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Original Article

Prevalence of Neck Pain and Disability Among Cashiers in Traditional Versus Digital Banking Settings in Lahore, Pakistan

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ABSTRACT

Background: Neck pain is a common work-related musculoskeletal problem among banking professionals, particularly in occupations involving prolonged sitting, repetitive computer use, sustained neck posture, and limited postural variation. Cashiers working in traditional and digital banking settings may experience different ergonomic exposures, but comparative evidence from local banking environments remains limited. Objective: This study aimed to compare the prevalence of neck pain and neck-related functional disability among cashiers working in traditional versus digital banking settings in Lahore, Pakistan. Methods: A cross-sectional observational study was conducted among 104 bank cashiers, including 52 participants from traditional banking settings and 52 from digital banking settings. Participants aged 20–60 years with at least six months of cashier work experience and a minimum work exposure of 30 hours per week were included. Neck pain severity was assessed using the Numeric Pain Rating Scale, while functional disability was measured using the Neck Disability Index. Data were analyzed using descriptive statistics and group comparisons. Results: Neck pain was reported by 84.6% of traditional banking cashiers and 94.2% of digital banking cashiers. Moderate-to-severe pain was present in 63.5% of traditional banking cashiers and 67.3% of digital banking cashiers. Any neck-related disability was reported by 67.3% of traditional banking cashiers and 73.1% of digital banking cashiers, while moderate-to-complete disability was higher among digital banking cashiers than traditional banking cashiers, 26.9% versus 13.5%, respectively. Conclusion: Neck pain and disability were frequent among cashiers in both banking settings, with a consistently higher observed burden among digital banking cashiers. These findings highlight the need for ergonomic workplace modification, scheduled breaks, posture education, and physiotherapy-led preventive strategies in banking environments. Keywords: Neck pain, neck disability, bank cashiers, digital banking, traditional banking, ergonomics, occupational health.

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INTRODUCTION

Neck pain is a highly prevalent musculoskeletal condition that contributes substantially to disability, reduced work performance, and health-care burden worldwide. It is commonly described as pain or discomfort arising from the cervical region, often extending from the superior nuchal line to the first thoracic vertebra, and may be associated with stiffness, restricted movement, headache, or radiating symptoms to the upper limbs. The burden of neck pain is influenced by individual, occupational, ergonomic, and psychosocial factors, and its prevalence varies across populations because of differences in case definitions, recall periods, work environments, and measurement tools (1). Globally, neck pain remains a major public health concern, with evidence showing increasing disability burden across adult populations and occupational groups exposed to prolonged sitting, repetitive upper-limb activity, and sustained or awkward postures (2).

Work-related musculoskeletal disorders are especially important in occupations requiring prolonged static posture, repetitive movements, forceful exertion, and inadequate ergonomic support. These disorders affect muscles, joints, tendons, ligaments, nerves, and supporting soft tissues, and they may lead to pain, functional limitation, absenteeism, reduced productivity, and long-term disability. Neck pain

in occupational settings is often multifactorial, arising from the interaction of physical workload, workstation design, duration of computer use, insufficient rest breaks, psychosocial stress, and individual characteristics such as age, sex, body mass index, physical activity, and previous musculoskeletal history (3). Office-based and banking-related work environments are therefore relevant contexts for examining neck pain because employees often perform visually demanding and repetitive tasks while maintaining seated postures for extended periods.

The banking sector has undergone substantial technological transformation, shifting many tasks from paper-based and face-to-face transactions toward computer-based and digitally mediated services. Traditional banking generally involves in-person customer interaction, cash handling, documentation, and counter-based service delivery, whereas digital banking settings rely more heavily on computer terminals, electronic data processing, online platforms, and prolonged screen-based work. Although both settings may expose cashiers to musculoskeletal strain, digital banking may increase the duration of static sitting, repetitive keyboard and mouse activity, sustained visual attention, and non-neutral neck posture. These factors are known contributors to neck and upper-limb symptoms among computer users and office workers (4).

