**Association between electronic device use and neck pain among students at the College of Education, Shaqlawa**

**Abstract**

The increased use of electronic devices among university students has raised concerns about its potential impact on musculoskeletal health, particularly neck pain. This study aimed to evaluate the association between electronic device usage and neck pain among students at Salahaddin University, College of Education-Shaqlawa. A descriptive cross-sectional study was conducted from December 2024 to March 2025, involving 381 undergraduate students. Participants with prior neck conditions were excluded. Data were collected using a structured and modified questionnaire, which included demographic information and detailed usage patterns of mobile phones, computers, tablets, and televisions. Statistical analysis was performed using SPSS version 19, with a significance level set at *p* < 0.05. Among the participants, 44.4% reported experiencing neck pain in the past 12 months. Mobile phone use of ≥3 hours/day was significantly associated with neck pain (*p* = 0.028), as was the use of laptops compared to desktops (*p* = 0.0262), and computer use for ≥3 hours/day (*p* = 0.0218). A significant correlation was also observed between neck pain and tablet usage ≥3 times/week and eye distance <20 cm (*p* = 0.03). No significant association was found with posture or video game use. Gender differences were notable, with females reporting a significantly higher prevalence of neck pain than males (*p* = 0.033). Prolonged use of electronic devices—particularly mobile phones, laptops, and tablets—with improper ergonomics such as short eye distance and long duration of use, is significantly associated with neck pain among university students. Educational strategies focusing on healthy device use and posture awareness are recommended to prevent musculoskeletal discomfort.

**KEYWORDS:**

Neck Pain, Electronic Devices, University Students, Mobile Phone Use, and Screen Time

**1. Introduction**

In the modern digital era, the widespread use of electronic devices—such as smartphones, laptops, tablets, and desktop computers—has become deeply embedded in the daily routines of university students [1]. These devices play a crucial role in facilitating academic learning, enhancing communication, and offering access to a wide range of entertainment and social networking platforms. However, the increased reliance on such technology has also introduced a range of health concerns, particularly with regard to musculoskeletal disorders, most notably neck pain [2]. Neck pain associated with electronic device usage has become more common, especially among college students. This demographic must understand the root causes and contributing factors of this discomfort. Implementing specialized educational programs and appropriate training can substantially enhance the healthy and ergonomic utilization of electronic devices. Moreover, enhancing posture awareness has become an essential approach in the prevention and management of neck pain in university students. The adoption of sedentary behaviors, poor ergonomic practices, and extended hours of device use have been consistently linked to discomfort and pain in the cervical spine region [3].

Neck pain is a common public health issue and one of the leading causes of disability worldwide. It significantly affects quality of life, academic performance, and productivity, especially among young adults. Traditionally considered a condition more prevalent among older populations or those with physically demanding jobs, neck pain is now increasingly observed in younger, more sedentary cohorts, such as university students [4]. This shift has been attributed to changes in lifestyle patterns, including prolonged screen time, poor posture, and limited physical activity [5, 6].

Emerging literature has highlighted several contributing factors associated with neck pain in student populations. These include not only the amount of time spent on electronic devices but also the manner in which these devices are used [7]. Ergonomic risk factors such as screen positioning, neck and back posture, the angle at which the device is held, and viewing distance have been shown to play pivotal roles in the development of musculoskeletal symptoms [8]. For example, frequent use of smartphones in a head-forward posture—commonly referred to as "text neck"—places excessive strain on the cervical spine, potentially leading to chronic pain or discomfort [9, 10]. Tech neck, also known as "text neck," is pain resulting from compression of the nerves at the back of the neck where the spine tapers to connect with the skull. This can cause significant pain and stiffness in the neck, strain and pain in the shoulders, and headaches. It's estimate d-that 1 of 10 people is suffering from tech neck at any given time[10]. The cause of tech neck is poor posture, typically as a result of being in a seated position with your head tipped forward and chins down. This posture is often present when you're looking down at a phone, tablet, laptop, or other technological device, which is why it's called tech neck [11]. Similarly, the use of tablets and laptops while seated without back support, or with screens placed below eye level, can promote sustained flexion of the neck, thereby increasing biomechanical load and muscular fatigue [12, 13].

