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EDITORIAL TEAM

EDITORIAL

STRUGGLING FIELD OF SPEECH-LANGUAGE PATHOLOGY IN PAKISTAN

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The need of speech and language pathology (SLP) as a specialized field in Pakistan emerged with the education of deaf. Development in education of deaf began in Pakistan by Mr. Siddique Akbar Makhdum in 1949. Later in 1951 College for the Teachers of the Deaf in Lahore was established with the collaboration of USAID and faculty from US to teach speech-language pathology. The basic courses introduced were speech, language and audiology. In the tenure of 6th president of Pakistan General Zia-ul-Haq, many organizations were formed to serve special needs children. In his time special education centers were developed in Islamabad, Lahore and Karachi. One of its kind was Speech and Hearing Centre, Karachi, which was established in 1983 and aimed to advocate Auditory Verbal Therapy (AVT).[1] In 1991, Post graduate diploma in speech-language therapy (PGD-SLT) was launched with collaboration of NIRM (formerly called National Institute of Handicapped NIHd), UNDP and National Institute of Psychology (NIP), Quaid-e-Azam University, Islamabad. Ministry of Women Development, Social Welfare and Special education took this initiative. Diane Schaffer from USA and Linda from England were two expert speech therapists who came to Pakistan to teach and train PGD-SLT students in NIRM.

Speech and Hearing Association of Pakistan (SHAP) was formed in January 2000.[2] On 13th June 2002 SHAP got registered under Sindh Government with registrar of societies Act 21 of 1860. Currently Ms. Amina Siddiqui is President and Dr. Nadeem Mukhtar is Vice President of SHAP. In 2006-2007 Special Education Department of Karachi University launched masters in speech Therapy program. In 2007 Zia-u-Din Hospital started clinical services and collaborated with SHAP to develop the College of Speech Language & Hearing Sciences (CSLHS) where nation's first 4-year Bachelor's program in Speech Language Therapy was launched in 2007.[2] In 2010 Riphah University Islamabad started MS program in speech-language pathology under supervision of Dr. Ayesha Kamal Butt. In 2013 Isra University Islamabad campus started M.Phil SLP degree program and PhD in Rehabilitation Sciences which opened way to doctoral degree for SLPs as well. In 2019 Riphah International University also launched PhD in Rehabilitation Sciences program. King Edward Medical University also launched BS program in 2008. Currently there are 16 institutes offering BS, 5 institutes offering MS/MPhil and 6 institutes offering diploma in SLP. On 9th October 2019 Pakistan Speech and language pathologist association (PSLPA) was formed by pioneers of field in Pakistan. It is federally registered under the society's registration act 21 of 1860. Launch day of PSLPA i.e. 9th October was also declared as National Speech Pathology Day. President and Vice President of PSLPA are Dr. Nazia Mumtaz and Ms. Saima Tariq respectively.

Although the field of speech-language pathology in Pakistan headed up in 1990 but research in the field began with the commencement of degree programs. The lag between practice and research resulted in the lack of culturally appropriate standardized practices which has yet not been eradicated fully. Despite efforts of existing associations to eliminate malpractice and quackery from the field, it is still going on a huge scale. In fact many practicing SLPs are yet not registered with any association because on legal grounds there is not yet any such compulsion for them on national level. In many states, like other medical professions, it is mandatory for SLPs to be licensed through a state authority in order to practice their speciality.[3] The licensing process includes such steps that helps to maintain and establish stringent standards for licensure candidacy and practice. In Pakistan there is a dire need of state's recognized licensing system that could assure provision of genuine SLPs to public through a standardized vetting process that internationally involves qualifying degree education, supervised clinical experience and examination.

Graduate programs are producing culturally consistent researches, even though application of these researches is slow and rare to an extent that out dated traditional practices still dominates. Consequently patients and their families suffer with no or slow pace of progress. There are also centers where patients treated by SLP students are not supervised and guided by senior therapists hence their trial and error learning only benefits them in

making stronger clinical record books but at the cost of patient's wastage of time and student's malpractice. One reason behind lack of desired clinical supervision is recruitment of less number of SLP clinical supervisors in teaching hospitals as compared to number of students and case load. In many institutes SLP departments are provided with too low budget to equip their clinics with latest assessment and treatment tools due to which students could not get know how of latest practices happening in the field at international level. A huge proportion of clients that take speech therapy sessions are children and adolescents. Regarding pediatric speech therapy, many families raise issues that they are not allowed to observe or stay in sessions. Furthermore, non-provision of appropriate parent training which is contrary to roles and responsibilities of SLPs,[4] is also a critical issue that puts parents or guardians in psychological stress when they try to work with their affected family member. Like other countries, in Pakistan the solution of all aforesaid problems can only be found with integration of evidence based practices (EBP). Only with evidence based practices Pakistani SLPs can make informed, evidence based decisions in their practices along with provision of high quality services reflecting the needs, choices, interests and values of target population.

