

RESEARCH ARTICLE

COMPARISON OF TRIGGER POINT THERAPY AND CONVENTIONAL PHYSICAL THERAPY IN TENSION TYPE HEADACHES

1. Senior Lecturer, Isra Institute of Rehabilitation Sciences, Isra University, Islamabad campus, Islamabad, Pakistan
2. Assistant Professor, Isra Institute of Rehabilitation Sciences, Isra University, Islamabad campus, Islamabad, Pakistan

Correspondence

Saima Aslam
Senior Lecturer, Isra Institute of Rehabilitation Sciences,
Isra University, Islamabad campus, Islamabad,
Pakistan
E-mail: aanoo19@gmail.com

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Saima Aslam¹: Concept and design, Analysis & interpretation of data, writing; Revised and Accountable for all aspects

Aqeel Ahmed²: Analysis & interpretation of data, writing; Revised and Accountable for all aspects

Sundas Zia²: Analysis & interpretation of data, writing; Revised and Accountable for all aspects

Noureen Farooq²: Analysis & interpretation of data, writing; Revised and Accountable for all aspects

ABSTRACT

Objective: To compare the effectiveness of trigger point release and conventional physical therapy in tension type headaches. **Materials & Methods:** Randomized controlled trial (RCT) conducted from 18th February 2017 to 13 July 2018, at Isra institute of Rehabilitation Sciences (IIRS) Isra University, Islamabad Campus, Pakistan. A total of n=31 healthy individuals with tension type headache below the age of 50 years, were selected through non probability convenient sampling technique and randomly divided into conventional physical therapy and trigger point therapy group. The pain and Headache disability index data was compared at baseline and during and after the intervention while quality of life was measured pre and post the sessions. For within the groups changes RM-ANOVA was used and for between the groups differences independent sample t-test was used. **Results:** The results showed that pain was significantly reduced at the end of intervention in conventional physical therapy group as compare to trigger point therapy group (1.31±0.47 ver. 2.13±0.64, p<0.001). Regarding headache disability index, at the end of intervention trigger point therapy group show better results as compare to conventional physical therapy group (32.75±12.83 ver. 53.27±26.57, p=0.01). While comparing quality of life between the groups, no significant difference was observed after intervention. **Conclusion:** It was concluded that both conventional physical therapy and trigger point therapy are effective in the management of tension type headache. It decreased pain and disability caused by headache but no effect on quality of life due to shorter duration of study.

Keywords: Tension type headache, trigger point therapy, stretching exercises.

INTRODUCTION

Among all the types of headaches, Tension type headaches are most common^{1,2}. Tension type headache can cause mild, moderate or intense pain in head, neck and behind the eyes. Sometimes it feels like a tight band around the forehead.³ Tension type headaches can occur at any age but most commonly it occurs in teenagers and adults⁴ There are many triggering factors which can induce tension type headache such as anxiety, stress, poor posture, fatigue, insomnia, lack of physical activity and excessive workload but exact cause is still unknown^{5,6} The patient complains of dull, diffuse aching pain in the head and neck region along with feeling of tightness, tenderness and pressure in both sides of head, temples, forehead and radiating to shoulders and neck.⁷

Myofascial trigger points which are also known as hypersensitive points in taut bands of skeletal muscle have been considered as one of the major contributing factor in tension type headache.⁸ Trigger points within the trapezius, sternocleidomastoid, sub-occipital and temporalis muscles have been associated with both acute and

chronic tension type headache⁹. Various treatments techniques are available for tension type headache which includes conventional physical therapy, analgesics, massage, yoga and lifestyle modifications.^{8,9,10} Conventional physical therapy is the type of treatment technique which is widely accepted by medical community.¹⁰ Trigger point therapy results and benefits in releasing the constricted areas in muscle band and thus relieving the pain.¹¹ It is particularly designed to relieve the pain through the cycles of isolated pressure and release technique.¹¹ Stress from chronic injuries and pain can activate these trigger points thus massage with trigger point release on regular basis can help to manage these factors.¹¹

The purpose of this study is to find that how useful trigger point release can be in tension type headaches. In the literature both trigger point therapy and conventional physical therapy have been applied together for the treatment of tension type headaches. However, it is unclear whether the effect was due to one, all or a combination of treatment elements. In current study short term effect on quality of life was also observed. The aim

of this study was to evaluate the short term effects of trigger point release in tension type headache with comparison to conventional physical therapy.