A recent cross-sectional study conducted by [14], at Hawler Medical University revealed a high prevalence (63.5%) of neck pain among students linked to smartphone usage, especially among females, who reported markedly greater pain severity. The study revealed that 78% of participants utilized smartphones for over four hours each day, signifying excessive screen time as a significant factor. These findings underscore the increasing apprehension regarding musculoskeletal disorders associated with extended and improper mobile device usage among university students in Erbil. A study conducted by [15] at King Khalid University in Saudi Arabia identified a significant prevalence of musculoskeletal pain among university students, associated with extended mobile device usage, suboptimal posture, familial history of disorders, insufficient physical activity, and lack of exercise. A cross-sectional study conducted at the University of Jordan revealed that 52.4% of students experienced neck pain in the preceding week, primarily attributable to inadequate posture and the use of digital devices. Slouching while seated increases the risk of neck pain during laptop or tablet use by nearly 2.7 times compared to using phones. No correlation was identified with the book study. The findings indicate that university students require ergonomic education and interventions to alleviate neck strain [6].

The study was conducted by [16] shown that among the 4848 college students (80.8%) who completed the survey, the prevalence of NSP was 39.1%, with more girls (45.0%) reporting NSP than boys (32.4%). The logistic regression indicated that gender, inappropriate posture and using digital devices for long time had a significant correlation with NSP. Neck muscle activity increased as spinal inclination increased based on the Anybody platform. Another study by [17] showed that there is a high prevalence of neck pain in university students and striking association with the female sex and with the use of electronic devices. The study was performed by [3] demonstrates a significant positive correlation between the duration of mobile phone use and the duration and severity of neck pain. Furthermore, the increased severity of neck pain places a huge burden on the healthcare system. [18] showed that shoulder pain (75.7%) was the most commonly reported type of pain among Nigerian undergraduate laptop users. [19] showed that among college laptop users, 28.9% of males and 42.7% of females reported neck discomfort, and 8.9% of males and 24.0% of females reported shoulder discomfort. Meanwhile, the prevalence of NSP has been correlated with postures associated with laptop use. This finding is consistent with Mustafa Ahmed Alshagga, who showed that MSP, and especially NSP experienced in the past year, is significantly associated with daily hours of computer use [1].

University students represent a high-risk group for developing such symptoms due to their extensive engagement with technology for academic tasks, social interactions, and leisure activities. The nature of university education often requires long hours of reading, writing, and digital communication, much of which is conducted via personal electronic devices [20]. Moreover, this age group tends to demonstrate limited awareness of proper ergonomic practices, and they often overlook early signs of musculoskeletal strain, which may develop into more severe conditions over time [21].

Despite the growing body of international literature addressing the ergonomic and health implications of electronic device use, there remains a significant research gap in specific regions, including the Kurdistan Region of Iraq. To date, few studies have systematically investigated the prevalence of neck pain among university students in this region, nor have they explored the relationship between neck pain and patterns of electronic device use, including the type of device, duration of use, and associated postural behaviors. Given the cultural, educational, and technological landscape of the region, there is a pressing need for localized research to inform public health strategies and ergonomic education initiatives.

The current study aims to assess the prevalence of neck pain among students at the College of Education–Shaqlawa, Salahaddin University. Specifically, the study seeks to evaluate the relationship between neck pain and the use of various electronic devices, such as mobile phones, televisions, computers, video games, and tablets. The research will focus on key usage parameters, including duration, viewing distance, body posture, and screen position, with the goal of identifying modifiable risk factors and providing recommendations for healthier device usage among university students.

**2. Materials and Methods**

**2.1. Study Design and Setting**

This descriptive cross-sectional study was conducted at the College of Education–Shaqlawa, Salahaddin University, located in the Kurdistan Region of Iraq. The study aimed to assess the prevalence of neck pain among university students and investigate its association with the usage patterns of various electronic devices.

**2.2. Study Population and Sample Size**

The study population comprised undergraduate students enrolled at the College of Education during the academic year 2024–2025. A sample size of 381 students was determined using a convenience sampling technique, ensuring representation across different academic years and departments. Inclusion criteria included students aged 18 years or older who regularly used at least one type of electronic device (e.g., mobile phones, televisions, computers, video games, or tablets). Students with a history of neck trauma, congenital spinal deformities, or diagnosed musculoskeletal disorders were excluded from the study.