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RESEARCH ARTICLE

LEVEL OF MOBILITY AND ITS ASSOCIATION WITH QUALITY OF LIFE IN LOWER LIMB AMPUTEES

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Ausaf Chaudhry[2]: Interpretation of data, writing; Revised and accountable for all aspects

ABSTRACT

Objectives: The objective of the study was to explore the levels of mobility and its association with quality of life in lower limb amputees. **Methodology:** A cross-sectional correlational study was conducted at Chal foundation, Fauji Foundation Hospital and PIPOS on the sample of 230 patients for time duration of six months from January–July 2019. The lower limb amputees aged between 18-57 years, and using prosthesis from more than four months were included in the study. The level of mobility was measured through Self-reporting Prosthetic Limb User Survey of Mobility (SF-PLUS-M) questionnaire, while Prosthetic Evaluation Questionnaire (PEQ) was used to determine the Quality of Life (QOL) among prosthesis users. This data was analyzed by SPSS version 21. **Results:** The mean age of study participants was 43±14.89 years**.** The mean PLUS-M score was 39.48±14.33. The results showed a positive significant association between level of mobility and quality of life in lower limb amputees ($p<0.001$). **Conclusion:** The study concluded that in Pakistan lower limb amputees has high level of mobility that contributes in improved quality of life.

Keywords: Lower limb amputation, mobility, quality of life

INTRODUCTION

Lower Limb amputation is a noteworthy health event which has dangerous impact on the health of an individual.[1, 2] Amputation has been done since very old times and as the time passes by, the trends, techniques and technologies are evolving with better care and outcome both pre and post-operatively.[3] Globally, the incidence of amputation either one or both limbs tends to increase. In the national scenario, the 85% of the amputation effects the lower limb.[4] The prevalence of lower limb amputation in Pakistan is ranging from 21% to 48%, [5] however in the United States, approximately 150000 people went through lower limb amputation each year.[6]

The main cause of amputation in Pakistan is terrorism and earthquake also added a burden of amputees on economy of Pakistan[3]. The other causes of amputation are infection, malignancies,[7] diabetes mellitus, peripheral artery diseases, traffics accidents, electric shock, firearms, and agricultural machinery.[4] In developing countries, trauma is the leading cause of amputation, while in developed countries diabetes and vascular diseases are responsible for amputations.[4] A research done in Karachi concluded that vascular diseases were found out to be major cause of amputation which was 63%, trauma was 23.28%, and 13.69% people are effected due to tumors in a civilians[8]. However, a study on armed forces showed that 99% of amputations were due to trauma and only 1% was due to tumors[9].

The mobility level is higher in young amputees as compared to old amputees. Level of amputation also effects mobility and trans-tibial amputees have better mobility as compared to trans-femoral amputees.[10, 11] The patient with amputation had worse perception towards quality of life especially with regard to the dimension of vitality and functional capacity as compared to general population.[12] The ability to walk is considered central to the perception of quality of life,[13] and is the foremost outcome of rehabilitation,[12] as it directly impacts the ability to live independently and community participation.[13] Also, a previous study stresses the importance of maximizing mobility along with quality of life and general satisfaction, with or without prosthesis, in patients with lower limb loss.[14]

In order to be achieving high quality of life, patient must feel pleasure and fulfilment. Quality of life has also been considered closely related to financial, psychosomatic and family aspects.[15] Low self-esteem, weaknesses, social isolation and feeling of being stigmatized are associated with limb loss and results in low quality of life.[16] It is also evident from some previous studies that co-morbidities also effects the ambulation of amputees.[10] Amputees of cardiac and pulmonary patients' have diminished energy level, however prosthetic users required extra energy for ambulation.[11, 17]

Though some studies have been conducted on mobility and quality of life, but very little literature was found from Pakistan. The current study was

aimed to explore level of mobility and its association with quality of life among lower limb amputees.

METHODOLOGY

A cross-sectional correlational study was conducted at Chal Foundation, Fauji Foundation Hospital and PIPOS on the lower limb amputees for a time period of six months. The duration of study was six months after approval of synopsis. The study was initiated after taking an approval from Ethical Review Board (ERB) of Chal Foundation. Informed consent was taken from the study participants and assurance concerning the confidentiality of the data, a total of n=230 patients fulfilling the eligibility criteria were recruited through non-probability convenient sampling technique. The sample size was calculated through Rao Soft online, with 95% confidence interval and 5% margin error.

The lower limb amputees, aged between 18 years and above, and using prosthesis from more than four months were included in the study, While participants having amputation higher than femoral level, systemic and metabolic disease, and diagnosed neurological and psychiatric problem were excluded from the study.

