

Prevalence of Early Cervical Degenerative Symptoms and Tech-Neck Awareness Among Frequent Mobile Gamers

Rubab Siddiqui¹, Muhammad Laeeq¹, Zahra Batool¹, Nida Fatima¹, Adeel Afzal¹, Kainat Shafqat¹

¹ The University of Lahore, Lahore, Pakistan

*Corresponding author: Rubab Siddiqui, abidrubab033@gmail.com

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ABSTRACT

Background: Prolonged smartphone use and mobile gaming are increasingly associated with neck pain, forward head posture, cervical stiffness, and functional limitation among young adults. Frequent mobile gamers may be at particular risk because gaming often involves sustained screen focus, static cervical flexion, and limited movement breaks. **Objective:** To assess the prevalence of self-reported cervical musculoskeletal symptoms, neck-related functional disability, smartphone addiction level, and tech-neck awareness among frequent mobile gamers. **Methods:** A descriptive cross-sectional survey was conducted among 381 young adults aged 15–35 years at The University of Lahore. Participants who reported regular smartphone use and mobile gaming for at least 1 hour per day or 7 hours per week were included. Data were collected using a structured questionnaire, Numeric Pain Rating Scale, Neck Disability Index, and Smartphone Addiction Scale–Short Version. Descriptive statistics and chi-square analysis were performed using SPSS version 25. **Results:** The mean age was 24.58 ± 6.33 years. Moderate and severe neck pain were reported by 36.2% and 35.4% of participants, respectively. Cervical stiffness was reported sometimes by 33.6%, frequently by 33.1%, and always by 12.3%. Radicular symptoms were reported by 62.2%. Tech-neck awareness was present in 57.5%, while 61.7% reported knowledge of ergonomic screen-level posture. Tech-neck awareness was not significantly associated with daily gaming exposure, $\chi^2 = 0.867$, $p = 0.833$. **Conclusion:** Frequent mobile gamers showed a high burden of self-reported cervical symptoms and functional limitation, with persistent gaps in tech-neck and ergonomic awareness. Preventive education, posture correction, movement breaks, and physiotherapy-based strategies may help reduce neck-related problems in this population. **Keywords:** Mobile Gaming; Tech-Neck; Neck Pain; Cervical Symptoms; Neck Disability Index; Smartphone Addiction; Ergonomics.

INTRODUCTION

The rapid expansion of smartphone use has changed the daily behavioral patterns of adolescents and young adults, particularly through prolonged screen exposure, online communication, study-related device use, and mobile gaming. Although smartphones provide convenience and social connectivity, their prolonged use is frequently accompanied by sustained cervical flexion, forward head posture, rounded shoulders, and static sitting positions. These postural demands increase mechanical loading on the cervical spine and surrounding soft tissues, which may contribute to neck pain, stiffness, headache, shoulder discomfort, reduced cervical mobility, and functional limitation. Cervical spondylotic and degenerative disorders are traditionally considered more common with advancing age; however, increasing attention has been directed toward early cervical musculoskeletal complaints among younger populations with high digital-device exposure (1).

Text neck or tech-neck refers to a pattern of neck and upper back discomfort associated with prolonged forward bending of the head while using smartphones, tablets, laptops, or similar handheld digital devices. In this posture, the cervical spine is exposed to increased flexion stress, while the posterior cervical muscles, ligaments, and intervertebral structures are subjected to sustained load. Repeated or prolonged exposure to this posture may result in pain, stiffness, fatigue, reduced endurance of cervical muscles, and impaired functional activities. Studies among smartphone users and students have reported neck pain, headache, shoulder discomfort, and reduced awareness of preventive ergonomic measures, suggesting that tech-neck is an emerging musculoskeletal concern in younger device users (2,3).

Mobile gamers represent a particularly relevant high-exposure group because gaming sessions often involve prolonged static posture, repetitive upper-limb activity, intense visual focus, and limited movement breaks. Unlike general smartphone use, mobile gaming may require continuous attention to the screen and sustained hand positioning for longer periods, thereby increasing the likelihood of forward head posture and cervical muscle fatigue. Research among smartphone users and eSports-related populations has shown that musculoskeletal complaints are common, with neck pain frequently reported among the most affected regions. These findings suggest that mobile gaming behavior may be an important context for studying cervical discomfort and functional limitation in young adults (4,5).