MATERIAL & METHODS

A randomized controlled trial was conducted from 18th February 2017 after approval from advanced study & research committee (ASRC) of Isra institute of rehabilitation sciences (IIRS), Isra University Islamabad. Thirty one individuals were selected through Non probability convenience sampling technique and randomly allocated to Trigger Point Therapy (n=16) and conventional physical therapy group (n=15) through lottery method. (figure1) Inclusion criteria was patients below the age of 50 years, having bilateral acute and chronic pain in head and neck lasting from 30 minutes to several hours and at least 7 headache episodes per month. Their headache episodes were because of tension, anxiety and poor posture. Individuals having headache with history of tumor, migraine type headaches, trauma, and temporomandibular joint syndrome were excluded.

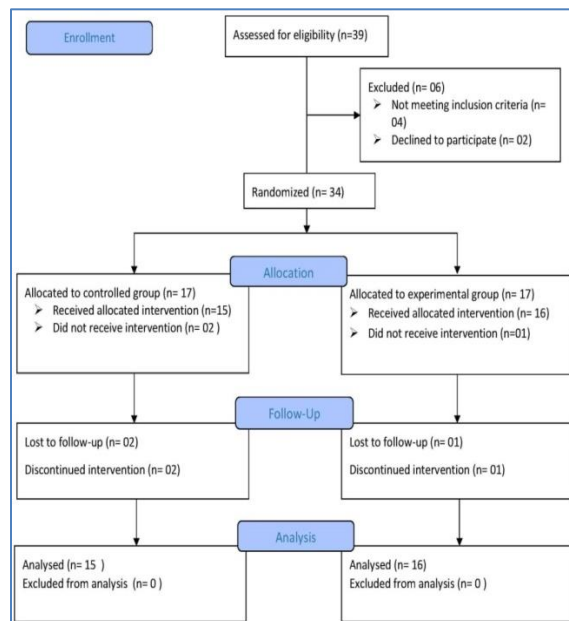


Figure 1: CONSORT diagram

Both group received heat therapy was applied to the neck in sitting position for 15 minutes. Intensity was as tolerable to the patient. In conventional therapy group, heat therapy was followed by Transcutaneous Electrical Nervous Stimulation (TENS) at motor points. Stretching exercise was applied at trapezius, sub occipital and sternocleidomastoid muscles. Duration of each stretch was for 30 seconds with 10 repetitions. In Trigger Point Therapy additionally trigger point release for the trigger points of neck and head region. This procedure was done for 20 minutes covering all the trigger points of head and neck.

Data is collected through following questionnaires. General demographics, pain on visual analogue scale (VAS), headache disability index, and quality of life SF-36 questionnaire. General demographic questionnaire included age, gender, BMI. Headache history questionnaire was used to determine the frequency, pattern, intensity and duration of tension type headache. Categorical variables were presented as frequency and percentage whereas continuous variables were presented as mean±SD. the data was analyzed using independent t-test for between-group comparison and within the group changes were assessed through repeated measure ANOVA and paired t-test. Statistical significance was assumed at P<0.05. Data was analyzed by SPSS version 21.

RESULTS

The mean age of study participants in conventional group was 30.73 ± 7.99 and for Trigger point therapy group mean age was 35.81 ± 9.30 . The mean BMI for conventional physical therapy group was 22.43 ± 3.36 and for trigger point therapy group 24.11 ± 3.49 respectively. The mean working hours in conventional physical therapy group was 7.33 ± 5.31 and 10.31 ± 5.54 for trigger point therapy group. The gender distribution of patient in both group can be seen in figure 1.