Bank cashiers represent a particularly important occupational group because their work combines repetitive transaction processing, prolonged sitting or standing, customer service demands, cash handling, computer use, and time pressure. In traditional banking settings, cashiers may frequently alternate between physical cash handling, paperwork, and customer interaction. In contrast, cashiers in digital banking settings may spend longer continuous periods using computer systems, maintaining fixed head and neck positions, and performing repetitive typing or mouse-based tasks. Such differences in task structure may influence both the prevalence and severity of neck pain, as well as the degree of neck-related functional disability.

Previous research has shown that neck pain is common among banking professionals and computer users. Studies among bankers have reported that prolonged working hours, poor posture, insufficient breaks, and extended computer use are associated with musculoskeletal discomfort, including neck pain (5). Evidence from bank-worker populations also indicates that female sex, poor working posture, inadequate rest breaks, prolonged fixed posture, chair type, and occupational stress may be associated with work-related musculoskeletal symptoms (6). Similarly, studies among office workers and computer users suggest that repetitive movement, sustained sitting, awkward posture, and long duration of screen-based work contribute to neck and shoulder disorders (7). These findings support the biological and ergonomic plausibility that banking cashiers, especially those working in more computer-dependent environments, may experience a substantial burden of neck pain and disability.

Despite the available evidence on neck pain among bankers, office workers, and computer users, limited research has directly compared neck pain and neck-related disability between cashiers working in traditional banking settings and those working in digital banking settings. This distinction is important because the nature of cashier work may differ across these settings in terms of posture, task repetition, computer exposure, break patterns, and ergonomic demands. In Pakistan, and particularly in Lahore, local data comparing these two banking environments remain limited. Without such evidence, workplace health interventions may remain generalized rather than tailored to the specific risks of traditional and digital banking systems.

The present study is therefore justified by the need to quantify and compare the burden of neck pain and disability among bank cashiers exposed to different banking work environments. Using the PICO framework, the population of interest is bank cashiers working in Lahore, Pakistan; the exposure group is cashiers working in digital banking settings; the comparison group is cashiers working in traditional banking settings; and the outcomes are prevalence of neck pain and level of neck-related functional disability measured using the Numeric Pain Rating Scale and Neck Disability Index (8). This comparison can help identify whether digital banking cashiers experience a higher burden of neck pain and

disability, thereby informing ergonomic planning, physiotherapy education, workplace modification, and preventive occupational health strategies.

Therefore, the objective of this study was to compare the prevalence of neck pain and neck-related disability among cashiers working in digital banking versus traditional banking settings in Lahore, Pakistan. The study also aimed to assess the level of functional disability associated with neck pain in both groups. It was hypothesized that there would be a significant difference in the prevalence and severity of neck pain and disability between cashiers working in digital and traditional banking settings.

MATERIALS AND METHODS

This cross-sectional observational study was conducted to compare the prevalence of neck pain and neck-related functional disability among cashiers working in traditional and digital banking settings in Lahore, Pakistan. The cross-sectional design was selected because it allowed assessment of neck pain status and disability level at a single point in time among two occupational groups exposed to different banking work environments. The study population consisted of bank cashiers currently employed in either traditional or digital banking settings, with traditional banking defined as cashier work primarily involving in-person customer handling, cash transactions, documentation, and branch-based services, whereas digital banking was defined as cashier work involving greater reliance on computerized systems, electronic transaction processing, online platforms, and screen-based service delivery.

Participants were recruited from local banks in Lahore using a convenience sampling technique. Eligible participants were bank cashiers aged 20–60 years who had been working consistently in their current cashier role for at least six months and had a minimum work exposure of 30 hours per week. Both male and female cashiers were included. Participants were excluded if they had a previous history of upper-back or neck injury, cervical surgery, fracture, diagnosed musculoskeletal, neurological, or rheumatological disorders such as cervical spondylosis or rheumatoid arthritis, congenital spinal abnormalities, systemic disorders known to cause neck discomfort, pregnancy, or current long-term or medical leave. These criteria were applied to reduce the likelihood that neck pain or disability was primarily attributable to pre-existing medical or structural conditions rather than occupational exposure.