Furthermore, level of mobility and level of amputation of participants was explored. The demographics characteristics were obtained in terms of age, gender and cause of amputation. The level of mobility was measured through Self-reporting Prosthetic Limb User Survey of Mobility (SF-PLUS-M) questionnaire, which constructed validity and reliability.[17] However, Prosthetic Evaluation Questionnaire (PEQ) was used to determine the Quality of Life (QOL) among prosthesis users which is also a valid and reliable tool.[18]

The demographics data was presented as frequency, percentages, mean±SD, while correlation between level of mobility and quality of life was determined through Pearson product-moment correlation coefficient. The level of significance was set p<0.05 and the data were analysed through SPSS 21.

RESULTS

The mean age of study participants was 43±14.89 years. Of the 230 patients, n=191 were males and n=39 were females. Also, n=152 (66%) out of total n=230 participants, had transtibial amputation, n=4(2) participants had knee amputation, n=68 (29.57%) participants had transfemoral amputation while only n=5 (2.43%) had syme amputations. The causes of amputation has been shown figure 1.

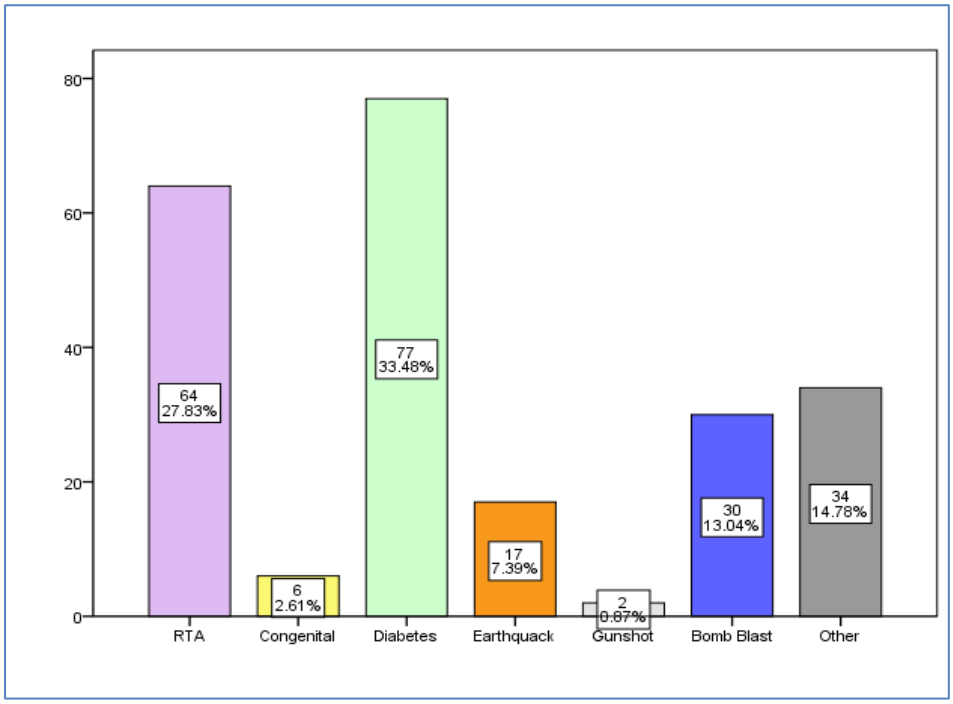

Figure 1: Causes of Amputation

The mean of Prosthetic Limb User Survey of Mobility (PLUS-M) score was 39.48±14.33, which showed that majority of amputees had little or no difficulty with mobility as shown in Figure 2

