	28
	Married	52	48
	Divorced/separated	26	24
Total		**108**	**100**

***Source: Primary Data*, 2024**

Table 2 presents the demographic characteristics of male patients aged 20 to 35 years suffering from lower back pain at Mulago National Referral Hospital. The data shows a breakdown of patients by age groups. The majority of patients fall within the age range of 31 to 35 years, constituting 57% of the total sample. Following this group, individuals aged 26 to 30 years represent 37% of the patients, while those aged 20 to 25 years make up the smallest proportion at 6%. The distribution of patients across these age groups suggests that lower back pain is more prevalent among males in their late twenties to mid-thirties. This finding could indicate that this age range may be particularly susceptible to factors contributing to lower back pain, such as occupational hazards or lifestyle factors.

Table 2 further outlines the occupational distribution of the male patients suffering from lower back pain. The data reveal that the largest proportion of patients, constituting 30% of the sample, are Boda boda riders. Following closely are manual laborers at 28%, and office workers at 24%. Drivers and market vendors represent 14% and 12% of the patients, respectively. The distribution of patients across various occupations suggests that certain professions may pose a higher risk for developing lower back pain. Occupations that involve manual labor or prolonged sitting, such as manual laborers and office workers, may predispose individuals to back pain due to repetitive movements or poor posture. Table 3 further illustrates the marital status of male patients suffering from lower back pain. The data indicate that almost half of the patients (48%) are married, while 28% are single, and 24% are divorced or separated. The distribution of patients across marital status categories provides insights into how personal relationships might influence the experience or management of lower back pain. For instance, married individuals may have different support structures compared to single or divorced/separated individuals, which could impact their coping mechanisms or access to healthcare resources.

https://doi.org/ 10.51168/zkz49104

Table 3: ***Showing the Demographic Characteristics of staff.***

Category	Options	Frequency	Percentage
Gender	Male	42	53
	Female	38	48
Total		**80**	**100**
Age	20 -25 years	6	5
	26 -30 years	10	13
	31-35 years	22	28
	36-40 years	24	30
	40 years and above	20	25
Total		**80**	**100**
Marital Status	Single	28	35
	Married	42	53
	Divorced/separated	10	13
Total		**80**	**100**

***Source: Primary Data*, 2024**

Table 3 displays the gender distribution among the staff of the Spinal Clinic at Mulago National Referral Hospital. Out of a total of 80 staff members surveyed, 53% are male, while 48% are female. This indicates a slightly higher representation of male staff in the clinic compared to female staff. By capturing the gender distribution, the study ensures that the findings are representative and applicable to both male and female staff members, enhancing the generalizability of the results.

Table 3 presents the age distribution of the staff at the Spinal Clinic. The data shows that the majority of the staff fall within the age range of 31 to 40 years, comprising 58% of the total surveyed population. This is followed by staff aged 40 years and above, accounting for 25%. Therefore, understanding the age distribution allows for the identification of potential age-related factors that may influence the occurrence of lower back pain, contributing to a more comprehensive analysis and interpretation of the study results.

Table 3 provides insight into the marital status of the employees at the Spinal Clinic. The data reveals that the majority of the staff are married, constituting 53% of the total surveyed population, while 35% are single, and 13% are divorced or separated. Marital status can impact an individual's access to social support, financial resources, and lifestyle choices, all of which may play a role in their susceptibility to lower back pain. Therefore, by capturing this demographic information, the study ensures a more nuanced understanding of the factors contributing to lower back pain among staff members at the Spinal Clinic, Mulago National Referral Hospital.

The environmental factors contributing to low back pain among males aged 20 to 35 years at Spinal Clinic, Mulago National Referral Hospital, Kampala District

In the following section, several responses were analyzed to examine the environmental factors contributing to low back pain among males aged 20 to 35 years while considering the following scale: 4.20-4.99 mean = *Very High,* 3.40-4.19*mean = High,* 2.60-3.39*mean = Moderate,* 1.80-2.59 *mean = Low, and* 1.00-1.79*mean = Very Low.*

https://doi.org/ 10.51168/zkz49104

Table 4: Descriptive Analysis for the environmental factors contributing to low back pain among males aged 20 to 35 years.