The sample consisted of 104 participants, with 52 cashiers recruited from traditional banking settings and 52 cashiers recruited from digital banking settings. The sample size was calculated using the WHO sample size calculator with a 95% confidence level and a 5% margin of error. Participants were approached after permission for data collection had been obtained from the relevant institutional and banking authorities. The purpose of the study was explained to each participant, and informed consent was obtained before data collection. Participation was voluntary, and participants were assured that their responses would remain confidential and would be used only for research purposes.

Data were collected using a structured assessment form that included demographic and occupational information followed by standardized measures of neck pain and disability. Demographic data included age, gender, height, weight, body mass index, and type of banking setting. Body mass index was categorized into underweight, normal weight, overweight, and obese categories. The primary outcome was neck pain status and severity, measured using the Numeric Pain Rating Scale. The Numeric Pain Rating Scale is an 11-point pain intensity scale ranging from 0 to 10, where 0 indicates no pain and 10 indicates the worst imaginable pain. For categorical analysis, pain intensity was classified as no pain, mild pain, moderate pain, and severe pain according to the recorded NPRS score categories (9).

Neck-related functional disability was assessed using the Neck Disability Index. The Neck Disability Index evaluates the functional impact of neck pain across daily activities such as personal care, lifting, reading, headache, concentration, work, driving, sleeping, and recreation. Responses are scored and converted into disability categories, allowing participants to be classified as having no disability, mild disability, moderate disability, severe disability, or complete disability. In this study, the Neck Disability

Index was used to determine the level of functional limitation associated with neck symptoms in both traditional and digital banking groups (10).

The main exposure variable was type of banking setting, categorized as traditional banking or digital banking. The main outcome variables were presence and severity of neck pain and level of neck-related functional disability. Age, gender, and body mass index were recorded as demographic variables because of their potential relationship with musculoskeletal symptoms. Operationally, neck pain was defined as self-reported pain or discomfort in the neck region recorded through the Numeric Pain Rating Scale, and neck disability was defined as activity limitation related to neck symptoms measured through the Neck Disability Index. Traditional and digital banking were treated as occupational exposure categories for comparison of pain and disability burden.

To reduce information bias, the same data collection procedure and assessment tools were applied to both groups. Participants completed the questionnaire using the same response format, and the scoring criteria for NPRS and NDI were applied consistently. Eligibility criteria were defined before data collection to minimize selection of participants with non-occupational causes of neck pain. Potential confounding variables, including age, gender, and body mass index, were recorded and summarized for both groups to support comparison of baseline characteristics. Participants with known clinical conditions likely to independently cause neck pain or disability were excluded to reduce confounding from pre-existing disease.

Data were entered and analyzed using Statistical Package for Social Sciences version 22.0. Descriptive statistics were calculated for all study variables. Continuous variables such as age were summarized using mean and standard deviation, while categorical variables such as gender, BMI category, neck pain severity, and neck disability level were summarized using frequencies and percentages. Group-wise comparisons were conducted between traditional and digital banking cashiers. The chi-square test or Fisher's exact test was used for categorical group comparisons where appropriate. For continuous variables, normality was assessed before selecting parametric or non-parametric tests. A p-value of less than 0.05 was considered statistically significant. Missing or incomplete questionnaire responses were reviewed during data entry, and only complete responses relevant to each analysis were included.

Ethical approval was obtained from the Institutional Review Board of the University of Management and Technology before data collection. Written informed consent was obtained from all participants. Confidentiality and anonymity were maintained by using coded data rather than personally identifiable information during analysis. Data were stored securely and accessed only for research purposes. Data integrity was maintained through consistent questionnaire administration, standardized scoring of NPRS and NDI responses, careful data entry, and review of entered values for completeness and accuracy before statistical analysis.

RESULTS

A total of 104 bank cashiers were included in the analysis, with equal representation from traditional banking settings and digital banking settings. Each group included 52 participants. The mean age of participants in the traditional banking group was 31.53 ± 8.06 years, compared with 28.80 ± 7.84 years in the digital banking group. The mean age difference between groups was 2.73 years, which was not statistically significant, although participants in the traditional banking group were slightly older on average.

