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Original Research Paper

Occupational Therapy

PREVALENCE OF MUSCULOSKELETAL NECK PAIN AND THORACOSPINAL PAIN AND ITS CO-RELATION WITH STRESS IN ADOLESCENTS

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ABSTRACT Neck & Thoracospinal Pain is a major public health problem in modern societies. It is increasing among adolescents as they spend prolonged period of time in hunched over posture. Psychosocial factors and psychological distress are regarded as main risk factors for spinal pain in adolescence. Neck and upper back pain is a major public health concern that has been extensively studied in adults but not in children and adolescents. Also, very few literature available on stress in adolescents in India. Therefore, the purpose of the study is to see the prevalence of Musculoskeletal Neck and Thoracospinal pain in adolescents in relation to stress. Cross sectional study design was chosen for the research. There were total 107 subjects screened on Cornell's Musculoskeletal Discomfort Questionnaire for neck and upper back pain. Those who scored 1.5 or more on CMDQ were then assessed on the parameters of Neck Pain and Stress. Out of 107 students (male & female, aged 11-19 years), total 76 students were selected for study. Pain was assessed using Neck Disability Index and stress was assessed using Perceived Stress Scale, respectively. In the study, 39.4% adolescent have moderate neck pain, 76.3% adolescents have moderate stress, also correlation was found between the NDI and PSS is (-0.3686). Therefore, we found that there is strong relation of musculoskeletal neck and thoracospinal pain to stress in adolescents.

KEYWORDS : Adolescent, Musculoskeletal neck pain, Stress

INTRODUCTION

Neck pain is a major public health problem in modern societies. It can be originated from any structure in the neck or upper back including intervertebral discs, ligaments, muscles, facet joints, dura & nerve roots. In most cases, no systemic illness can be detected, and the complaint is labeled as **Musculoskeletal Neck pain**. Studies have shown that it is increasing among adolescents as they spend prolonged period of time in hunched over posture while prolonged hours of studying in school, classes or use of electronic gadgets, etc. This is also due to the increased demand for sedentary activities and gaming other than outdoor physical activities among this age group.[1] Neck pain in children & adolescents has not been widely or systematically studied. But according to a 2014 article in Brazilian Journal of Physical Therapy, conditions like back and neck pain are one of the leading causes of disability in adolescents, and up to 25 percent of the cases affect participation in school or physical activities.[2]

Whether the underlying mechanisms for adolescent, Musculoskeletal Neck pain and Thoracospinal Pain are physiological, psychological, behavioral, genetic or a combination of these is unknown. Commonly, psychosocial factors and psychological distress are regarded as main risk factors for spinal pain in adolescence. Majority of the adolescents undergo stress, whatever the sources may be, internal or external, it hampers the major functioning of the body. Some adolescents become overloaded with **stress**. When this happens, it can lead to anxiety, withdrawal, aggression, physical illness, or poor coping skills such as drug and/or alcohol use. When we perceive a situation as difficult or painful, changes occur in our minds and bodies to prepare us to respond to danger. This "fight, flight or freeze" response includes faster heart beat and breathing rate, increase blood to muscles of arms and legs, cold and clammy hands and feet, upset stomach and/or a sense of dread. Signs of stress in adolescents are irritability and anger, school and study problems, change in behavior, trouble sleeping, neglecting responsibilities, eating changes, getting sick more often.[3] In a 2018 study, researchers analyzed data from the National Survey of Mental Health and found that rates of anxiety and depression have increased in kids, ages 6-17, from 5.4% in 2003 to 8.4% in 2011-12.[4]

Neck and upper back pain is a major public health concern that has been extensively studied in adults but not in children and adolescents. Also, very few literature available on stress in adolescents in India. Therefore, the purpose of the study is to determine the prevalence of Musculoskeletal Neck and Thoracospinal pain in adolescents in relation to stress.

METHODS

A Cross sectional study design was adopted using Systematic random sampling to study the neck and upper back pain intensity and its relation to stress among adolescents. The study was conducted on students working on a desk for prolonged hours. Duration of study was from September 2019 to February 2020. 107 students were screened for the study, out of which Seventy-six students met the inclusion criterion and were included in the study. Written consent was obtained from students as per Helsinki guidelines, for screening in a language best understood by them.

INCLUSION CRITERIA:

- School & college students
- Age group- 14 to 19 years
- Both male & female
- Cornell's Musculoskeletal Discomfort Questionnaire Scale score: 1.5 & above for neck & upper back

EXCLUSION CRITERIA:

Students with any impairment or disability or having previous medical & surgical illness

PROCEDURE

Seventy-six students were included in the study. Participants whose score was 1.5 and above on CMDQ for neck and upper back were further assessed for neck pain and stress. For neck pain they were assessed on Neck Disability Index and for stress, Perceived Stress Scale was administered.

ASSESSMENT MEASURE-

1. CORNELL MUSCULOSKELETAL DISCOMFORT QUESTIONNAIRES (CMDQ):[5]

This questionnaire is used for the screening purpose. CMDQ has been developed by Dr. Alan Hedge at Cornell University. The survey is a screening tool and not a diagnostic instrument. The validity of CMDQ has been tested by Dr. Alan in English with good results.