Assertions/Questions	Mean (N=188)	Std. Deviation	Interpretation
Poor working conditions are associated with a higher prevalence of low back pain among individuals	3.97	.460	High
Prolonged sitting or standing during work contributes to the development of low back pain	3.71	1.365	High
Heavy lifting or manual labor increases the risk of low back pain among young males	4.23	1.270	Very high
Lack of ergonomic furniture and equipment in workplaces leads to low back pain issues	3.97	.560	High
Insufficient breaks or rest periods during work exacerbate low back pain problems.	4.10	.368	High
Environmental factors such as noise pollution in the workplace contribute to stress, which can aggravate low back pain	4.10	1.446	High
Inadequate lighting conditions at work can strain the eyes and posture, leading to low back pain.	4.03	.472	High
Poor ventilation or air quality in the workplace may indirectly contribute to low back pain through increased stress levels and discomfort	4.15	.314	High
Overall Mean	**4.03**	**0.78**	**High**

Source: Primary data

The assertion concerning poor working conditions being associated with a higher prevalence of low back pain yields a mean score of 3.97, indicating a high level of agreement among respondents. The standard deviation of 0.460 suggests minimal variability in opinions, signifying consensus among individuals regarding this factor. This implies that the majority of respondents recognize poor working conditions as a significant contributor to the prevalence of low back pain. Factors such as inadequate ergonomic setups, unsafe working environments, and a lack of proper equipment may exacerbate or lead to low back pain among individuals. Regarding the statement about prolonged sitting or standing during work contributing to the development of low back pain, the mean score is 3.71, indicating a high level of agreement among respondents. However, the relatively high standard deviation of 1.365 suggests some variability in opinions regarding this factor. While there is recognition that prolonged sitting or standing can contribute to low back pain, opinions on the extent of this contribution vary among individuals. Nonetheless, the high mean score indicates that the majority of respondents perceive prolonged sitting or standing as a significant factor in the development of low back pain.

For the assertion about heavy lifting or manual labor increasing the risk of low back pain among young males, the mean score is 4.23, indicating a very high level of agreement among respondents. The standard deviation of 1.270 suggests some variability in opinions, but overall, there is consensus regarding this factor. This implies that the majority of respondents recognize heavy lifting or manual labor as a substantial risk factor for low back pain among young males. Factors such as improper lifting techniques, overexertion, and repetitive motions associated with manual labor may contribute to the increased risk of low back pain in this demographic. The assertion regarding the lack of ergonomic furniture and equipment in workplaces leading to low back pain issues yields a mean score of 3.97, indicating a high level of agreement among respondents. The standard

https://doi.org/ 10.51168/zkz49104
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deviation of 0.560 suggests minimal variability in opinions, signifying consensus among individuals regarding this factor. This implies that the majority of respondents recognize the importance of ergonomic furniture and equipment in preventing low back pain. Factors such as improperly designed chairs, desks, or workstations may contribute to poor posture and musculoskeletal strain, leading to the development or exacerbation of low back pain.

Regarding the statement about insufficient breaks or rest periods during work exacerbating low back pain problems, the mean score is 4.10, indicating a high level of agreement among respondents. The standard deviation of 0.368 suggests minimal variability in opinions regarding this factor. This implies that the majority of individuals perceive inadequate breaks or rest periods as significant contributors to low back pain issues. Prolonged periods of continuous activity without sufficient rest may lead to muscle fatigue, tension, and increased susceptibility to low back pain. For the assertion about environmental factors such as noise pollution in the workplace contributing to stress, which can aggravate low back pain, the mean score is 4.10, indicating a high level of agreement among respondents. However, the relatively high standard deviation of 1.446 suggests some variability in opinions regarding this association. While there is recognition that environmental factors such as noise pollution can contribute to stress, opinions on the extent of this contribution to low back pain may vary among individuals. Nonetheless, the high mean score indicates that the majority of respondents perceive environmental stressors as significant factors that can exacerbate low back pain.

