Volume 04, Issue 02 | July -December 2016 | ISSN 2226-9215

JRCRS

Journal of Riphah College of Rehabilitation Sciences

RIPHAH INTERNATIONAL UNIVERSITY

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Publisher:
Riphah College of Rehabilitation Sciences, Riphah International University, Al-Mezan Campus, 274- Main Peshawar Road, Rawalpindi-46000, Tel: +92-51-111-510-510, Ext: 290,291,295, jrcrs@riphah.edu.pk, www.riphah.edu.pk

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Editorial

Exercise and Type-2 Diabetes Mellitus

Hossein Karimi [1], Syed Shakil-ur-Rehman [2]

Diabetes Mellitus (DM) is a heterogeneous chronic metabolic disease with complex and varying clinical presentation, complications and disease progression. In modern medicine it is categorized in three key types; type-1, type-2 and gestational DM. Comprehensive Management of patients with DM is not limited to glycemic control and should include continuous patient education to avoid complications of acute nature and reduction of the risk of long term multi-systemic complications. Risk factors of T2DM are family history, obesity, lack of physical activity (sedentariness), inappropriate diet, aging, ethnicity, high blood pressure, and impaired glucose tolerance, history of gestational DM, poor nutrition during pregnancy, smoking and urbanization. DM is usually considered to be middle or older age medical condition with shorter Life expectancy due its multiple systemic complications.

Global Prevalence of DM was 382 million in 2013 along with future projection of 592 million by 2035 and mostly targeting the low to middle income underdeveloped countries. Type-2 diabetes is the most common type and comprises more than 90% of total diabetic population. It starts with insulin resistance, where cells fail to respond insulin appropriately with defect in both insulin secretions and function[1]. According to Shaw and colleagues there will be 69% increase in developing countries and 20% increase in developed countries between 2010 to 2030[2]. It demonstrates that the situation is going to be more worsening in developing countries.

T2DM is the most common type of DM associated with hyperglycemic, insulin resistance and relative lack of insulin with slow onset. It gradually affects cardiovascular, respiratory, neurological, musculoskeletal and Integumentary systems with increased risk to develop other medical co-morbidities. Prevalence of T2DM is highest among other types of DM and is 90% of the total diabetic population[3]. It is managed by lifestyle modification, Pharmacology and insulin therapy in advance stages. T2DM can be prevented by Non-pharmacological interventions including; weight loss or maintain weight, regular physical activity, exercises and dietary modifications, while applied it in clinical settings[4].

Majority of diabetic patients are overweight and therefore routine physical activity for weight loss and dietary recommendations have less chances to get significant results. Therefore more aggressive, structured and plan physical activity and exercise program with low caloric diet is suggested[5]. Physical Activity, Exercise and diet plan are the foundation in the management of T2DM[6]. Physical activity, exercise also plays a key role in the prevention and management of insulin resistance among patients with

1. Professor,University Institute of Physical Therapy, University of Lahore, Lahore
2. Associate Professor,Riphah College of Rehabilitation Sciences, Riphah International University, Islamabad

T2DM[7]. Different types of exercise has different effects on insulin resistance depends upon time duration and intensities. High intensity interval training has been reported to have positive effects on insulin resistance in patients with T2DM[8]. Aerobic exercises improve glycemic control in the management of patients with T2DM and reduced risk of complications[9].

In conclusion it is a dire need to educate the patients for the importance of physical activity and exercises and involve the patients with T2DM in structure and supervised exercise program like in cardiac rehab. Thus a persistent physical activity program with long term and more productive outcomes should be implemented. We need to develop specialized diabetic rehabilitation centre to manage glycemic control, obesity, reduce insulin resistance and prevent or delay post diabetic complications.[10] T2DM can be bitter managed by inculcating structured physical activity under the supervision of qualified physical therapist along with appropriate dietary plan and medical management.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Effect of kinesio Taping on Pain and Disability in Patients with Chronic Low Back Pain

Khaled Z. Fouda[1], Ibrahim M. Dewir [2]

1 Lecturer of Physical Therapy, Basic Science for Physical Therapy Department, Faculty of Physical Therapy, Cairo University, Egypt.
2 Physiotherapist, Alkaser AlEini Hospital, Cairo University, Egypt.
Corresponding Author:
Dr. Khaled Z. Fouda (PhD, PT);
7 Ahmed El Zayat Street, Bein El Sarayat, Giza 12612, Egypt.
E-mail: kzfouda2004@yahoo.com

ABSTRACT

Background: Low back pain (LBP) is a significant public health problem and it is associated with enormous costs to society and disability. Kinesio Taping (KT) is widely used in patients with LBP with different techniques of application.

Objective of Study: The purpose of this study was to investigate the effect of different techniques of KT on pain, disability and muscle endurance in patients with chronic nonspecific LBP.

Methodology: Forty five patients with chronic nonspecific LBP were randomly assigned into three equal groups. Group A received the conventional physical therapy program only, group B received the conventional physical therapy program plus the "H pattern technique" KT while group C received the conventional physical therapy program plus the "Star-pattern technique" KT. Pain was evaluated by Visual Analogue Scale (VAS), disability was evaluated by Oswestry Disability Index (ODI) while muscle endurance was evaluated by Sorensen test. All measurements were recorded at baseline and after four weeks intervention.

Results: One-way ANOVA revealed that there was a significant difference ($P< 0.05$) among the three groups following four weeks of treatment. Post-hoc test showed greater significant improvement ($P< 0.05$) in the measured outcomes for group B in comparison to the other groups.

Conclusion: Adding KT to the conventional physical therapy treatment of chronic nonspecific LBP significantly reduced pain, disability and improved isometric endurance of the trunk muscles than conventional physical therapy treatment alone.

Keywords: Kinesio taping, Pain, Disability, Low back pain

INTRODUCTION

Low back pain (LBP) is a significant public health problem and it is associated with enormous costs to society and disability.[1] Approximately 39% of the population suffers from low back pain at some stage in their life.[2] Nonspecific low back pain (NSLBP) refers to LBP of unknown pathology. It establishes about 85% to 95% of the entire cases. It is often created spontaneously, and could be disabling and painful.[3,4]

Several interventions commonly used by physical therapists for treatment of patients with LBP, such as manual therapy techniques [5], electro physical agents [6] and exercises.[7,8] However, the vast majority of these interventions have a modest effect in reducing pain and disability.[9,10]

Therefore, new interventions have been tested in order to enhance the effects of existing treatments. A new treatment option that is very popular in athletes is the Kinesio Taping (KT) and it is being widely used in patients with LBP. The technique uses an elastic adhesive tape that is extremely thin and much more elastic than conventional bandages and applies it to the patient's skin. This tape made of cotton fibers which allow for the faster drying and evaporation, also it can be stretched to 140% of its original length, producing less mechanical retention and restriction to movement.[11]

There are a large number of researches investigated the efficacy of adding KT to the conventional physical therapy treatment program of LBP. These researches often are contradictory in results, some investigators showed that, patients did not get additional benefit from the use of KT. [12-14] However, many other investigators showed a significant evidence for their efficacy in reduction of pain and disability.[15-20]

Within the available literatures, there are different techniques of KT application with different parameters have been used in previous studies.[12-20] So, the purpose of this study was to investigate the effect of different techniques of KT on pain, disability and muscle endurance in patients with chronic NSLBP.

METHODOLOGY

Participants

A total of 45 patients with chronic NSLBP

diagnosed by orthopedic physicians were recruited for the study from outpatient physical therapy clinics in Cairo University hospitals. The eligible patients should have a history of chronic NSLBP of at least three months and their age ranged from 25 to 55 years.[21] Patients were excluded if they had metabolic or vascular disease with a neurological component such as diabetes or atherosclerosis, nerve root compression (disc hernia ion, spondylolisthesis, stenosis in lumbar spine), inflammatory disorder (ankylosing spondylitis), KT therapy or corticosteroid treatment in the previous two weeks, previous spinal surgery or fracture, congenital back disorder and any contraindications to KT (skin allergy and/or intolerance to tape, dermatitis, or preexisting skin lesion and infection).[18,22] All patients considered eligible for the study performed a KT allergy test before randomization. The test consisted of sticking a small piece of KT to the thoracic spine and leaving it for 24 hours. The patients who developed an allergic reaction to the tape were asked to remove it immediately and excluded from the study. [18]The study was approved by the ethical committee of the Faculty of Physical Therapy, Cairo University and informed consent was signed by each patient before the beginning of the study. The research design was randomized; single-blinded clinical trial. Randomization was performed simply by adding a specific identification number for each patient. A SPSS program (version 20) was used to randomly assign the patients into three equal groups (n=15).

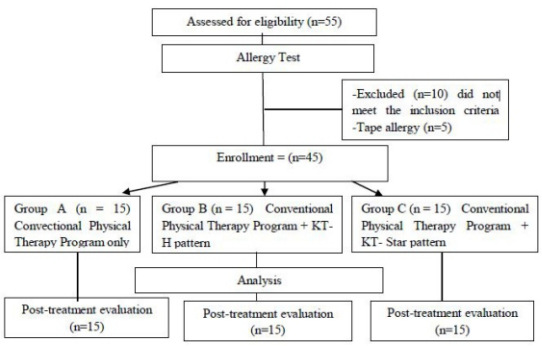

Figure (1): Participants flow chart.

Outcome Measures

Pain intensity

Visual Analogue Scale (VAS) was used to measure pain intensity level pre and post treatment. [23] It consists of a 10-cm straight line anchored at one end by a label such as "no pain" and at the other end by a label such as "the worst pain ".It was translated into Arabic and introduced to the patients.VAS was reported as valid and reliable tool for pain assessment.[24,25]

Functional disability

Arabic version of Oswestry Disability Index (ODI) was used to measure the level of daily living activities pre and post treatment.The questionnaire contains 10 items related to limitations in daily living activities. Each item includes six potential responses that are rating on a 0 to 5 points scale, with maximum scores of 5 or total disability and a minimum score of 0 or no disability. The total score is calculated as follows: (patient' score/50) x100 to obtain the score expressed in percentage. It was reported as valid tool for disability assessment.[26,27]

Isometric endurance of the trunk muscles

Sorensen test was used to measure the amount of time in seconds a person can hold the unsupported upper body in a horizontal prone position with the lower body fixed to the examining table until fatigue. Isometric muscle endurance was evaluated pre and post treatment. The test was reported as valid and reliable tool for assessment of isometric endurance of the trunk muscle.[28.29]

Procedures

Patients in group A received the conventional physical therapy program only which consisted of stretching exercises for the back, iliopsoas, and hamstring muscles. Strengthening exercises for the abdominal muscles. Three sets of stretching exercises, each involving a 30-sec hold and 30-sec of rest repeated three times. One set of strengthening exercises, consisting of 10 repetitions with a 5-sec hold.[13]

Patients in group B received the conventional physical therapy program plus the "H pattern technique" KT. Cure tape (Tape Concept Ltd., Larnaca, Cyprus) with a width of 5 cm and 0.5 mm thickness was used in the present study.

Prior to KT application, the skin of the lower back was cleaned with alcohol swabs to ensure that it is free of lotions and oils, excessive hair must be shaved for the best results and less pain when removing the tape. The "H pattern technique" utilizes three pieces of tape cut into strips and with the corners rounded off to reduce snagging on clothing. Two strips tapes were applied on the erector spine par vertebral muscles (bilaterally) parallel to the spinous processes of the lumbar spine. The patients assumed sitting position on a chair without back support to allow forward bending while the therapist standing behind the participants. The KT was applied as the following; the initial anchor point of tape (4–5 cm) was carefully removed from its paper backing and applied to the posterior superior iliac spine without stretch. After that, the patient was asked to perform maximum trunk flexion to lengthen the tissue in the area being taped then the tape was removed from the backing paper and applied with "paper-off tension" (the natural stretch of the tape as it is removed from the paper backing which is equal to 10% to15% stretch), the tape was applied in the shape of an "I" over the skin in the par vertebral region up to the T12 vertebra. The final anchor point of tape (4–5 cm) was fixed directly above the transverse process of the T12 vertebra without stretch; the tape was rubbed by hand several times to warm the adhesive film to achieve adhesion. The same procedure was then applied to the other side. The third strip was applied horizontally directly over painful area. Stretch the tape 50% in the middle and then apply it over the spine and rub to activate the adhesive, and then continue to remove the paper backing and apply the remainder of the tape on each side with paper-off tension. [30, 31] Patients in group C received the conventional physical therapy program plus the "Star-pattern technique" KT. This technique utilizes four pieces of tape cut into strips and with the corners rounded placed at 25% tension overlapping in a star shape over the point of maximum pain in the lumbar area. Strips were applied by pressing and adhering the central part before the end. Patients in group B and C were advised to leave the tape in place for 5 days. [19]

The KT was re-applied again at the beginning of the next week for four weeks. All patients received the conventional physical therapy treatment for three sessions per week in alternative days for four weeks.

Data analysis was performed by SPSS (Version 20) for Windows. Mean, standard deviation and percentage of differences were calculated. A one-way analysis of variance (ANOVA) was used to test the differences among the groups regarding their pain, functional disability and isometric trunk muscle endurance pre and post treatment followed by Post-hoc test to find out the significance of mean difference for between group comparisons. The P-value < 0.05 was taken as significant.

RESULTS

Participants' characteristics of the groups were presented in table (1). There were no significant differences among the groups regarding age, weight, height, body mass index and duration of LBP as (P>0.05).

Table (1): Demographic characteristics of participants

General Characteristics	Group (A) Mean	Group (B) Mean	Group (C) Mean	P-value
Age (year)	38.85± 2.64	37.95± 2.15	38.54± 2.42	0.587
Weight (Kg)	85.96±7.13	84.87±6.94	85.27±7.25	0.913
Height (cm)	169.82±4.9	170.65±5.1	171.15±5.3	0.776
Body mass index(Kg/m^2)	29.71± 2.14	29.36±2.19	29.20±2.05	0.719
Duration of LBP (months)	23.92±2.53	23.42± 1.95	24.11±2.28	0.692

±: Standard deviation. P: Probability

Application of ANOVA revealed that, there was no significant difference (P>0.05) among the groups for the pre-treatment values where F-value was 0.244 for VAS, 0.556 for ODI and 1.10 for Sorensen test. While post treatment, there was a significant difference (P< 0.05) among the groups, where F-value was 33.44 for VAS, 12.76 for ODI and 90.16 for Sorensen test. The mean values for the measured outcomes among the groups were presented in table (2).

Table (2): Results of ANOVA among the groups for pain intensity (VAS), functional disability (ODI) and isometric endurance of the trunk muscles (Sorensen test).

Study groups	VAS Mean		ODI Mean		Sorensen test Mean	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Group A	6.5±1.31	4.5± 0.89*	25.19±2.5	14.48±2.6*	28.95± 3.1	40.75± 3.2*
Group B	6.2±1.12	2.3±0.49*	24.26±2.3	10.13±1.9*	30.52±3.4	59.53± 4.3*
Group C	6.3±1.16	2.9± 0.78*	24.65±2.4	12.30±2.3*	29.12±2.9	50.64± 3.8*

ANOVA P< 0.05 (among groups comparison post-treatment) ±: Standard deviation

Post-hoc test was applied to determine the difference among the groups post treatment. It revealed that there was a significant difference in

the measured outcomes among the groups. The mean difference between the groups and their P-values were presented in table (3).The percentage of improvement in the measured outcomes post treatment was presented in table (4).