Previous literature has established a relationship between excessive smartphone use and neck-related musculoskeletal complaints. Systematic reviews and observational studies have reported that neck pain is among the most common symptoms associated with handheld device use, while increased duration of smartphone exposure, poor posture, and reduced ergonomic awareness have been identified as important contributors to cervical discomfort. A meta-analysis of retrospective studies reported increased odds of neck pain among individuals with smartphone overuse, reinforcing the clinical relevance of excessive device exposure as a musculoskeletal health concern (6,7). Experimental and biomechanical research has also demonstrated that forward head posture and cervical flexion during smartphone use can increase mechanical stress on the cervical spine, particularly when sustained over long periods (8).

Despite the growing evidence on smartphone-related neck pain, most available studies have focused on general smartphone users, university students, adolescents, or office workers. Comparatively fewer studies have specifically examined frequent mobile gamers, even though this group may have unique exposure characteristics, including longer uninterrupted screen time, gaming-related concentration, sustained flexed posture, and delayed rest breaks. In addition, while many young adults may experience neck pain or stiffness during or after smartphone use, their awareness of tech-neck, ergonomic screen-level posture, preventive stretching, and early physiotherapy-based strategies may remain limited. This creates a practical knowledge gap regarding both the burden of cervical symptoms and the level of preventive awareness among frequent mobile gamers.

The present study was therefore designed to assess the prevalence of self-reported cervical musculoskeletal symptoms and functional neck disability, and to determine the level of tech-neck awareness among frequent mobile gamers. The study also aimed to examine whether daily mobile gaming exposure was associated with awareness of the tech-neck concept. The objective was to provide locally relevant evidence that may support ergonomic education, early screening, and preventive physiotherapy strategies for young adults who frequently engage in mobile gaming.

MATERIAL AND METHODS

This study was conducted as a descriptive cross-sectional survey to assess self-reported cervical musculoskeletal symptoms, functional neck disability, smartphone addiction level, mobile gaming exposure, and awareness of the tech-neck concept among frequent mobile gamers. A cross-sectional design was selected because the objective was to estimate the distribution of symptoms and awareness

at a single point in time and to examine associations between reported gaming exposure and selected study variables without assigning any intervention or follow-up period.

The study was conducted at The University of Lahore over a six-month period following synopsis approval. Participants were recruited using a convenience sampling technique from eligible young adults available in the study setting. Individuals were considered eligible if they were aged 15–35 years, used a smartphone regularly, played mobile games for at least 1 hour per day or at least 7 hours per week, were able to understand and complete the study questionnaire, and provided informed consent to participate. Participants were excluded if they were younger than 15 years or older than 35 years; had a known history of cervical fracture, severe scoliosis, spinal tumor, previous cervical spine surgery, rheumatoid arthritis, muscular dystrophy, or other systemic musculoskeletal disorder; had a history of trauma to the neck or upper back within the preceding six months; were pregnant; used smartphones for less than 1 hour per day; or refused or were unable to complete the questionnaire.

The sample size was calculated using Epitools, with an initial required sample of 383 participants. After data screening, the final analytical sample comprised 381 participants with complete data for the variables reported in the results. Data were collected after written informed consent was obtained. Participants were informed about the study purpose, voluntary participation, anonymity, confidentiality, and their right to withdraw at any stage without penalty. The study followed the rules and regulations of the ethical committee of The University of Lahore.

Data were collected using a structured self-administered questionnaire that included demographic information, daily mobile gaming exposure, smartphone use characteristics, posture-related habits, cervical discomfort, cervical stiffness, radicular symptoms, functional neck disability, and awareness of tech-neck and ergonomic screen-level posture. Frequent mobile gaming was operationally defined as mobile gaming for at least 1 hour per day or at least 7 hours per week. Cervical musculoskeletal symptoms were defined as self-reported neck pain, stiffness, soreness, fatigue, reduced neck mobility, headache, shoulder discomfort, or mild upper-limb symptoms experienced during or after smartphone or mobile gaming use. Tech-neck awareness was defined as the participant's awareness of the concept that prolonged forward-flexed neck posture during smartphone or screen use may contribute to neck and upper back discomfort.