The assertion regarding inadequate lighting conditions at work, straining the eyes and posture, leading to low back pain, yields a mean score of 4.03, indicating a high level of agreement among respondents. The standard deviation of 0.472 suggests minimal variability in opinions, signifying consensus among individuals regarding this factor. This implies that the majority of respondents recognize inadequate lighting as a significant contributor to low back pain. Poor lighting conditions can strain the eyes and lead to poor posture, which in turn may contribute to musculoskeletal discomfort and low back pain. Regarding the statement about poor ventilation or air quality in the workplace indirectly contributing to low back pain through increased stress levels and discomfort, the mean score is 4.15, indicating a high level of agreement among respondents. The standard deviation of 0.314 suggests minimal variability in opinions regarding this factor. This implies that the majority of individuals perceive poor ventilation or air quality as significant contributors to low back pain. Factors such as stuffy or poorly ventilated work environments can lead to discomfort, stress, and reduced overall well-being, which may indirectly exacerbate low back pain.

The overall mean score for all environmental factors analyzed is 4.03, with a standard deviation of 0.78, indicating a high level of agreement among respondents regarding the impact of these factors on low back pain. This suggests that environmental factors such as inadequate lighting, poor ventilation, and air quality in the workplace are perceived as important determinants of low back pain among males aged 20 to 35 at the Spinal Clinic, Mulago National Referral Hospital. Addressing these environmental factors through improvements in workplace ergonomics, lighting, and ventilation may help alleviate the burden of low back pain in this population.

Discussion

The study findings highlight several environmental factors that contribute to low back pain among young males, particularly focusing on workplace conditions and ergonomics. Poor working conditions, such as inadequate ergonomic setups and unsafe environments, were identified as significant contributors to the prevalence of low back pain, with a high level of agreement among respondents. This finding aligns with the literature on workplace conditions and lower back pain, as emphasized by scholars like Girma (2016), who underscore the role of physical demands and ergonomic design in influencing musculoskeletal health. However, it's essential to note the complexity of this relationship, as highlighted by Kebede et al. (2019), who argue that variations in occupational settings and individual adaptability may influence outcomes.

Prolonged sitting or standing during work was also recognized as a significant factor contributing to the development of low back pain among young males. While there was agreement among respondents regarding this factor, opinions on the extent of its contribution varied. This finding echoes the literature on lifestyle choices and lower back pain, where studies such as Clari et al. (2021) emphasize the impact of sedentary behavior and physical activity on musculoskeletal health. However, Assefa (2017) suggests that the relationship between lifestyle choices and low back pain may vary across populations, emphasizing the need for cultural and contextual considerations. Heavy lifting or manual labor emerged as a substantial risk factor for low back pain among young males, with a very high level of agreement among respondents. This finding is consistent with existing literature on workplace conditions and lower back pain, as highlighted by Wanamo et al. (2017), who emphasize the importance of appropriate ergonomic design in reducing the risk of LBP. However, Yitayeh et al. (2015) challenge the notion that ergonomics alone significantly influences lower back pain, suggesting that other factors, such as individual behaviors and job demands, should be

considered. The lack of ergonomic furniture and equipment in workplaces was recognized as a significant issue contributing to low back pain problems, with a high level of agreement among respondents. This finding aligns with the literature on ergonomics and lower back pain, as emphasized by Wanamo et al. (2017), who underscore the critical role of ergonomic design in preventing musculoskeletal discomfort. However, Wogayehu et al. (2019) argue that the relationship between ergonomics and LBP may not be universally consistent, suggesting that individual adaptability and variations in ergonomic interventions may influence outcomes differently.

Insufficient breaks or rest periods during work were perceived as significant contributors to low back pain issues, with a high level of agreement among respondents. This finding underscores the importance of rest and recovery in preventing musculoskeletal strain, aligning with existing literature on workplace conditions and lower back pain. Girma (2016) emphasizes the role of job-related stress in contributing to the development of lower back pain, highlighting the need for organizations to prioritize employee well-being.

Environmental stressors such as noise pollution in the workplace were recognized as significant factors that can exacerbate low back pain, with a high level of agreement among respondents. While there was recognition of the impact of environmental factors on stress levels and discomfort, opinions on the extent of their contribution to low back pain varied. This finding echoes the literature on psychosocial factors and lower back pain, where scholars like Etana (2019) suggest that stress levels and coping mechanisms may mediate the relationship between environmental stressors and musculoskeletal health. Overall, the study findings suggest a high level of agreement among respondents regarding the impact of environmental factors on low back pain among young males. Addressing these factors through improvements in workplace ergonomics, rest breaks, and environmental conditions may help alleviate the burden of low back pain in this population. However, the variability in opinions regarding certain factors underscores the need for a comprehensive approach that considers individual, organizational, and environmental factors influencing the occurrence of low back pain.