Table (3): Post-hoc test among the groups for pain intensity (VAS), functional disability (ODI) and isometric endurance of the trunk muscles (Sorensen test)

Study groups	VAS Mean difference (P-value)	ODI Mean difference (P-value)	Sorensen test Mean difference (P-value)
	Post-test	Post-test	Post-test
Group A vs. group B	2.21(0.001)*	4.35(0.001)*	18.78(0.001)*
Group A vs. group C	1.52(0.001)*	2.18(0.039)*	9.89(0.001)*
Group B vs. group C	0.69(0.037)*	2.17(0.040) *	8.89(0.001)*

Significant or significance difference (P< 0.05). P: Probability

Table (4): Percentage of improvement among the groups for pain intensity (VAS), functional disability (ODI) and isometric endurance of the trunk muscles (Sorensen test)

Study groups	VAS % of improvement	ODI % of improvement	Sorensen test % of improvement
Group A	30.76%	42.51%	40.75%
Group B	62.90%	58.24%	95.05%
Group C	53.96%	50.10%	73.90%

DISCUSSION

The purpose of this study was to investigate the effect of different techniques of KT on pain, disability and muscle endurance in patients with chronic NSLBP. The results of the present study revealed that, there were a statistical significant reduction in pain and functional disability, also there was a statistical significant improvement in the isometric endurance of the trunk muscles after four weeks of treatment in the three groups under investigation, moreover there were a significance difference among the groups in the mean values of pain, functional disability and isometric endurance of the trunk muscles. Furthermore, the H pattern technique of KT produced greater improvement in the measured outcomes compared to the star pattern technique of KT or the conventional physical therapy treatment only. Adding KT to the conventional physical therapy treatment produced greater reduction in pain and functional disability than conventional physical therapy alone. Our finding were in agreement with Sathyal et al., Added et al.and Al-Bahel et al. whom reported significant reduction in pain and disability when using KT in conjunction with different physical therapy programs.[15,18,23] In contrast with Al-Shareef et al. who demonstrated that, the effects of KT was very small to be considering clinically relevant and meaningful when compared with placebo taping. The discrepancy in results may be attributed to the very short-term effect of time used in this study, also KT used in isolation without any physical therapy treatment intervention.[22]

Isometric endurance of the trunk muscles showed greater statistical significant improvement when adding KT to the conventional physical therapy program than the conventional physical therapy program alone, the participants could maintain the Sorensen test position for a significantly longer duration than those without any taping. These finding were in agreement with Alvareza et al. and Paoloni et al. whom reported that, KT applied on the lower back significantly delays the onset of par vertebral muscle fatigue.[17,20] It has been reported that, pain during the Sorensen test is a factor limiting performance of the test. So decreasing pain would enhance performance of the test. [28] The precise mechanisms underlying the effect of KT on musculoskeletal pain are not yet clear. It is hypothesized that KT applies pressure to the skin or stretches the skin and that this external load may stimulate cutaneous mechanoreceptors (large myelinated fibers) and thus inhibit pain transmission. Stimulation of joint mechanoreceptors can also signal information of joint movement or joint position which could improve joint function[32,33]

The changes induced by KT may be related to the neural feedback received by the participants, which may improve their ability to reduce the mechanical irritation of soft tissues when moving the lumbar spine.[19] Also KT may increase recruitment in the motor units of the lumbar erector spine muscle to perform the activity due to increased proprioceptive stimulates which have been enhanced through increased cutaneous feedback.[34,35]Another proposed mechanism suggests that keratinocytes, which are found in the skin, may represent the primary transduction of mechanical non-neuronal stimuli. These mechanisms would activate cascade processes such as intracellular Ca2+ flows evoking a response from C-fibers or C-polymodalnociceptors. Therefore, the stimulation caused by the KT on the skin would

interfere with the transmission of mechanical stimuli and decrease perception of pain.[36] This study is limited to male patients only. Further researches are required to investigate the effect of KT on a large patient population including both genders for longer time periods in combination with different physical therapy modalities to confirm the findings of this study. Also, further electromyography studies are needed to validate the efficacy of KT in patients with low back pain.

CONCLUSION

Adding KT to the conventional physical therapy treatment of chronic NSLBP significantly reduced pain and disability and improved isometric endurance of the trunk muscles than conventional physical therapy treatment alone. Furthermore, the H pattern technique of KT was more effective than the star pattern technique of KT in regarding to the measured outcomes. The present study suggests that KT should be used in conjunction with the conventional physical therapy treatment of LBP.

Conflict of Interest

We certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript

Acknowledgement

We are in debeted to Cairo University Egypt, Faculty of Physical Therapy, Basic Science for Physical Therapy Department, for their permission to commencement the study and to the participants.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

EFFECTIVENESS OF ACTIVE RANGE OF MOTION IN COMBINATION WITH STRETCHING IN TREATMENT OF BURN PATIENT

Shazia Rafique[1], Muhammad Junaid Ijaz[1], Muhammad Adeel[1], Salman Malik[1], Sana Chaudhary[1]

1.King Edward Medical University, Lahore

ABSTRACT

Background: Serious burn prompts to a condition of hyper catabolism, bringing about fast muscle damage and long term disability. As life expectancy from severe burn are enhancing, early restoration is vital to boost functional recovery. The prevalence of burn in 2004 was 11 million worldwide.

Objective of Study: To assess the effects of active range of motion exercises in combination with stretching exercises on burn patients.

Methodology: It was aquasi-experimental study. The study was conducted in Burn and Plastic Surgery Department, Mayo Hospital, Lahore. The study was completed in five months from September 2015 to February 2016 after the approval of synopsis.There was two groups and each group was allocated with 20 patients. Non-probability convenient sampling technique was used. Group 1 received active range of motion and stretching exercises while group 2 received active range of motion exercises alone for three sessions a week for 4 weeks. Demographics data, pain intensity on visual analogue scale (VAS), functional status of affected region on burn functional assessment scale (BFAS) and range of motion through Goniometer were recorded before and after the treatment. Data were entered and analyzed through Statistical Package of Social Sciences (SPSS) version 16.0.

Results: Baseline measurements for pain intensity on VAS for group 1 was 7.04$\pm$1.46 that changed to 1.71$\pm$0.56 and for group 2 it was changed from 6.684$\pm$1.25 to 2.63$\pm$0.76. Burn Functional Assessment Score for group 1 and 2 were 29.23$\pm$5.03 and 29.94$\pm$4.65 and that were changed to 8.86$\pm$2.69 and 12.42$\pm$2.06 respectively.

Conclusion: Active range of motion along with stretching exercises was more effective than the active range of motion alone in reducing pain intensity, functional activities and range of motion of involved limb for treatment of burn patients.

Key words: Burn patients, stretching, active range of motion

INTRODUCTION

Serious burn prompts to a condition of hyper catabolism, bringing about fast muscle damage and long term disability[(1)]. As life expectancy from severe burn are enhancing, early restoration is vital to boost functional recovery[(2)].The prevalence of burn in 2004 was 11 million worldwide [(3)]. Burns are caused by exposure of skin to increased temperature, electric current, warm liquids and ultraviolet radiations that occur with warm metals boiling liquids, flames or steam contacting with the skin. Burns are divided into four main categories on the basis of severity: first degree burn limit to superficial skin layer, second degree burn involves the deep layers of skin and results in redness and blister, deep second degree burn is serious form that may progress to third degree over the period of some days [(4)]. Physiotherapy treatment is a key component to gain range of motion and successful contracture release after burn. Physiotherapy should be started as soon as possible after the operation. The main goal of physiotherapy is to maintain the length gained by surgery. The secondary goal is to achieve normal ambulation and prevent contractures of the lower extremities. For the upper extremities, the secondary goal is to improve the patient's ability to perform activities of daily living. There are numerous ways a physiotherapist can help a burn contracture patient: they can provide scar massage to decrease hypertrophic scarring and stretch muscles that have contracted to prevent recontracture provide appropriate pressure garments and splints or even provide serial casting to help heal the wound and stretch tissue [(5)].

Other than posttraumatic wound and skin care, a huge number of rehabilitative measures are utilized keeping in mind the end goal to

reintegrate a burn victim into social furthermore, proficient life, e.g. physiotherapy, psychotherapy, manual therapy, massages, splints, prostheses and epentheses[6,7].
Stretching and active range of motion also have a great effect on burn patients to improve muscles active movement and tissue performance that the patient also performs themselves with only the antagonistic muscles of their affected limb or digits movement is not forced or. If the graft is healthy and has a good condition this can be done as soon as a week after surgery. Early mobility programs are appropriate for patients who have the ability to understand both the exercises and the precautions associated with them [8].The rationale of this study was to compare the effect of active range of motion along with stretching and active range of motion alone for the management of burn patients in reducing pain and improving functional status of involved region.

METHODOLOGY

The study design was a Quasi-experimental. It was conducted in Burn and Plastic Surgery Department and Physiotherapy Department, Mayo Hospital, Lahore. The study was completed within six months from September 2015 to February 2016. The study included forty patients through non-probability convenience sampling technique. The inclusion criteria of the study was: age of the patients from 10 to 50 years, 1st degree burn, 2nd degree burn, 3rd degree burn and burn including areas of body like hand, arm, shoulder, foot and leg. And the exclusion criteria were: age below 10 and above 50 years, 4th degree burn, and burn of face, head or buttock, history of malignancy, osteoporotic patients, pregnant women and spinal fracture.
The patient came to physiotherapy department either referred from senior physiotherapist or burn and plastic surgeon from Burn and Plastic Surgery Department. An Informed consent was obtained from each patient or attendant. All the participants were assessed through physical examination by the Physiotherapist. The data included demographic information including age, gender, socioeconomic status, marital status, educational status, duration of onset, nature and mode of pain, pain intensity of the limb on Visual Analogue Scale, functional limitation of affected limb on Burn Functional Assessment Scale and range of motion of involved limb through Goniometer.
The patients were divided into two groups. Group 1 received active range of motion and stretching exercises while group 2 received active range of motion exercises alone. Type of treatment for subjects was according to medical ethics, beneficial and harmless effects. In group 1: active exercises of involved and uninvolved limb was carried out for three times a week for 60 minutes [9] and three sets of 15 second stretching [10]and in group 2: only active range of motion was employed. The patients were provided 4 week treatment and then followed for another 2 weeks for pain intensity, functional status and ROM of the involved limb. Data were entered and analyzed through SPSS version 16.0.All qualitative variables were presented in the form of frequency tables and percentages. All quantitative variables were presented in the form of mean ±SD along its range (max-min).T-test was applied to compare the mean differences of quantitative variables. P-value<0.05 was taken as significant.

RESULTS

The patients included in this study with age range of 10 to 45 years. Out of which 26 were male and 14 females. Results showed baseline measurements for pain intensity on VAS for group 1 was 7.04+1.46 that changed to 1.71+0.56 and for group 2 it was changed from 6.684+1.25 to 2.63+0.76. Burn Functional Assessment Score for group 1 and 2 were 29.23+5.03 and 29.94+4.65 and that were changed to 8.86+2.69 and 12.42+2.06 respectively (Table.No.1).
The table.no.2 illustrates that in group 1 mean active shoulder flexion before treatment was 60.00+0.00 and after treatment it was 110.00+14.14. Mean active shoulder extension before treatment was 17.50+3.53 and after

treatment 30.00+0.00. Mean active shoulder abduction, external rotation and internal rotation before treatment were 60.00+0.00, 25.00+7.07 and 25.00+7.07 that changed to 120.00+14.14, 55.00+0.00 and 37.50+3.5 after 4 week treatment respectively. The table also illustrates that mean active elbow flexion and extension before treatment were 53.83+5.77 and 51.66+16.07 that changed to 96.66+5.77 and 16.66+2.88 after treatment. Active wrist flexion, extension, radial deviation and ulnar deviation before treatment were 23.33+6.05, 15.00+3.16, 6.33+2.16, 10.83+2.04 and after 4 week treatment changed to 48.33+9.30, 35.00+11.40, 11.16+2.04 and 20.16+2.56 respectively.

The table.no.2 also illustrates that in group 2 mean active shoulder flexion before treatment was 60.00+8.16 and after treatment it was 158.75+6.29. Mean active shoulder extension before treatment was 18.75+2.50 and after treatment 50.00+4.08. Mean active shoulder abduction, external rotation and internal rotation before treatment were 57.50+5.00, 26.25+7.50 and 25.00+5.77 that changed to 152.50+22.17, 61.25+11.81 and 65.00+10.00 after 4 week treatment respectively. The table illustrates that mean active elbow flexion and extension before treatment were35.00+7.07 and 40.00+14.14 that changed to 120.00+60.00 and 10.00+0.00 after treatment. Active wrist flexion, extension, radial deviation and ulnar deviation before treatment were 25.00+7.07, 16.87+3.72, 6.75+2.25, 10.87+2.74 and after 4 week treatment changed to 65.62+4.95, 51.62+5.44, 14.62+2.25 and 26.12+2.90 respectively.

Table.No.1: Descriptive Analysis of VAS

	Group 1 (n=20)		Group 2 (n=20)	
	Baseline mean(SD)	After 4 weeks mean(SD)	Baseline mean(SD)	After 4 weeks mean(SD)
Pain Intensity (VAS)	7.04±1.46	1.71±0.56	6.68±1.25	2.63±0.76
Functional Status of Extremities (BFAS)	29.23±5.04	8.86±2.69	29.95±4.65	12.42±2.06

Table.2: Summary result for Range of motion for each study group

Group 1 (n=20)Group 2 (n=20)				
Range of Motion	Baseline	After 4 week	Baseline	After 4 week
	Mean±SD	Mean ±SD	Mean ±SD	Mean ±SD
Shoulder flexion	60.00±0.00	110.00±14.14	60.00±8.16	158.75±6.29
Shoulder extension	17.50±3.53	30.00±0.00	18.75±2.50	50.00±4.08
Shoulder abduction	60.00±0.00	120.00±14.14	57.50±5.00	152.50±22.17
Shoulder external rotation	25.00±7.07	55.00±0.00	26.25±7.50	61.25±11.81
Shoulder internal rotation	25.00±7.07	37.50±3.54	25.00±5.77	65.00±10.00
Elbow flexion	53.83±5.77	96.66±5.77	35.00±7.07	120.00±60.00
Elbow extension	51.66±16.07	16.66±2.88	40.00±14.14	10.00±0.00
Wrist flexion	23.33±6.05	48.33±9.30	25.00±7.07	65.62±4.95
Wrist extension	15.00±3.16	35.00±11.40	16.87±3.72	51.62±5.44
Wrist radial deviation	6.33±2.16	11.16±2.04	6.75±2.25	14.62±2.25
Wrist ulnar deviation	10.83±2.04	20.16±2.56	10.87±2.74	26.12±2.90

DISCUSSION

The rationale of this study was to compare the effect of active range of motion along with stretching and active range of motion alone for the management of burn patients in reducing pain and improving functional status of involved region. This study included 40 patients with patient's age range from 10 year to 45 years. The study had 26 male and 14 females. 20 patients were included in group 1 who received active range of motion and stretching exercises and 20 patients were in group 2 who received only active range of motion exercises. Pre and Post pain intensity difference for group 1 and 2 were 5.33 and 4.05 which showed a significant decrease in patient reported pain scores in group 1 received both active range of motion and stretching as compared to group 2 that received active range of motion alone. The reduction in pain following stretching can be explained in terms of inhibitory effects of GTO (Golgi tendon organ) which causes a dampening effect on the motor neuronal discharges, thereby causing relaxation of musculotendinous unit by resetting its resting length. Combination of active range of motion and stretches might be more effective for producing viscoelastic change than active range of motion alone, because the greater forces could produce increased viscoelastic change and passive extensibility [11].

Burn functional assessment scale score for group 1 was 29.23±5.04 that changed to 8.86±2.69 and for group 2 was 29.95± 4.65 that changed to 12.42± 2.06. The mean difference of pre-post scores was 20.37 and 17.53 respectively which showed more improvement was occurred in group 1 than group 2.The mobility training cohort showed significantly

better performance in terms of shoulder range of motion and activities of daily living than the passive training cohort [12].The rehabilitative management of burns starts at the same day of injury and necessitate the multidisciplinary approach. So, a precise rehabilitation program is necessary to reduce after injury effects and enhance quality of life [13]. As far as physiotherapy is concerned, the aim is to improve range of motion of surrounding joints and muscle strength. Pain is the basic complaint during physiotherapy, for this consideration of pain threshold and medication is used before the start of exercise [14].