Neck-related disability was assessed using the Neck Disability Index, a self-administered tool consisting of 10 domains related to pain intensity, personal care, lifting, reading, headache, concentration, work, driving, sleep, and recreation. Each item is scored from 0 to 5, with higher scores indicating greater disability. Total scores were used to classify the severity of neck-related functional limitation according to recognized NDI scoring categories (9). Pain intensity was assessed using the Numeric Pain Rating Scale, in which participants rated neck pain intensity on a scale from 0 to 10, where 0 indicated no pain and 10 indicated the worst imaginable pain (10). Smartphone dependence was assessed using the Smartphone Addiction Scale–Short Version, which evaluates problematic smartphone-use behaviors, including excessive use, impaired control, and interference with daily activities (11).

The main study variables included age, gender, daily mobile gaming exposure in hours, Smartphone Addiction Scale score, Neck Disability Index total score, Numeric Pain Rating Scale score, cervical stiffness frequency, presence of radicular symptoms, awareness of the tech-neck concept, and knowledge of ergonomic screen-level posture. Daily mobile gaming exposure was categorized as 1, 2, 3, or 4 hours according to participant responses. Tech-neck awareness and ergonomic posture knowledge were recorded as categorical variables. Cervical stiffness frequency was recorded using ordered response categories, and radicular symptoms were recorded as present or absent.

To improve data quality, participants were instructed to complete the questionnaire independently and to respond according to their usual mobile gaming and smartphone-use behavior. Completed forms were reviewed for completeness before data entry. Data were entered and analyzed using SPSS version

25. Categorical variables were summarized as frequencies and percentages, while continuous variables were summarized as mean and standard deviation. The chi-square test was used to assess the association between categorical variables, including the association between tech-neck awareness and daily mobile gaming exposure. Correlation analysis was planned for continuous or ordinal variables where appropriate, including relationships involving gaming exposure, pain intensity, neck disability score, and smartphone addiction score. A p-value of less than 0.05 was considered statistically significant. The final analysis was conducted using complete available data for the reported variables.

RESULTS

A total of 381 participants were included in the final analysis. The mean age of participants was 24.58 ± 6.33 years. The mean Smartphone Addiction Scale–Short Version score was 35.43 ± 10.64 , while the mean Neck Disability Index total score was 23.42 ± 11.93 .

Table 1. Descriptive Characteristics of Continuous Study Variables

Variable	n	Minimum	Maximum	Mean $\pm$ SD
Age, years	381	15	35	24.58 ± 6.33
Smartphone Addiction Scale–Short Version score	381	15	56	35.43 ± 10.64
Neck Disability Index total score	381	0	46	23.42 ± 11.93

SD, standard deviation.

The study population consisted of young participants, with ages ranging from 15 to 35 years and a mean age of 24.58 years. The mean smartphone addiction score was 35.43, indicating a measurable level of problematic smartphone-use behavior within the sample. The mean Neck Disability Index score was 23.42, suggesting that neck-related functional limitation was present in a substantial proportion of participants.

Table 2. Gender Distribution of Participants

Gender	n	%	95% CI
Female	233	61.2	56.2–65.9
Male	148	38.8	34.1–43.8
Total	381	100.0	—

CI, confidence interval.

Females represented the larger proportion of the sample, accounting for 233 of 381 participants. Males represented 148 participants. The female-to-male distribution indicates that the sample was not equally balanced by gender.

Table 3. Daily Mobile Gaming Exposure

Daily mobile gaming exposure	n	%
1 hour	80	21.0
2 hours	121	31.8
3 hours	100	26.2
4 hours	80	21.0
Total	381	100.0

The most frequently reported daily gaming exposure was 2 hours, reported by 121 participants, followed by 3 hours, reported by 100 participants. Equal numbers of participants reported 1 hour and 4 hours of daily mobile gaming exposure.

Table 4. Numeric Pain Rating Scale Distribution

NPRS score	n	%
0	17	4.5
1	18	4.7
2	36	9.4
3	37	9.7
4	46	12.1

NPRS score	n	%
5	41	10.8
6	51	13.4
7	39	10.2
8	30	7.9
9	38	10.0
10	28	7.3
Total	381	100.0

NPRS, Numeric Pain Rating Scale.