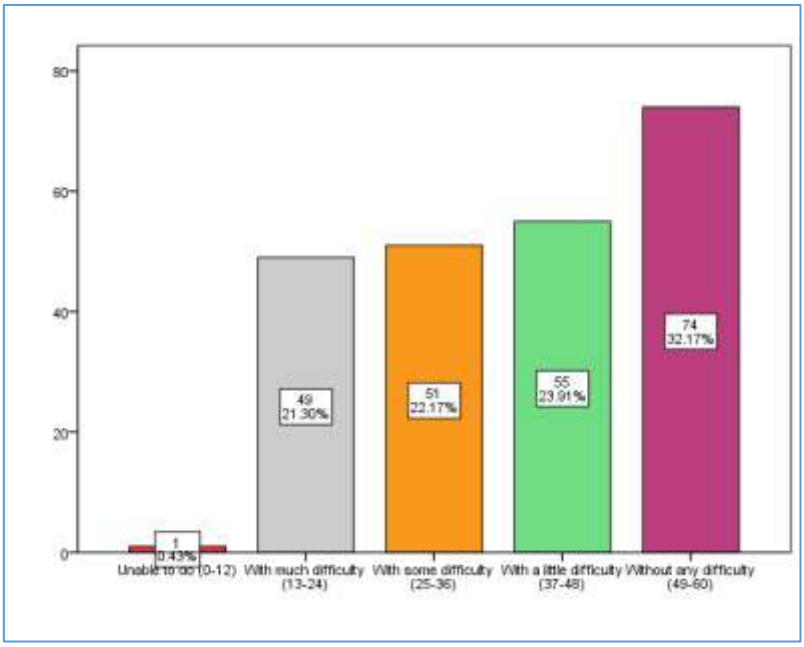

Figure 2: Prosthetic Limb User Survey of Mobility

The results showed strong significant (*p<0.001*) positive correlation between that level of mobility and ambulation (*r=0.81*), Frustration (*r=0.53*) and Social Burden (*r=0.59*). But with other domains of PEQ such as Appearance (*r=0.41*), Perceived Response (*r=0.40*), Residual Limb Health (*r=0.50*), and Sound (*r=0.42*) showed moderate correlation as shown in table 1.

Table 1: Correlation between PEQ & PLUS-M

			PLUS Mobility 39.48±14.33	
Prosthetic Evaluation Questionnaire (PEQ)	**Mean**	**SD**	***r***	***p-value***
Ambulation	59.12	24.37	.816**	*p<0.001*
Appearance	73.98	22.20	.415**	*p<0.001*
Frustration	65.91	30.07	.535**	*p<0.001*
Perceived Response	75.91	25.16	.403**	*p<0.001*
Residual Limb Health	70.36	21.80	.508**	*p<0.001*
Social Burden	65.48	26.64	.596**	*p<0.001*
Sound	73.14	28.62	.420**	*p<0.001*

Significance level: p<0.001

DISCUSSION

The main objective of the study was to explore the level of mobility and its association with quality of life in the patients with lower limb prosthesis. The results showed that majority of amputees had little or no difficulty with mobility. The level of mobility and quality of life was significantly associated to each other.

As the results showed majority of the patients with amputation had little or no difficulty with mobility which also correlates with the previous study conducted by Pereira AM et al. in which significant improvement was observed in functional independence and health related quality of life after mobility training.[20] It has been discussed that to gain the functional independence, post amputation rehabilitation should focus on the disturbance of functional mobility[21] because amputation leads to disability.[20]

Furthermore, Wurdeman SR et al. described the factors which affects the prosthetic mobility such as age, peripheral vascular disease, psychological disorders, previous history of stroke,[22] other than that health of residual skin of limb, pain and socket discomfort may cause hindrance to functional independence.[23]

Moreover, a positive correlation has been found between level of mobility and quality of life. The clinically significant association has been found in domains such as ambulation, appearance, frustration, perceived response, residual limb health, social burden, and sound of prosthetic evaluation questionnaire. In previous study, significant association has been found between mobility and quality of life, which improves satisfaction and functional capacity.[24] A study designed by Shane R Wurdeman et al. to determine the relationship between ambulation, quality of life and satisfaction. And a positive relationship between quality of life, satisfaction and mobility was found.[25] In another study it has been determined that higher the level of mobility the higher would be the quality of life.[26]

Additionally, In a study it was reported that in order to achieve high quality of life, patient must feel fulfilment and pleasures of independency and well-being**,** it has also been considered closely related to economic, psychological and family aspects.[15] A previous study reported the significant improvement in satisfaction, appearance, utility and sound after discharge and follow-up, which was mainly due to rehabilitation protocol. Another correlation was found between quality of life and walking in a confined space,[27] similar to the results of current study.

The main limitation of study is tat there no information included regarding unilateral/bilateral amputation in the study that may affect quality of life differently.

CONCLUSION

The study concluded that in Pakistan lower limb amputees has high level of mobility that contributes in improved quality of life. In future studies it is recommended to incorporate confounding variable to determine level of mobility and it association with quality of life such as age, gender, BMI, laterality, socio-economic status etc.