**2.3. Data Collection Instrument**

Data were collected using a structured, self-administered questionnaire developed based on previously validated instruments from similar studies (e.g., Almalki et al., 2017; Kim et al., 2014). The questionnaire was reviewed by experts in medical physics and physiotherapy for content validity and piloted on 20 students to assess clarity and reliability. Minor modifications were made accordingly. The questionnaire comprised four sections:

**2.3.1. Demographic Information:** Age, gender, academic year, and department.

**2.3.2. Electronic Device Usage:** Types of devices used, daily duration of use (hours), typical viewing distance, preferred body posture during use, and screen positioning.

**2.3.3. Neck Pain Assessment:** Prevalence, frequency, intensity (measured via a Visual Analog Scale [VAS]), duration, and any reported functional limitations.

**2.3.4. Ergonomic Awareness and Practices:** Knowledge and application of ergonomic principles during device use.

**2.4. Data Collection Procedure**

Data collection was carried out over a two-month period from March to April 2025. Participants were informed about the study's objectives and provided informed consent prior to participation. The questionnaires were distributed during class sessions and collected immediately after completion to ensure high response rates.

**2.5. Ethical Considerations**

The study protocol was reviewed and approved by the Institutional Review Board (IRB) of Erbil polytechnic University. Participation was voluntary, and confidentiality of participants' information was strictly maintained. No personally identifiable information was collected.

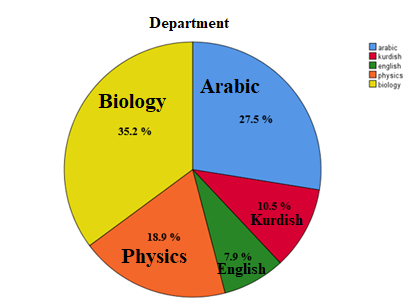
**2.6. Data Analysis**

Data were coded and entered into IBM SPSS Statistics version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic characteristics, device usage patterns, and neck pain prevalence. Inferential statistics, such as chi-square tests and logistic regression analyses, were performed to examine associations between neck pain and electronic device usage variables. A p-value of less than 0.05 was considered statistically significant [22-25].

**3. Results and Discussion**

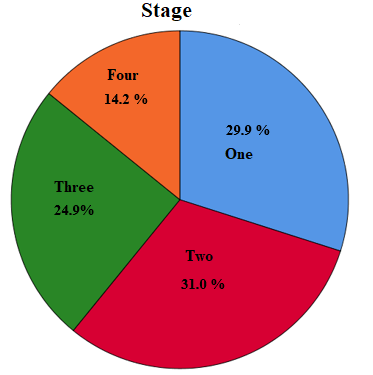
**3.1 Results**

This cross-sectional study comprised a total of 381 university students from various departments. The results are presented in the form of figures and tables that illustrate the distribution of demographic variables, electronic device usage patterns, and the association of these variables with the prevalence of neck pain. The departmental affiliations of the participants are depicted through the use of Figure 1. The English department had the lowest proportion of participation, which can be attributed to the fact that it only included one academic stage. The department with the most representation was the biology department, which had 35.2% of the total participants represented.



**Figure. 1.** Department of the participants

An illustration of the distribution of participants across academic stages may be found in Figure 2. The proportion of students in their second year was the largest (31.0%), followed by students in their first and third years (29.9% and 24.9%, respectively). They were closely followed by students in their second year. Fourth-year students made up the smallest category, accounting for 14.2% of the total.



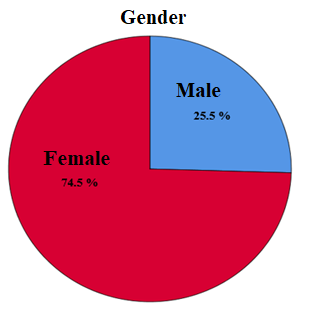
**Figure. 2.** The stages of participants

A comprehensive breakdown of the age distribution may be seen in Figure 3. A total of ninety percent of the individuals who took part in the study were less than twenty-five years old. The sample was mostly made up of young individuals, with just a minority (0.7%) belonging to the age range of 26 to 30 years, and even fewer belonging to the age range of 31 years or older. The sample primarily consisted of young adults.



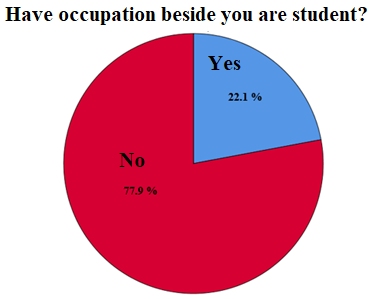
**Figure. 3.** The bar chart of the age of the participants

Figure 4 illustrates the gender breakdown of the group. There were substantially more female participants than male participants (25.5%), with females making up 74.5% of the entire sample.