Neck pain intensity was distributed across the full NPRS range from 0 to 10. Only 17 participants reported no neck pain, while the remaining participants reported varying levels of pain. Scores between 4 and 7 were common, indicating that moderate-to-high pain intensity was frequently reported in the sample.

Table 5. Categorized Neck Pain Severity Based on NPRS Scores

NPRS category	NPRS score range	n	%	95% CI
No pain	0	17	4.5	2.8–7.0
Mild pain	1–3	91	23.9	19.9–28.4
Moderate pain	4–6	138	36.2	31.6–41.2
Severe pain	7–10	135	35.4	30.8–40.4
Total	—	381	100.0	—

NPRS, Numeric Pain Rating Scale; CI, confidence interval.

After categorization, 273 participants reported moderate or severe neck pain, representing 71.6% of the sample. Mild pain was reported by 91 participants, while 17 participants reported no pain. This distribution indicates a high burden of self-reported neck pain among the surveyed mobile gamers.

Table 6. Neck Disability Index Severity Classification as Reported in the Supplied Dataset

NDI category	n	%	95% CI
Mild disability	24	6.3	4.3–9.2
Moderate disability	79	20.7	17.0–25.1
Severe disability	97	25.5	21.3–30.1
Complete disability	97	25.5	21.3–30.1
Crippled	84	22.0	18.2–26.5
Total	381	100.0	—

NDI, Neck Disability Index; CI, confidence interval.

The supplied NDI classification showed that 79 participants were categorized as having moderate disability, 97 as having severe disability, 97 as having complete disability, and 84 as having crippled-level disability. These high disability categories collectively represented a large proportion of the sample. Because the labels “complete disability” and “crippled” require strict scoring verification against validated NDI thresholds, these categories should be rechecked against the original item-level NDI scores before final journal submission. Reviewer-style note: The available manuscript reports NDI categories but does not provide item-level scores or the exact scoring thresholds used. Therefore, the NDI categories are reproduced as supplied, but they should be recalculated using standard NDI interpretation before publication. If the standard NDI classification is applied, the term “crippled” should be avoided or replaced with a validated, contemporary category label.

Table 7. Awareness of Tech-Neck and Ergonomic Screen-Level Posture

Awareness variable	Category	n	%	95% CI
Tech-neck concept	Aware	219	57.5	52.5–62.3
Tech-neck concept	Not aware	162	42.5	37.7–47.5
Ergonomic screen-level posture	Knowledge present	235	61.7	56.7–66.4
Ergonomic screen-level posture	No knowledge	146	38.3	33.6–43.3

CI, confidence interval.

More than half of the participants were aware of the tech-neck concept, with 219 participants reporting awareness. However, 162 participants were not aware of the concept. Similarly, 235 participants reported knowledge of ergonomic screen-level posture, while 146 participants lacked such knowledge. These findings show that a considerable proportion of frequent mobile gamers had limited awareness of tech-neck and ergonomic preventive strategies.

Table 8. Frequency of Cervical Stiffness

Frequency of cervical stiffness	n	%
Rarely	80	21.0
Sometimes	128	33.6
Frequently	126	33.1
Always	47	12.3
Total	381	100.0

Cervical stiffness was commonly reported. A total of 301 participants reported stiffness sometimes, frequently, or always, representing 79.0% of the sample. Frequent or constant stiffness was reported by 173 participants, indicating that recurrent cervical stiffness was a prominent symptom among the surveyed mobile gamers.

Table 9. Presence of Radicular Symptoms

Radicular symptoms	n	%	95% CI
Present	237	62.2	57.2–66.9
Absent	144	37.8	33.1–42.8
Total	381	100.0	—

CI, confidence interval.

Radicular symptoms were reported by 237 participants, representing 62.2% of the sample. Although these symptoms were self-reported and not clinically confirmed, their frequency indicates that upper-limb symptoms were common among participants and should be interpreted cautiously in the absence of neurological examination or radiological assessment.

