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Effectiveness Of Qigong Neck Exercise On Neck Shoulder Pain And Cephalalgia Tensiva Among Teenage Gamers

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ABSTRACT

Background: Teen gamers complain of rising tension-type headaches (cephalalgia tensiva) and neck-shoulder pain, and alarm is raised regarding chronic health effects of too much screen time and lack of physical activity. Although qigong, traditional Chinese mindbody exercise, eases musculoskeletal pain, it is unclear whether this will be effective in the treatment of tension-type headaches and neck-shoulder pain in teen gamers.

Objective: To determine whether Qigong neck exercises are useful for teen gamers suffering from tension type headaches and neck-shoulder pain**.**

Methodology: Thirty teen gamers aged 13-19 were recruited to take part in a randomized controlled trial. Participants were assigned to two groups: 15 intervention and 15 control. The intervention group had daily 20-minute Qigong neck exercises for four weeks, and the control group was asked to perform their regular exercises. Frequency and severity of headache were evaluated using the Visual Analog Scale and Von Korff's (VQ) Questionnaire for pain measurement.

Results: Neck-shoulder discomfort significantly improved in the intervention group ($p<0.05$). Frequency of tension type headaches also reduced ($p<0.05$). The control group had no discernible differences.

Conclusion: Teen gamers with tension-type headaches and neck-shoulder pain are benefited by qigong neck exercises. Incorporating Qigong into one's daily routine might be helpful to this group's musculoskeletal well-being as well as avert undesirable consequences of excessive gaming.

Keywords: *Qigong, Neck exercises, teenage gamers, Neck-shoulder pain, Cephalalgia tensiva, Tension-type headache, Musculoskeletal health.*

1. INTRODUCTION

One of the most prevalent forms of primary headaches, tension-type headache (TTH), or "cephalalgia tensiva" as it has been referred to by the use of medical jargon, affects a large percentage of people all over the world. TTH is mild to moderate intensity pressing or tightening pain on both sides occurring typically without related symptoms such as photophobia or nausea. TTH is a multifactorial aetiology with such causes as poor posture, stress, and tensed muscles. Surprisingly, the aetiology of acquiring and maintaining the symptoms of TTH is mainly based on the muscles of the neck and shoulder. The traditional Chinese method of qigong is directed towards the achievement of mental and physical wellbeing and also therapeutic capacity. From history, Qigong exercises have been used since 500– 1000 BC. [(1)]

Chinese physicians prescribe medicinal Qigong exercises with physical therapy, as in Western medical practice. To achieve the optimal possible harmony between the body and the mind, qigong is described as a self-regulating technique that synchronizes breathing and state of mind. [2,3] To achieve harmony, the training is performed in a group. It is a constant series of rhythmic movements wherein the autonomic nervous system is influenced by breathing and inner harmony. [4–8]

Slow breathing exercises regulate the sympathetic and parasympathetic nerve systems, and the movements enhance balance, coordination, and concentration. [9] Depending on the capability of the subject, it takes ten weeks to a year of training to master the Qigong exercises. The number of scientific publications on Qigong training is growing. A control group and an intervention group are usually included in intervention studies. Few Western studies have been performed on the influence of Qigong in the general population or in the workplace, although some articles have been published on patient populations. [10]

Participants in a small trial in an office computer setting reported fewer low-back pain complaints. Some Qigong exercises have also been created to release tension from the shoulders and neck. The "Rowing the Boat" exercise, for example, is created to keep the shoulders, neck, and upper back well-circulated and to align and strengthen posture. Regular use of such exercises can lead to visible adjustment of posture and alleviation of pain in the neck and shoulders. [11]

Qigong is also beneficial for mental as well as physical well-being. Qigong's calm, meditative nature calms the mind and stabilizes the emotions, which dissolves tension and anxiety. Because our perception of reality creates tension in the body, Qigong may dispel mental as well as physical tension, which may decrease the frequency and severity of TTH. [12]

2. METHODOLOGY

The study will assess Qigong neck exercises' impact on cephalalgia tensiva and neck shoulder pain in adolescent gamers using a randomized controlled trial (RCT) designed, the study is designed to employ a pre-test and post-test design throughout the intervention phase on a four-week time frame. Participants will be chosen based on certain **inclusion criteria** that include being between 13 and 18 years old, gaming for at least three hours every day. They may also self-report tension-type headaches at least once a week for the previous three months and not having. The **exclusion criteria** include those who have been diagnosed with neurological or psychiatric illnesses are receiving physical treatment, are utilizing pain relief devices or have other medical conditions that prevent them from participating in physical activities. The study will take place at Sri Balaji Vidyapeeth. Two groups will be employed in the study: the intervention group will spend 20 minutes a day performing standardized Qigong neck exercise regimen that includes shoulder relaxation methods, neck stretches and rotations to ease muscular tension and pain. It will be told to continue their regular gaming and everyday operations without any interference.

