

PREVALENCE AND ASSOCIATION OF LOW BACK PAIN IN ADOLESCENTS DUE TO GAMING

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Highlights

- It was a cross-sectional survey. The study will be conducted on adolescent professional mobile gamers. The study was conducted under ethical considerations. Informed written consent will be taken. A Performa with validated questionnaire Oswestry Low Back Pain scale was used for data collection.

Abstract Objective:

The aim of this study is to evaluate the risk of low back pain in adolescent gamers.

Methodology:

It was a cross sectional observational study. Data were collected from adolescent professional mobile gamers. Study was completed within 6 months. Sample was collected by non-probability convenient sampling technique. Inclusion criteria was: ages between 14-19 years, both males and females, professional mobile gamers and duration > 8 hours. A Performa with validated questionnaire; Oswestry Low Back Pain scale was used

Results:

Out of 100 participants mean age was 20 with S. D \pm 21.10914. 70 were males and 30 were females. 10 participants were those who had no pain, 26 with mild pain, 36 with moderate pain, 20 with fairly severe pain and 8 were with severe pain. 27 were those who were able to

look self-normal, 30 were able to look self-normal but caused extra pain, 27 were painfully slow and careful. 11 needed some help but manage most of their personal care and 5 needed help every day in most aspects of self-care.

Conclusion:

The outcomes showed a high predominance of musculoskeletal agony and a high measure of time spent utilizing electronic gadgets. There is an association between mobile games and oswestry low back pain questionnaire. (P-value .004)

Keywords:

Adolescents, LBP, MSK pain, Oswestry LBP

Introduction

Lower back pain LBP is a medical issue characterized as an agony situated in the back part of the body between the twelfth rib and sub-par gluteal folds with or without transmitting torment. LBP is sorted into two kinds that are explicit and vague.¹ Vague LBP represents 90% of cases for obscure reasons. Sometimes the reason for LBP might be expected to an overstretch, a Sprain of a tendon or muscle, or might be an issue of the plate between two vertebrae. Different causes may start from different sources (alluded to torment) or due to mental conditions is an exceptionally normal clinical issue. Back torment is the torment of any nature felt in any area going from the thoracic spine to the pelvis. It influences personal satisfaction seriously and is a significant reason for actual idleness, work

inability, and monetary misfortune.²

Nowadays it is seen that gaming becomes very popular among teenagers and they spend most of the time playing mobile games due to this they don't care about posture and this poor posture cause low back pain. To use cell phones, we usually look down and lean our heads forwardly. By doing so, a lot of pressure and stress is put on those muscles, tendons, and ligaments that are supporting the head. It will also cause pain and stiffness in upper body and can also cause strain in lower body. The weight of the head is 10 to 12 pounds, increasing the angle on the head while using the phone will also cause more stress on the spine.³ The weight on the neck will be 40 pounds with a tilt of 15 degrees, 49 pounds of stress will be put on if a tilt of 45 degrees is performed and 60 pounds of stress is created if 60 angle degrees tilt is performed. The stress is not only on the neck but can also be felt in the shoulders, upper back, and arms. Muscle spasms could happen because of this wearing and tearing. Other body systems can also be impaired by using phone in forward head position⁴⁻⁷

Treatment of an intense scene of back torment incorporates relative rest, movement adjustment, the nonsteroidal enemy of inflammatory, and active recuperation. Patient training is additionally basic, as these patients are in danger of additional future scenes of back torment. Persistent back torment (>6 months' term) creates a little level of patients. Clinicians' capacity to analyze the specific pathologic wellspring of these side effects is seriously restricted, making a fix impossible. Treatment of these patients ought to be steady, the objective being to further develop torment and function.⁸ Lower back torment in youthful competitors is a typical issue. The commonness of back torment from various causes in young adult age bunch is somewhere in the range of

20% and 30%. Not with standing, the rate of low back torment in youthful competitors changes generally in various games. Today everyone is on phone, laptops and computers. Everyone is using digital and electronic devices for work and for other activities. Too much screen time with sedentary lifestyle is causing LBP and other musculoskeletal problems which is a matter of concern. As there is a huge population that is using mobile these days for gaming, the risk of LBP in those individuals increases. For that reason, it is important to find the prevalence of low back pain in gamers and to find the association between gamers and low back pain. Current study has worked on both the aspects.