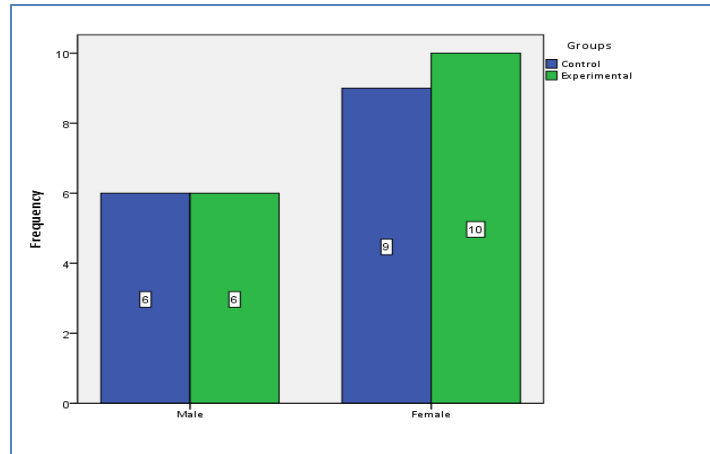


Figure 1: gender distribution both groups

Within group analyses showed that both group showed significant improvement in pain level ($p < 0.05$). But headache disability was significantly improve in trigger point therapy group ($p < 0.001$). The results of Quality life domain showed that in trigger point therapy group physical functioning,

limitations due to emotional health, social functioning significantly improved in conventional physical therapy group, while in trigger point therapy group all domain of quality of life were significantly improved ($p < 0.05$).table 1

Table 1: Within group changes (Pain, Headache disability index & QOL)

		Conventional PT (n=15)			Trigger Point Therapy (n=16)		
		Mean	SD	p-value	Mean	SD	p-value
Pain (VAS)	Baseline	6.73	1.53	0.04 ^a **	6.62	1.58	<0.001 ^a ***
	2 nd	6.26	1.75	0.05 ^b **	5.38	1.58	<0.001 ^b ***
	3 rd	5.93	1.62	<0.001 ^c ***	3.75	1.39	<0.001 ^c ***
HDI	Baseline	60.20	26.64	0.24 ^a	63.88	14.52	<0.001 ^a ***
	2 nd	57.27	26.25	0.21 ^b	46.56	12.04	<0.001 ^b ***
	3 rd	53.27	26.57	0.12 ^c	32.75	12.83	<0.001 ^c ***
Physical functioning	Pre	49.40	31.47	0.04*	50.48	28.30	<0.001***
	Post	57.20	27.44		60.72	23.67	
Limitations due to physical health	Pre	23.33	31.99	0.25	29.69	34.42	<0.001***
	Post	24.47	31.14		37.25	29.88	
Limitations due to emotional health	Pre	24.42	40.75	0.02*	24.91	33.31	<0.001***
	Post	31.00	38.46		30.19	31.66	
Vitality	Pre	40.67	16.994	0.89	48.00	19.53	0.01**
	Post	41.13	17.566		50.06	18.67	
Emotional wellbeing	Pre	59.07	13.669	0.21	56.69	20.20	0.06*
	Post	56.29	11.625		57.38	20.61	
Social functioning	Pre	41.63	23.031	<0.001***	56.28	21.00	0.05
	Post	46.57	23.404		59.13	18.82	
Pain	Pre	42.73	19.810	0.60	41.19	16.54	<0.001***
	Post	44.20	19.072		32.05	15.55	
General health	Pre	39.94	25.404	0.02*	52.10	16.74	0.01**
	Post	44.87	23.207		54.65	16.71	

^a = Baseline Vs 2nd session, ^b = 2nd session Vs 3rd session, ^c = 3rd session Vs Baseline.

$P < 0.05^*$, $p < 0.001^{***}$

While comparing both groups, results showed that pain was significantly reduced at the end of intervention in conventional physical therapy group as compare to trigger point therapy group (1.31 ± 0.47 ver. 2.13 ± 0.64 , $p < 0.001$). Regarding headache disability index, at the end of intervention

trigger point therapy group show better results as compare to conventional physical therapy group (32.75 ± 12.83 ver. 53.27 ± 26.57 , $p = 0.01$). While comparing quality of life between the groups, no significant difference was observed after intervention. (Table 2)

Table 2: Between the groups analyses (Pain, Headache disability index & QOL)