3. DATA COLLECTION PROCEDURE

Participants between 13 and 18 years old, gaming for at least three hours every day were recruited using simple randomization. Upon obtaining informed consent, participants were randomly allocated into two groups where Group A (Experimental group) received the Qigong neck exercise and Group B (Control group) was asked to perform the regular exercises. Both groups underwent their respective exercise interventions for a duration of 4 weeks, with four sessions per week. Prior to the commencement of the exercise interventions, a pre-test assessment was conducted to collect baseline data on neck shoulder pain and tension type headaches. The assessment tools employed included the Von Korff's Questionnaire (VQ) and Visual Analog Scale (VAS) were administered to gather data on participant's self-reported pain. Following the 4-week exercise intervention, a post-test assessment was conducted to collect data on pain, using the same assessment tools and questionnaires employed during the pre-test assessment.

OUTCOME TOOL:

- Von Korff's Questionnaire (VQ): To assess the neck shoulder pain.
- Visual Analog Scale (VAS): To assess the frequency and severity of headache.

STATISTICAL ANALYSIS AND RESULT ANALYSIS

Data will be analysed using SPSS version 26.0. Descriptive statistics (mean, standard deviation) will be used to summarize participant demographics and baseline measurements. The effectiveness of the interventions will be assessed using paired t-tests to compare pre- and post-intervention changes in the neck-shoulder pain and Cephalalgia tensiva. A p-value < 0.05 will be considered statistically significant.

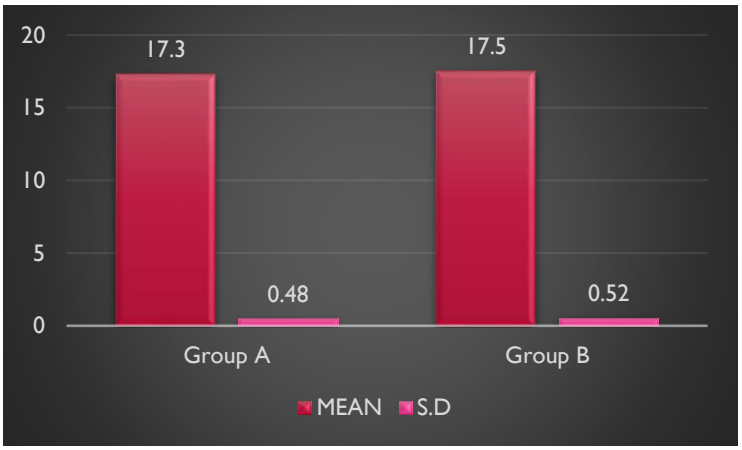
TABLE 1: DISTRIBUTION OF AGE AND GENDER AMONG GROUPS:

DATA	GROUPS	N	MEAN	S. D	t-value	p -value
	Group A	10	17.3	0.48		

Age	Group B	10	17.5	0.52	0.894	0.2376
Gender	**GENDER**	**N**	**PERCENTAGE**			
	MALE	13	65%			
	FEMALE	7	35%			

Interpretation: The obtained t-value is 0.894 and p-value is 0.2376 which is p>0.05 and shows that there was no significance relation between age of Group A and Group B. The percentage of males and females were 65% and 35% respectively.

Graph 1: Distribution of Age



Graph 2: Distribution of Gender

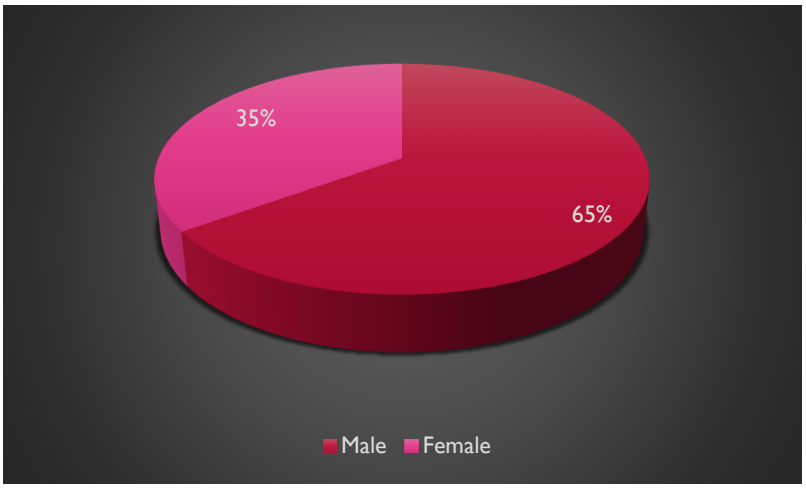


TABLE 2: INTRA GROUP PRE AND POST TEST COMPARISON OF VQ & VAS (GROUP A & GROUP B):