2. NECK DISABILITY INDEX SCALE (NDI):[6]

The NDI is a patient-completed, condition-specific functional status questionnaire with 10 items including pain, personal care, lifting, reading, headaches, concentration, work, driving, sleeping and recreation. The NDI has sufficient support and usefulness to retain its current status as the most commonly used self-report measure for neck pain. Highest score is 50 points or 100% means complete activity limitation, whereas lowest score is 0 points or 0% means which interprets no activity limitations ,

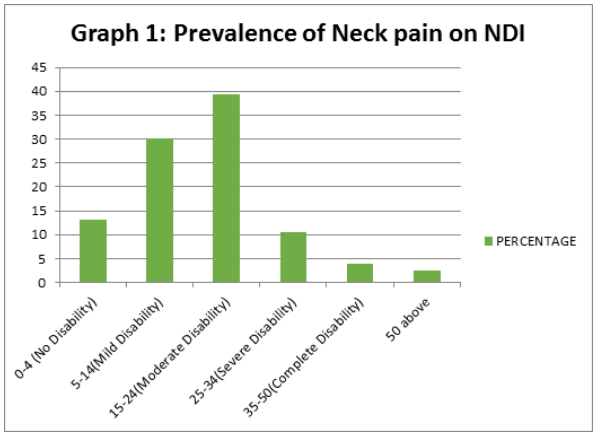
3. PERCEIVED STRESS SCALE (PSS):[7]

PSS is the most widely used psychological instrument for measuring the perception of stress. The Perceived Stress scale was developed by Sheldon Cohen and his colleagues. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The items are easy to understand, and the response alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group. In each case, respondents are asked how often they felt a certain way. It has been used in studies assessing the stressfulness of situations, the effectiveness of stress-reducing interventions, and the extent to which there are associations between psychological stress and psychiatric and physical disorders. Scoring ranges from 0 to 40 which interprets low, moderate or high perceived stress.

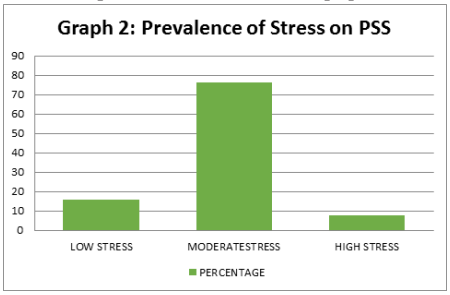
DATA ANALYSIS:

The data was analysed using windows-based IBM Corp. Released 2016. IBM SPSS Statistics for Windows. Version 24.0. (Armonk;NY:IBM Corp.). Pearson correlation test were used as statistical tests of significance. The value of *P* was set at 0.05 level of significance, and a 95% confidence interval (CI) values were computed.

RESULT



Graph 1 shows prevalence of Neck pain on NDI, in which 13.1% have no disability, 30.2% have mild disability, 39.4% have moderate disability, 10.5% have severe disability and 3.9% have complete disability with the rest 2.9% of the population.



Graph 2 shows distribution of data by PSS in which 15.7% students having low stress, 76.3% students having moderate stress and 7.8% having high stress.

Table 1 shows confidence interval for NDI is 19.0284-27.526 with mean 23.09056 & for PSS is 17.0433-21.2174 with mean 19.13043, at P< 0.005, which is significant.

Table 1: Variables of NDI & PSS

N= 76	SD	Mean	Confidence interval		Significance
			Lower	Upper	
NDI	17.77634	23.09056	19.0284	27.1526	0.000
PSS	9.133273	19.13043	17.0433	21.2174	0.000

Table 2 shows Pearson correlation between NDI and PSS is -0.3686; which is significant at p<0.05.

Table 2: Correlation between NDI & PSS

N=76	Pearson Correlation	R^2	Sig.
NDI & PSS	-0.3686	0.1359	0.001

DISCUSSION

There were total 107 subjects screened on CMDQ for neck and upper back pain. Those who scored 1.5 or more on CMDQ were then assessed on the parameters of Neck Pain and Stress. Out of 107 subjects, 28 of them had a score of 1.5 and above for Neck Pain and 11 of them had a score of 1.5 and above for Upper Back Pain, whereas, 37 subjects had a score of 1.5 and above for both Neck and Upper Back Pain on CMDQ. So, total 76 students were selected for study. Pain was assessed using NDI and stress was assessed using PSS, respectively. In this study, there were more adolescents reported in the age group 16-17 years, followed by 14-15 years and 18-20 years, respectively. Table 2 and Graph 2, 42 were males and 34 were females.

There was mild to moderate neck pain found in the maximum adolescents. This finding can be supported by K Grimmer et al, in the study on Repeated measures of recent headache, Neck and Upper Back Pain in Australian Adolescents, which shows that there was a significantly increasing trend over time for boys with upper back pain. Twenty percent of girls and boys consistently reported headache, neck pain or upper back pain over 5 years.[8]There was moderate stress has been seen to be faced the most in the adolescents. The above finding can be supported by a study on Spinal pain and co-occurrence with stress and general well-being among young adolescents by Sandra Elkjaer Stallknecht et al, who mentions that the spinal pain is a common complaint among young adolescents and co-occurs with stress and poor general well-being.[9]

We found that there is significant correlation between neck pain and stress in the adolescents, which can be supported by the study carried out by Osteras B on Pain is prevalent among adolescents and equally related to stress across genders,which reports on pain is prevalent among adolescents and equally related to stress across genders. Pain and stress were prevalent in the adolescent sample, with generally higher reporting among females. Several pain measures corresponded between genders, but stress differed significantly between genders for all variables. Scrutinizing the relationship between pain and stress revealed significant stress-pain associations regarding all variables across genders, i.e. the pain complaints among the adolescents seemed equally related to stress in males and females.[10]

CONCLUSION

It was found that neck and thoracospinal pain is one of the major concerns in adolescents and its associated with stress.

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