Conclusion

The study findings provide valuable insights into the environmental factors contributing to low back pain among males aged 20 to 35 years, particularly focusing on workplace conditions and ergonomics. Poor working conditions, prolonged sitting or standing, heavy lifting or manual labor, lack of ergonomic furniture and equipment, insufficient breaks or rest periods, and environmental stressors were identified as significant contributors to low back pain. Addressing these environmental factors through improvements in workplace ergonomics, rest breaks, and environmental conditions may help alleviate the burden of low back pain in this population. However, the variability in opinions regarding certain factors underscores the need for a comprehensive approach that considers individual, organizational, and environmental factors influencing the occurrence of low back pain.

Recommendation

Companies can invest in ergonomic chairs with lumbar support to promote proper posture and
reduce strain on the lower back. Additionally, adjustable desks allow employees to alternate between sitting and standing, preventing prolonged static positions that can contribute to low back pain.

Promote Physical Activity and Breaks During Work Hours

Encouraging regular physical activity and incorporating breaks during work hours can help alleviate musculoskeletal strain and reduce the incidence of low back pain. Employers can implement policies that encourage employees to take short breaks to stretch and move around. Providing designated areas for stretching exercises or organizing group fitness activities during breaks can promote physical activity and relieve tension in the lower back. For example, companies can schedule brief stretching sessions or organize walking groups to encourage movement throughout the workday.

Offer Education and Training on Stress Management

Providing education and training on stress management techniques can help employees cope with work-related stressors, which can exacerbate low back pain. Employers can offer workshops or seminars on stress management strategies such as mindfulness, relaxation techniques, and time management. Additionally, promoting a supportive work environment where employees feel comfortable discussing stressors and seeking support from colleagues or supervisors can contribute to better stress management. For instance, companies can provide resources such as counseling services or employee assistance programs to support employees in managing stress effectively.

Conduct Regular Workplace Assessments and Feedback Mechanisms

Regular workplace assessments and feedback mechanisms can help identify areas for improvement and address issues related to low back pain proactively. Employers can conduct ergonomic assessments of workstations and solicit feedback

from employees on their comfort and satisfaction with the workplace environment. Implementing anonymous surveys or suggestion boxes can provide employees with a platform to voice concerns or suggest improvements. For example, companies can schedule regular ergonomic assessments and encourage employees to report any discomfort or ergonomic issues they encounter. Additionally, holding regular meetings or focus groups to discuss workplace concerns and brainstorm solutions can foster a collaborative approach to addressing low back pain issues.

Acknowledgement
I extend my heartfelt gratitude to the Almighty for granting me the strength, wisdom, and guidance throughout the journey of conducting this research study. To the patients of Lower Back Pain (LBP) who generously shared their experiences and insights, I express my sincere appreciation. Your participation was invaluable in enhancing my understanding of the factors associated with LBP, ultimately contributing to the advancement of healthcare knowledge and patient care. I would like to thank the dedicated employees of the Spinal Clinic at Mulago National Referral Hospital, Kampala, for their cooperation and support during the data collection process. Your commitment to excellence in patient care and willingness to participate in this study are deeply appreciated. My heartfelt gratitude goes to my university supervisors for their invaluable guidance, mentorship, and unwavering support throughout this research endeavor. Your expertise and encouragement have been instrumental in shaping this study and ensuring its successful completion. To my family and relatives, whose unwavering love, encouragement, and understanding have sustained me throughout this journey, I offer my heartfelt thanks. Your constant support and encouragement have been a source of strength and motivation. I am also grateful to my classmates and friends for their encouragement, support, and camaraderie throughout this academic endeavor. Your friendship and solidarity have made this journey more fulfilling and memorable. Together, with the support and contributions of these stakeholders, I have been able to undertake this research study and make meaningful contributions to the field of healthcare. Thank you all for your invaluable support and encouragement.

List of Abbreviations
LBP: Lower Back Pain

Source of funding
No source of funding

Conflict of interest
No conflict of interest

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