

Prevalence of Neck Pain Among Local Gamers in Pune

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Abstract

This study discusses about the neck pain which is mainly caused due to prolonged playing hours on computers and PCs, which mainly result in forward head and shoulder postures, often associated with gaming. It tells how poor posture affects muscles, tendons, and overall health. It is commonly known as "gamer's neck."

To accomplish this study, one hundred and one (101) gamers between the age 16 to 30 years were chosen. The gamers were chosen according to the hours of playing i.e 40 hours per week. A questionnaire called Copenhagen Neck Functional Disability Scale was distributed among the players. The data collected was analyzed by non parametric unpaired t-test to examine if the data collected was significant or not. Accordingly, it was determined that neck pain has been the complaint in various gamers which is mainly affected due to long gaming hours. According to the data collected, large number of players report mild to moderate neck pain. Sitting for long periods of time without the use of ergonomic systems, position of the neck and posture during gaming, repetitive movements during playing and emotional involvement in the game are some of the factors contributing to this.

The study also looks at the emotional impact of neck pain on gamers and discusses how it can lead to isolation, anxiety, and frustration. This means that neck pain can have a negative impact on the player's relationships, sense of self and overall enjoyment in his hobby.

Keywords: Neck pain, Gamer's Neck, Copenhagen Neck Functional Disability Scale.

Introduction:

These days, gaming sessions demand both a stable head and a stable internet connection. However, stiffness, difficulty, and pain in the muscles might result from a stationary head. Another term for neck pain brought on by continuous stress on the cervical spine is "gamers neck." The term refers to spending hours of time staring at screens, playing video games, and using cell phones, all of which cause the head to remain still and slightly inclined forward.^[1] The head is between ten and twelve pounds in weight. About fifty pounds of strain are applied to the neck while the head is held stationary. Gamers' neck posture is caused by muscle tension over time^[2] The most common and frequently used gadget for a range of daily tasks, including information sharing, internet access, movie watching, social media use, gaming, and a

host of other activities, is the cell phone.

According to a survey, 79% of adults between the ages of 18 and 44 spend the most of their time on computers, laptops, and cellphones ^[4]. A recent study on 2061 students found that 74.8 percent of participants had moderate to severe the fear of nomad and were dependent on their phones ^[3]. Individuals who spend a lot of time staring at their phones or computers may experience stress, anxiety, panic attacks, and other mental health issues.^[5] In addition to these mental illnesses, people can have a variety of physical conditions, such as gamers neck. Among these, one of the main issues is posture. This term refers to pain in the neck and damage to the muscles in the upper back that result from often flexing the neck at different angles while looking down at a phone ,laptop or computers which changes the cervical spine's natural curve. Texting neck, often known as "gamers neck," is a type of neck pain brought on by prolonged bad posture from using an electronic device. In my experience as a physical therapist, neck pain is becoming more common among my patients. According to certain research, the typical adult uses a mobile device for around four hours every day.

1. Overuse syndrome, which is typically caused by putting too much strain on the neck from staring down at laptops and PCs, is known as "gamers neck." It can include headaches, neck, shoulder, and arm pain as well.^[6]
2. When using a hand-held laptops or mobile phones , gamers adopt a neck posture similar to that of a forward head, with the upper neck kept in flexion as opposed to extension.
3. The neck posture of gamers should be referred to as "Pain of the Modern Era" because it results from acute to chronic pain in the neck and upper back region, and is brought on by modern technology like computers, smartphones, and other smart devices.^[7]

The loads working on the neck are 27 pounds when the head is flexed 15 degrees, 40 pounds when the neck is flexed 30 degrees, 49 pounds when the neck is flexed 45 degrees, and 60 pounds when the neck is flexed 60 degrees, according to a report ^[6,8]. The computerized projected at 90 degrees is not true. Numerous studies have been carried out to figure out how use of laptops affects the musculoskeletal system.^[6] and a number of studies found a significant correlation between the amount of time spent using a mobile phone or laptops overall and neck and shoulder pain. The specific goals of this study were to find out the prevalence of gamers' neck posture among Pune-based gamers and the effects that this posture had on them, in their daily life on a regular basis.