AROM flexion, extension, abduction, external rotation, internal rotation of shoulder and elbow flexion, wrist flexion, wrist extension, wrist radial deviation and ulnar deviation were more increased for group 2 than group 1. But the difference in mean for both group ROMs We're very close. However, marked improvement occurred in both groups from baseline values. Stretching exercises with active range of motion exercises decreased the pain intensity, improved functional status and increased range of motion of affected limb as compared to active range of motion exercises alone for the treatment of burn patients. Difficulties were faced on receiving active participation under the age of 13 due to their non-co-ordination during follow up receiving muscular stretching exercises plus active range of motion exercises.

CONCLUSION

The results showed that active range of motion along with stretching exercises was more effective than the active range of motion exercises alone in reducing pain intensity, improving functional status and range of motion of involved limb for treatment of burn patients.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

EXERCISE DURING PREGNANCY, KNOWLEDGE, BELIEF AND PRACTICE OF GYNECOLOGISTS /OBSTETRICIANS

Sikander Ali Sangrasi[1], Muhammad Hassan Waseem[1], Asif Gulzar Shaikh[1], Fahad Farooq Lasi[1]

1. Institute of Physical Therapy and Rehabilitation Sciences, IPRS Liaquat University of Medical and Health Sciences, LUMHS

ABSTRACT

Background: Exercise plays a vital role in different phases of life but it is an important and integral part in the prenatal care. A number of complications and problems associated with pregnancy can be reduced and avoided if an expert advice is followed. A proper prescribed plan of care and exercise from an expert would help to increase awareness and facilitate the pregnant females and population.

Objective of Study: The aim of the study is to examine the knowledge, beliefs and practice of Gynecologists /Obstetricians regarding exercise during pregnancy.

Methodology: Two hundred fifty(250) practicing Gynecologists /Obstetricians FCPS (n=10) FCPS trainee (87)MBBS with three year experience (87) and other post graduate Gynecologists /Obstetricians (66) from the Liaquat University of Medical and Health Sciences hospital Jamshoro, Hyderabad .In this study descriptive characteristic data Gynecologists/Obstetrician knowledge , believes and current practice regarding exercise during pregnancy were collected ,descriptive statistics and chi-square analyses were completed.

Results: Overall 91% of Gynecologists /Obstetricians believe exercise during pregnancy is beneficial, only 34%recommand exercise to the pregnant patients.

Conclusions: Although the Gynecologists/Obstetricians beliefs about exercise is largely positive, but very few of them recommend exercise to the pregnant patients.

Key word: Antenatal exercise, Awareness in Gynecologists, Pregnancy.

INTRODUCTION

Exercise is a major component of prenatal care advice from an expert of exercise can reduce the risk of complications. The awareness, recommendations and research studies regarding exercise during pregnancy will facilitate a proper plan of treatment to the patients. Evidence based practice of Gynecologists/ Obstetricians will enable to prescribe and advice about the efficacy of exercise and the physiological changes that occur during pregnancy with added risks and benefits for the mother and fetus.[1]It is observed that women do not take part in exercise during pregnancy because of a number of problems such as lack of interest, lack of referral, lack of time and financial issues. Among them majority of pregnant women suffered from low back pain, urinary incontinence and other problems during pregnancy.[2] Women and their care providers should consider the risks of not participating in exercise during pregnancy, including loss of muscular and cardiovascular fitness, excessive maternal weight gain, higher risk of gestational diabetes or pregnancy -induced hypertension, development of varicose veins and deep vein thrombosis, a higher incidence of physical complaints such as dyspnea or low back pain, and poor psychological adjustment to the physical changes of pregnancy.[3]

Historically, exercise during pregnancy was not universally recommended for pregnant women because of limited research and fear of unknown risks to the mother and fetus. In recent descends Importance of exercise during pregnancy on mother and fetus has been evidenced by many studies.[4-7] Exercise during pregnancy improves a number of systems of the body like cardiovascular system, metabolic functions, increases strength and bone density and also, lower the risk of gestational diabetes mellitus (GDM), gestational hypertension, and preeclampsia. It has been shown to reduce excessive gestational weight gain (EGWG), which is an important predictor of numerous adverse maternal outcomes.[3] A number of evidences suggest that exercise during pregnancy prevents urinary incontinence during pregnancy and in the postpartum period.[8,9] Exercise during pregnancy relieves the discomfort experienced by pregnant women and prepares the body for an easier delivery and

recovery process with easy decreasing the chances of cesarean section.[4]

The Polish standard tool for prenatal care should be implemented with detailed instructions for designing prenatal exercise programs and should include the new guidelines for physical activity during pregnancy, both in Poland and abroad.[14] Exercise during pregnancy has both medical and psychological benefits as well as improves overall emotional well-being.[2-10] By using the medical pre-screening tools included in PAR med-X for Pregnancy and by promoting the recommended exercise guidelines included in the document, physical therapist can play a key role in boosting the physical activity levels of pregnant women, so that they and their offspring can enjoy the health benefits like ease in labor, less discomfort in pregnancy as generally felt by females and decrease in depression are some added benefits .[11] The brief physical activity counseling by health care provider increase likely-hood of the patient participation in physical activity.[12] Recent researches suggest that majority of women's do not participate in exercise because of their health care providers.[12.] It is not possible to bound a pregnant women to follow the goals of exercise strictly as per advised. A number of factors are dependent for pregnant females to be active or wish to be during pregnancy includes individual fitness level, type of exercise that effects each pregnancy and the way Physiotherapist or health care professional counsels and motivate an individual to change the living style during pregnancy.[13]

As many researchers have proved the benefits of exercise during pregnancy about the awareness and counseling of Gynecologists / Obstetricians as they are the major person in prenatal care.[5] A room for research is available about the gynecologist/obstetricians role of counseling in pregnancy. Therefore this study aims to assess the Knowledge, beliefs and practice of Gynecologists/Obstetricians of Liaquat University of Medical, Health Sciences Hospital Jamshoro and Hyderabad. This knowledge will be useful in future to increase awareness in Gynecologists/Obstetricians.

METHODOLOGY

It was a descriptive cross sectional study design conducted at Liaquat University of Medical and Health Sciences. Each participant was surveyed using a pen and paper instrument consisting three sections first section was about demographic information , second section consisted of questions about Gynecologists/Obstetricians knowledge and beliefs and the third section was about their current practice. Data was interred in SPSS software version 20, data was screened before analysis, frequencies and parentages were taken out as part of descriptive statistics. Participants were grouped by age (10-year intervals starting with >30 to < 60 years of age), gender, degree (FCPS, FCPS TRAINEE, MBBS, OTHER.), and years of experience (<5, 5-10, 11-15, and >15 years).

Descriptive statistics were calculated for all questions to determine group means and standard deviations (SD).Because of the nature of the data and lack of homogeneity of variance, were performed using chi-square analysis. Comparisons were performed on all knowledge, attitude, and belief questions to assess differences based on provider gender, age, degree, and experience.

RESULTS

The total sample size of the this study was n=250 including Gynecologists /Obstetricians, the demographic information is tabulated in table -1 .Majority of participant were FCPS trainee (34%) and MBBS (30%) with three years or more than one year experience and between the age of 45-50 years.

In the table no: 2, 91% Gynecologists /Obstetricians believe exercise is beneficial during pregnancy, only 34% recommend exercise to the patients, 62% believe that sedentary women with uncomplicated pregnancy should be encouraged to do exercise , 47% says chronic conditions should continue exercise throughout pregnancy , on the question of strength training participation 64% agreed ,as for maternal and fetal risk of exercise during pregnancy 91% believe that they are minimal in

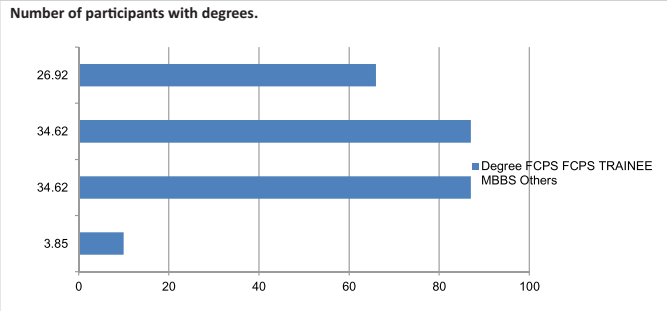
non exercisers , 34% believe that exercise is not cause of low birth babies .
Approximately 11.5% FCPS (trainee) and other postgraduates officers gave advice to the patient to do exercise and the percentage decreased) to 3.08% for FCPS (senior). Although believes are largely positive, but in practice percentage for recommendation is less due to unknown reasons and current statistics reveals only 15% know about the ROCG statement 4. And 94% of the clinicians do not know about any exercise expert and 90% are interested to attend workshops on exercise information.

Table.1Participants Demographics (N=250)

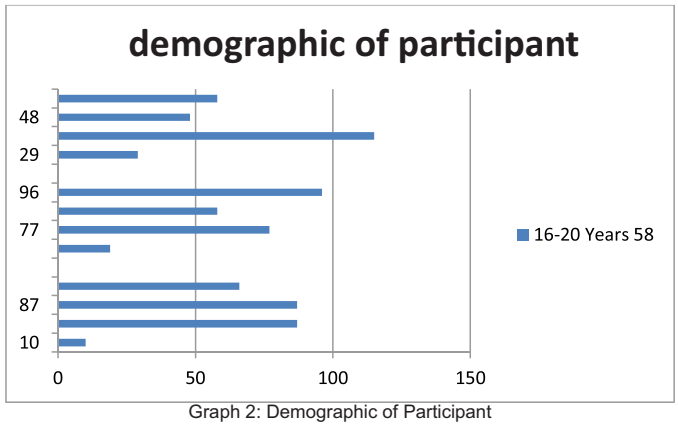
	Q-10 Exercise is beneficial	Q-14 Sedentary women not start exercise	Q-15 Chronic exercisers can continue	Q-18 Heart rate should stay < 140 bpm	Q-20 Risk of fetal harm Is minimal	Q-26 Aware of ROCG statement -4 Guidelines	Q-28 Recommend exercise to pregnant patients
FCPS n=10	7(2.8%)	2(0.77%)	1(0.38%)	6(2.31%)	6(2.3%)	0	9(3.46%)
FCPS Trainee n=87	67(26.9%)	48(19.2%)	48(19.2%)	77(30.7%)	77(30.77%)	19(7.69%)	29(11.54%
MBBS n= 87	87(34.6%)	58(23.08%	38(15.3%)	67(26.9%)	87(34.6%)	10(3.85%)	19(7.69%)
OTHER n=66	68(26.9%)	48(19.2%)	29(12.5%)	48(19.2%)	58(23.08%)	10(3.85%)	19(7.69%)
TOTAL n= 250	**288(91%)**	**156(62%)**	**116(47%)**	**198(79%)**	**227(91%)**	**38(15%)**	**76(30%)**

Table – 2: Number and percentage of providers who agreed with key questions, broken down by provider type and total sample.

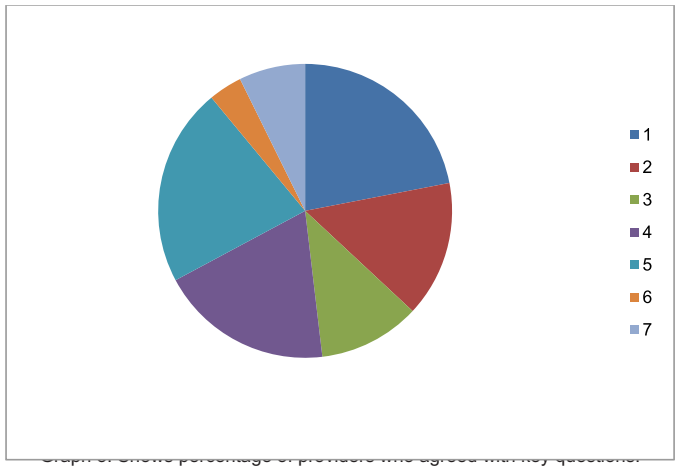
Degree	**N**	**%**
FCPS	10	3.85
FCPS TRAINEE	87	34.62
MBBS	87	34.62
Others	66	26.92
Age		
<30	19	7.69
30-39	77	30.77
39-45	58	23.08
45-50	96	38.46
Experience		
<5 Years	29	11.53
6-10 Years	115	46.15
11-15 Year	48	19.24
16-20 Years	58	23.08



Graph 1: Numbers of participant with degrees



Graph 2: Demographic of Participant



DISCUSSION

The study results suggested that majority of Gynecologists/Obstetricians had positive believes regarding exercise during pregnancy but a very few of them recommend exercise to pregnant ladies. The reasons of fear are the possible complications of exercise with lack of knowledge about exercise and less experienced expert advice. Due to the possible complications of prescribing exercise and monitoring the exercise intensity and timings are required for a positive outcome. The Changes in heart rate (an increase in resting and decrease in sub maximal) render heart rate is less preceded way to monitor exercise intensity.[14] To address this issue Canadian guidelines (PAR med-X for pregnancy) advised using a target heart rate zone representing 60-80% of age specific aerobic capacity along with Borg's rating of perceived exertion scale (6-20) to monitor

exercise intensity. Most guidelines advocate a maximal heart rate of 60-70% for women who were sedentary prior to pregnancy and the upper range of 60-90% of maximal heart rate for women wishing to maintain fitness during pregnancy.[13]

It was also estimated that the both sub-specialty groups the FCPS, trainee FCPS and other post graduates (Gynecologists /Obstetricians) out of which only (67%) of them advise the patients on exercise during pregnancy and is not a major component of prenatal care. Only 34% recommend exercise to the pregnant patients. A recent study from Hina, et.al from Pakistan reported that very few Gynecologists /Obstetricians advise exercise to pregnant patients, some occasionally and majority never advised their patients regarding exercise in tertiary care hospitals in Karachi. This study has been done in Michigan State USA by Patricia W.Bauer; et.al has shown that majority of health care providers advice exercise during pregnancy and differences in both the countries is because of awareness and knowledge of exercise to the health care providers.

Exercise by self motivation of pregnant lady is also a area from where awareness of exercise can be enhanced. Study about the effects that provide recommendations have on exercise behavior have generally shows that patient attitudes are responsive to exercise advise from health care professional. Surprisingly, the advice which was given to the pregnant patients was fully followed. A study done by Sarfraz.Et.al from Pakistan has reported that pregnant patients were aware of physiotherapy treatment and most of women agreed that physiotherapy has positive role in antenatal care, but few of them actually attended physiotherapy sections. The reason they don't attend the session is because of non-referral, lack of time, lack of interest and financial problems, it's important to work on both awareness during pregnancy as well as Gynecologists/ Obstetricians to promote exercise during pregnancy and after delivery. The current Study shows the difference of Gynecologists /Obstetricians believes in the importance of exercise counseling and individual consults that is the possible reason that they do not recommend exercise to the patients. So, as heart rate restrictions 79% believes heart rate should not exceed 140 beats per minute and only 15 % aware of ACOG guidelines and recommendations. It is clear that the importance of knowledge of current recommendations must be updated in Gynecologists/Obstetricians and information about the exercise expert must be given to them, as 94 % do not know about any Women health Physiotherapist in their area. But 90 % of people are interested to attend workshops on the importance of exercise during pregnancy.