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RESEARCH ARTICLE

EFFECTIVENESS OF STABILITY BALL EXERCISES AND ERGONOMICS TRAINING IN PREGNANCY RELATED LOW BACK PAIN

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ABSTRACT

Objective: to determine the effectiveness of stability ball exercises and ergonomics training to reduce pregnancy related low back pain. **Methodology:** A pretest-posttest, randomized clinical trial was conducted at Dr. Nousheen Nazir, gynaecology clinic in I-10/4 Islamabad, for a time period of 1 year. The participants with age criteria of 18-35 years and pregnant females up to 32 weeks were included in the study. Low back pain was assessed through Oswestry Disability Index (ODI). The level of significance was set at 95% CI ($p \leq 0.05$). **Results:** The mean age of the study participants was 26.48±4.54 years. Ergonomic training (ET) showed significant improvement in overall low back disability {$X^2(2) = 24.58$, W=0.53, $p<0.001$} but no significant improvement ($p>0.05$) observed from 0 to 2nd week and from 2nd to 4th week, large significant improvement was observed ($p=0.005$, $r=0.59$). Stability ball exercise showed large significant improvement {$X^2(2) = 36.86$, W=0.84, $p<0.001$} from 0 to 2nd week ($p=0.000$, $r=0.84$) and from 2nd to 4th week ($p=0.000$, $r=0.77$). There was moderate significant difference in overall ODI score between SBE and ET group after 2nd {19(9.5) vs 24(13), $p=0.012$, $r=-0.37$) and 4th week {9(10) vs 18(10), $p=0.002$, $r=0.472$}. **Conclusion:** Both protocols such as ergonomics training and balancing ball exercises were effective for pregnancy related low back pain. But stability ball exercises were more effective in reducing the disability.

Keywords: Balancing ball exercise, Ergonomic training, Low back pain, Postural training, Pregnancy.

INTRODUCTION

the most common complaint reported in women during pregnancy is low back pain (LBP), which adversely effects the quality of life.[1] It has been estimated that 50% women experienced pregnancy related low back pain (PR-LBP) either during post-partum or pregnancy, [2] of which one third reported severe pain.[3] A study conducted in Pakistan, 62.1 % females reported with a complaint of lumbo-pelvic pain.[4] Mostly women affected from PR-LBP during first pregnancy.[3] PR-LBP usually starts at 18th week of gestation and gradually increases and reaches to maximum at 36th week of pregnancy.[4]

Low back pain during pregnancy is multifactorial in nature such as hormonal, biomechanical and vascular.[5] Hormone changes softens the ligaments and joints of pelvic girdle for parturition.[6,7] Due to the repetitive stress on spine, injury to the zygoapophyseal joints, muscles ligaments and disc may occurs which also leads to poor posture. Stability of spine is compromised due to hormones such as estrogen, relaxin and progesterone, released during pregnancy, which causes ligaments laxity.[6] Moreover, hyperlordosis, and hyperkyphosis may develop because during pregnancy centre of gravity shifts to the heel, therefore stress on zygoapophyseal joint increases and injury may occurs. [8]

The most common risk factors are chronic lumbago, LBP during previous pregnancy and pelvic trauma.[9] The number of pregnancies also increases the risk of LBP.[10] However, the risk of LBP is not possible to estimate but females with a complaint of back pain before pregnancy are prone to severe and persistent low back pain after the childbirth.[11] Additionally, in some studies it has been suggested that being overweight may also contribute to PR-LBP.[12]

The management of LBP with analgesics, NSAIDs and opioids isn't often recommended because of the harmful side effects. But, non-pharmacological treatments are used for the management of LBP. The first line management of LBP is postural education, stabilization exercises and soft tissue manipulation often given by the physiotherapist.[12] Other treatment options included nerve stimulation, yoga, acupuncture, relaxation and some medications may also be used.[13] Although, low back pain can be prevented through postural education, weight reduction and proper exercise without stressing back.[12]

Moreover, stability ball exercises are also used for PR-LBP which not only reduced low back pain but also enhances the activities of daily living. Regular stability ball exercises in third trimester improves posture and muscular alignment which contributes the changes in body's centre of gravity which

reduces stress on lower back and thus decreases pain. [14]

Literature support the use of stability exercises for the management of PR-LBP, but in Pakistan there is paucity in the literature. It was observed that there is no trend of prescribing exercises to pregnant women during pregnancy or even for back pain and keep the on rest. In this study stability ball exercises and postural training was used, which were not being used simultaneously in a recent previous literature. The objective of the study was to determine the effectiveness of stability ball exercises and postural training in PR-LBP.

METHODOLOGY

A randomized clinical trial was conducted at Dr. Nousheen Nazir, gynecology clinic in I-10/4 Islamabad, after taking approval from administrator of the clinic. The participants with the age criteria of 18-35 years and pregnant females up to 32 weeks were included in the study. However, pregnant females with any complication such as diabetes, hypertension etc, who had any deformity and co-morbidity, pregnancy above 32 weeks, and any indication of preterm labour were excluded from the study. Informed consent was taken from patients in accordance to Declaration of Helsinki, and assured them confidentiality of the data.