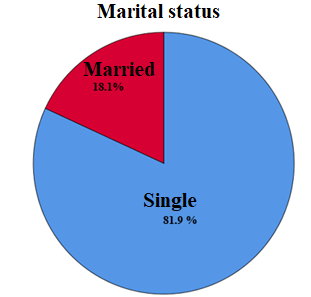
**Figure. 4.** The gender of the participants

On the other hand, just twenty-two point one percent of the participants claimed to be working, according to the data that is provided in Figure 5. This ratio indicates that more than seventy-nine percent of the participants were without jobs.



**Figure. 5.** The occupation of the participants

The marital status of the respondents is depicted in Figure 6, which reveals that the majority of them were married (81.9%), while 18.1% were single.



**Figure. 6.** The marital status of the participants

**Neck Pain and Device Usage Patterns**

According to the data shown in Table 1, among the participants, 44.4% reported having had neck discomfort during the previous year. Seventy-two percent of people used mobile phones, while sixty-three point nine percent of people watched television. Computers were used by more than half of the population (55%), while video games were played by a lesser number (35%), and tablets were used by others (35.5%).

**Table. 1:** Frequency distribution of the study variables

|  |  |  |
| --- | --- | --- |
| Total (N=381) | | Factor |
| No | Yes |
| 212(55.6%) | 169(44.4%) | Suffering from any kind of neck pain for the past 12 months |
| 298(78.2%) | 839(21.8%) | Any kind of neck problem need medical management |
| 74(19.5%) | 301(79.2%) | Using mobile |
| 143(36.02%) | 238(63.98%) | Watching Tv |
| 174(45%) | 207(55%) | Using computer |
| 217(65%) | 164(35%) | Play video game |
| 213(64.5%) | 168(35.5%) | Use tablet |

A total of 63.2% of the participants used their mobile phones for a period of three hours or more on a daily basis, as shown in Table 2. A majority of them were used while seated (50.2%), and the distance between the eyes and the screen was less than 20 centimeters in 56.2% of the instances.

**Table. 2: Describing mobile device among participants**

|  |  |  |  |
| --- | --- | --- | --- |
| Items | | Frequency | % |
| Daily use of mobile phone | Up to hours | 113 | 36.8 |
| 3 hours | 267 | 63.2 |
| Total | 381 | 100 |
| Posture use mobile | standing | 66 | 13.9 |
| sitting down | 171 | 50.2 |
| Lying down | 96 | 22.9 |
| semi lying down | 48 | 12.9 |
| Total | 381 | 100 |
| Eye distnace to the mobile using | Less than 20cm | 186 | 56.2 |
| 20 cm or more | 176 | 43.8 |
| Total | 381 | 100 |

As seen in Table 3, participants' descriptions of their television devices are included. Participants watch television up to twice a week, totaling two hours—nearly three times a week. Among the participants, the proportion that was watching television for three hours or more was the lowest, at 40.1%.

**Table. 3:** Reveals Describing Television Device among Participants

|  |  |  |  |
| --- | --- | --- | --- |
| Items |  | Frequency | % |
| Time to watch Tv/week | Up to 2 time | 193 | 57.1 |
| 3 times or more | 145 | 42.9 |
| Total | 338 | 100 |
| Time to watch Tv/day | Up to 2 hours | 196 | 59.9 |
| 3 hours or more | 131 | 40.1 |
| Total | 327 | 100 |

Table 4 provides a description of the participants' various computer devices. Over fifty-three point five percent of the participants utilize a computer for up to two hours every week. Over sixty-two point one percent of the participants were utilizing laptops. More than half of the participants positioned themselves near the middle of the computer screen height while using it. In conclusion, seventy-seven percent of the computer screens were positioned at a distance of thirty centimeters or more.