CONCLUSIONS

Although, Gynecologists /Obstetricians believe about exercise during pregnancy were largely positive, but very few of them recommended exercises to the patients as a prescription? The reason behind this is the lack of knowledge about the current recommendations, believes about possible complications as the heart rate elevates during the exercise. Another risk being low weight birth babies, lack of knowledge about the exercise, expertise of an expert to monitor an exercise .A majority of the females out o if the whole are willing to attend the workshops for an update about the importance of exercise during pregnancy.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Evaluation of the Forward Head Posture, its association with Neck Pain & Quality of life of Female DPT Students

Abrish Habib Abbasi [1], Mamoona Aslam [2], Tehseen Ashraf [2], Arshad Nawaz Malik [2]

1. Foundation University, Rawalpindi
2. Riphah International University, Islamabad

ABSTRACT

Background: Craniovertebral angle is the landmark for assessment of head and neck postures. The angle is significantly smaller in subjects with neck pain. The decrease in the values of Craniovertebral angle is associated with the greater incidence of forward head posture, and a greater level of disability among the subjects with neck pain.

Objectives of Study: The purpose of the study was to measure and correlate Craniovertebral angle with the forward head posture in female university students and its association with level of disability.

Methodology: It was a Descriptive cross sectional study. Forward head posture was assessed in female DPT students of Riphah International University who complaint of mild to moderate neck pain, they were asked to fill in Neck Disability Index Questionnaire and SF-36 Questionnaire. Goniometer was used to measure appropriate Craniovertebral angle, after seeking consent from students their side-view pictures were taken. The study took 6 months duration for its completion.

Results: The results showed that 50% (n=32) students with complaint of neck pain had slight postural deformity having mild forward head posture (FHP) and fewer students, 3.1% (n= 2) had severe postural deformity. Neck Disability Index, showed that majority of students 48.8% (n=31) were lying in moderate level of disability .SF-36 (Energy & Fatigue) depicted that majority of students were having loss of energy and some fatigue, which is (31-70%). There was a positive association between Craniovertebral angle (photogrammetric values) and quality of life, Energy & Fatigue level of the subjects with a p value of 0.052, while no association was found between photogrammetric values and Neck Disability Index, with p value 0.487 in students.

Conclusions: There is an association between the forward head posture and the prevalence of neck pain among students; also there quality of life is affected making them prone to develop severe postural problems in future.

Key words: Craniovertebral angle (CVA), Forward Head Posture (FHP), Neck pain

INTRODUCTION

Neck pain, is a multifactorial condition, commonly prevailing among young adults and a major problem in modern society.[1] Presence of body asymmetries and postural deviations are considered as significant factors for a person's complaints of musculoskeletal pain and dysfunction.[2] Posture is the attitude which, is assumed by body parts to maintain stability and balance with minimum effort and least strain on musculoskeletal structures.[3]

Forward head posture is the deviation from ideal head posture in which the head is positioned interiorly and the anterior cervical convexity that is cervical lordosis is increased, i.e. adaptive flexion of lower cervical spine with extension of upper cervical spine. [3] Risk of neck pain may be higher if job requires neck to be held in one position for prolonged periods of time. After spending several hours in different sustain sitting posture, students usually develop forward head posture in relation to their neck which increases work load on cervical muscles leading to pain and even worse neck posture. One objective method of assessing head posture is through measuring the Craniovertebral angle (CV angle).[4] The CV angle is an angle formed from a horizontal line that passes through the C7 spinouts process and a line passing through the tragus of the ear. In this study if the angle was less than 50°, the participant was considered to have forward head posture.

The selection of 50° as a reference angle was guided by the studies of Diab and Mustafa and Yip et al, with the later reporting 55.02 ± 2.86 as a normal range.[5] A small angle indicates more forward head posture. The CV angle is a reliable indicator of changes in head and neck posture. [2]These days, laptop and computer use while sitting a great deal is becoming increasingly popular among students. [6]The effects of using a computer, keeping a posture of staring at a

monitor, for a long time makes the head moves forward, which causes an exaggerated anterior curve in the lower cervical vertebrae and exaggerated posterior curve in the upper thoracic, which results in the development of forward head posture. Forward head posture has a potential to impair proprioceptive input from neck muscles and contribute to postural control deficits in patients with neck pain.[3] Szeto et al.[7] and Moore[8] stated that maintaining the head forward for long periods of time may cause musculoskeletal disorders such as 'upper crossed syndrome'. Burgess- Limerick et al [9]suggested that such posture causes shortening of muscular fibers around Atlanta-occipital articulation and over stretching of muscles around the joints and thus possibly resulting in chronic neck pain.

Silva et al[10] reported, in a comparative study with people with and without traumatic neck pain, that patients complaining of non- traumatic neck pain tend to keep the forward head posture, when compared to people without pain. Yoo et al., 2005 tested the CV angle inter and intra rater reliability and they found that using CV angle measure was in excellent category of reliability. The reliability of photographic method of posture assessment was also tested in children by McEvoy and Grimmer, 2005[11] they found differences between repeated measures of photographed posture in primary school children. In a study conducted by Salahzadeh et al,[12] photogrammetric method was found to have a greater reliability to assess Craniovertebral angle values as compared to observational methods. Since there is limited literature available evaluating the relation of head posture and neck pain in physical therapy sciences students this study was conducted with objective to measure and correlate neck pain with forward head posture.

Neck pain is associated with various postural deformities which need our keen attention. This study may help in cost reduction which is associated with musculoskeletal impairments in health and loss of work in future. The objective of this study was to measure and correlate Craniovertebral angle with the forward head posture and its association with the level of disability and quality of life of these students.

METHODOLOGY

A descriptive cross-sectional study was conducted after receiving approval from Ethical Committee of Riphah College of Rehabilitation Sciences, Rawalpindi (RCRS). The study was completed over duration of 6 months i.e. August 2015 till January, 2015. A signed statement of informed consent was taken from the agreed participants after they were fully briefed about the purpose of the study. 64 female DPT students were selected through purposive non probability sampling according to the specific inclusion criteria. Students aged between 18-25 years with the complaint of neck pain and no other abnormal finding confirmed through our physical examination and using laptops or computers for most of their study hours were included in the study. Students with a history of any congenital postural deformity and uncooperative students were excluded from the study.

All subjects filled out a questionnaire regarding the level of pain they felt due to abnormal posture while performing ADLs. NDI (Neck Disability Index) and SF-36 questionnaire were used to check the severity of neck pain and how it affected the quality of life of these subjects. NDI has been found to be reliable and valid for patients with neck pain. It consists of ten questions that assess the physical functions from which a result is obtained out of total score of 50. The scores to the questions were summed and converted to a percentage score, as recommended. SF-36 was used to collect information about the health status of students suffering from neck pain. We chose question number 23- 31.Each question has a max value of 100 and min value of 0 and some questions had opposite max and min-values. Questions were related to two main interests: Energy/ fatigue and Emotional wellbeing are the components.

PHOTOGRAMMETRIC MEASUREMENT OF CV ANGLE

While each photograph was captured the

participants were instructed to:

1. Maintain the upright, static, natural posture and their arms by their side.
2. Look straight forward.

By following these instructions the student should place the head in the neutral position and if needed, the student was asked to flex & extend the head three times and then rest the head in a comfortable neutral position. Small adjustments were made if necessary .The lateral standing posture was captured while the camera flash was activated to ensure visibility of the markers during the digitizing process. Student's face was covered with paper to hide their lateral view due to ethical considerations.

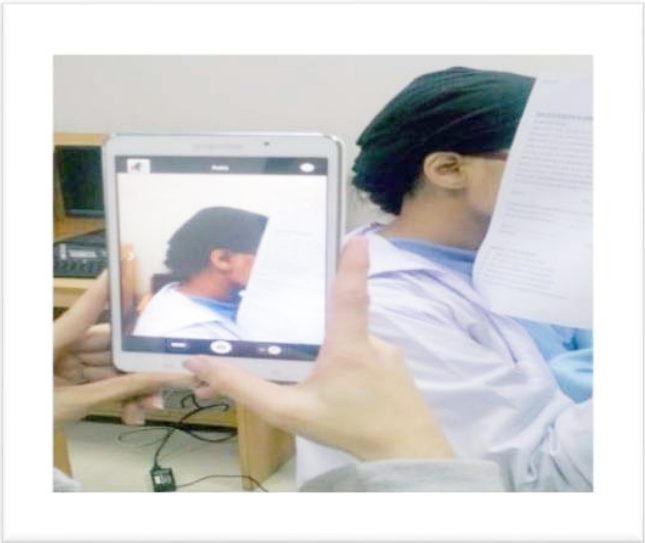

Fig 1: Photogrammetric Measurement

GONIOMETERY TO MEASURE CV ANGLE

CV-angle measurement of a student was taken using a universal Goniometer and values recorded on their respective questionnaire to prevent any false readings. The participants were requested to expose their neck and were instructed to do cervical flexion and extension to locate C7 spinouts process, it was palpated and identified and an adhesive pin marker was attached over its most prominent part. The participant was asked to maintain the neutral neck position. Another adhesive pin marker was fixed at the tragus of ear (A). The participant was instructed to stand comfortably with her weight distribution evenly on both feet. Goniometer both axis were placed on C7 and then it's one axis was moved towards tragus, and then we adjusted both axis and documented CV angle reading on participant's questionnaire. The CV angle value less than 50° was considered as mild FHP. If values fall below 30° then it was considered as severe form of FHP.

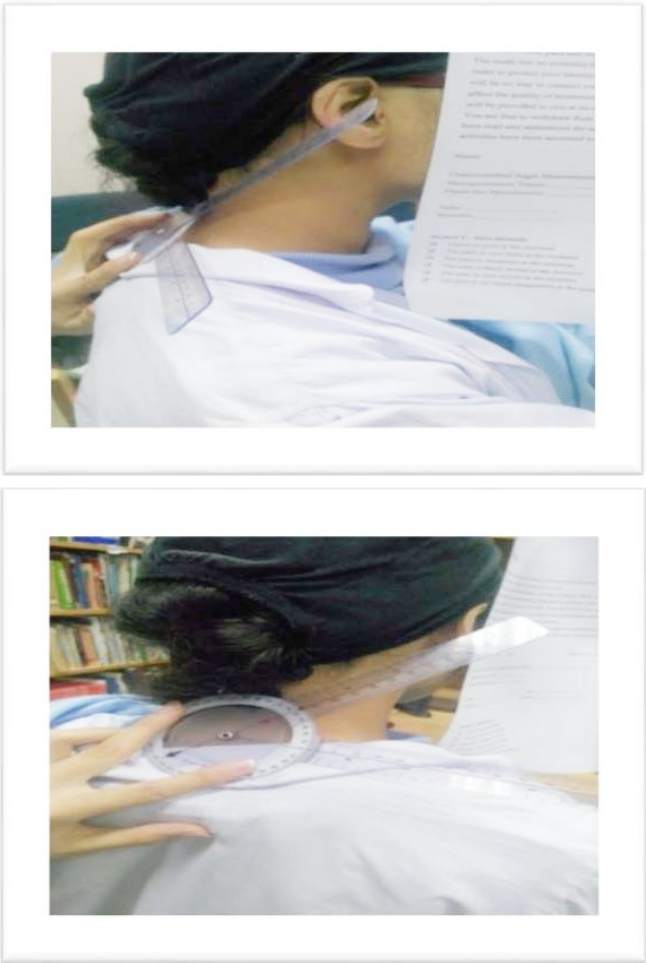

Fig 2: Photograph taken while performing Goniometry

PLUMB LINE

Have the client stand with the plumb line just in front of the lateral malleolus (lower end of the fibula that forms the prominent bulge on the outer side of the ankle). In optimal posture, this line passes through the midline of the knee, the lumbar vertebrae, the shoulder joint, the cervical vertebrae and the earlobe.[13] Participant was labeled as Forward Head Posture, if tragus of ear lies slightly or moderately anterior to the plumb line.

RESULTS

GENERAL CHARACTERISTICS OF STUDY POPULATION:

Table 1 shows the demographics of the study population with their Mean and standard deviation.

Table 1: Demographics of the study population

Variables	Mean ± SD
Age (Years)	21.02 ± 1.46
CV Angle	43.66 ± 6.89
Photogrammetric CV Angle	40.19 ± 6.47
NDI	28.92 ± 14.08
SF-36 (Energy & Fatigue)	45.78 ± 17.67
SF-36 (Emotional Wellbeing)	66.06 ± 15.29

Craniovertebral angle measurements

CV-angle measurements as assessed through Goniometry showed maximum students with neck pain had slight postural deformity having mild FHP and fewer students had severe postural deformity as shown in Table 2.

Table 2: Frequencies & Percentages for Craniovertebral Measurements (Goniometric Values)

CV Angle	Frequency (%)
Severe FHP	2 (3.1)
Moderate FHP	18 (28.1)
Mild FHP	32 (50)
Normal	12 (18.8)

Photogrammetric values of CV Angle were measured by taking photographs in sagittal plane. 2 (3.1%) students out of 64 presented with severe FHP. 26 (40.6%) students had moderate FHP, 32 (50%) with mild FHP and 4 (6.3%) students were having normal values for CVA.

The disability level assessed through NDI showed 21 (32.8%) students have minimal disability. 31 (48.8%) had moderate level of disability. 10 (15.6) had severe disability level and 2 (3.1) students had crippling disability. Students were presenting with acute neck pain that is why majority were having moderate symptoms of forward head posture hindering ADLs.

SF-36(Energy & Fatigue), results showed 18 students with 28.1% had least energy and maximum level of fatigue, while 40 (62.5%) experienced some fatigue with some loss of energy and 6 (9.4%) had maximum functioning level.

SF-36 Emotional Wellbeing showed that majority students lie in moderate functioning level, which is (31-70%). Results signifies that only 2 (3.1%) students had least functioning level, 33 (51.6%) had moderate and 29 (45.3%) lie in the category of maximum level of functioning.

Table 3: Non- Parametric Kruskal Wallis Test to find association between CVAngle, Disability Index & Quality of life

	Energy & Fatigue	Emotional Wellbeing	Neck Disability Index
P values	.052	.282	.487

No association was found between Photogrammetric values and Emotional Wellbeing of students with a p value of 0.282. However, Energy & Fatigue and Emotional Wellbeing in students, which signifies an increase in disability level is associated with least functioning capacity.

DISCUSSION

FHP is one in which the head is positioned interiorly and the normal anterior cervical convexity that is cervical lordosis is increased in comparison with optimal posture. In our study Craniovertebral angle was measured through goniometry and photogrammetric measurements. This method has been

frequently utilized in previous studies and had an excellent inter and intra rater reliability. [14]

Literature revealed there was a significant difference in the CV angle between subjects with and without neck pain. CV angle was negatively correlated with Neck pain questionnaire, NPQ. The results of our study signify there is moderate negative correlation between CV angle and neck disability. Patients with small CV angle have a greater forward head posture, and the greater the forward head posture, the greater the disability. [15]

Our study results revealed that students with decreased CVA values having a more incidence of FHP and are subjected to increased incidence of the pain. This is supported by study conducted by Lopez et al. [16] to compare standing head posture measurements between patients with non-traumatic neck pain (NP) and pain-free individuals. NP patients were found to have a significantly smaller angle resulting in a more forward head posture than pain free-participants.

Patients from a multi-disciplinary university pain clinic experience strikingly low quality of life. Pain catastrophizing showed the strongest association with quality of life, and stronger than pain intensity [10].In our study quality of life of these students was not significantly affected, yet energy and fatigue levels of students showed positive changes as associated with neck pain and decreased values of Craniovertebral angle having a p-value (0.052) analyzed using Kruskal Wallis Test. In our study, when the results of NDI were analyzed, it showed that most of the students 31 out of total 64 candidates lie in the category of moderate pain that showed they experience more pain and difficulty with sitting, lifting and standing. Pain level is not restricting their daily activities, and as the condition is in acute stages, they still have maximum functioning capacities.

A study was conducted to investigate the relationship of forward head posture and cervical backward bending to neck pain. The results of this study support the belief that a relationship of forward head posture and cervical backward bending to neck pain exists [15].