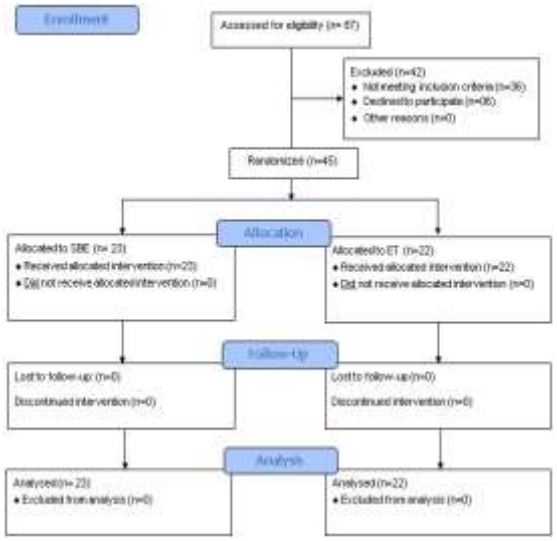

Figure 1: CONSORT diagram

A total of n=45 participants fulfilled the inclusion criteria were recruited for study through non-probability convenient sampling technique. Envelope sealed method was used for random allocation of participants into two interventional groups. Each participant in both groups was given 30-45 minutes, 6 sessions in a week for duration of one month. In ergonomic training (ET) group (n=23) training of the use of proper posture and biomechanics during activities of daily living was given. In stability ball exercise (SBE) group (n=22) ball wall squats and gym ball balancing were performed daily.

The pre-interventional data was collected at first day and post-interventional data was collected at the end intervention i.e. after four weeks. However, participants were also re-assessed after two weeks of intervention. General demographic information, including women age, history of low back pain and trimester, was obtained. Oswestry Disability Index was used for the assessment of functional disability due to low back pain, which has considerable validity and reliability.[15] The data was compared at baseline and after one month of the intervention. The level of significance was set at 95% CI ($p<0.05$) and data was analysed through SPSS version 20.

RESULT

The mean age of the study participants was 26.15±4.62 years. Previous history of back pain was experienced in n=18(40%) participants, while n=27(60%) participants had no history of back pain. A total of n=19 participants were in 2nd trimester and n=26 were in 3rd trimester.

In ergonomic training (ET), the intensity of pain showed a significant improvement {$X^2(2) = 16.79$, $W=0.37$, $p<0.001$} with small effect size, the pair wise comparison showed no significant improvement from 0 week to 2 weeks ($p=0.078$, $r=0.37$) but from 2nd to 4th week, a large significant improvement was observed ($p=0.009$, $r=0.55$). The personal care shows significant improvement {$X^2(2)= 16.71$, $W=0.36$, $p<0.001$}with small effect size, pair wise comparison showed no significant change from 0 to 2nd week ($p\geq0.05$) but significant large improvement in 2nd to 4th week ($p=0.002, r=0.64$) was observed. While no significant ($p>0.05$) improvement was observed in lifting ability.

Furthermore, walking ability also showed significant improvement {$X^2(2) = 16.71$, $W=0.36$, $p<0.001$} with small effect size, the pair wise comparison showed significant medium improvement from 0 to 2nd week ($p=0.033$, $r=0.45$) and from 2nd to 4th week ($p=0.046$, $r=0.42$). The ability of sitting show significant improvement {$X^2(2) = 14.04$, $W=0.31$, $p<0.001$} with

small effect size and the pair wise comparison showed significant large improvement from 0 to 2nd week (*p=0.005, r=0.59*) but no significant change (*p>0.05*) was observed from 2nd to 4th week. But in standing ability no significant change (*p>0.05*) was observed throughout the treatment duration. Sleeping showed significant improvement {X^2(2) =14.04, W=0.31, *p<0.001*} with small effect size in sleeping ability but from 2nd week to 4th week in pair wise comparison, no significant changed (p>0.05) was observed, but from 2nd to 4th week large significant improvement (*p=0.014, r=0.51*) observed. The sex life{X^2(2)= 10.29, W=0.22, *p<0.001*} and social life{X^2(2)= 14.68, W=0.32, *p<0.001*} both domains showed significant improvement with small effect size, but in pair wise comparison there is no significant change (p>0.05) was observed in 0 to 2nd week, from 2nd to 4th week significant improvement {(*p=0.012, r=0.52*) , (*p=0.002, r=0.65*)} was observed.