OUTCOMES	GROUPS	TESTS	N	MEAN	S. D	t-value	p -value
VQ	Group -A	Pre test	10	62.1	2.60	-13.580	0.00009
		Post test	10	41.9	3.92		
	Group -B	Pre test	10	62.5	2.17		

		Post test	10	55.7	2.94	-5.885	0.00011
VAS	Group -A	Pre test	10	7.9	0.87	-10.975	0.00009
		Post test	10	4.4	0.51		
	Group -B	Pre test	10	7.7	0.67	-5.317	0.00029
		Post test	10	5.8	0.91		

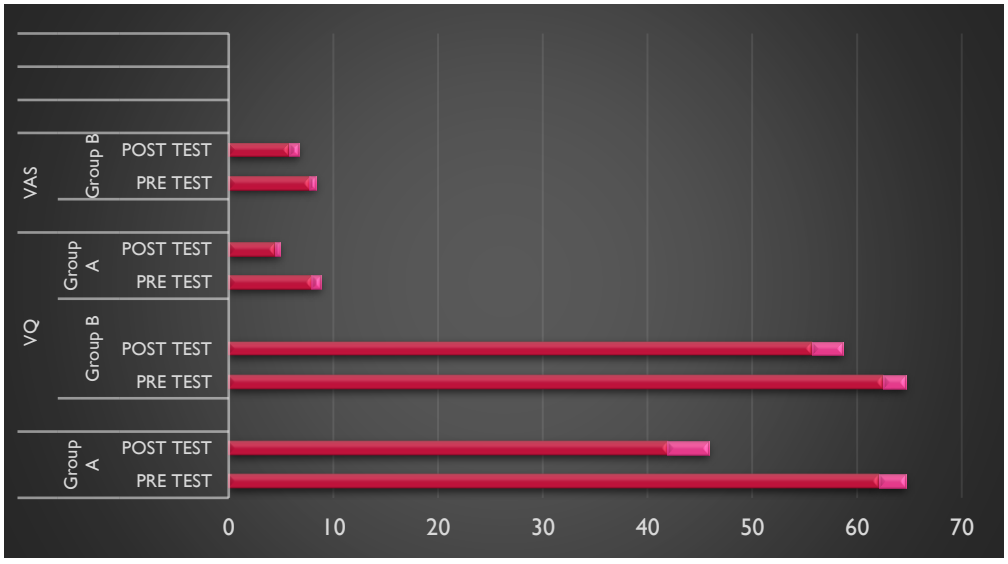
Interpretation: The above table represents the intra group pre and post-test comparison of VQ & VAS (group A & group B). For the Von Korff's Questionnaire**,** the obtained t-value is -13.580 and -5.885 for Group A and Group B respectively. The p-value is 0.00009 and 0.00011 for Group A and Group B respectively which is $p<0.05$ and shows that there was a significant relation between Von Korff's Questionnaire and Neck shoulder pain. For the Visual Analog Scale**,** the obtained t-value is -10.975 and -5.317 for Group A and Group B respectively. The p-value is 0.00009 and 0.00029 for Group A and Group B respectively which is $p<0.05$ and shows that there was a significant relation between Visual Analog Scale and Cephalalgia tensiva.

TABLE 3: INTER GROUP POST TEST COMPARISON OF VQ & VAS (GROUP A & GROUP B):