Table 10. Association Between Tech-Neck Awareness and Daily Mobile Gaming Exposure

Tech-neck awareness	1 hour, n (%)	2 hours, n (%)	3 hours, n (%)	4 hours, n (%)	Total, n (%)
Not aware	37 (46.2)	48 (39.7)	43 (43.0)	34 (42.5)	162 (42.5)
Aware	43 (53.8)	73 (60.3)	57 (57.0)	46 (57.5)	219 (57.5)
Total	80 (100.0)	121 (100.0)	100 (100.0)	80 (100.0)	381 (100.0)

Percentages are column percentages.

Tech-neck awareness did not show a clear increasing or decreasing pattern across gaming exposure categories. Awareness ranged from 53.8% among participants gaming 1 hour daily to 60.3% among those gaming 2 hours daily, 57.0% among those gaming 3 hours daily, and 57.5% among those gaming 4 hours daily.

Table 11. Chi-Square Test for Association Between Tech-Neck Awareness and Daily Mobile Gaming Exposure

Test	χ^2	df	p-value
Pearson chi-square	0.867	3	0.833
Likelihood ratio	0.867	3	0.833
Linear-by-linear association	0.063	1	0.801

df, degrees of freedom.

The chi-square analysis showed no statistically significant association between tech-neck awareness and daily mobile gaming exposure, $\chi^2 = 0.867$, $df = 3$, $p = 0.833$. This finding indicates that awareness of the tech-neck concept did not differ significantly across the reported daily gaming exposure categories in this sample.

Reviewer-style note: The current inferential analysis addresses only the association between tech-neck awareness and daily gaming exposure. The supplied manuscript does not provide inferential results for

the relationship of gaming exposure with NPRS score, NDI score, cervical stiffness, radicular symptoms, or smartphone addiction score. Therefore, no additional p-values, effect sizes, correlations, odds ratios, or regression estimates should be reported unless raw data or complete cross-tabulated outputs are available.