**Table. 4:** Describing computer device among participants

|  |  |  |  |
| --- | --- | --- | --- |
| Items | | Frequency | % |
| Time to use computer/ week | Up to 2 hours | 130 | 53.5 |
| 3 time or more | 113 | 46.5 |
| Total | 243 | 100 |
| Type of computer | Desktop | 77 | 35.2 |
| Laptop | 136 | 62.1 |
| Desktop and Laptop | 6 | 2.7 |
| Total | 219 | 100 |
| Time use computer / day | Up to 2 hours | 115 | 56.1 |
| 3 hours or more | 88 | 42.9 |
| Total | 205 | 100 |
| height of the computer screen | Below Midpoint | 74 | 38.1 |
| Midpoint | 111 | 57.2 |
| Above Midpoint | 8 | 4.1 |
| Total | 194 | 100 |
| Distance the computer screen | Less than 30 cm or more | 59 | 32.8 |
| 30 cm ore more | 119 | 67.2 |
| Total | 178 | 100 |

Table 3 provides a description of the video game devices that participants use to play video games. Approximately fifty-four percent of the people who took part in the study were playing video games on a weekly basis or more. However, 52.1% of the participants were playing video games for a period of up to two hours before they stopped.

**Table. 5:** Describing computer device among participants

|  |  |  |  |
| --- | --- | --- | --- |
| Items | | Frequency | % |
| Time play video game/ week | Up to 2 time | 67 | 50.4 |
| 3 times or more | 66 | 49.6 |
| Total | 133 | 100 |
| Time play video game/day | Up to 2 time | 62 | 52.1 |
| 3 times or more | 57 | 47.9 |
| Total | 119 | 100 |

Table 6 presents comprehensive information on the tablet device used by the participants. Approximately fifty-eight percent of the individuals used tablets up to twice weekly and twice daily, while the same percentage maintained a seated position. This indicator signifies that most participants were seated. 52.4% of the individuals used the tablet at a distance of 20 cm or more, representing about half of the total participants.

**Table .6:** Describing tablet device among participants

|  |  |  |  |
| --- | --- | --- | --- |
| Items | | Frequency | % |
| times use tablet /week | Up to 2 time | 43 | 51.8 |
| 3 time or more | 40 | 48.2 |
| Total | 83 | 100 |
| posture using the tablet | standing | 28 | 37.3 |
| sitting down | 44 | 58.7 |
| Lying down | 3 | 4 |
| Total | 75 | 100 |
| distance use tablet | Less than 20 cm | 30 | 47.6 |
| 20 cm or more | 33 | 52.4 |
| Total | 63 | 100 |

As can be seen in Table 7, there is a correlation between neck pain and the demographic characteristics. The result indicated that there was a significant relationship between neck pain and the gender of the participants. This was due to the fact that the p-value was lower than 0.05. However, owing to the presence of other demographic factors, the finding would not be considered significant.

**Table. 7:** Association between neck pain and the demographic variables

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | | Suffering from neck pain last 12 months | | |
| Have pain | Donot have pain | p-value |
| Age group | 17-20 | 93 | 108 | 0.692 |
| 21-25 | 75 | 101 |
| 26-30 | 1 | 2 |
| 31 0r more | 0 | 1 |
|  | Total | 381 | |  |
| Gender | Female | 135 | 149 | 0.033 |
| Male | 34 | 63 |
| Total | 381 | |
| Department | Arabic | 31 | 74 | 0.38 |
| Kurdish | 20 | 20 |
| English | 19 | 11 |
| physics | 44 | 28 |
| Biology | 55 | 79 |
| Total | 381 | |
| Stages | First | 47 | 67 | 0.173 |
| Second | 59 | 59 |
| Third | 45 | 50 |
| Fourth | 18 | 36 |
| Total | 381 | |

Table 8 shows the association between neck pain and mobile and TV devices. There is a significant association between neck pain and daily use of mobile devices. That is because the p-value was less than 0.05. Due to the fact that there is a statistically significant correlation between using a mobile phone on a daily basis and experiencing neck pain (p = 0.028), it can be inferred that extended use of mobile devices is a contributor to musculoskeletal discomfort. There were no significant connections found between the variables of posture, eye distance, or television-watching behaviors and the outcomes of the study.