Methodology

It was a cross sectional observational study. Data were collected from adolescent professional mobile gamers. Study was completed within 6 months. Sample was collected by non-probability convenient sampling technique. Sample size of 100 individuals was calculated with 95% confidence level, by using Epitool software by using the formula;

$n = (Z^2 \times P \times (1-P)) / e^2$ where,

- Z =value from standard normal distribution corresponding to desired confidence level (Z=1.96 for 90% CI)
- P is expected true proportion
- e is desired precision (half desired CI width)

Subjects fulfilling the inclusion and exclusion criteria were selected for data collection only. Inclusion criteria was: ages between 14-19 years, both males and females, professional mobile gamers and duration > 8 hours. Exclusion criteria was: Spondylolisthesis, spinal stenosis, disc disease, congenital deformation, scoliosis and history of previous

surgery. Study was conducted under ethical considerations. Informed written consent was taken. A Performa with validated questionnaire; Oswestry Low Back Pain scale was used.

Data were analyzed using SPSS v.24. The quantitative variables like age, height & weight were presented in the form of mean and standard deviation whereas qualitative variables like gender were presented in the form of frequency and percentage. Chi-square test was used to see the association between gender and disease status however, p-value less than 0.05 was considered as significant.

Results

Out of 100 participants mean age was 20, minimum age was 14 and maximum age was 19 with S. D \pm 21.10914.

Statistics	Age
Mean	20.000
Std. Deviation	21.10914

Table 1: Descriptive statistics of age

From total, 70 were males and 30 were females. Out of 100 participants 10 participants were those who had no pain, 26 with mild pain, 36 with moderate pain, 20 with fairly severe pain and 8 were with severe pain. Out of 100 participants 27 were those who were able to look their self-normal, 30 were able to look their self-normal but causes extra pain, 27 were with painful slow and careful. 11 needed some help but manage most of their personal care and 5 needed help every day in most aspects of self-care. (Table 2)

Table-2:

	Gender	Frequency	Percent
Gender	Male	70	70.0 %
	Female	30	30.0 %
Pain Intensity	No Pain	10	10.0 %
	very mild Pain	26	26.0 %
	Moderate Pain	36	36.0 %
	Fairly Severe pain	20	20.0 %
	Very Severe Pain	8	8.0 %
Personal Care	Can Look Myself Normal	27	27.0 %
	Normal but Causes Extra Pain	30	30.0 %
	Painful to look myself and I am slow and Careful	27	27.0 %
	Need Some Help but manage most of my personal care	11	11.0 %
	Need Help Every day in most aspects of self care	5	5.0 %

Table-3: Lifting and Walking- n(%)

Variable	Construct	Frequency	Percent
Lifting	Can lift heavy weights without extra pain	23	23.0
	Can lift heavy weight but gives extra pain	24	24.0
	Pain prevents from lifting heavy weight from floor but can be managed if placed on table	27	27.0
	pain prevents from lifting heavy weights but can manage light to medium weights	13	13.0
	Can lift light weights	13	13.0
Walking	Pain does not prevent me walking any distance	36	36.0
	Pain prevents me from walking more than 1 mile	23	23.0
	Pain prevents me from walking more than 1/2 mile	25	25.0
	Pain prevents me from walking more than 100 yards	5	5.0
	I can only walk using a stick or crutches	5	5.0
	I am in bed most of the time	6	6.0

Out of 100 participants 23 were those who were able to lift heavy weights without extra pain, 24 were able to lift heavy weights but gives extra pain, 27 were those who had Pain prevents from lifting heavy weight from floor but can be managed if placed on table, 13 with pain prevents from lifting heavy weights but can manage light to medium weights and 13 Can lift light weights.

Out of 100 members 36 were the individuals who had torment during strolling yet Pain doesn't forestall me strolling any distance, 23 were the individuals who had torment during strolling however Pain keeps me from strolling more than 1 mile, 25 with Pain keeps me from strolling multiple 2 mile, 5 with Pain keeps me from strolling in excess of 100 yards, 5 had the option to walk utilizing a stick or braces and just 6 members were sleeping a large portion of time.

How often do you change your position while playing game?