		Conventional PT (n=15)		Trigger Point Therapy (n=16)		p-value
		Mean	SD	Mean	SD	
Pain (VAS)	1 st	2.31	0.60	2.53	.51	0.28
	2 nd	1.88	0.50	2.27	.79	0.11
	3 rd	1.31	0.47	2.13	.64	<0.001***
HDI	1 st	60.20	26.64	63.88	14.52	0.63
	2 nd	57.27	26.25	46.56	12.04	0.15
	3 rd	53.27	26.57	32.75	12.83	0.01*
Physical Functioning	Pre	49.40	31.47	50.48	28.30	0.92
	Post	57.20	27.44	60.72	23.67	0.70
Limitations due to physical health	Pre	23.33	31.99	29.69	34.42	0.59
	Post	24.47	31.14	37.25	29.88	0.25
Limitations due to emotional health	Pre	24.42	40.75	24.91	33.31	0.97
	Post	31.00	38.46	30.19	31.66	0.94
Vitality	Pre	40.67	16.99	48.00	19.53	0.27
	Post	41.13	17.56	50.06	18.67	0.18
Emotional well being	Pre	57.27	14.91	56.69	20.20	0.92
	Post	53.86	9.77	57.38	20.61	0.58
Social Functioning	Pre	41.63	23.03	56.28	21.00	0.07
	Post	46.57	23.40	59.13	18.82	0.10
Pain	Pre	42.73	19.81	41.19	16.54	0.81
	Post	44.20	19.07	32.05	15.55	0.06
General Health	Pre	39.94	25.40	52.10	16.74	0.12
	Post	44.87	23.20	54.65	16.71	0.18

P < 0.05*, *p* < 0.001***

DISCUSSION

This study was carried out to find out the effectiveness of trigger point therapy in comparison with traditional physical therapy in tension type headache. One of the hypotheses was that trigger point release is more effective than traditional physical therapy and on the basis of results null hypothesis was rejected. Both trigger point and traditional physical therapy are effective in treating tension type headaches but trigger point therapy showed significant more improvement in pain, HDI and quality of life.

In this study, in conventional therapy group significant improvement (*p* < 0.05) was seen for the intervention of pain after the third session. Duration of stretch was for 30 seconds with 10 repetitions. Session lasted for 15 minutes. Stretching exercises on neck had an instantaneous effect on decreasing headache intensity. A study conducted by Lin Ly and Wang Rh (2015) on effectiveness of neck stretching intervention on nurses' primary headache. Intervention i.e. stretching exercises comprised of repeatedly turning the head and neck in extended positions for 20 minutes, 10 seconds duration of each stretch. It was found that decrease in headache intensity was significantly larger on group who

received neck stretching exercise and that neck stretching exercise is an effective method of treating primary headaches¹³

In current study comparison trigger point therapy group showed significant improvement (*p* < 0.05) in pain throughout all the sessions. The average decrease in pain was from 6.62±1.58 to 3.75±1.39 in total 3 sessions over the period of 1 week. A study conducted by Castein et al on the manual therapy and the treatment of tension type headache induce by trigger points reported that there a decline in average 7.66±0.165 to 2.56±0.582 in the referred index. It was observed that increase in pain limier by pressure and decrease in pain intensity. However the protocol of therapy treatment in this study was 16 sessions, two times a week¹⁴

The analysis of headache disability index showed that in both conventional and trigger point therapy group disability index was significantly reduced at the end of the sessions. Improvement in disability index could be because of improvement in pain. As pain reduced subject were able to carry out his/her daily activities. A pilot study conducted by Albert moraska (2008) Changes in Clinical Parameters in Patients with Tension-type Headache Following Massage Therapy. Patients were allocated in an

open trial with baseline control with four 3 week phases: baseline, massage (two 3-week phases) and follow-up. 45 minutes massage session started following the baseline phase and session was done twice weekly. Both functional and emotional subscales of HDI improved significantly.¹⁵ However in this study the HDI was calculated in terms of disability scales (mild, moderate, severe, complete) instead of functional and emotional subscales.

Quality of life analysis showed that all domains were statistically significant ($p \leq 0.05$) with the exception of emotional wellbeing ($P = 0.06$). The study conducted by RC de souze (2014) on Myofascial release and the treatment of tension type headache induce by trigger points. In this study participants were assessed before treatment and after twenty sessions and patients answered SF36 questionnaire. Initial and final evaluation revealed that the only domains that did not presented significant statistical difference were the emotional wellbeing ($t = 0.0518$) and mental health ($t = 0.0548$).¹⁶

The study showed that quality of life significant improvement in both group but shorter duration of study does not justify the result as no difference was observed in both groups. In this context, one should emphasize on conducting comparative studies with larger sample and duration to established evidence for long-term changes in quality of life.

CONCLUSION

It was concluded that both conventional physical therapy and trigger point therapy are effective in the management of tension type headache. It decreased pain and disability caused by headache and also improves quality of life in both groups. But no intervention is better than other.

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