Table 1. Age Distribution of Participants by Banking Setting

Variable	Traditional Banking (n = 52)	Digital Banking (n = 52)	Mean Difference	95% CI	p-value
Age, years, mean ± SD	31.53 ± 8.06	28.80 ± 7.84	2.73	-0.36 to 5.82	0.083

The gender distribution showed that males represented the majority of participants in both groups. In the traditional banking group, 44 participants were male and 8 were female, whereas in the digital banking group, 39 participants were male and 13 were female. Overall, 83 participants were male and 21 were female. The difference in gender distribution between traditional and digital banking groups was not statistically significant.

Table 2. Gender Distribution of Participants by Banking Setting

Gender	Traditional Banking, n (%)	Digital Banking, n (%)	Total, n (%)	p-value
Female	8 (15.4)	13 (25.0)	21 (20.2)	0.329
Male	44 (84.6)	39 (75.0)	83 (79.8)	
Total	52 (100.0)	52 (100.0)	104 (100.0)	

Body mass index categories were broadly comparable between groups. In the traditional banking group, most participants were in the normal-weight category, accounting for 36 participants or 69.2%, followed by overweight participants at 17.3%, underweight participants at 7.7%, and obese participants at 5.8%. In the digital banking group, 34 participants or 65.4% were normal weight, 19.2% were overweight, and 15.4% were underweight, while no participant was classified as obese. The overall BMI distribution did not differ significantly between groups.

Table 3. Body Mass Index Categories by Banking Setting

BMI Category	Traditional Banking, n (%)	Digital Banking, n (%)	Total, n (%)	p-value
Underweight	4 (7.7)	8 (15.4)	12 (11.5)	0.217
Normal weight	36 (69.2)	34 (65.4)	70 (67.3)	
Overweight	9 (17.3)	10 (19.2)	19 (18.3)	
Obese	3 (5.8)	0 (0.0)	3 (2.9)	
Total	52 (100.0)	52 (100.0)	104 (100.0)	

Neck pain was highly prevalent in both groups, but the observed burden was greater among digital banking cashiers. In the traditional banking group, 44 of 52 participants reported some degree of neck pain, giving a prevalence of 84.6%. In the digital banking group, 49 of 52 participants reported neck pain, giving a prevalence of 94.2%. Moderate pain was the most frequent category in both groups, affecting 31 participants or 59.6% in traditional banking and 28 participants or 53.8% in digital banking. Severe pain was more frequent in the digital banking group, where 7 participants or 13.5% reported severe pain, compared with 2 participants or 3.8% in the traditional group. The overall distribution of neck pain severity did not reach statistical significance. When neck pain was analyzed as present versus absent, digital banking cashiers had higher odds of reporting neck pain than traditional banking cashiers, although the confidence interval was wide.

Table 4. Neck Pain Severity by Banking Setting

Neck Pain Severity	Traditional Banking, n (%)	Digital Banking, n (%)	Total, n (%)	Effect Estimate	p-value
No pain	8 (15.4)	3 (5.8)	11 (10.6)		0.135
Mild pain	11 (21.2)	14 (26.9)	25 (24.0)		
Moderate pain	31 (59.6)	28 (53.8)	59 (56.7)		
Severe pain	2 (3.8)	7 (13.5)	9 (8.7)		
Total	52 (100.0)	52 (100.0)	104 (100.0)		
Any neck pain	44 (84.6)	49 (94.2)	93 (89.4)	OR = 2.97; 95% CI: 0.74–11.90	0.201
Moderate-to-severe pain	33 (63.5)	35 (67.3)	68 (65.4)	OR = 1.19; 95% CI: 0.53–2.66	0.837

Neck-related disability was also common in both groups. In the traditional banking group, 35 of 52 participants or 67.3% had some level of disability, while 38 of 52 participants or 73.1% in the digital banking group had some degree of disability. Mild disability was the most common category in both groups, affecting 28 participants or 53.8% in traditional banking and 24 participants or 46.2% in digital banking. However, higher disability categories were more frequent in the digital banking group. Moderate-to-complete disability was observed in 14 participants or 26.9% of the digital banking group, compared with 7 participants or 13.5% of the traditional banking group. Severe disability was reported by 4 digital banking cashiers or 7.7%, compared with 1 traditional banking cashier or 1.9%, and complete disability was reported only in the digital banking group. The overall distribution of disability categories

was not statistically significant, but the pattern showed a greater observed disability burden among digital banking cashiers.