Methodology

Permission will be taken from institutional ethical committee of Tilak Maharashtra Vidyapeeth, department of Physiotherapy. Gamers will be selected according to inclusion and exclusion criteria and using convenient sampling method. Inform consent from the gamers will be taken. A self answerable questionnaire form would be shared among 101 gamers. The scale is mainly named as Copenhagen Neck Functional Disability Scale. The scale can be used to evaluate the disability experienced by patients with neck pain. The scores can be monitored over time to evaluate the disease, course and response to any interventions. The reliability of this scale was evaluated and was found that the pearson correlation coefficient of 0.99 and 0.98 , which means the test – retest reliability is very good. Subjects will have to fill the questionnaire. The form consists of set of 15 questions about whether they experience pain , area of pain , etc. The form focuses on various components of neck pain. Based on answers given to the questions by the students, Disability Index (sum of all Questions) will be calculated. The higher the score the greater the disability. The study design is observational study, where the gamers were selected

depending on the hours of playing games. On an average, the gamers playing for about 40 hours a week were selected for the survey. This study was mainly carried among gaming cafes in Pune. The inclusion and exclusion factors are as follows :-

INCLUSION CRITERIA

1. Participants from Pune, India.
2. Neck Pain.
3. Age between 16-30 years.
4. 2 hours and above screen play time per day.
5. 40 hours screen play time per week.

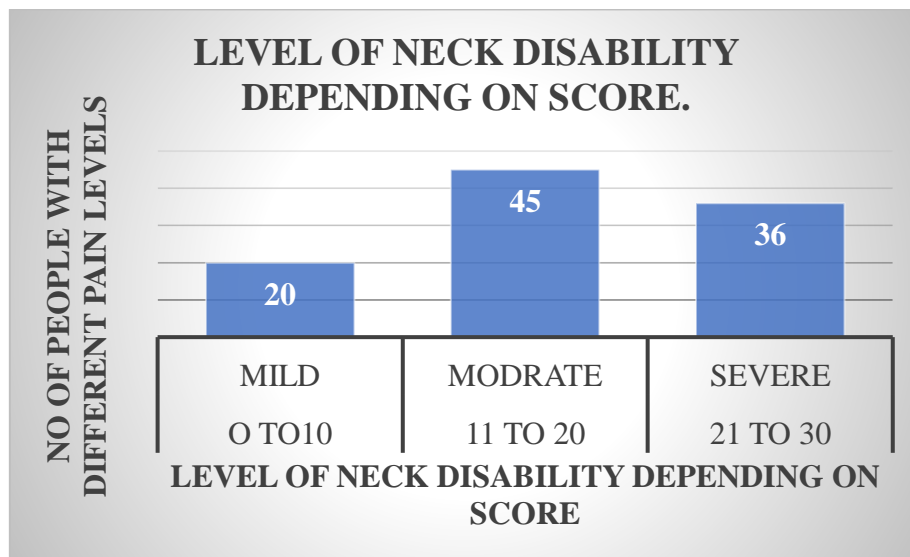
EXCLUSION CRITERIA.

1. Neck fractures.
2. Juvenile neck deformities.
3. No previous history of an accident or severe injury to neck or upper back.
4. No recognized disease that may cause pain in the neck or upper limb, no neurological or cardiovascular problem.

Data analysis and result:

CLASS		MALES	FEMALES
0 to 10	MILD	20	5
11 to 20	MODERATE	45	15.5
21 to 30	SEVERE	36	25.5

TABLE NO :01

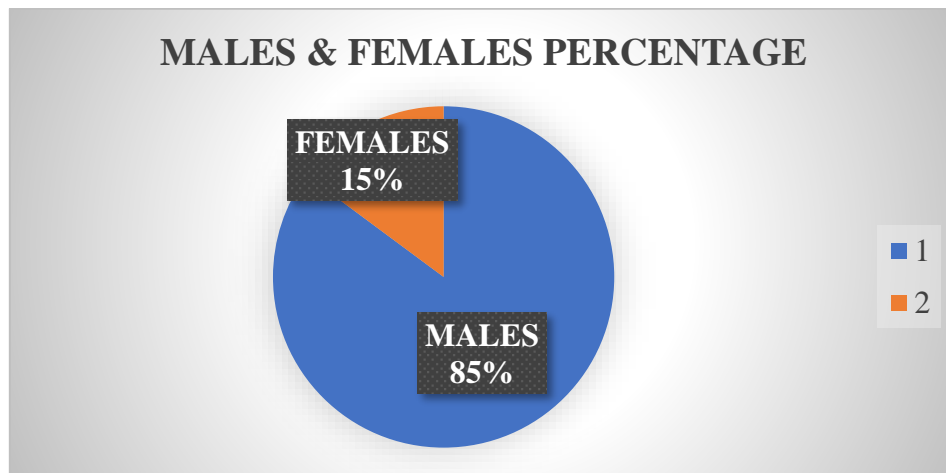


INTERPRETATION:

Table 01 shows the prevalence of gamers neck posture among local gamers in Pune. Graph 01 shows its graphical representation. The Prevalence of gamers collected is as follows, 20 out of 101 gamers are suffering from mild neck pain. 45 gamers out of 101 gamers are suffering from moderate neck pain, 36 gamers out of 101 gamers are having severe neck pain.

TOTAL MALES	TOTAL FEMALES
20	3
37	7
29	5

TABLE NO :02

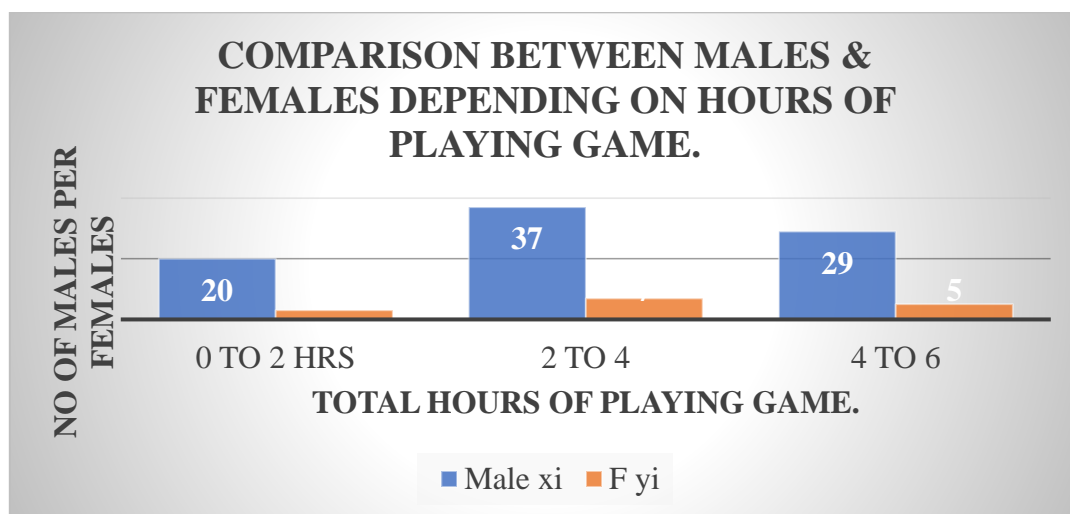


INTERPRETATION:

Table 02 shows the prevalence of gamers neck posture among local gamers in Pune. Graph 02 shows its graphical representation. It mainly shows the comparison between the genders affected in percentage. According to graph, 15% of females and 85% of males are having neck pain.

Total Hours of playing	Total Males	Total Females
0 TO 2 hrs	20	3
2 to 4	37	7
4 to 6	29	5

TABLE NO :03



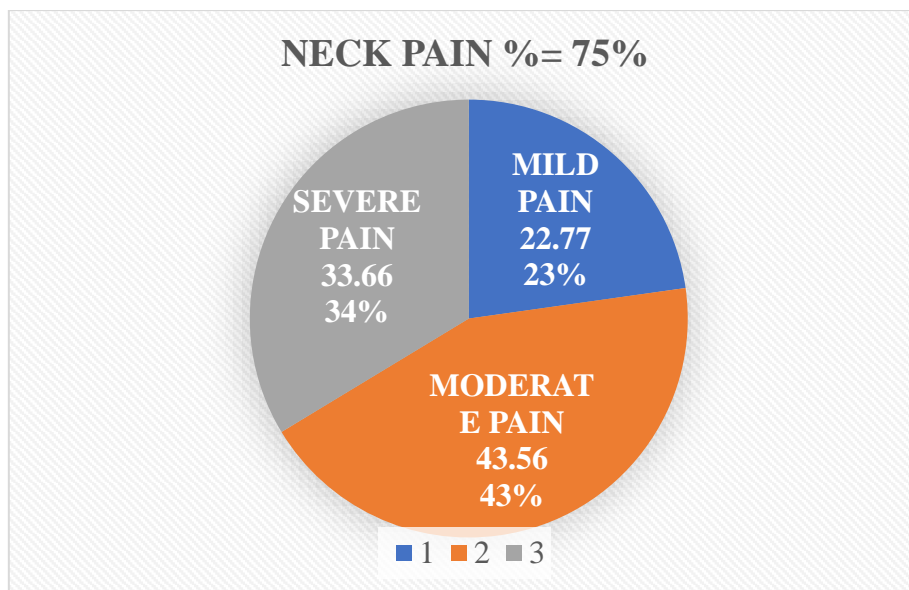
INTERPRETATION:

Table 03 shows the prevalence of gamers neck posture among local gamers in Pune. Graph 03 shows its graphical representation. This mainly shows the comparison between male and female gamers according

to the hours of playing games. According to the study, 20 males and 3 females out of 101 gamers play for 0-2 hours. 37 males and 7 females out of 101 gamers play for about 2-4 hours. 29 males and 5 females out of 101 gamers play for about 4-6 hours or more than that.

PAIN PERCENTAGE	RESULT (%)	TOTAL GAMERS .
	22.77	23
75 .24%	43.56	44
	33.66	34

TABLE NO : 04

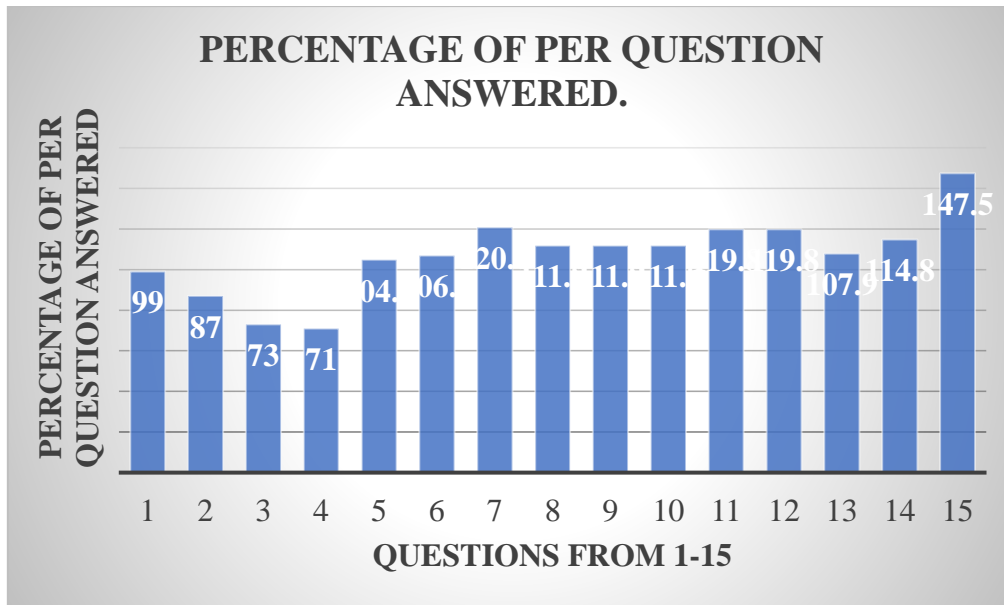


INTERPRETATION:

Table 04 shows the prevalence of gamers neck posture among local gamers in Pune. Graph 04 shows its graphical representation. This data mainly tells us about the total number of gamers affected due to neck pain. 22% of gamers have mild neck pain, 43% of gamers have moderate neck pain & 33% of gamers have severe neck pain. Therefore, out of 100% ,75% of gamers are suffering from neck pain.

QUESTION	MEAN	Total	%
1 Can you sleep at night without neck k pain interfering?	0.99	100	99
2 can you manage daily activities without neck pain reducing activity levels?	0.87	88	87
3 can you manage daily activities without help from others?	0.73	74	73
4 Can you manage putting on your clothes in the morning without taking g more than usual?	0.71	72	71
5 Can you bend over the washbasin in order to brush your teeth without getting neck pain?	1.049	106	104.9
6 Do you spend more time than usual at home because of neck pain?	1.069	108	106.9
7 Are you prevented from lifting objects weighing from 2-4 kgs due to neck pain?	1.207	122	120.7
8 Have you reduced your reading activity due to neck pain?	1.118	113	111.8
9 Have you been bothered by heqadaches during the time that you have had neck pain?	1.118	113	111.8
10 Do you feel your ability to concentrate is reduced due to neck pain?	1.118	113	111.8
11 Are you prevented from participating in your usual leisure time activities due to neck pain?	1.198	121	119.8
12 Due to remain in bed longer than ususal due to neck pain?	1.198	121	119.8
13 Do you feel that neck pain has influenced your emotional relationship with your nearest family member?	1.079	109	107.9
14 Have you had to give up social contact with other people during the past two weeks due to neck pain?	1.148	116	114.8
15 Do you feel that neck pain will influence your future?	1.475	149	147.5