**Table. 8:** Association between neck pain and mobile, and TV devices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | | Suffering from neck pain last 12 months | | |
|  | | Have pain | Donot have pain | p-value |
| Daily use of mobile phone | Up to 2 hours | 40% | 44% | 0.028 |
| 3 hours or more | 60% | 56% |
| Total | 100% | 100% |
| Posture use mobile | Standing postion | 27 | 38 | 0.344 |
| Sitting position | 72 | 99 |
| Laynig down position | 42 | 54 |
| Semi-lying position | 27 | 22 |
| Eye distance to mobile | Less than 20 cm | 82 | 100 | 0.298 |
| 20 cm or more | 72 | 104 |
| Time to watch TV/week | Up to time | 90 | 103 | 0.40 |
| 3 times or more | 61 | 84 |
| Time to watch TV/day | Up to 2 hours | 92 | 104 | 0.308 |
| 3 hours or more | 54 | 77 |

Table 9 illustrates the correlation between the usage of video game consoles and computers, as well as the frequency of experiencing soreness across the neck. The p-value was lower than 0.05, which indicates that there is a substantial link between using a computer and experiencing neck discomfort. Despite this, the results did not have a significant influence on video gaming systems. According to the data shown in Table 9, the frequency of neck discomfort is substantially linked with both the amount of time spent using a computer on a daily basis (p = 0.0218) and the kind of computer that is used (particularly laptops; p = 0.0262). On the other hand, the use of video games did not produce statistically significant and relevant correlations.

**Table. 9:** Association between neck pain and computer and video game devices

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | | Suffering from neck pain last 12 months | | |
| Have pain | Do not have pain | p-value |
| Time use computer /week | Up to hours | 58 | 72 | 0.0621 |
| 3 hours or more | 54 | 59 |
| Type of computer | Desktop | 38 | 49 | 0.0262 |
| Laptop | 59 | 77 |
| Desctop alnd laptop | 1 | 5 |
| Time use computer/day | Up to 2 hours | 56 | 69 | 0.0218 |
| 3 hours or more | 44 | 42 |
| Height computer screen | Below midpoint | 36 | 38 | 0.409 |
| Midpoint | 44 | 67 |
| Above midpoint | 3 | 5 |
| Distance to computer screen | Less than 30 cm | 23 | 36 | 0.0702 |
| 30 cm or more | 54 | 65 |
| Time to play video game/ week | 25 | 42 |  | 0.69 |
| 35 | 31 |  |
| Time to play videogame/day | 11 | 32 |  | 0.6 |
| 20 | 14 |  |

Table 10 illustrates the association between tablet devices and neck pain. There is a substantial correlation between the time as well as the distance of the tablet device and the occurrence of neck discomfort. It is because the p-value was lower than 0.05 that this is the case. There was a significant association between neck discomfort and the frequency of tablet usage as well as the distance between the screen and the neck (p = 0.03), as shown in Table 10. A greater number of participants reported experiencing discomfort when they held their tablets at a distance of less than 20 centimeters from their eyes.

**Table .10:** Association between neck pain and the tablet device

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Items | | Suffering from neck pain last 12 months | | |
| Have pain | Donot ave pain | Have pain |
| Time use tablet/week | Up to time | 23 | 32 | 0.06 |
| 3 times or more | 14 | 14 |
| Eye distnace to the tablet | Less than 20 cm | 98 | 19 | 0.03 |
| 20 cm or more | 14 | 20 |
| Posture use tablet | Standing | 12 | 16 | 0.633 |
| Sitting | 14 | 30 |
| Lying down | 1 | 2 |

**3.2. Discussion**

This research examined the incidence of neck discomfort among university students and its correlation with the use of different electronic devices, such as mobile phones, laptops, TVs, video games, and tablets. The researchers further investigated the influence of posture, eye distance, length of use, type of computer, and screen height on neck discomfort. Our research reveals a substantial incidence of neck pain, with a considerable number of students experiencing discomfort associated with extended use and inadequate ergonomic practices.

The study's findings indicated that 60% of participants had neck discomfort after using a mobile device for three hours or more, demonstrating a substantial correlation between neck pain and length of use. A distance of less than 20 cm between the eyes was associated with a 64% prevalence of neck discomfort, indicating a substantial correlation between neck pain and eye distance. Neck pain parallels the findings of a study conducted by Al Hadidi. Fadi et al. examine the correlation between mobile phone use and cervical discomfort among university students. A systematic review of another research study on Text Neck Syndrome yielded similar results [3, 4]. The p-value for the posture component was not statistically significant. The results may be ascribed to the preponderance of participants being physiotherapy students, who are presumably aware of the influence of posture on neck pain. Moreover, regarding the utilization of electronic devices (computers), data reveals that 58% of individuals who engaged in computer use for up to 2 hours weekly experienced neck pain. Moreover, a significant correlation exists between neck pain and the type of computer used, specifically laptops, with 59% reporting discomfort. There is a significant correlation between neck discomfort and the type of computer used, especially laptops. Among individuals who utilized the computer for up to 2 hours daily, 56% experienced neck pain, signifying a significant correlation. Fifty-four percent of individuals reported experiencing neck discomfort when situated 30 cm or more from the computer screen, indicating a significant correlation. Neck pain corresponds with the results of the research conducted by De Vitta. Alberto et al. examined neck discomfort and its associated variables among university students, while Kim J. H. et al. validated these findings [8, 17].