In previous studies, Ming et al,[17] explored that repetitive use of computers for a an extended period of time and the neck and shoulder pain that can be related to, and caused by computer use. However this was revealed by our study results that heavy computer users are more prone to develop such postural abnormalities in long run and has an impact on their quality of life.

CV angles were positively associated with the presence of neck pain. A study suggested that adolescents with neck pain are at high risk of having such symptoms in adulthood.[18] Life-long chronic neck pain has its origins in childhood. This fact to reduce the prevalence of neck pain in adults, knowledge regarding factors that can predict its onset and persistence in younger population is important. Subjects with slight postural deformities at present can have severe abnormalities in future due to the sustain stress and strain on these postural muscles, and it can result in severe disabilities in future, so the students who attain abnormal sitting postures during most of their study hours are prone to have its future implications.

Our study may provide useful information on which further studies on posture assessment can be based. It may provide a guide in assessing patient's condition to report the absolute angle of change in CV angle as normal CV angle, because of the lack of guidance in the literature. Since the examination of the neck alignment is a routine part of the evaluation of patients presenting with neck pain and abnormalities, knowledge of normal head posture and variability between individuals is fundamental to the interpretation of these observations. This study may provide a helpful way in the cost reduction which is associated with musculoskeletal impairments in health and loss of work in future.

CONCLUSION

There was an association between the forward head posture and the presence of neck pain among students; also there quality of life was affected making them prone to develop severe postural problems in future. There remains a need for further study to understand the effect of

posture on the incidence of musculoskeletal complications especially among student population.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Comparative Effects of Group and One to One Speech and Language Therapy on Language Development of Hearing Impaired Children

Atia-Ur-Rehman[1], Muhammad Sikander Ghayas Khan[2], Munawer Ahmed Malik[3], Naseer Ud Din[3]

1. University of Lahore, Lahore
2. Riphah International University, Lahore Campus
3 .Punjab University Lahore.

ABSTRACT

Background: Children with hearing impairment face speech and language deficits throughout their lives; hence they develop non speaking attitudes. Speech and language therapies are planned to develop oral/verbal language skills in students with hearing impairment. The therapy may be individualized or in groups depending upon time, duration, resources and extent of disability. This study aimed to find the effectiveness of group and individual therapy on language development of hearing impaired students. The population comprised hearing impaired students in Lahore district. The sample constituted twenty students from class one randomly selected and having a severe to profound degree of hearing loss. A quasi experimental study based on pre-posttest design. The findings are indicative of effectiveness of group approach as compared to the individualized therapy.

Objective of Study: The objective of the study was to find out the difference in terms of speech and language development as a consequence of group and individualized therapy plans in children with hearing impairment.

Methodology: A quasi – experimental research conducted to explore the effects of individualized (one to one) and group therapy on language development of students with hearing impairment. The study was delimited to the students having severe to profound degree of hearing losses and studying in Grade 1. A sample of 20 students was selected through random sampling technique. It was a pre-posttest designed study. A tool comprising a list of ten words was developed with the help of speech language experts to ascertain the areas of language including, vocabulary, articulation and expressive skills. The words were taken by the syllabic content of the students with the help of the teacher and were piloted before the final application. A pre-test was conducted of each group before the intervention, which comprised 12 therapy sessions. The intervention was provided in terms of group and individualized group therapy. Later a post test was conducted to find out the impacts of individual and group therapy session. Mean scores of individual and group sessions were compared to see differences, if any.

Results: Mean scores in pre and post- test group therapy session were more than individual or one to one therapy mean scores. The group therapy method for students with hearing impairment was found more effective than individualized for language development.

Conclusion: Individualized as well as group therapy language interventions proved to be effective, however grouped models found more effective for the language development, specifically in the areas of articulation, vocabulary and expressive form for children with hearing impairment.

Key Words: Hearing Impairment, individualized, Group session, Severe to Profound

INTRODUCTION

Language development is a progression in language abilities in terms of receptive and expressive skills. Language is made up of socially shared rules while speech is a verbal mean of communication - comprising articulation, voice and fluency" [(1)] as a newborn starts to speak and comprehend language it becomes a great inspiration and achievement for the family. The possibilities in which parents are communicating to their children have an impact on language development. If the parents are creating opportunities of learning language then high or low communication from parents does not matter. [(2)] Since language acquisition is a social phenomenon social factors of language acquisition include input, responsiveness, and understanding. [(3, 4)]Language learning has been addressed by linguists in terms of behavior, cognitive and social phenomenon. [(5)] In behaviorism learning a language is associated with the environment's stimuli and individual behavior. This process of forming the linguistic behavior is a result of classical conditioning. Operant conditioning forms child linguistic capacity by reshaping behaviors using rewards and punishment. Proponents of linguistic approach argued that language is a human instinct. Linguistic approach argued that human have genetic basis and the language learning prototypes depends on the environment, culture and particular languages spoken in that

environment and culture. [6]
Language development is significantly effected in children with hearing impairment. Hearing impairment restricts children capability to learn language. Early identification and intervention may result in developing appropriate speech and language skills. Even severe to profoundly impaired children can learn to communicate with intervention. [7] In earlier times, oral methods of communication were rendered unsuitable for profoundly deaf individuals however with the emerging technologies the myth has been duly addressed. Appropriate augmentation (hearing aids), teaching styles, parental involvement, and extensive speech language therapies have made it possible for hearing challenged individuals to develop a repertoire of spoken and receptive language skills [8] The total communication method was developed to integrate hard of hearing people into the hearing world.[9]

METHODOLOGY

The study was aimed to see the effectiveness of language interventions on the hearing impaired children in one to one and group language therapy sessions. The mode of language for conducting the language intervention session was Urdu. The level of intelligence was average for the hearing impaired children. Trained Speech language therapists were engaged to conduct intervention during this study. 20 hearing impaired students were selected through randomized sampling and divided into two, i.e. an individual and group setting. (10 students in each group). The sample comprising both genders was taken from class one of primary section of Hamza Foundation. The sample comprised students of age 6-7 years and having severe to profound degree of hearing loss having significant language deficits. The tool for the study comprised a list of ten words taken from syllabic content of class one with the consultation of the teacher and relate to the “Practical Tool of Communication Building” compiled by Speech Language experts.
The average difficulty level tool was developed keeping in mind the vocabulary in Urdu language and was assessed using, standardized evaluation procedures. The activities included in the tool are comprehensive to use for individual and group language therapy sessions. The activity of the tool named 'first letter maze fun' was designed to assess and develop the single sounds in the theme of vocabulary, intelligibility/articulation and expressive/total communication. There were 10 pictures in the first activity whose first letters were to be written/spoken by the hearing impaired child of individuals and groups sessions. Before the administration of the test a pilot-test was conducted to see the level of difficulty and ease of applicability. The tool was found reliable on the Cronbac's alpha's scores. Individuals and groups did not show up to the mark performance in the pre-test. Afterwards language intervention sessions were started and taken by a team of speech language therapists already working with students. The pre-posttest scores were collected by Speech and Language therapists and analyzed through SPSS. To see the comparative effects of individual versus group interventions on the language development of the hearing impaired students, independent sample t-test was used.

RESULTS

The results reveal that the performances of children with hearing impairment has increased after receiving language intervention sessions and a significant difference of language development has been found in one to one versus group performances. The result is indicative of a significant difference in the mean values of group session as compared to the individual scores, i.e. 109.25 versus 84.25, respectively.

Table 1: Mean Difference in one to one versus group interventions on language development

Activity	One to one language intervention			Group language interventions			95% CI for mean difference	t	df
	M	SD	N	M	SD	N			
	84.25	1.70	10	109.25	1.73	10	-28.22, -22.27	-20.76*	6

Following table is indicative of pre and post test scores. As is obvious the scores after intervention, i.e. post test scores are significantly different as compared to pretest means

Table 2: Language development mean scores .(Items Pre-and Post test)

			PRE TEST		POST TEST	
	word	Aspects of language	Mean scores		Mean scores	
			Individual	Group	Individual	Group
1	کوٹ	Vocabulary	1.00	1.00	2.25	3.00
		Articulation/Intelligibility	1.00	1.00	2.50	3.00
		Express/total communication	2.25	2.25	3.00	3.50
2	بس	Vocabulary	1.75	2.00	3.00	3.50
		Articulation/Intelligibility	1.75	2.00	3.00	4.00
		Express/total communication	2.75	2.75	3.00	4.00
3	دانت	Vocabulary	1.75	1.75	2.00	3.25
		Articulation/Intelligibility	1.75	2.00	2.50	3.25
		Express/total communication	2.75	3.00	3.25	4.00
4	ڈھول	Vocabulary	1.25	1.75	3.00	3.50
		Articulation/Intelligibility	1.25	1.50	2.75	3.50
		Express/total communication	2.75	2.75	3.25	4.00
5	پاؤں	Vocabulary	1.25	1.25	3.00	4.00
		Articulation/Intelligibility	1.25	1.50	3.00	4.00
		Express/total communication	3.00	2.75	3.00	3.75
6	پٹ	Vocabulary	1.50	2.00	3.00	4.00
		Articulation/Intelligibility	1.50	1.25	2.75	4.00
		Express/total communication	2.75	2.75	3.00	3.75
7	جوتا	Vocabulary	1.50	1.50	2.25	4.00
		Articulation/Intelligibility	1.50	1.50	2.75	4.00
		Express/total communication	3.00	2.75	2.75	4.00
8	گاجر	Vocabulary	1.25	1.25	2.25	3.00
		Articulation/Intelligibility	1.75	1.50	2.50	3.00
		Express/total communication	3.00	3.00	3.00	3.75
9	بل	Vocabulary	1.00	1.50	3.00	4.00
		Articulation/Intelligibility	1.00	1.75	3.25	3.75
		Express/total communication	3.00	3.00	3.00	3.75
10	یمکر انس	Vocabulary	1.25	2.00	2.50	3.25
		Articulation/Intelligibility	1.25	2.00	2.75	3.00
		Express/total communication	3.00	2.75	3.00	4.00

DISCUSSION

The issues surrounding language learning and Hearing Impairment deserve attention of professionals (speech and language therapists). Research has supported the efficacy of intervention strategies in the form of individual and group therapy session in the development of language acquisition. Logical problems of language acquisition provide an interesting area of investigation for one to one sessions and group sessions from speech and language therapists. [10] A recent research illustrated that children show more improvement in expressive language skills after speech and language therapy interventions rather than receptive language. The study evaluated significance difference in the individual and group therapy sessions for children with speech and language delays. Group language therapy sessions lower down the cost of speech and language therapy programs. [11] Research conducted by Law explored that there is no significant difference in group and individual language therapy programs for children with speech and language deficits. [12]

A study evaluated the 2 groups of children on verbal abilities before giving intervention similar to current study. The children whose were already taking the interventions prior to this specific intervention programs, showed positive results and perceptions towards speech behaviors. On the other hand the children who were new to these interventions or have not gone through such kind of specialist in intervention programs showed less performance after the completion of that intervention. The children who were receiving individual therapy sessions were found to be better in language development. The results show absence of most speech behaviors and intentions in these children [13] almost similar result to current study found to be most excellent in language development of children in group as compared to one to one speech and language therapy sessions. Bruner argued that one to one interaction with child is an essential part to develop language. On one to one interactions children are more tend to comprehend and generate intangible grammatical language [14] Bryan A. investigated that his client improves language command and learn sounds of new words and imitation effectively in a group therapy settings rather than when he was in one to one teaching programs.

CONCLUSION

There is a significant difference in the language development before and after the speech and language intervention sessions which determines the effectiveness of the treatment. It is divulged from the study that language development of children with hearing impairment can be enhanced more effectively when done in a group therapy session. Both

modes of speech and language interventions are effective but group mode is more effective to develop language in rather short period of time.

RECOMMENDATIONS

Group therapy sessions for language development of hearing impaired will lower down the cost of therapy programs and can also serve to address the shortage of school therapists. Training courses and workshops for teachers and parents must be planned in order to continue the learnt skills in routine environments. This study must be conducted at larger scale in public school for hearing impaired with a larger sample and an extensive list.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Quality of life in Elderly Population with grade 1 knee osteoarthritis

Ruqia Manzoor [1], Hafiz Asim [2], Hafiz Sheraz Arshad [3], Bushra Faisal [4], Khurram Sarfraz [5]

1 Limit Institute of Health Sciences, Sahiwal.
2 Institute of Physical Therapy LMDC, Lahore
3 Rehabilitation Sciences, Superior University, Lahore
4 University of Sargodha, Lahore Campus
5 Ali Hospitals, Lahore

ABSTRACT

Background: Knee osteoarthritis is continuously a degeneration process of the bone and its upper cartilage that gradually deteriorate the joint and its surrounding structures. Increase in pain and decrease in the functional activities often experienced by the patients that leads to the marked decrease in the quality of life of the individual.

Objective of Study: To assess the quality of life of the elderly population with grade 1 knee osteoarthritis.

Methodology: It was a cross sectional descriptive and analytical study, which was conducted in the Niazi Hospital Lahore.384 patients were taken through sequential non-probability samplingafter meeting inclusion criteria. Data was entered in terms of rand sf36.data analysis was done by using spss version20.

Results: BMI was majorly in between 35 to 40 showed mostly patients were overweight and among them females were more dominant. Pain in the knees while walking was experienced by 64% of the respondents and 94% of the participants had experienced extreme pain during stair climbing. Physical functional activity was restricted in 72% patients. Quality of life was measured by Rand SF 36 scale according to that it was seen physical functioning score is 18.48 and st.7.0 shows that physical functioning is poor.

Conclusion: It is concluded that there is very poor life quality in elderly patients suffering from grade 1 knee osteoarthritis. People suffering from grade 1 knee osteoarthritis have very low knowledge of their life quality in functional activities, physical limitation and pain. So it is concluded that there is a strong direct association between the less education and less perception regarding quality of life.This conclusion was so relevant to the fact that people with level of education if indulged in healthy physical activities, higher impacts can be gained.

Key words: knee osteoarthritis, elder population, quality of life

INTRODUCTION

Knee osteoarthritis is continuously a degeneration process of the bone and its upper cartilage that gradually deteriorate the joint and its surrounding structures. Most commonly severity of the knee osteoarthritis can be check by a scale named Kellgren Lawrence. In this scale therapist use radiographs of knee joint which help in the diagnoses of the osteoarthritis level and the level of degeneration .knee osteo arthritis is a very common disease. It is mostly common in the people elder than 65 years of age.(1)

Quality of life is a multidimensional concept. While the term quality implies the degree of excellence of a characteristic, different people may value different areas of life, and therefore quality of life means different things to different people. Concept “Quality of Life” includes physical and mental decline, impaired role and social functioning. It includes an individual´s performance of activities that are essential for the continuing functioning of the wider society. WHO defines QOL as individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.(2)

It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.(3) There is a burden of suffering experienced by people with OA and that burden can be significant. Pain and functional impairment are the key domains of that burden, and taken together they often exert a significant reduction in QOL Quality of life is a complex issue because it is influenced by such variables as age, pain, impaired physical function, over weight of individual and many more but in this thesis we are discussing these variables.(4)

International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with

actual or potential tissue damage, or described in terms of such damage".[5] Pain is a physiological event in the body that is perceived subjectively and individually. Acute pain has a biological function. It is a warning of actual or potential physiological damage. Acute pain usually stops before healing is completed. Chronic pain is often considered as any pain that has lasted more than 3-6 months. Chronic pain is not simply a sensation, but a global experience, that includes suffering and a distortion of a patient's role in all phases of life, including family, work and social relationships, and can change the patient's self-perception of himself from being an independent, effective human being, to being a dependent, ineffective person.[6]

It is mostly common in the people elder than 65 years of age the ratio of this disease is common in elderly women than in elderly males. If we check the statistics south Africa more than one hundred and fifty millions of people globally are suffering from knee osteo arthritis.[7] According to the clinical definition of knee osteoarthritis it seems that it is a degenerative disease that is characterized by the articular joint pain and the limitation in the activities of the daily living. Interesting thing is that degenerative osteoarthritis of the joints not only affects the knee joint but to the synovial of the joint.Limitation of the activities of daily living and stiffness of the concerned joint especially in the morning exists.[8]The feeling of stiffness in osteoarthritis is related with self-efficacy for physical activity, and stiffness also shows a moderate association with physiologic predictors of the risk of falls in older adults. However, Knee stiffness is an important symptom associated with knee OA and so, health care providers can improve physical activity of OA patients with training muscle strength exercises.[9] According to one pilot study it is proved that if the female patients who are also overweight, if start reducing weight and reduced up to five kilo grams per six months the high risk to get suffer from this degenerative grade one knee osteoarthritis would be no more [10]

METHODOLOGY

Data was recorded in terms of scores (RAND SF 36) which was entered into software SPSS and they were analysed properly.The Knee osteoarthritis was classified according to rating system all backs depending upon radio graphically. Classification comprised of an evaluation by radiographs when patients were in anterior posterior standing and monopod support position. Classification was defined by following method, in grade 1 there was minimal to moderate degenerations of the cartilage and the space of the joint was narrow in anterior posterior direction. In grade 2 there was complete destruction of the joint cartilage in anterior posterior direction with no joint space. In grade 3 there was less than 5 millimeter tibial plateau in the anterior posterior direction. In grade 4 there was 5 to 15 millimeter of tibial plateau in the anterior posterior direction. In grade 5 there was more than 15 millimeter of the tibial plateau with very severe subluxation of the tibia in the anterior posterior direction.