Table 5. Neck Disability Level by Banking Setting

Neck Disability Level	Traditional Banking, n (%)	Digital Banking, n (%)	Total, n (%)	Effect Estimate	p-value
No disability	17 (32.7)	14 (26.9)	31 (29.8)		0.406
Mild disability	28 (53.8)	24 (46.2)	52 (50.0)		
Moderate disability	6 (11.5)	9 (17.3)	15 (14.4)		
Severe disability	1 (1.9)	4 (7.7)	5 (4.8)		
Complete disability	0 (0.0)	1 (1.9)	1 (1.0)		
Total	52 (100.0)	52 (100.0)	104 (100.0)		
Any disability	35 (67.3)	38 (73.1)	73 (70.2)	OR = 1.32; 95% CI: 0.57–3.06	0.664
Moderate-to-complete disability	7 (13.5)	14 (26.9)	21 (20.2)	OR = 2.37; 95% CI: 0.87–6.47	0.142

Overall, neck pain and neck-related disability were frequent among cashiers in both banking settings. Digital banking cashiers showed a higher observed prevalence of any neck pain, a greater proportion of severe neck pain, and a higher proportion of moderate-to-complete disability compared with traditional banking cashiers. Although the group differences did not reach statistical significance in the available categorical analyses, the direction of findings suggests a greater clinical burden of neck symptoms among cashiers working in digital banking environments.

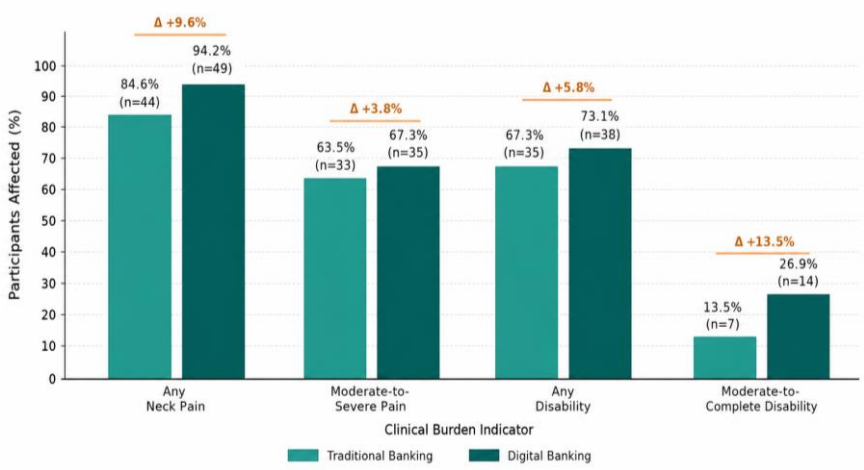

Figure 1. Comparative Clinical Burden of Neck Pain and Disability by Banking Setting

Digital banking cashiers showed a consistently higher clinical burden across all derived outcome indicators. Any neck pain was reported by 94.2% of digital banking cashiers compared with 84.6% of traditional banking cashiers, giving a 9.6 percentage-point higher burden in the digital group. Moderate-to-severe neck pain was also slightly higher in digital banking cashiers, affecting 67.3% compared with 63.5% in traditional banking. Neck-related disability followed a similar pattern, with any disability reported by 73.1% of digital banking cashiers and 67.3% of traditional banking cashiers. The largest relative separation was observed for moderate-to-complete disability, which affected 26.9% of digital banking cashiers compared with 13.5% of traditional banking cashiers, indicating that digital banking work was associated with a greater concentration of clinically meaningful functional limitation.

DISCUSSION

The present study compared the burden of neck pain and neck-related disability among cashiers working in traditional and digital banking settings in Lahore. The findings showed that neck pain was common in both occupational groups, indicating that cashier work in banking environments is associated with a substantial musculoskeletal burden. However, the observed burden was consistently higher among digital banking cashiers. Any neck pain was reported by 94.2% of digital banking cashiers compared with 84.6% of traditional banking cashiers, while moderate-to-severe pain was reported by 67.3% and

63.5% of participants, respectively. Although the difference in overall pain distribution did not reach statistical significance, the higher proportion of severe pain in the digital banking group, 13.5% compared with 3.8% in the traditional banking group, suggests a clinically important pattern toward greater pain intensity among cashiers working in more computer-dependent banking environments.