Table 1: with-in group analysis of Oswestry disability index

		Ergonomic Training (n=23)						Stability Ball Exercises (n=22)					
		M	IQR	MR	*Z*	*p-value*	r	M	IQR	MR	*Z*	*p-value*	*r*
Pain Intensity	0 week	3	2	2.5	-1.76	0.078*	-0.3 7[a]	3	2	2.82	-3.76	0***	-0.8[a]
	2nd week	2	1	2	-2.63	0.009**	-0.55[b]	2	2	2	-3.67	0***	-0.78[b]
	4th week	2	1	1.5	-	-	-	0	1	1.18	-	-	-
Personal Care	0 week	2	2	2.4	-1.55	0.12	-0.32[a]	2.5	2	2.84	-3.87	0***	-0.83[a]
	2nd week	2	2	2.1	-3.07	0.002**	-0.64[b]	1	1.25	1.86	-3	0.003**	-0.64[b]
	4th week	1	1	1.5	-	-	-	0	1	1.3	-	-	-
Lifting	0 week	4	2	2.3	-0.96	0.336	-0.2[a]	4	2	2.3	-1.64	0.1	-0.35[a]
	2nd week	4	1	2.1	-1.66	0.097	-0.35[b]	4	1	2.14	-3	0.003**	-0.64[b]
	4th week	3	1	1.6	-	-	-	3	1	1.57	-	-	-
Walking	0 week	2	0	2.4	-2.14	.033**	-0.45[a]	2	1	2.55	-2.52	.012*	-0.54[a]
	2nd week	2	1	2	-2	.046**	-0.42[b]	1	1.25	2.11	-3.45	.001***	-0.74[b]
	4th week	1	1	1.6	-	-	-	0	1	1.34	-	-	-
Sitting	0 week	3	1	2.3	-2.84	.005**	-0.59[a]	3	1	2.77	-3.82	0***	-0.81[a]
	2nd week	3	1	2.2	-0.92	0.356	-0.19[b]	2	0	1.89	-2.97	0.003**	-0.63[b]
	4th week	2	1	1.5	-	-	-	1	1	1.34	-	-	-
Standing	0 week	3	0	2.3	-0.92	0.356	-0.19[a]	3	1	2.75	-3.56	0***	-0.76[a]
	2nd week	3	1	2	-1.81	0.071	-0.38[b]	2	1	2	-3.4	0.001***	-0.72[b]
	4th week	3	1	1.7	-	-	-	1	1	1.25	-	-	-
Sleeping	0 week	2	1	2.4	-1.71	0.088	-0.36[a]	2	1.25	2.77	-3.94	0***	-0.84[a]
	2nd week	2	1	2	-2.46	0.014*	-0.51[b]	1	1.25	1.73	-1.93	0.053	-0.41[b]
	4th week	1	1	1.5	-	-	-	1	1.25	1.5	-	-	-
Sex Life	0 week	2	2	2.3	-1.23	0.217	-0.26[a]	2	2	2.64	-3.18	0.001***	-0.68[a]
	2nd week	2	2	2.1	-2.5	0.012*	-0.52[b]	1	0.25	1.91	-2.64	0.008**	-0.56[b]
	4th week	1	1	1.6	-	-	-	1	1	1.45	-	-	-
Social Life	0 week	3	1	2.3	-0.37	0.71	-0.08[a]	3	3.25	2.75	-3.47	0.001***	-0.74[a]
	2nd week	2	2	2.2	-3.1	0.002**	-0.65[b]	2	1	1.98	-3.45	0.001***	-0.74[b]
	4th week	1	2	1.5	-	-	-	1	1.25	1.27	-	-	-
Travelling	0 week	3	1	2.3	-1.55	0.12	-0.32[a]	3	2	2.77	-3.49	0***	-0.74[a]
	2nd week	3	1	2	-1.98	0.048**	-0.41[b]	2	3	1.95	-2.78	0.005**	-0.59[b]
	4th week	2	2	1.6	-	-	-	1	1	1.27	-	-	-
ODI Score	0 week	27	7	2.5	-1.91	0.057	-0.4[a]	26	16	2.91	-3.93	0***	-0.84[a]
	2nd week	24	13	2.1	-3.42	0.001***	-0.71[b]	19	9.5	1.91	-3.63	0***	-0.77[b]
	4th week	18	10	1.3	-	-	-	9	10	1.18	-	-	-

Significance Level: p<0.05, p<0.01**, p<0.001***.*
Correlation coefficient (r) for effect size

Also, Travelling ability was significantly improved {X^2(2) =9.96, W=0.22, *p<0.001*} with small effect size but in pair wise no significant improvement (p>0.05) from 0 to 2nd weeks and significant change was observed from 2nd to 4th week (*p=0.048, r=0.41*). The ODI total score {X^2(2) =24.58, W=0.53, *p<0.001*} showed significant improvement but no significant improvement (p>0.05) in the pair wise comparison was observed from 0 to 2nd week while from 2nd to 4th week, significant improvement (*p=0.005, r=0.59*) as shown in Table 1.

The stability ball exercise (SBE), showed significant improvement {X^2(2) =34.56, W=0.79, *p<0.001*} in intensity of pain with medium effect size and the pair wise comparison also showed significant improvement from 0 week to 2nd weeks (*p=0.000,r=0.8*) and from 2nd to 4th week (*p=0.000, r=0.78*). The personal caring ability is also significantly improved {X^2(2) =31.97, W=0.73, *p<0.001*} with medium effect size, pair wise comparison showed significant improvement from 0 to 2nd week (*p=0.000, r=0.83*) and from 2nd to 4th

week (*p=0.003, r=0.64*). Lifting ability was significantly improved {X^2(2) =12.86, W=0.29, *p<0.001*} with small effect size but no significant improvement (p>0.05) was seen in 0 to 2nd week in pair wise comparison.