This All back classification was after wards divided into the three categories of minimal / mild, moderate and severe. Minimal /mild and moderate grade was designated as grade 1, 2 and 3, that can be treated conservatively without surgery and the severe category was designated as grade 4 and 5 in which the surgery was mandatory. The quality of life of the elderly participants were measured by using scale SF-36 (short form health survey). In SF- 36 there are thirty six items that are grouped into the 8 different sections included 1) functional capacity of person, 2) physical activity of the person, 3)pain felt ,4) general health of person , 5) vitality, 6)social aspects of person life, 7) emotional aspects of person life and 8)mental health of the person. For each person and for each of the eight section we got score when applied measurements from 0 to 100. (from best health to the worst health)[11] .The data was collected on specially designed Performa. Frequencies and percentages were used for categorical data.

Inclusion criteria were individuals who had medical diagnosis of unilateral or bilateral knee osteoarthritis aged between 40 and 70 years old,

both genders, without neurological disorders, who agreed to sign the Free and Informed Consent form. Individuals who had any central nervous system alteration, cognitive impairment, who had undergone previous knee surgeries or other diseases as-associated with the osteoarticular system[12] (rheumatic or, metabolic bone diseases, etc.), as well as degenerative diseases, which could affect the quality of life and functional independence of the subject, such as cancer, heart disease, Parkinson's disease, among others, were not included in the study.

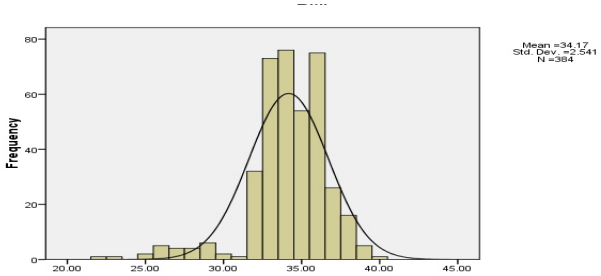
RESULTS

Age distribution seen in the graph shows that the age of patients taken in this thesis is 50 and above 50 years as was written in the inclusion criteria of study. It was seen that in 384 patients there were more females than males there was 78.4% females suffering from grade 1, knee osteoarthritis and 15% was males.

Table 1: Gender, Frequency, Percent

Gender	Frequency	Percent
Male	64	15.7
female	320	78.4
Total	384	94.1

It was seen that BMI is majorly in between 35 to 40. In females more than 25 is overweight and in males more than 30 is overweight and the mean of this study is 34.



Fiq 1 : Shows BMI Value

Quality of life was measured by Rand SF 36 scale. According to this scale maximum score is 100 lowest score is 48 and score best score is 80 and above 80. In these patients it was seen physical functioning score is 18.48 and st.7.0 shows that physical functioning is poor. Physical health mean score is 11.0 and st.24.5 which shows the physical health is below average in patients with knee osteoarthritis. Emotional health is 10.9 and st.is 24.7 which shows that emotional health is below average in patients. Energy means score is 42.6 and st is 4.8 which show that energy level is average in knee osteoarthritis. Social functioning life means score is 28.8 and st is 7.3 which show that it is below average. Pain mean score is 18 and st is 10.6 which shows that it is poor and patients faced extreme pain in OA with knee. General health score mean is 24.6 and st is 5.4 which show it is average in patients with grade 1 knee osteoarthritis.

Table 2: Descriptive Analysis Physical Functioning

	N	Mean	Std. Deviation	Std. Error Mean
Physical.Functioning.Score	384	18.4896	7.01061	.35776
Physical.Health.Limit.Score	384	11.0677	24.59660	1.25519
Emotional.Health.Limit.Score	384	10.9375	24.72103	1.26154
Energy.Score	384	42.6302	4.81200	.24556
Emotional.Wellbeing.Score	384	42.6354	3.10182	.15829
Social.Functioning.Score	384	28.8737	7.39710	.37748
Pain.Score	384	18.5612	10.69684	.54587
General.Health.Score	384	23.8021	3.75453	.19160
SF36.Score	384	24.6850	5.42277	.27673

DISCUSSION

Physical function reduces due to pain, muscular weakness and joint disability.Quality of life results measured with RAND-36 shows that there are significant differences in physical function, role limitations due to physical health problems, general health and in bodily pain in patients. Viewing these results through, knee osteoarthritis affects a person's activities (physical function), some parts of body structures and functions (general health and bodily pain) and also some parts of participation (role limitations due to physical health problems According to surveys individuals over the age of 45 showed radio graphics features of Knee OA varies between 14 to 30%. Most surveys show that the symptomatic radiological disease is between 40 and 80%. 50% of individuals with symptomatic Knee OA also have an associated disability, It was also seen in our study that females are more commonly suffered by knee osteo arthritis than males because of the difference in their anatomy of knee joint and

different kinematics. Repetitive knee injuries and hormonal dis balance is also a cause. It is also seen in our study that more females were affected and majorly among them were obese.

In reviewing different researches we have seen a study in which there was a strong link between overweight and degenerative osteoarthritis, in that study, when the interview was conducted of older adults it was found there is a strong relation between the older adult osteoarthritis and overweight because most of the people were overweight in their past. it was also checked in our study that maximum patients are obese with BMI mean score is 34.4 in patients with grade 1 knee osteoarthritis. Physical activities, weight exercises, and other different managements like medicines are always the first-line management for grade 1 knee OA. regular physical activity is effective for people with grade 1 knee and itis also required to increase strength in their muscles, decrease in pain, and improvement in the functional status of the elderly patients with minimal, mild and moderate grade 1 knee OA. Asia has a higher ratio of the elderly population, people more than 55 years of the age. As there are more elderly, the rate of having grade 1 knee osteo arthritis is more there proportionally. Our research was also conducted on the elderly due to the above mentioned reason.

Patients suffering from grade 1 knee osteo arthritis needs to do exercise twice per day especially the elderly that is suffering from grade 1 knee osteo arthritis, so that maximum improvement can be gained. Isometric exercises especially of the quadriceps helped a lot in improving strength, decrease in the pain and the most important it decrease the risk of fall.Low resistance and high endurance exercises like walking and jogging helps in reducing pain especially in the weight bearing joints. Hydro exercises are very beneficial for grade 1 knee osteoarthritis patient.General health score mean is 24.6 and st is 5.4 which shows it is average in patients with grade 1, knee osteoarthritis. In our study it is seen that there is a strong relation in pain and physical activity in patients with grade 1 knee osteoarthritis. It indicates poor quality of life in patients with grade 1 knee osteoarthritis in elder population and it can be improved by the above mentioned exercises.

CONCLUSION

Knee Osteoarthritis affects the functional ability negatively. In our patients it was seen physical functioning score was poor. Physical health mean score was below average in patients with knee osteoarthritis. Emotional health was below average in patients. Social functioning life mean score was below average. Pain mean score was poor and patients faced extreme pain in OA with knee.

It is concluded that there is very poor life quality in elderly patients suffering from grade 1 knee osteoarthritis. People suffering from grade 1 knee osteoarthritis have very low knowledge of their life quality in functional activities, physical limitation and pain. So it is concluded that there is a strong direct association between the less education and less perception regarding quality of life. This conclusion was so relevant to the fact that people with level of education if indulged in healthy physical activities, higher impacts can be gained.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Prevalence of risk factors associated with wrist pain

Farwa Abbas Naqvi [1], Waqar Awan [1], Misbah Ghous [2]

1. Isra University, Islamabad Campus
2. Riphah International University, Islamabad

ABSTRACT

Background: Wrist pain is one of common and disabling condition in working population; there are various risk factors that enhance the prevalence of wrist pain in different working class.

Objectives of Study: This study is intended to determine the risk factors for wrist pain associated with nature of work.

Methodology: The descriptive cross sectional study design was used to determine the risk factors. A sample of 196 patients was recruited through purposive sampling from 1st June -31st December 2013 from different hospitals of Rawalpindi and Islamabad. The detail demographic information was taken from diagnosed cases of wrist pain along with risk factors.

Results: The results showed that the mean age of patients' were32±6 with age bracket of 21-30years. The prevalence of wrist pain 59(29%) in house wives and office workers were 51(26%). The most common factor is multiple activities 62(31%), type writing 60(30%) and cooking and washing 41(21%).

Conclusions: The findings of the current study highlighted that housewives are more prone to wrist pain, and occupations that require repetitive work is the most common risk factor.

Key Words: Wrist pain, risk factors, female gender, occupation, workload

INTRODUCTION

Wrist pain is located in hand and around wrist and it is often dull ache in nature that affects the daily activities of life.[1] In carpal tunnel the pins and needle sensation around wrist and hand are present especially at night. [2] The repeated activities are the main risk factors for causing wrist pain in young people. The contributing factors are the age, skeletal maturation and the level of activity.[3] The appropriate and comprehensive physical assessment is required to diagnose and classify the wrist pain, because non-specific wrist pain is difficult to diagnose and treat.

Pain and swelling in the wrist after a trauma is a common presentation in clinical practice. The routine diagnostic work-up for acute wrist trauma consists of a physical examination.[4]Wrist pain is more prevalent 16% in hand and 11% wrist among white collar workers.[5] There is strong association of occupational risk factors with the musculoskeletal disorder in the workplace.[6,7]

There is also an association of computer work and manual work with wrist pain The prevalence of wrist pain in bankers is also reported in literature.[8] Pakistan has 3 % prevalence of wrist/hand pain while 6 % in Japan and 37% in Brazil. [9] In female risk factor for wrist pain is the osteoporosis which leads to the distal fracture of wrist.[10] [11] The age, physical activity and other hormonal factors in females are related with the occurrence of wrist pain. The pain in the upper limb can directly affect the daily activities. The pain in wrist is the contributing factor and results in impaired motor control and poor work performance.[12] The bad posture, repetitive or overuse of wrist muscles can cause wrist pain. Work-related overload syndromes are predominantly associated with upper limbs ailment.[13] .Musculoskeletal and connective tissue abnormalities comprise the major disability to work related issues in females who are having wrist pain[14]. Osteoarthritis and rheumatoid arthritis which are common in females is another contributing factor of pain. Due to these the joint predisposes to the development of arthritic and degenerative changes, abnormal loading at joint and ultimately limitations in movement[15] There are variety of risk factors contributing for the wrist pain but no study conducted in Pakistan. The purpose of this study was to determine the risk factors associated with wrist pain

METHODOLOGY

A descriptive cross sectional study was conducted with a sample of 196 patients from different hospitals of Rawalpindi and Islamabad. The study was done from 01 June 2013 to 31st December 2014. The consent was taken from

patients and was recruited through the non-probability purposive sampling technique. The diagnosed cases of wrist pain were recruited in the study and the details of associated risk factors were collected through semi-structured questionnaire in which major risk factors were mentioned. The demographic data was recorded and the descriptive analysis was done through SPSS 20.

RESULTS

The descriptive analysis shows the prevalence of wrist pain in different occupations. The sample has 131 females (66.83%) and 65 (33.17%) were males. The mean age of patients were 32±6 and the majority patients 84 (42%) belong to age bracket 21-30 years and 51 (26%) were in 31-40 years.

Tabel 1: Decriptive analysis of wrist pain and occupation

Occupation	Frequency (%)
House wife	59 (29)
Office/desk job	51 (26)
Student	41 (20.8)
Laborer	16 (8.1)
Field Job	9 (4.6)
Others	20 (10.2)

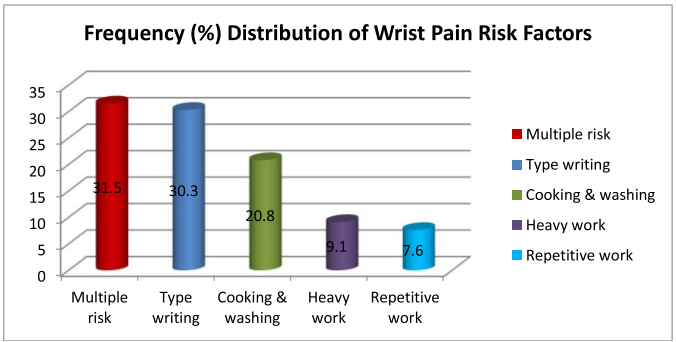

Fig 1: Frequency (%) Distribution of Wrist Pain Risk Factors

Table 2: Descriptive analysis of risk factors

Risk Factor	Frequency (%)
Multiple activities	62 (31.5)
Type writing	60 (30.3)
Cooking & washing	41 (20.8)
Heavy work	18 (9.1)
Repetitive work	15 (7.6)

DISCUSSION

The current study examined the various risk factors responsible for wrist pain. Results highlighted that more than one risk factor is highly associated with wrist pain. The type writing, cooking and washing are the leading risk factors. It is more prevalent in house wives, desk worker and students respectively. The work disability due to wrist pain is more common in hand intensive or manual workers. [16] The routine repetitive work is also related with the muscular pain.[17] The forearm and hand pain in different occupation is linked with the compensation of work and absenteeism from the work.[7] The wrist pain after the fracture in female can cause disability and decrease the activities of daily life. [18] The physical activity is related with the occurrence of wrist and ankle joint in females but prevent from osteoporosis.[19] A cohort was conducted to observe the hand and wrist pain in workers.[20] The wrist pain is common in high class professional musicians and the risk of playing repetitive music.[21] The kitchen activities are the contributing factors for the development of wrist and hand pain in females. The fatigue is one of the common symptoms presented by the females working on kitchen station.[22] The protection to the wrist and hand can prevent the prevalence of pain during repetitive manual activities.[23, 24] The proper posture care and wrist/hand exercises are recommended in house wives and desk office workers to prevent from pain disability. Several limitations need to be considered. First, sample size was less, due to small time frame. It was descriptive study; future studies should be conducted documenting interventional strategies and public awareness about risk factors of wrist pain.