This pattern is consistent with occupational evidence showing that prolonged sitting, static neck posture, repetitive upper-limb movement, and extended computer use contribute to work-related neck pain among office and banking workers. Digital banking tasks often require sustained screen viewing, continuous keyboard and mouse use, and fixed head-neck positioning, which can increase mechanical loading on the cervical spine and surrounding musculature. In contrast, traditional banking cashiers may alternate more frequently between customer interaction, cash handling, documentation, and counter-based tasks, potentially producing more postural variation during the workday. The higher observed prevalence of neck pain among digital banking cashiers therefore supports the ergonomic explanation that prolonged static exposure and repetitive computer-based work may increase cervical discomfort and symptom severity (11,12).

The results also showed that neck-related disability was frequent in both groups, but the distribution again favored a higher burden among digital banking cashiers. Any disability was observed in 73.1% of digital banking cashiers and 67.3% of traditional banking cashiers. More importantly, moderate-to-complete disability was almost twice as common in the digital banking group, affecting 26.9% of participants compared with 13.5% in the traditional banking group. This finding is clinically meaningful because disability reflects the effect of neck symptoms on functional activities rather than pain intensity alone. A higher proportion of moderate-to-complete disability among digital banking cashiers suggests that neck symptoms in this group may interfere more with daily work performance, concentration, sustained sitting, reading, computer use, and routine functional tasks.

The predominance of mild disability in both groups indicates that many participants were still able to continue occupational activities despite neck-related limitations. However, the presence of severe and complete disability only or predominantly in the digital banking group highlights the possibility that digital banking work may be associated not only with greater symptom frequency but also with more functionally limiting symptoms. This distinction is important because pain prevalence alone may underestimate the occupational impact of neck disorders. In workplace health planning, disability burden is often more relevant than pain presence because it influences productivity, absenteeism, work efficiency, and need for physiotherapy or ergonomic intervention.

The age distribution showed that traditional banking cashiers were slightly older on average than digital banking cashiers, with mean ages of 31.53 ± 8.06 years and 28.80 ± 7.84 years, respectively. Despite this difference, digital banking cashiers showed a higher observed burden of pain and disability. This pattern suggests that the higher symptom burden in the digital group was unlikely to be explained only by older age (13). However, age remains an important occupational and biological variable because cumulative work exposure, physical conditioning, and degenerative changes may influence musculoskeletal symptoms over time. The relatively young mean age in both groups also indicates that neck pain and disability are not confined to older workers and may appear early in banking careers when ergonomic stressors are persistent.

Gender distribution showed male predominance in both groups, with males accounting for 79.8% of the total sample. The digital banking group included a slightly higher proportion of females than the traditional group, but the difference was not statistically significant. Because the study was not designed primarily to evaluate gender-specific risk, the findings should be interpreted as group-level comparisons by banking setting rather than as evidence of sex-based differences in neck pain. Previous occupational literature has reported that gender may influence the prevalence of musculoskeletal symptoms, but in the present study, the main observed contrast was between work settings rather than demographic subgroups (14,15).

Body mass index distribution was broadly similar between groups, with most participants falling within the normal-weight category. Normal BMI was observed in 69.2% of traditional banking cashiers and 65.4% of digital banking cashiers, while overweight status was present in 17.3% and 19.2%, respectively. Obesity was uncommon and was reported only in the traditional banking group. Despite the absence of obesity in the digital group, digital banking cashiers still demonstrated higher observed levels of neck pain and disability. This supports the interpretation that workplace-related postural and task demands may have contributed substantially to the symptom pattern, although BMI and other individual factors can still influence musculoskeletal risk (16).

The findings are aligned with previous studies reporting a high prevalence of neck pain among bankers and computer users. Earlier research among banking professionals has associated neck pain with prolonged working hours, sustained sitting, poor posture, and extended computer use, which are also plausible exposures among the current study population (17). Similarly, studies among computer-using workers have shown that long periods of screen-based work, insufficient breaks, and non-neutral posture contribute to cervical discomfort and functional limitation (18). The current results extend this evidence by comparing traditional and digital banking cashier settings and showing a higher observed clinical burden among digital cashiers, particularly for severe pain and moderate-to-complete disability.