TABLE NO.05



INTERPRETATION

Table 05 shows the prevalence of gamers neck posture among local gamers in Pune. Graph 05 shows its graphical representation. In this graph we can come to know that, maximum gamers feel that they will have neck pain in future. About 147.5% gamers feel that they will suffer from neck pain issues in future.

Discussion

The most common cause of neck pain is forward head and shoulder position. Forward head position occurs when the neck is in forward position for a long time, positioning the head in front of the shoulders. The tension placed on the musculoskeletal system can be increased by even slight adjustments in head posture. [9]. Forward head posture, which is regarded as a dysfunctional posture, which is mainly produced by lower cervical flexion and upper cervical spine extension with rounded shoulders. The upper trapezius muscle is mainly activated by forward posture and rounded shoulders. This is because the movements of the head and neck are added into the muscle spindles. Additionally, a hunched position and forward head posture increases cervical erector spinae and upper trapezius muscle activity [10]. The trunk may experience problems if the erector spinae, multifidus, and abdominal muscles, which support the trunk are doing less muscle activity. As a neck extensor muscle, the upper trapezius provides the stability of the cervical spine. Cervical flexion produces a large external flexion circular force, which immediately increases the burden on the extensor muscles [10]. Furthermore, upper trapezius stiffness can considerably rise in patients with neck and shoulder diseases, and muscular activity in poor posture can quickly result in pathological changes to the neck and shoulder. Text neck syndrome refers to tight neck muscles caused by forward or tilted head position. The forward posture of the head causes pressure on the lower neck vertebrae, which can lead to degenerative disc degeneration and other neck issues.

A disorder known as "gamers neck" is brought on by long hours of time spent in front of a computer, frequently while sedentary or with bad posture. It is classified

by pain, stiffness, or soreness in the shoulders and neck, along with possible headaches and other discomforts. In our research, out of 101 gamers, 20 gamers had mild pain, 45 gamers had moderate pain, 36 gamers had severe pain. There are multiple variables that lead to this condition:

Prolonged sitting without an ergonomic setup can cause stress on the shoulder and neck ligaments and muscles. While gaming, doing repetitive motions such as quickly moving the mouse or joystick can put additional

ional strain on the shoulders and neck.^[11] The location of the monitor or screen may also be important. Playing a game can cause us to lose sight of time and our surroundings as we become completely engrossed in the experience. Emotions ranging from enthusiasm to annoyance and fury might result from this level of immersion. The design of the game, whether it be through difficult stages or competitive multiplayer modes, can heighten these feelings. The sense of accomplishment and mastery that video games can instill in us is another way that they impact our emotions. But playing computer games can also have a negative impact on our feelings and actions. The possibility for addiction associated with video gaming is one of the biggest worries. Video games can be harmless and fun when used in moderation, just like any other kind of entertainment. Excessive gaming, however, can result in a number of drawbacks, such as social isolation, subpar performance in school or at work, and physical health issues. Our study suggests ,the hours of playing games, where most of the players played for about 2-4 hours or more than that. That is n=23(0-2 hours) , n=44(2-4 hours), n=34(4-6 hours).The more hours of playing the more is the disability. Furthermore, playing certain video games can make us less sensitive to certain emotions, especially if they contain violent material. Frequent exposure to aggressive behavior in video games might reduce empathy and raise tolerance for violence in real life.^[12] Due to such experience boys are more attracted towards gaming than girls, Out of 101 gamers, 15% were girls and 85% were boys.