CONCLUSION

The findings of this research are noteworthy because preliminary outcome data suggest that repetitive activities are the major risk factors and wrist pain is common in the house wives and desk worker. The manual work is at high risk for the developing of hand and wrist pain.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Frequency of reduced hamstring flexibility in prolong sitting (6-8 hours) among office workers

Muhammad Sharif Waqas [1], Mazher Ali [1], Saba Hussain [2], Sajid Mahmood [3]

1. Services Hospital Lahore.
2. University of Health Sciences Lahore.
3. Allama Iqbal Medical College/ Jinnah Hospital Lahore

ABSTRACT

Background: Hamstrings are the muscles of posterior thigh which include Semi membranous, Semi trendiness and the Biceps Femoris. These muscles are extensors of the hip and flexors of the knee and they act opposite to the extensors of the knee.

Objective of Study: To find the frequency of reduced hamstring flexibility in prolong sitting (6-8 hours) among office workers.

Methodology: This study was carried out in the banks and offices of Lahore from November 2015 to May 2016. According to inclusion criteria total 272 subjects were included in the study. Hamstring tightness was assessed by 90-90 or active knee extension test with the help of Standardized Goniometer. Data was recorded on self-made questionnaire from the subjects after 6-8 hours of their working in the afternoon and analyzed by using SPSS version 20.

Results: On the basis of analysis of data hamstring flexibility was reduced in 233 subjects n= 233; 85.7% and 39 subjects shown normal range of motion
n=39, 14.3% .It was also seen that individuals having 8 hours of sitting with less extra-curricular activities were more sufferers.

Conclusion: It was concluded that prolonged sitting is an important factor causing reduced hamstring flexibility and it can be prevented by using ergonomically design chairs. By adopting correct postural alignment and by adding frequent rest breaks during prolong sitting.

Key Words: Reduced hamstring flexibility, Prolong sitting.

INTRODUCTION

Hamstrings are the muscles of posterior thigh which include Semimembranosus, Semitendinosus and the Biceps Femoris. These muscles are extensors of the hip and flexors of the knee and they act opposite to the extensors of the knee. [1] Hamstrings arise from the ischial tuberosity .and inserts on the tibia and fibula bones on their condoyle and heads. [2]Hamstring tightness occurs due to decreased muscle flexibility and ability to deform which results in reduced range of motion (ROM) around a joint. Inelasticity is actually a deformation of the muscle fibres which in turn leads to decrease range of motion of the joint. [3] The action of the hamstring muscle is to control the extension at knee and perform the flexion at knee. In the same manner, it performs the extension at hip and it controls the flexion at hip it also induces rotations and tilting of the pelvis anteriorly and the posteriorly. The high rate of people suffering from tight, inflexible hamstrings is related to occupations that require sitting for long hours. Sitting in a typical office chair makes the hamstring inactive and places them in a shortened position. Repetitive prolonged sitting eventually leads to shortening of hamstring muscles. [4] In six to eight hours of sitting, degeneration and atrophy of the muscles start which leads to the shortening, tightness and reduced flexibility of hamstring muscles. The most common type of injury and deformation faced by the office workers is hamstring tightness which may lead to low back pain. Due to the frequent hamstring tightness, workers cannot perform their duties well. When the performance is overall affected it leads to the down morale and lower self confidence in the office workers. The most important thing about reduced hamstring flexibility is that it heals very slowly. If there is awareness regarding the hamstring flexibility, it can be avoided. If we avoid this tightness and injuries it will help in reducing the cost of the treatment and help in the better performance of the office workers. By this health can be promoted in the country and self-confidence and morale will be raised. [5]There is limited literature found on this topic although it is an important topic. Few researches were found globally but none of them from Pakistan. Major problem faced during reviewing of the literature was the socioeconomic status, culture, weather and genetics of those countries because these were different from Pakistan. Literacy ratio is

very much improved in Pakistan therefore jobs of eight to ten hours are increasing. Now a days more than seventy per-cent of the office workers work six to eight hours in the sitting position. Staffs which are mostly bound to sit on the chair because of their nature of work are telephone operators, receptionists, bankers and data entry operators. All these persons spend their maximum time in the sitting position. [6]

Information Technology and computer technology advancement has increased the sitting time of people People can do all their work like reading , writing and attending meetings without leaving desks. In the sitting positions biomechanics of the person also changes. When the person sits from 6 to 8 hours, he/she faces mechanical stresses which can be short term or long term .The right manner of sitting position is to sit with erect back and with hip and knee in 90 degree of flexion with proper arm rests. In sitting the major change in the mechanics occur at the hip joint, the change comprises of sixty five per-cents of the total mechanics of the lower limb or the body. Spinal curvature changes due to these mechanical stresses. Pressure distribution is such that the vertebras approximate more in the frontal aspect than in the posterior aspect. Disc in between the vertebras impinge which in turn impinge the nerve and it leads to the sciatic pain .In seventy five per cent of the cases it happened because of the hamstring tightness/ reduced flexibility. The most adverse events that leads to the pain in the back and hamstring tightness are the ergonomic factors. Due to the ergonomic factors, workers face extreme pain in improper sitting posture. [7] The rationale of the study is creating awareness among office workers regarding correct postural alignment, frequent rest breaks and use of ergonomically designed chairs during prolong sitting in duty hours.

METHODOLOGY

This observational study was carried out in the banks and offices of Lahore from November 2015 to May 2016. We calculated the sample size of 272 subjects by using Rao Soft .All the subjects were office workers, having 6 to 8 hours of sitting, between the age group of 20 to 50 years with no musculoskeletal deformity. Individuals with any recent history of trauma, history of previous surgery, any spinal deformity and any limb length discrepancies were excluded from the study. Basic Demographic data (name, age, gender) and contact details of participants were taken. We measured hamstring tightness/flexibility by using 90-90 or active knee extension test. After taking consent from subjects, data was recorded on the standard questionnaire. This was entered into SPSS version 20.0 and analysed properly. The data was collected by researchers themselves.

RESULTS

Table1: Gender

	Frequency	Per cent	Cumulative Per cent
Male	226	83.1	83.1
Female	46	16.9	100.0
Total	272	100.0	

According to the research, It was seen that out of total 272 participants n=226;83.1% were males and n=46;16.9% were females.

Table 2: Number of hours spent in sitting on a chair

	Frequency	Per cent	Cumulative Per cent
6 hours	4	1.5	1.5
7 hours	14	5.1	6.6
8 hours	254	93.4	100.0
Total	272	100.0	

According to my research, It was seen that n=4, 1.5% individuals spent 6 hours n=14, 5.1% individuals spent 7 hours and n=254,93.4% individuals spent 8 hours in office in sitting on chair.

Table 3: Number of hours spends on extra-curricular and sporting activities per week

	Frequency	Valid Per cent	Cumulative Per cent
Nil	257	94.5	94.5
2 to 4 hours	15	5.5	100.0
Total	272	100.0	

According to the research, It was seen that the individuals who spent nil or no time in sports and extracurricular activities were n=257, 94.5% and individuals who spent 2 to 4 hours in extracurricular activities were n=15, 5.5 % only. This inactivity leads to the reduced hamstring flexibility.

Table 4: Reduced flexibility according to 90-90 or active knee extension test

	Frequency	Per cent	Cumulative Per cent
Reduced flexibility present	233	85.7	. 85.7
Normal flexibility	39	14.3	100.0
Total	272	100.0	

According to the research, it was seen that by 90-90 or active knee extension test hamstring flexibility was reduced in n= 233, 85.7% and in n= 39, 14.3% there was normal hamstring flexibility.

DISCUSSION

The posture, working style and duration of work has impact on function and structure of muscle. Felipe Jose and Andriana Ribiero has reported the influence of prolong sitting on hamstring extensibility and low back pain had reported in their study that prolong sitting without breaks leads towards decreased flexibility of hamstring muscles which ultimately becomes risk factor for developing low back pain and decreased work efficiency. In this study we have quantitatively observed the same results that sitting for prolong period of time, as in the case of office workers specially bankers leads towards tightness/reduced flexibility of hamstring muscles. In study it was observed that average time period of 6-8 hours of daily sitting had affected the hamstring muscle in regard of flexibility. The similar study reported that decreased hamstring flexibility had affected their work efficiency, ADL quality badly and even some patient reported the low back pain due to reduced hamstring flexibility.[8]

This study proved the association between reduced hamstring flexibility and prolong sitting in office workers and there was no significant association between hamstring tightness and height and weight of individuals. It was also seen that the individuals who spent nil or no time in sports and extracurricular activities suffered from reduced hamstring flexibility and individuals who spent 2 to 4 hours per week in extracurricular activities were relatively better in regard of hamstring flexibility. [9]It is mentioned in their researches that 90% or more individuals face hamstring tightness only because of prolong sitting in their work places and lack of sports and extra-curricular activities. They also described that sitting type also matters a lot, if the sitting is comfortable then there would be less chances of developing hamstring tightness .[10]On the basis of result of this study it is proven that posture, working style and working duration with and without breaks had impact on the movement system which ultimately leads towards musculoskeletal and other systemic problems.

CONCLUSION

It is concluded from the study that the subjects with six to eight hours of daily sitting with very less physical activities experience reduced hamstring flexibility. It was seen that males are more prone towards developing hamstring tightness/reduced flexibility than females of same routine. Results show no significant relationship between decreased flexibility of hamstrings and height and weight of patient. It is also concluded that prolong sitting is an important cause of reduced hamstring flexibility which can be avoided with comfortable sitting, by

adapting correct postural alignments ,by adding some physical activities and frequent rest breaks in their routine.

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Journal of Riphah College of Rehabilitation Sciences

ORIGINAL ARTICLE

Sources of stress among Doctor of Physical Therapy Students

Rabia Noor [1], Muhammad Salman Bashir [1], Sadaf Nayab [2]

1. The University of Lahore, Lahore
2. Riphah International University, Lahore Campus

ABSTRACT

Background: stress is major cause of mental and emotional disturbance among medical students which affects their life and their professional career. It also affects the quality of studies.

Objective of Study: To find out the sources of stress and psychological morbidities among DPT (Doctor of physical therapy) students.

Methodology: It was a cross sectional survey. Total number of students were 303, 92 were male and 211 were female. Data was collected from The University of Lahore, Riphah International University Lahore, Fatima memorial hospital, School of Allied health sciences, Allama Iqbal Medical College, King Edward Medical College, BahyddinZakria University, University of South Asia, University of Sargodha Lahore campus and Superior University through self-designed questionnaire.Data was collected from September 2014 to December 2014.

Results: Females are more prone to take stress in all condition. Credit hours and job stress is mostly common in students.

Conclusion: Psychological morbidity was present in higher proportion in DPT undergraduate students , multiple factors i.e. long credit hours, job insecurities, increase work load (test, assignments, exams), family expectations were highly present in the students which should be address as soon as possible to give community good professionals.

Key words: Students, Stress, Morbidity

INTRODUCTION

The adverse effects of increased burden of medical studies on health learners have caused turmoil for many years. Medical studies need fulltime attention along with isolation from personal life due to unavoidable pressure of performing well in academic, social and financial [(1)] The unrecognized emotional disturbance is not only effecting students personal life but also putting their families at higher risk. [(2)]

According to a research mastering abilities, personal endurance, scarcity of time for social life, feeling of anonymity, peer competition, continues long study hours are different determinants of the stress. [(3)] researcher found that lack of actual stress coping strategies during medical training forced students to use alternative, harmful ways i.e. tobacco and drugs abuse.[(4)]Medical education basically fails to prepare the students for dealing with current pressure and that stress they will encounter in their professional life.[(5)]

In a cross sectional study researchers compares stress level of male medical students of two different countries Egypt and Saudi Arab. They found almost equal prevalence of stress in both groups (94.7% Egyptians , 92.3% Saudis) whereas anxiety and depression was significantly more in Egyptian students ($p<0.01$) due to multiple factors like small classrooms (71.4%) ,poor peer guidance (32.6%) , insecure future (26.6%) and limited time for leisure activities (25%) [(6)] In a systematic review it was found the prevalence of stress in US and Canadian Medical students. In that after reviewing 40 articles they found higher prevalence of stress in medical students despite of the country, whereas gender had significant association with stress (females had higher level of stress than male students). However due to limited data available on sources of stress authors were unable to find any significant association with different factors or determinants causing stress.[(7)]

Basinet B et al and his co researches did a cross sectional survey in B.P.Koirala Institute of Health Sciences, Nepal found 29.78% , overall prevalence of depression (36.74% and 22.22 % in first and third year respectively)[(8)] Kjeldstadli K et al in a six year longitudinal study on medical students found that life satisfaction is significantly ($p=0.01$) curtail during their medical studies. This study concluded that medical students should give time to their personal life to improve the satisfaction level .[(9)] The basic objective of this study is tofind out the sources of stress and psychological morbidities among DPT (Doctor of physical therapy) students

METHODOLOGY

The study design was cross sectional survey. Data was collected from The University of Lahore, Riphah International University Lahore, and Fatima memorial hospital, School of Allied health sciences, Allama Iqbal Medical College, King Edward Medical College, BahyddinZakria University, University of South Asia, University of Sargodha Lahore campus and Superior University. Data was collected from September 2014 to December 2014.The sample size will be 303 students will be included. The sample size had been calculated by using 5% level of significance.

Non probability purposive sampling technique was used.Male and female students with age ranging between 18-25 years with no psychological problems were included in this study. Individuals with any neurological and diagnosed psychological disease were not included in this study. In this study a self-designed questionnaire having 16 items was distributed between major DPT colleges in Lahore. Respondent rate was 75.5% without giving any priority to gender, study year, socio economic status etc. consent was taken. Questionnaire was validated after conducting a pilot study.Data was analyzed using SPSS 18 software. Mean and standard deviation was taken for quantitative data. For qualitative data frequency percentage was used.

RESULTS

There were more female students 69.64% than males 30.36% in this cross sectional survey,
Mean age was 21.70 ±1.82

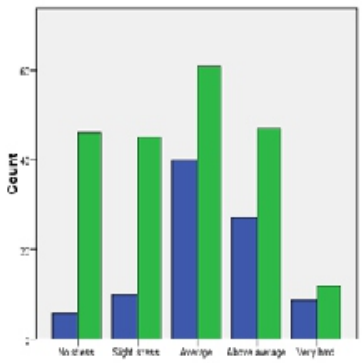

Fig 1: Stress of Future Job

Average level of stress was seen in most of the DPT students regarding their future job n=101; 33.33% (male 13.20% n=40 and female 20.13% n=61) after that Above average level was seen in DPT students n= 74 ; 24.42% (male 8.91% and female 15.51 %), although no stress level and slight stress level had almost equal percentages (17.16% and 17.82% respectively).However, only 6.9% (male 2.9% n= 9 and females 3.9 % n= 12)students had sever level of job stress .

Table 1: Stress and credit hours relation

Personal Level of Stress		Credit Hours in Semester			
		Under 18	16-18	More than 18	Total
	No Stress	5	11	5	21
	Slight Stress	9	35	49	93
	Average	16	43	81	140
	Above Average	2	11	28	41
	Very Hard	1	3	4	8
Total		33	103	167	303

Increasing trend was seen in all Personal levels of stress (slight, average, above average and hard) and credit hours. Adding all three levels of stress more percentage53.64% (n=162 ; slight n =49, Average n=81, above average n=28 and very hard n=4) was seen in students having credit hours >18 after that students who have 16-18 credit hours came (n=92 ; 30.36%) and lowest percentage 9.2% was seen in students having credit hours less than 18

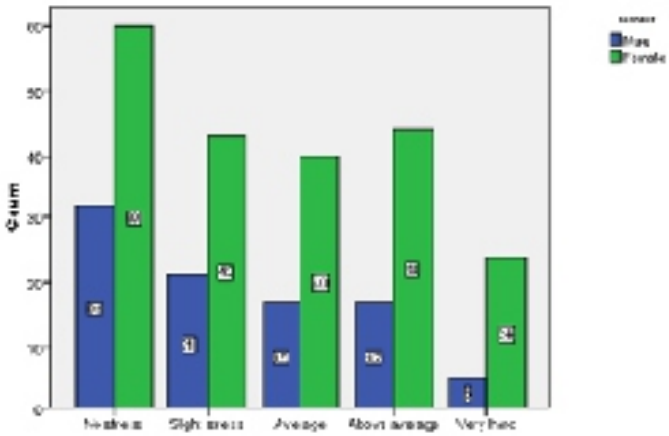

Fig 2: Living away from home

Living away from home was seen as a factor of stress seen in DPT students as the percentage was 48.51 % as a whole n=147 (slight n=64, Average n= 57, above average n=61 and very hard n=29). More over Living away from home

was not important determinant as highest percentage was present in slight level 21.12% (male 6.93% and female 14.18%).