Out of 100 participants 21 were those who never change their position while playing games, 20 were those who once changed their position, 34 with 2-3 times of changing position, 12 with 4-5 times of changing position and 13 were those who often used to change their position while playing games.

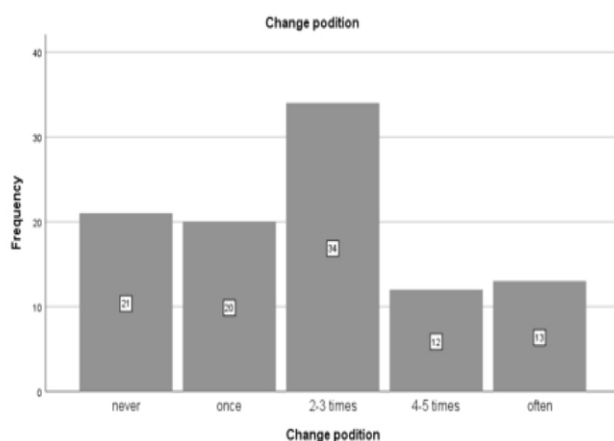


Figure 1: Position change

Table 4: Chi square association between mobile games and Oswestry low back pain questionnaire.

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.252 ^a	17	.004
Likelihood Ratio	6.175	17	.004
Linear-by-Linear Association	.029	1	.003
N of Valid Cases	103		

Chi-Square Tests: There is association between mobile games and low back pain. (P-value .004)

Discussion

In the study 100 participants were included with a mean age 20 ± 21.10 . The results of the study found strong association between low back pain and gaming. Low back pain has adverse impact on working capacity in the youthful and grown-up individuals. This condition causes more disability worldwide than some other affliction. LINE LINDBERG study showed that the low back pain was found in 46% of the individuals. According to the study 58.0% of female and 42.0% of male have low back pain. But, according to the present study the prevalence of low back pain is 80%.

A cross-sectional study was conducted in 2020 to observe the frequency of back and neck Pain in Young and Middle-Aged Adults of Rawalpindi and Islamabad because of usage of Electronic Gadgets during COVID-19 Quarantine. The study included 260 participants in the study. The study found that 3.5% of the people use computers or laptops for more than 8 hours a day while 30.8% of the people use cell phones or laptops for 6 to 8 hours a day. The results of the study found that the ratio in neck and back pain have increased during COVID-19 quarantine phase. According to the present study 33% of the participants use mobile more than 5 hours and 28% participants were those who use mobile more than 3 hours. This shows that more time using mobiles or electronics more chances to develop back pain.

Corroborating these results, in 2015, a cross-sectional study was conducted on the Pervasiveness of musculoskeletal torment in teenagers and the relationship between PC and videogame use. A high predominance of musculoskeletal torment in youths, just like an expanded measure of time utilizing advanced gadgets was noticed. In any case, it was simply conceivable to notice a relationship between the expanded utilization of these gadgets and the presence of cervical and low back torment. Silva et.al, announced that young ladies show lower levels of actual work and expanded time spent in inactive practices related with hormonal varieties, which contrarily add to a few wellbeing markers, including musculoskeletal torment.

Concerning utilization of electronic games, Debbie Ehrmann Feldman IS et al.¹ detailed a low recurrence (23%) among young people, which contrasts from the aftereffects of the current study. This higher recurrence is presumably because of the way that electronic games have gotten progressively well known, addressing quite possibly the main relaxation exercises for young people, paying little mind to age and financial layers. Another significant viewpoint alludes to the report that the presence of torment side effects meddled with numerous every day exercises, like performing assignments, rest, and rehearsing sports, just as being liable for self-drug in countless subjects, which can mess wellbeing up or even veil indications of more significant illnesses.

Conclusion

The outcomes showed a high predominance of musculoskeletal agony and the high measure of time spent utilizing electronic gadgets. There is association between mobile games and low back pain. (P-value .004)

Limitations and Recommendations

In this analysis, the limited sample size may also be a limiting factor, as a larger population of samples could have shown a substantial correlation between piriformis syndrome and low back pain. Moreover, there was shortage of time duration, female to male ratio was low. In this study we used convenience sampling technique hence it restricts the generalization of our findings to those with different characteristics, such as those with chronic low back pain or sciatica, from those in our study. To achieve generalized results for both genders, the male to female ratio should be the same.

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