The findings also support the broader occupational health model in which neck pain arises from interaction between physical, ergonomic, and work-organization factors. Banking cashiers often work under time pressure, interact continuously with clients, perform repetitive transactions, and maintain constrained postures for prolonged periods (19). In digital banking environments, these demands may be intensified by increased dependence on computer systems and electronic transaction processing. Such work conditions can contribute to muscle fatigue, reduced cervical mobility, sustained activation of neck and shoulder muscles, and eventual pain or disability. The higher burden of moderate-to-complete disability among digital cashiers may therefore reflect cumulative exposure to static and repetitive digital tasks rather than isolated pain episodes (20).

Although the observed differences favored a higher burden in digital banking cashiers, several comparisons did not reach statistical significance. This may reflect the modest sample size, equal group allocation of 52 participants per setting, and wide confidence intervals around the effect estimates. For example, the odds of reporting any neck pain were higher among digital cashiers, but the confidence interval was broad. This indicates uncertainty in the precision of the estimate while still preserving the clinical direction of the finding. Therefore, the results are best interpreted as showing a higher observed burden in digital banking settings rather than definitive statistical proof of a setting-based difference.

The study has practical implications for occupational health and physiotherapy practice. Because both groups showed high levels of neck pain, preventive strategies should be applied across banking workplaces. However, digital banking cashiers may require additional attention because they demonstrated higher observed levels of severe pain and moderate-to-complete disability. Ergonomic workstation design, appropriate monitor height, adjustable chairs, supported arm positioning, scheduled micro-breaks, postural education, and workplace-based neck and shoulder mobility exercises may help reduce cervical strain. Physiotherapists and occupational health professionals can use these findings to design preventive and rehabilitative strategies tailored to the specific postural demands of banking work.

The study also has limitations that should be considered when interpreting the findings. The cross-sectional design prevents determination of temporal or causal relationships between banking setting and neck pain. Convenience sampling may limit generalizability to all bank cashiers in Lahore or other regions of Pakistan. Neck pain and disability were assessed using self-reported tools, which may be affected by recall and response bias. Important occupational factors such as exact daily computer exposure, duration of employment, number and length of breaks, workstation design, chair adjustability, physical activity, psychosocial stress, and previous minor musculoskeletal symptoms were not analyzed in detail. In addition, clinical examination and biomechanical assessment were not performed, so the

study could not determine specific cervical impairments or ergonomic mechanisms underlying the reported symptoms.

Despite these limitations, the study provides useful local evidence on neck pain and disability among bank cashiers and highlights an occupational pattern that deserves attention. The high prevalence of neck pain in both groups confirms that cashier work in banking settings carries a considerable musculoskeletal burden. The consistently higher observed prevalence of any neck pain, severe pain, any disability, and moderate-to-complete disability among digital banking cashiers suggests that increasing digitalization of banking work may carry additional ergonomic risks. These findings support the need for workplace-level preventive strategies and more detailed future research examining ergonomic exposures, work organization, and clinical outcomes among banking professionals in Pakistan.

CONCLUSION

This study concluded that neck pain and neck-related functional disability were common among bank cashiers working in both traditional and digital banking settings in Lahore, Pakistan. However, digital banking cashiers showed a higher observed burden across the main clinical indicators, including any neck pain, severe neck pain, any disability, and moderate-to-complete disability. Neck pain was reported by 94.2% of digital banking cashiers compared with 84.6% of traditional banking cashiers, while moderate-to-complete disability was observed in 26.9% of digital banking cashiers compared with 13.5% of traditional banking cashiers. These findings suggest that digital banking work may place greater postural and functional demands on cashiers, likely due to prolonged screen exposure, sustained sitting, repetitive computer use, and limited postural variation. Although the group differences did not reach statistical significance in the available analyses, the consistent direction of results indicates a clinically relevant pattern that supports the need for ergonomic workplace modification, scheduled micro-breaks, posture education, and physiotherapy-led preventive strategies for cashiers, particularly those working in digital banking environments.

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