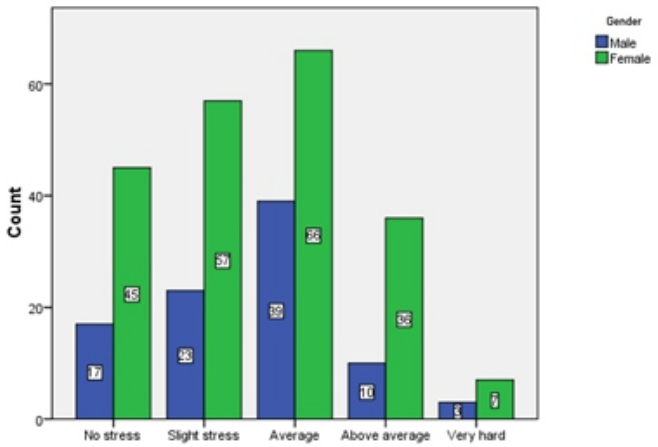

Fig 3: Worried about financial Issues

Stress level was seen more in average level n=105; 34.65% (male n=39; 12.87% and female n=66; 21.78%) in terms of financial issues. Slight level of stress came next to it n=80; 26.40% (male n=23; 7.59% and female n=57; 18.81%), lowest percentage was seen in severe stress (n=10; 3.3%).

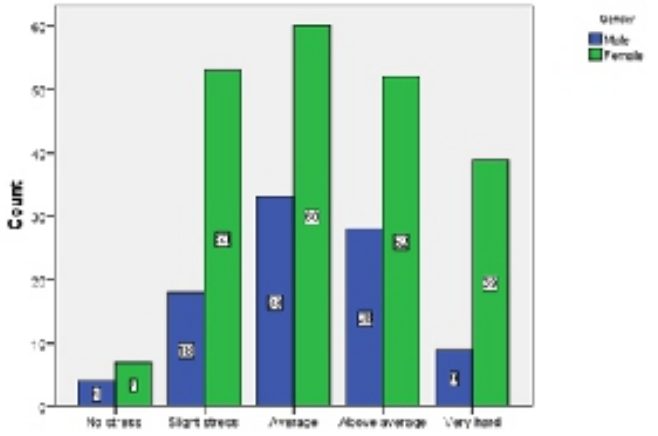

Fig4: Worried about Grades

Grades were seen bit more contributing towards stress i.e. Average level n=93; 30.69% (female n=60; 19.80% and male n=33; 10.89%) after that above average (n=80; 26.40%) and sever stress came (n=48; 15.84%).

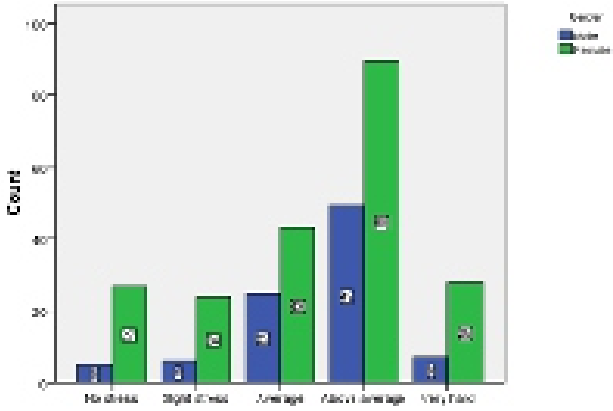

Fig 5: Stress occur due to family expectation

Above average level was seen more n=138; 45.5% (male n=49 and female n=89) in DPT students due to family expectations. Secondarily to it was average level of stress with n=68 (male n=25 and female n=43). Here sever level of stress had also noticeable number n=35 (male n=7 and female n=28).

Table 2: Do you work well under stress Gender Cross tabulation

Do you work well under stress	Gender			
		Male	Female	Total
	Yes	60	94	154
	No	32	117	149
Total		92	211	303

Among DPT 50.82% (male n=60 and female n=94) said they work well in stress and 49.17% (male n=32 and female n=117) said they don't work well in stress. However, efficacy of working was badly affected in females 55.45% then male

DISCUSSIONS

In this study moderate level (Average level) of stress was seen in most of the DPT students regarding their future job n=101; 33.33% (male 13.20% n=40 and female 20.13% n=61) after that Above average level was seen in DPT students n= 74 ; 24.42% (male 8.91% and female 15.51 %), although no stress level and slight stress level had almost equal percentages (17.16% and 17.82% respectively).However, only 6.9% (male 2.9% n= 9 and females 3.9 % n= 12)students had sever level of job stress . Park KH, Kim D-h in 2015 proved that

prevalence of stress is really higher in medical studies due to number of academic, social and personal factors. [10]Stress of performing well whatever the situation is making doctors psychological patients than professionals.[11]Physiotherapy education is making changes in Pakistan to meet international criteria, resulting in huge changes, increased workload etc leading to stress. A Simple cross sectional study in 9 major DPT colleges were done in order to see the stress level during undergraduate studies, as there were little evidences of stress association in Physiotherapy students in Pakistan.

In a sample of 303 DPT undergraduate students, most of the physiotherapy trainers were female (69.64%) whereas males were only 30.36%. Davis J in an article of "Physiotherapy. Where is the men?" [12]Proves that in this field more men therapist are required, consistent with the results of this study. In the current survey of the DPT students mean age was 21.7 years with SD 1.827, however as there was not research done so there was no study present to support my results. Although various other researches were done i.e. Risk of LBP in Physiotherapy students in which mean age of the students were close to my results. [13] Mottarm E et in their cross sectional survey on young physiotherapist found that moderate stress level was seen in physiotherapist, consistent with my results as in my study average level was seen. [14]

Living away from home was also seen as a factor of stress seen in DPT students as the percentage was 48.51 % as a whole n=147 (slight n=64, Average n= 57, above average n=61 and very hard n=29). More over Living away from home was not important determinant as highest percentage was present in slight level 21.12% (male 6.93% and female 14.18%). Strong evidence of above factor was not as such highlighted in previous researches, so researches supporting my results were not present due to multiple demographical factors. Whereas , in Ireland a study was done focusing on the factors of stress in First year students in University , in which Gibney A et al found that living away from home was one of the factor of stress in many students .[15]

Above Average level of stress was related to multiple factors like family expectations (45.5%), test/exams /assignments (32%) and average in determinants like financial issues (34.65%), studies workload (41.58%), worried about grades (30.69%). Although researches related to Physiotherapy was limited but many studies done on MBBS students support .Drybye LN et al done a systematic review to find the prevalence of stress in US and Canadian Medical students. In that after reviewing 40 articles they found higher prevalence of stress in medical students despite of the country, whereas gender had significant association with stress (females had higher level of stress than male students). However due to limited data available on sources of stress authors were unable to find any significant association with different factors or determinants causing stress. [16] Still more research need to be done to see the significance of above given factors so that evidence based work could be done on DPT students to improve their quality of life. All above studies focus only MBBS students of a single Medical college, still lot need to be done regarding this topic focusing different specialties i.e. BDS, Allied (DPT, MLT, MIT etc) as strategies couldn't be possible without knowing actual factors of stress, every field had its own factors of stress and different medical colleges had different ways of training so one couldn't relay on results of studies done on single college with single field. Larger number of DPT colleges in market, no guarantee of future due to no council in Pakistan along with increase burden of studies makes me compel to do a study on DPT students to identify their prevalence of stress and its factors of stress.

CONCLUSION

Psychological morbidity was present in higher proportion in DPT undergraduate students , multiple factors i.e. long credit hours, job insecurities, increase work load (test, assignments, exams), family expectations were highly present in the students which should be address as soon as possible to give community

good professionals. All above factors need to be address by Physiotherapy teaching institutes either by introducing recreational activities, free counseling of students or check and balance between studies and personal life.

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CASE REPORT

Effect of Combined positional stretch and ischemic compression on Cervicogenic Headache

Sidra Manzoor [1], Farjad Afzal [2]

1. University of Sargodha, Lyallpur Campus, Faisalabad.
2. University of Sargodha, Sargodha

SUMMARY

Trigger points in cervical region muscles is mostly associated with tension type headache (T.T.H).Trigger points can be managed immediately by Ischemic compression and positional release therapy (PRT). A 62 year female who was suffering tension type headache from last 14 months was treated by combined positional release therapy and ischemic compression in 6 sessions. She had constant dull pain aggravated by the activities that include neck side bending and neck side rotation either on left or right side. At the completion of last session patient has reported her headache stopped completely. During the duration following 10 months of treatment she had no pain and did not use any medication for headache. Ischemic compression and PRT are effective in treating cervicogenic headache that have underlying cause of trigger points.

Key Words: Cervicogenic headache, Trigger points, Positional stretch release therapy

INTRODUCTION

Cervicogenic headache is defines as pain either in cranial region, neck, upper trapezius or Sternocleidomastoid (SCM) region which radiates according to their specific pattern. Brain has no pain receptor but the coverings of brain has pain receptor .[1]Most common headache is tension type headache .[2]Tension type headache is most prevalent and result in greater percentage of impairment as compare to others type of headache. It is muscular in origin. Diagnosis of tension type headache is depend on negative neurological finding and history from patient.[3]Tension type headache is most commonly seen in those patients who have trigger points in upper Trapezius and sternocleidomastoid muscle.[4]Tension type headache is most commonly seen with trigger point that is a hyperirritable spot in belly of skeletal muscle presenting with typical features of nodule formation and pain pattern. Diagnostic criteria for trigger point is given by Travel and Simon consist on major and minor criteria.[5]There are different treatment options for trigger point including ischemic compression, dry needling, strain counter strain, muscle energy technique, passive stretch and positional release therapy[6]PRT (positional release therapy) is a technique which result in reduction of pain by placing muscle in comfortable position, increase in blood flow to muscle, decrease joint hypo mobility and make the tone of muscle normal.[7]Ischemic compression is a technique which result in increase of blood flow to tissues ,removal of waste products and decrease in pain by applying continuous compression on trigger point for 30-90 sec.[8]

CASE PRESENTATION

A 62 year old female lady presented with headache of constant nature in occipital and temporal region often become severe in night from last 1.5 year approximately. Pain was reported bilateral in nature. MRI, blood test (CBC, CRP) and NCS (nerve conduction study) revealed normal findings. Patient was diagnosed with TTH and was advised antidepressants and NSAID's for one month by primary physician but no improvement over time was observed. Then patient was then referred to psychologist and received counseling session for one month but no improvement was seen. Patient was then referred to physiotherapist for assessment.

Patient reported that she experienced constant dull pain started from shoulder region and radiating to neck & head (occipital & temporal). She stated that pain aggravated by all those activities which include side bending and side rotation of neck either on left or right sidelong examination physiotherapist found bilateral active trigger points in upper Trapezius and

sternocleidomastoid slight hypnosis in cervical region and forward head posture. Diagnosis of trigger point was confirmed by following criteria given by Travel & Simon.

TREATMENT

For the treatment of trigger points patient received Ischemic compression as described by Travel [5] and Positional release for respective muscles as described by D'Ambrogio et al.[9] The therapist placed each muscle in position as follows while this positioning was supine lying. Head of patient's was flexed laterally toward the trigger point with shoulder abduction at 90 degree. Mid cervical area of patient's was markedly forward and lateral flexed toward the involved side.

In each position therapist assess trigger point with pincer grip and applied ischemic compression with thumb for 30-90 second and maintained this position for 5-15 minute until release was felt. treatment of one trigger point was done in one session because treatment of more than one trigger point in one session cause tenderness. Outcome measuring tool was Numeric pain rating scale (NPRS). Patient reported pain reduced from 10 to 8 at the end of first session, and second recording of pain was 6 at the end second session. At the completion of 6 sessions, patient reported her headache completely stopped. Throughout next 10 months she did not use any medication for headache.

DISCUSSION

Key role of chronic pain syndrome is trigger points. [6] Trigger points result in local ischemia that lead to pain.[5] There is efflux of different substances such as histamine, bradykinin and serotonin that are of inflammatory nature. These substances leads to sensitization of nociceptive receptors of membrane which result in cervicogenic headache due to central sensitization.[10]

Positional stretch is applied when muscle is placed in its outer range, increase in blood flow and removal of waste products that result in decrease pain. Application of ischemic compression for brief period lead to removal of waste product and increase in blood flow which result in relaxation of muscle and decrease in pain.[9]

CONCLUSION

Combination of positional stretch and Ischemic compression is effective treatment for patients with trigger points in cervical muscles causing cervicogenic headache. These techniques may be used as an alternative or an adjunct to other therapies. The effectiveness of these therapies should be confirmed by further randomized clinical trial research.

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Focal person for Abstract submission

- **Dr. Shakeel Ahmed**
  Cell: 0333-2275128
  E-mail: shakeel.ahmad@riphah.edu.pk

Focal person for Registration/Accommodation

- **Dr. Ibadullah**
  Cell: 0314-9380916
  E-mail: dr.ibadullah@riphah.edu.pk
- **Dr. Iqbal Tariq**
  Cell: 0345-8236752
  E-mail: iqbal.tariq@riphah.edu.pk

Key-Note Speakers

Kornelia Kulig, PhD-PT (USA)
Professor, Co-Director, Musculoskeletal Biomechanics Research Laboratory Division of Biokinesiology and Physical Therapy, Herman Ostrow School of Dentistry, Department of Orthopaedic Surgery, Keck School of Medicine, University of Southern California

Shane Patman PhD-PT (Australia)
Associate Professor, School of Physiotherapy, Cardiorespiratory Physiotherapy Stream Leader, The University of Notre Dame Australia, President WCPT Cardiopulmonary Group

Dense Taylor, PhD-PT (New Zealand)
Professor, Auckland University of Technology, Auckland, New Zealand

Patricia MacLoughlin, MS-PT (Ireland)
Consultant Physical Therapist
Physiotherapy Dept., St. Patrick's Hospital, Carrick-on-Shannon, Co. Leitrim

Ulrika Löfkvist, PhD-SLP (Sweden)
Associate Professor/ Head Research Department of Special Needs Education, Oslo University, Sweden

Jennifer Lyn Keating, PhD-PT (Australia)
Professor of Emeritus
Faculty of medicine Monash University Victoria, Australia

Hossein Karimi, PhD-PT (Canada)
Professor, Zanjan University of Medical Sciences, Iran, Professor, Adjunct Faculty University of Lahore, Lahore, Pakistan

Haider Darain, PhD-PT (UK)
Assistant Professor/ Director
Institute of Physical Medicine and Rehabilitation, Khyber Medical University, Peshawar, Pakistan

Tahir Masood, PhD-PT (Finland)
Associate Professor
Isra Institute of Rehabilitation Sciences, Isra University, Islamabad Campus, Pakistan

Muhammad Shafique
PhD-Bio-medical Engineering
Associate Professor/ HOD
Bio-Medical Engineering, Riphah International University, Islamabad, Pakistan

Ayesha Kamal Butt
PhD-Ed. Management
Associate Professor/ HOD
Speech Language Pathology, Riphah International University, Islamabad, Pakistan

Raheela Yasmin
PhD-Medical Education*, Associate Professor/ Director, Riphah Academy of Research and Education, Riphah international University, Islamabad,

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Renowned Islamic Scholar
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