Gamer's neck can therefore affect emotional wellbeing of the person.^[5] There might be a variety of emotional connections to gamer's neck. When dealing with physical discomfort such as neck stiffness, gamers, especially those who are passionate about gaming, may feel frustrated or stressed. It may be harder to concentrate on the game and worsen the physical symptoms as a result of this emotional reaction. A large portion of a gamer's identity is frequently invested in the game. Physical problems such as gamer's neck might affect a person's self-esteem and self-perception in the gaming community. Feelings of irritation or insecurity may result from this. Gaming is often a social activity, whether it's playing with friends online or participating in gaming communities. When neck pain interferes with a gamer's ability to participate in these social activities, it can lead to feelings of isolation or loneliness. Gamer's neck can affect a person's ability to engage in their favorite hobby or activity. This can lead to feeling of disappointment or demotivation, especially if gaming is a significant source of enjoyment or stress relief. Experiencing gamer's neck may prompt gamers to become more aware of their overall health and well-being. This can lead to a range of emotional responses, from determination to make positive changes to feelings of anxiety or concern about their health.

Addressing gamer's neck involves a combination of ergonomic adjustments, such as maintaining proper posture and taking regular breaks, as well as exercises to strengthen neck muscles and stretches to release tension. Additionally, seeking emotional support from peers or healthcare professionals can help gamers cope with the emotional impact of this condition. There could be several reasons why 16-30-year-olds play more games than other age groups:

Teenagers and young adults often have more free time compared to older individuals who may have work, family, or other responsibilities. This extra time can be spent on leisure activities like gaming.

Young people enjoy gaming, and they are frequently under peer pressure to engage in gaming-related activities. In addition, it's a means of fostering friendships and social interaction for youth, whether via internet gaming or in cybercafés. Youth between the ages of 16 and 28 comprise a generation that has grown up surrounded by digital entertainment and technology. Compared to previous generations, they are more likely to be interested in video games as a kind of amusement. For young individuals coping with social demands, scholastic pressures, and other stress-related concerns, gaming can be a way to

decompress. Games' nature might offer some solace from problems in real life. The stages of life known as young adulthood are primarily influenced by identity and exploration. Exploration and experimental needs can be met by gaming in a secure virtual setting. With the popularity of PCs, gaming consoles, and cellphones, video games are now widely accessible. Young people find it simpler to interact with gaming because they have easy access to a large selection of games on many platforms. There's a game and experience for everyone thanks to the variety offered.

Overall, the combination of factors contributes to why 16-25-year-olds play more games than other age groups.

It was shown that teenagers who experienced neck pain had more symptoms of stress than those who did not. Changes in the way the brainstem, spinal cord, or cortex handle pain can result from stress. Such changes could be referred to as distant anxiety, a condition in which individuals experience greater pain than normal.^[14] Anxiety has been connected to disability and a number of chronic pain issues, including pain in the neck. It has been noted that anxiety and neck pain both contribute equally. Depression and other mood disorders have been connected to long-term neck pain and disability. Neck pain is a typical symptom among those who suffer from underlying depression. Furthermore, a study discovered that there was a greater death rate among patients with neck pain who also displayed symptoms of sadness. Research has shown that neck pain may be more likely to occur in women who experience low quality sleep, whereas results for men have been unclear. Furthermore, a lack of sleep caused by major neck pain might worsen the symptoms of depression. Another contributing factor to neck pain is loneliness.

Thus causing long-term effects on an individual's health and well-being if left untreated. Here are some future consequences of untreated neck pain:

Untreated neck pain can become chronic, meaning it lasts for a long period of time, typically for more than three months. Chronic neck pain can affect quality of life, leading to severe pain, reduced mobility, and limitations in daily activities.^[13] Chronic neck pain can interfere with work, social activities, and relationships, leading to decreased overall quality of life. It may also contribute to depression, anxiety, and other mental health issues. Over time, this can affect posture and lead to further musculoskeletal problems. Neck pain is often associated with tension headaches or cervicogenic headaches, which originate from the neck. These headaches can become chronic and hard to treat if the underlying neck issues are not addressed earlier.

Cervical radiculopathy is one condition where nerve compression may be the cause of neck pain. Nerve compression can result in long-term nerve damage if it is left untreated, creating numbness, weakness, or tingling in the hands and arms. Over time, changes in structure in the spine may result from untreated neck discomfort and its related disorders, such as cervical spondylosis or degenerative disc degeneration. Age-related changes like these could make pain and impairment worse. There could be reduction in the number of workdays, low earning potential and limited career opportunities as a result of prolonged neck pain which may have an effect on productivity and performance.