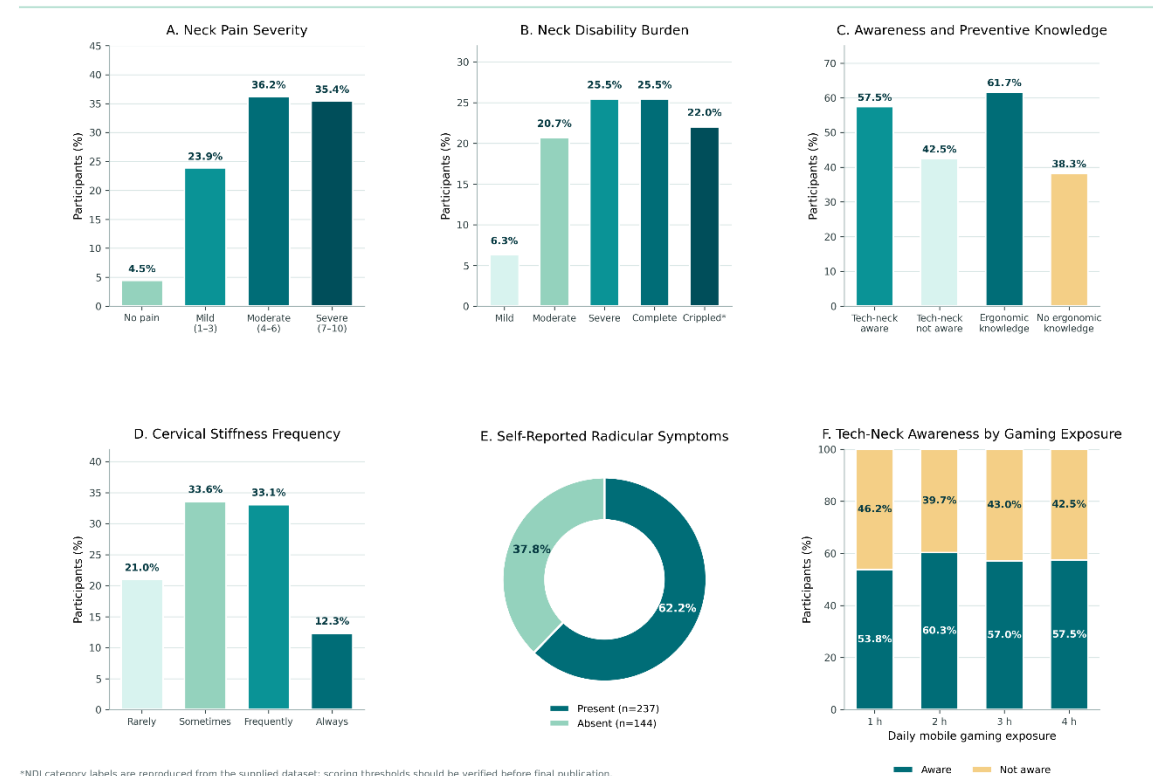


Figure 1. Cervical symptom burden and tech-neck awareness among frequent mobile gamers. The multipanel figure summarizes aggregated cross-sectional findings from 381 participants. Moderate and severe neck pain were reported by 36.2% and 35.4% of participants, respectively, while self-reported radicular symptoms were present in 62.2%. Cervical stiffness was common, with 33.6% reporting stiffness sometimes and 33.1% reporting it frequently. Awareness of the tech-neck concept was reported by 57.5% of participants, while 61.7% reported knowledge of ergonomic screen-level posture. Tech-neck awareness remained relatively similar across daily gaming exposure categories, ranging from 53.8% to 60.3%, consistent with the non-significant association reported in the chi-square analysis.

Overall, the results demonstrate a high frequency of self-reported cervical musculoskeletal symptoms among frequent mobile gamers, including neck pain, stiffness, functional neck disability, and radicular symptoms. Awareness of tech-neck and ergonomic screen-level posture was present in more than half of the sample, but a substantial proportion of participants still lacked awareness. The only reported inferential analysis found no significant association between tech-neck awareness and daily mobile gaming exposure.

DISCUSSION

The present study assessed self-reported cervical musculoskeletal symptoms, neck-related functional disability, smartphone addiction level, and awareness of tech-neck among frequent mobile gamers aged 15–35 years. The findings showed a high burden of neck-related symptoms in this population, with 71.6% of participants reporting moderate or severe neck pain on the Numeric Pain Rating Scale and 79.0% reporting cervical stiffness sometimes, frequently, or always. Self-reported radicular symptoms were present in 62.2% of participants, while the mean Neck Disability Index score was 23.42 ± 11.93 . These findings suggest that cervical discomfort and functional limitation are common among young adults who frequently engage in mobile gaming. However, because the study was cross-sectional and based on self-reported outcomes, these findings should be interpreted as evidence of symptom burden rather than proof of clinically or radiologically confirmed cervical degeneration.

The high frequency of neck pain and stiffness observed in this study is consistent with previous evidence linking prolonged smartphone use, poor posture, and sustained cervical flexion with neck-related musculoskeletal complaints. Prolonged use of handheld devices commonly involves forward head posture, rounded shoulders, and static loading of the cervical extensor muscles, which can increase mechanical stress on cervical soft tissues and contribute to pain, fatigue, stiffness, and reduced functional capacity. Prior studies among smartphone users, students, and young adults have similarly reported neck pain and postural dysfunction in relation to longer screen exposure and poor ergonomic habits (12,13). The present findings extend this concern to frequent mobile gamers, a group that may experience prolonged uninterrupted screen exposure because of the attentional and interactive demands of gaming.

Mobile gaming may represent a distinct exposure pattern compared with ordinary smartphone use. During gaming, users often maintain a fixed visual focus, repetitive hand activity, and sustained neck flexion for extended periods. These behaviors may limit spontaneous posture variation and reduce movement breaks, thereby increasing cumulative cervical load. The present study found that the largest proportion of participants reported 2–3 hours of daily mobile gaming exposure, while 21.0% reported 4 hours of daily exposure. Although these descriptive findings indicate that prolonged gaming exposure was common in the sample, the current analysis did not provide inferential evidence linking gaming duration with pain severity, disability score, stiffness, or radicular symptoms. Therefore, the study supports the presence of a symptom burden among frequent mobile gamers but does not establish a dose-response relationship between gaming hours and cervical symptoms.

The study also found that 57.5% of participants were aware of the tech-neck concept, while 42.5% were not aware. Similarly, 61.7% reported knowledge of ergonomic screen-level posture, whereas 38.3% lacked such knowledge. These findings indicate that although more than half of the participants had some awareness of tech-neck and ergonomic posture, a substantial proportion still lacked preventive knowledge. This awareness gap is clinically relevant because early ergonomic education, postural correction, regular movement breaks, stretching, and cervical strengthening exercises may help reduce mechanical stress associated with prolonged smartphone use. Previous literature has emphasized the importance of preventive strategies and physiotherapy-based interventions for managing smartphone-related neck symptoms and improving cervical function (14,15).