Ultimately, prolonged use of electronic devices (tablets) for three hours or longer resulted in neck discomfort for 70% of users. The correlation is substantial, with a distance of less than 20 cm (80%) indicating considerable neck discomfort. The findings aligned with the study conducted by Almalki, Meshari Musaad, et al. on the use of smartphones, iPods, laptops, and desktops as risk factors for non-specific neck discomfort in undergraduate university students. A research study conducted by Liu, C.H. examined the correlations between using touch-screen tablets and musculoskeletal pain, corroborating these findings [12, 13].

Previous research (Kim et al., 2014; Almalki et al., 2017) discovered that mobile phones were the device that was used the most often by the participants and that they exhibited a strong link with neck pain. This discovery is in line with the growing concern about the "text neck" syndrome, which is characterized by the strain in the neck that occurs as a consequence of maintaining a forward head posture for an extended period of time when using mobile phones [26]. The prolonged use of portable devices, in conjunction with incorrect viewing angles and postures, unquestionably results in the straining of the cervical spine and the weariness of the muscles. This conclusion is shown by the findings of our study, which found a correlation between protracted daily usage and increased ratings of neck discomfort.

Television and computer use had a significant correlation with neck discomfort, especially in students who engaged with these devices for prolonged durations without sufficient breaks or ergonomic modifications. This data corroborates the observations of [27], who indicated that inadequate posture during extended screen time may result in musculoskeletal pain. The typical position used when using a computer, often marked by a forward head tilt and rounded shoulders, may increase cervical spine stress and heighten vulnerability to discomfort.

Notably, the usage of video games and tablets was less often reported, but it nevertheless led to neck discomfort in a segment of students, underscoring that any item necessitating prolonged neck flexion or uncomfortable placement might provide a danger. The variety of gadget use highlights the complex factors contributing to neck discomfort among students.

Our findings support the importance of ergonomic awareness and education, as students who acknowledged ergonomic practices and endeavored to maintain neutral postures reported decreased pain intensity. This research illustrates the value of preventative efforts, such as ergonomic treatments, frequent breaks, and posture correction, in alleviating neck discomfort linked to electronic device use [28].

The study's cross-sectional methodology restricts causal conclusions; still, the notable relationships observed merit consideration. Future longitudinal research may clarify temporal correlations and causation more effectively. Furthermore, self-reported data may add memory bias; nevertheless, the use of validated questionnaires improves dependability. This research underscores the significant incidence of neck discomfort among university students associated with electronic device use. It points out the need for specific treatments that advocate ergonomic principles and restrict extended gadget use to alleviate musculoskeletal pain and enhance students' quality of life.

**4.1 Conclusion**

This study investigated the association between neck pain and the use of electronic devices among university students at Salahaddin University, College of Education – Shaqlawa. A descriptive cross-sectional design was employed involving 381 participants, with data collected through a structured and validated questionnaire covering demographics, device usage patterns, and neck pain incidence. Statistical analysis using SPSS revealed a significant association between prolonged use of electronic devices—particularly mobile phones, tablets, and laptops—and self-reported neck pain. The findings revealed that 44.4% of participants experienced neck pain in the past 12 months, with significant associations observed between neck pain and extended mobile phone use (over 3 hours/day, p = 0.028), prolonged laptop use (p = 0.0218), and close viewing distances (less than 20 cm, p = 0.03). Notably, students who used mobile phones for more than three hours daily or maintained an eye distance of less than 20 cm were more likely to report neck pain. Tablet use for more than 3 hours and non-ergonomic positions, although not statistically significant, were common among those reporting discomfort. Gender was also a significant factor, with females experiencing more neck pain than males (p = 0.033). Although posture during device use was not statistically significant, the high rate of use in non-ergonomic positions (e.g., lying or semi-lying) suggests a potential contribution to discomfort. These findings support previous studies and reinforce that extended duration, improper posture, and short viewing distances during electronic device use increase the risk of neck pain in university students. These findings align with previous research on digital device-related musculoskeletal issues, suggesting that the duration, posture, and proximity of device use are critical risk factors. The study demonstrates the need for ergonomic awareness and responsible digital device habits to mitigate neck-related health consequences in young adults.