A player's neck can also affect family relationships. There are several ways that neck pain may affect families negatively.

Long-term cases of neck pains may lead to outbursts of anger and unpredictable mood swings among other family members causing relationship issues. High levels of severe neck pains will make one rely heavily on family members while doing their daily duties. This might leave the rest of the family being concerned and anxious about this shift especially if taking care becomes too burdensome for them. The cost of neck pain, including medical appointments, physiotherapy visits, and modifications to ergonomic equipment

may be expensive. Financial problems may arise when a family member's neck is so uncomfortable that they are unable to work or earn money. Family communication patterns may be affected by pain. People who have neck problems can find it hard informing what they want from others. This lack of communication can lead to misunderstandings and make it harder to resolve problems. Not all family members are at ease with extending emotional support or sympathetic understanding towards a relative who wishes to alter his way of life due to pain in the neck. To have an open dialogue concerning how neck pain affects family dynamics and come up with solutions that are beneficial for everyone is necessary for the well-being of all members. It's essential to seek appropriate medical evaluation and treatment for neck pain to prevent these potential long-term consequences. Treatment options may include physical therapy, pain management techniques, ergonomic adjustments, lifestyle modifications, and in some cases, surgical intervention.

Neck pain can also significantly affect daily activities in various ways, depending on its severity, duration, and underlying causes. Here are some common ways in which neck pain can impact daily activities: Neck pain can therefore cause difficulty in focusing and concentrating at work especially when one works for longer hours while seated or doing repetitive jobs, which require bending over an extended period of time. Neck pain can disrupt sleep patterns making it harder to stay asleep through the night. Individuals with neck pain may even wake up feeling stiff or sore thereafter. However, there are some areas where cooking, cleaning and doing laundry might seem more burdensome with neck strains because these acts usually involve grabbing something high above or while stooping down before picking any item below waist level (Kinkade et al., 2006). It is painful to turn your head to look into blind spots while driving or upwards as you try stretching yourself a little to get items located on top of shelves. Hence dressing oneself, bathing as well as grooming; all these becomes hard. Neck pain can limit participation in social activities. Even simple social interactions, like holding a conversation or attending events, may be affected if neck pain is severe. Chronic neck pain can affect emotional well-being, leading to feelings of frustration, irritability, and stress. The inability to perform daily activities without pain can lead to a sense of helplessness or loss of independence, impacting overall quality of life. Neck pain may interfere with regular exercise and physical activity, reducing opportunities for maintaining overall health and fitness. As a result, neck pain is a prevalent problem that has wide-ranging effects and interferes with a variety of everyday living. Increased discomfort from the moment you wake up until you go to bed might lower your quality of life and interfere with key activities. An increased level of pain creates interruptions, lowers productivity, hampers physical task performance, reduces sleep hours—a critical source of energy—and increases the cycle of pain and fatigue. Personal care and household chores are difficult tasks that regularly call for support or adjustments. The social phase is also not avoided because discomfort can make it difficult to participate in social events, outdoor activities, and recreational activities, which can result in feelings of loneliness. Additionally, there is frequently a major adverse effect on emotional health, chronic neck pain, nervousness, hopelessness, and stress. Still, there is hope for a cure and medical research. People may regain control over their lives, reduce discomfort, and better function with the right diagnosis and care, enabling them to take part more actively in the things they love.

Conclusion

Our study mainly states that, the total population collected that is (n=101), in which the total number of males were (86) & females were (15) as per the reports collected. This study mainly shows the level of neck disability according to the symptoms & characteristics which were answered by the gamers using

Copenhagen neck functional disability scale. According to the scale, the number of gamers mildly affected were (20), moderately affected were (45), severely affected were (36) respectively. The scale mainly focuses on 15 questions, mainly related to physical, psychological & social criteria. According to the data, males were more affected than females. This was mainly dependent on the total hours of playing, in which maximum affected people played for more than 2-3 hours. Out of 100% gamers, 75% of gamers have neck pain problems. Also, 147.5% was answered by the gamers as neck pain will arise in future due to long hours of gaming. According to the data collected, the ratio of males playing games for long hours was more than the females. That is males ratio was 85% compared to women, that is 15%. The result was mainly analyzed by nonparametric unpaired T-Test, where the p value obtained was 0.77244, that is the data obtained is significant.

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