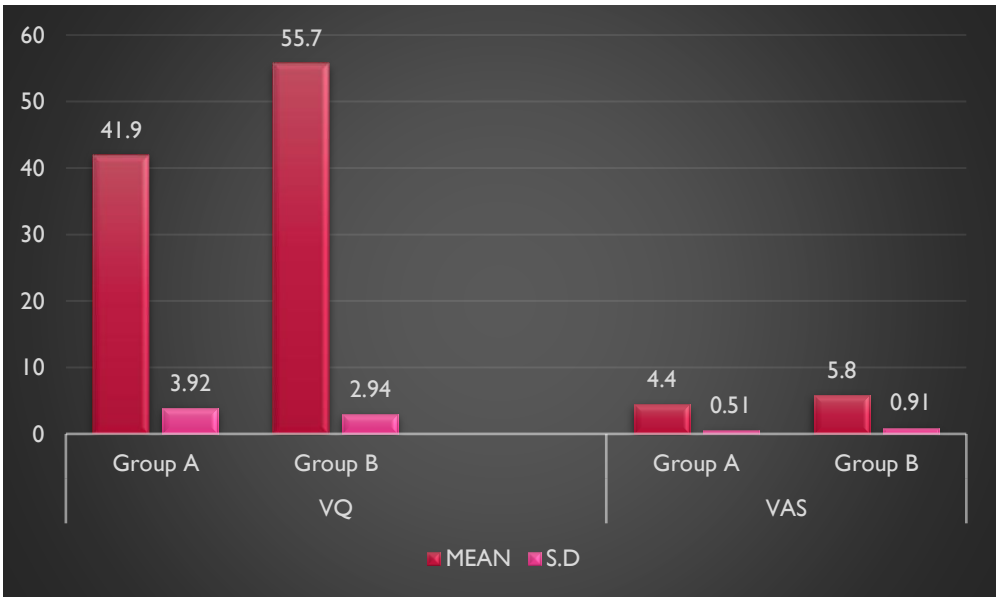
OUTCOMES	GROUPS	N	MEAN	S. D	t-value	p -value
VQ	Group A	10	41.9	3.92	8.906	0.00009
	Group B	10	55.7	2.94		
VAS	Group A	10	4.4	0.51	4.244	0.00181
	Group B	10	5.8	0.91		

Interpretation: The obtained t-value is 8.906 and 4.244 for Group A and Group B respectively. The p-value is 0.00009 and 0.00181 for Group A and Group B respectively which is $p<0.05$ and shows that there was a significant relation between Von Korff's Questionnaire and Visual Analog Scale in neck shoulder pain and cephalalgia tensiva.

Graph 3: Intra Group Pre and Post Test Comparison of VQ & VAS (Group A & Group B)



Graph 4: Inter Group Post Test Comparison of VQ & VAS (Group A & Group B)



4. DISCUSSION

When compared to the control group, the results show that participants who performed Qigong neck exercises saw notable reductions in shoulder and neck pain. This is consistent with previous research that highlights the advantages of mindful movement techniques for improving musculoskeletal alignment (Liu et al., 2018). Slow, deliberate motions are the main focus of qigong, which improves awareness of body alignment and may eventually result in posture corrections. This is especially important for teenagers who play video games since they frequently keep their postures still for extended periods of time, which can cause postural abnormalities and muscular imbalances. [13]

Participants also reported a reduction in headache frequency and intensity, suggesting that Qigong may serve as an effective intervention for tension-type headaches. The mechanisms behind this improvement may be multifaceted, including enhanced relaxation, improved blood circulation, and reduced muscular tension in the neck and upper shoulders. As mentioned by Choi et al. (2020), practices that promote relaxation and mindfulness can help alleviate headache symptoms by addressing both the physical and psychological components of tension. [14]

It is remarkable how well Qigong neck exercises improve shoulder and neck posture while reducing cephalalgia tensiva in teen gamers. More research on these integrative strategies may help this group develop better gaming habits and enhance their general well-being. Given how common gaming is among teenagers as a source of entertainment, it is critical to include therapeutic interventions that support physical health. [15]

The main stance used in Qigong training closely resembles the advised posture for office workers, which is frequently disregarded, according to a study looking at the potential benefits of Qigong for reducing lower back discomfort. [16] Some factors could explain the drawbacks of the training. One reason could be the program's short duration (six weeks), as other studies have shown that successful training usually consists of ten weeks to twelve months of regular practice.[17] Notably, following a six-week training session, one Qigong study found considerable benefits in stress reduction. Furthermore, there may be a greater percentage of healthy people in the working office population, which could lead to less progress in improving mobility, pain, and general quality of life.

5. CONCLUSION

The incorporation of Qigong exercises comprehensive strategy to improve physical wellbeing as musculoskeletal problems and tension-related headaches are becoming more common among gamers. In addition to emphasizing the value of adding exercise to sedentary lifestyles, this study shows how mind-body techniques like Qigong may help teens who spend a lot of time playing video games deal with common health issues. The results of this study show that Qigong neck exercises can help teens who play video games with shoulder and neck pain, as well as with the frequency and severity of cephalalgia tensiva.

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CONFLICT OF INTERESTS: The study has no conflict of interest.

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