The only reported inferential analysis in this study examined the association between tech-neck awareness and daily mobile gaming exposure. The chi-square result showed no statistically significant association between awareness and gaming duration, $\chi^2 = 0.867$, $df = 3$, $p = 0.833$. This suggests that participants who played mobile games for longer daily durations were not necessarily more aware of tech-neck than those with shorter reported gaming exposure. This finding may indicate that awareness is influenced more by prior education, health literacy, exposure to preventive messages, or personal experience of symptoms than by gaming duration alone. However, this interpretation should remain cautious because the study did not assess the sources, depth, or accuracy of participants' tech-neck knowledge.

The frequency of self-reported radicular symptoms was notable, with 62.2% of participants reporting such symptoms. This finding requires careful interpretation. In a questionnaire-based cross-sectional study, self-reported tingling, numbness, or radiating symptoms cannot confirm cervical radiculopathy or neurological involvement. Such symptoms may reflect transient discomfort, postural strain, peripheral nerve irritation, or reporting variation. Therefore, future research should include clinical neurological examination, cervical range-of-motion assessment, posture evaluation, and, where indicated, diagnostic imaging to differentiate nonspecific cervical discomfort from confirmed cervical radiculopathy or degenerative cervical pathology.

A major strength of this study is its focus on frequent mobile gamers, a population that has received less direct attention than general smartphone users or student populations. The use of standardized

instruments, including the Numeric Pain Rating Scale, Neck Disability Index, and Smartphone Addiction Scale–Short Version, strengthens the assessment of pain intensity, disability, and smartphone-related behavioral exposure. The study also provides locally relevant evidence from a young adult population in Pakistan, which may support awareness programs in universities, colleges, and community health settings.

Several limitations should be considered. First, the cross-sectional design prevents causal inference; therefore, the findings cannot establish that mobile gaming caused neck pain, stiffness, disability, or radicular symptoms. Second, convenience sampling from a university setting may limit generalizability to all mobile gamers or young adults. Third, the reliance on self-administered questionnaires introduces potential recall bias, reporting bias, and subjectivity in symptom reporting. Fourth, the study did not include objective posture assessment, physical examination, cervical muscle endurance testing, or radiological investigation; therefore, the term cervical degeneration should be avoided unless confirmed through appropriate diagnostic methods. Fifth, potential confounding factors such as physical activity level, sleep quality, psychological stress, academic or occupational posture, previous neck pain, and total non-gaming screen time were not fully controlled. Finally, the reported Neck Disability Index categories require verification against validated scoring thresholds before final publication, particularly because the proportion of participants classified in very severe categories appears unusually high for a young adult sample.

Overall, the present study demonstrates a high frequency of self-reported cervical symptoms, functional limitation, and partial gaps in tech-neck awareness among frequent mobile gamers. The findings support the need for targeted ergonomic education, early screening, posture correction, regular movement breaks, and physiotherapy-guided preventive strategies. Future studies should use longitudinal designs, probability-based sampling, objective postural assessment, clinical examination, and adjusted statistical models to clarify the relationship between mobile gaming exposure and cervical musculoskeletal outcomes.

CONCLUSION

This cross-sectional survey found a high burden of self-reported cervical musculoskeletal symptoms among frequent mobile gamers aged 15–35 years, with many participants reporting moderate-to-severe neck pain, cervical stiffness, functional neck disability, and radicular-type symptoms. Although more than half of the participants were aware of tech-neck and ergonomic screen-level posture, a substantial proportion lacked such awareness, indicating a continued need for preventive education. Tech-neck awareness was not significantly associated with daily mobile gaming exposure in the reported chi-square analysis. Because the study relied on self-reported data and did not include clinical or radiological confirmation, the findings should be interpreted as evidence of cervical symptom burden rather than confirmed cervical degeneration. Early ergonomic education, regular breaks, posture correction, and physiotherapy-based preventive strategies may be useful for reducing neck-related problems among frequent mobile gamers.

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