**Author Contributions Statement**

All authors influenced the concept and design of the study. Sardar Qader Othman and Barzan Nehmat Sabr compiled the materials, gathered the data, and completed the study. After Sardar Qader Othman produced the initial draft, all authors provided critiques on the preceding versions of the work. The final draft was scrutinized and amended by all contributors.

**Ethics approval**

The author acknowledged and adhered to the Instructions for Writers' statement regarding "Ethical Responsibilities of Authors." The medical ethics committee of Erbil Polytechnic University sanctioned the collection of the samples in this study.

**Declaration of competing interest**

The authors declare they have no conflicts of interest.

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**Appendix**

**Modified Questionnaire**

Electronic Devices and Neck Pain among University Students. The purpose of this questionnaire is to conduct research with students from Salahaddin University College of Education's Shaqlawa. The study emphasizes "Neck Pain in University Students and the Utilization of Electronic Devices." Researchers appreciate your time in completing this questionnaire. We would like to let you know that we have divided the gathered content into numerous components, as outlined below:

**Section 1: Personal Information**

1. University name:

2. College:

3. Department:

3. Stage:

4. In what age group are you?

17 to 20 21-25 26-30 31 or more

5. Gender: Male Female

6- Have occupation beside you are student?

Yes No

7. If yes what is your occupation?

8- Marital Status: Single Married

9. Are you suffering from any kind of neck pain for the past 12 months?

Yes No

10- Have you any kind of neck problem need medical management?

Yes No

red is only used for the purpose of this research and would not be shared with any ot

**Section II: Using Mobile**

11- Do you use a mobile phone? Yes No

12- Daly use of Mobile phone?

Up to 2 hours 3 hours or more

13. In what posture you are using the mobile phone?

Standing Sitting Lying Down Semi-Lying

14- What is your normal eye distance to the mobile while using?

Less than 20cm 20 cm or more

**Section III: Watching TV**

15- Do you watch TV? Yes No

16- If yes, how many times watch TV//week?

Up to 2 time 3 times or more

17-How many hours watch TV/ day? Up to 2 hours 3 hours or more

**Section IV: Using Computers**

18- Do you use a computer? Yes No

19- If yes, how many times use computer/ week? Up to 2 time 3 times or more

20- Type of computer? Desktop Laptop Desktop and Laptop

21- How many hours use computer/ day? Up to 2 hours 3 hours or more

22- What is height of the computer screen while using?

Below Midpoint Midpoint Above Midpoint

23- What is the distance from your eye to the computer screen?

Less than 30 cm 30 cm or more

24- Do you play video game on your computer? Yes No

25-If yes, how many times play video game on your computer/week?

Up to 2 time 3 times or more

26- How many hours play video game on your computer / day?

Up to 2 hours 3 hours or more

**Section IV: Using Computers**

18- Do you use a computer? Yes No

19- If yes, how many times use computer/ week?

Up to 2 time 3 times or more

20- Type of computer? Desktop Laptop Desktop and Laptop

21- How many hours use computer/day? Up to 2 hours 3 hours or more

22- What is height of the computer screen while using?

Below Midpoint Midpoint Above Midpoint

23- What is the distance from your eye to the computer screen?

Less than 30 cm 30 cm or more

24- Do you play video game on your computer? Yes No

25- If yes, how many times play video game on your computer/week?

Up to 2 time 3 times or more

26- How many hours play video game on your computer / day?

Up to 2 hours 3 hours or more

**Section V: Use Tablet**

27- Do you use a tablet? Yes No

28- If yes, how many times use tablet/ week?

Up to 2 time 3 times or more

29- How many hours use tablet/ day? Up to 2 hours 3 hours or more

30- In what posture you are using the tablet?

Standing Sitting Lying down Semi-Lying

31- What is your normal eye distance to the tablet while using?

Less than 20cm 20cm or more