As the ability of walking show significant improvement {X^2(2) =23.26, W=0.53, *p<0.001*} with medium effect size and the pair wise comparison also showed significant improvement from 0 to 2nd week (*p=0.012, r=0.54*) and from 2nd to 4th week (*p=0.001, r=0.74*). On the other hand sitting ability was also significantly improved {X^2(2) =30.64, W=0.7, *p<0.001*} with medium effect size, the pair wise comparison show significant improvement from 0 to 2nd week (*p=0.000, r=0.81*), and from 2nd to 4th week (*p=0.003, r=0.63*). There was significant improvement {X^2(2) =33.00, W=0.75, *p<0.001*} in standing ability with medium effect size and also the significant improvement was shown in pair wise comparison between 0 to 2nd week (*p=0.000, r=0.76*) and 2nd to 4th week (*p=0.001, r=0.72*). Sleeping ability showed significant improvement {X^2(2) =30.24, W=0.69, *p<0.001*} with medium effect size, in pair wise comparison significant improvement was observed from 0 to 2nd week (*p=0.000, r=0.84*) but no significant change (p>0.05) was observed from 2nd to 4th week. Significant improvement {X^2(2) =26.46, W=0.6, *p<0.001*} was seen in sex life with medium effect size and the pair wise comparison also showed significant improvement from 0 to 2nd week (*p=0.001, r=0.68*) and from 2nd to 4th week (*p=0.008, r=0.56*). In social life significant improvement {X^2(2) =31.55, W=0.72, *p<0.001*} was observed with medium effect size, significant improvement was seen from 0 to 2nd week (*p=0.001, r=0.74*) and from 2nd to 4th week (*p=0.001, r=0.74*) in pair wise comparison.

Table 2: Between the group Analysis (Oswestry disability index)

		Ergonomic setting (n=23)			*Stability ball exercises (n=22)*			*U*	*r*	*p-value*
		Median	IQR	MR	Median	IQR	MR			
Pain Intensity	0 week	3	2	34.35	3	2	31.34	228.5	-0.08	0.557
	2nd week	2	1	40.33	2	2	31.64	188	-0.229	0.123
	4th week	2	1	47.17	0	1	28.36	110.5	-0.502	0.001
Personal Care	0 week	2	2	32.28	2.5	2	32.66	251	-0.007	0.962
	2nd week	2	2	41.37	1	1.25	28.52	156	-0.344	0.021
	4th week	1	1	45.57	0	1	30.11	135	-0.423	0.005**
Lifting	0 week	4	2	34.28	4	2	31.5	233.5	-0.069	0.640
	2nd week	4	1	37.3	4	1	33.73	225	0.106	-0.475
	4th week	3	1	40.35	3	1	34	207	-0.178	0.232
Walking	0 week	2	0	37.74	2	1	30.39	196.5	-0.207	0.164
	2nd week	2	1	40.67	1	1.25	30.09	175.5	0.288	0.053
	4th week	1	1	48.02	0	1	28.41	110	-0.519	0***
Sitting	0 week	3	1	33.91	3	1	32.95	246	-0.026	0.861
	2nd week	3	1	45.63	2	0	28.59	123.5	-0.484	0.001**
	4th week	2	1	48.87	1	1	29.09	110.5	-0.51	0.001**
Standing	0 week	3	0	33.33	3	1	34.41	244.5	-0.032	0.828
	2nd week	3	1	45.15	2	1	33	158.5	-0.346	0.020*
	4th week	3	1	50.22	1	1	28.16	92.5	-0.57	0***
Sleeping	0 week	2	1	33.89	2	1.25	31.95	237	-0.058	0.693
	2nd week	2	1	41.52	1	1.25	28.59	155.5	-0.35	0.019
	4th week	1	1	46	1	1.25	33.3	156	-0.350	0.019
Sex Life	0 week	2	2	32.65	2	2	30.48	234	-0.067	0.650
	2nd week	2	2	44.98	1	0.25	31.89	153.5	-0.378	0.011*
	4th week	1	1	46.3	1	1	32.91	144	-0.39	0.008**
Social Life	0 week	3	1	33.26	3	3.25	34.09	245	0.028	0.850
	2nd week	2	2	44.93	2	1	30.09	143	-0.389	0.009**
	4th week	1	2	45.02	1	1.25	32.89	159	-0.333	0.026*
Travelling	0 week	3	1	33.09	3	2	31.09	236.5	-0.058	0.694
	2nd week	3	1	41.83	2	3	30.89	170.5	-0.293	0.049
	4th week	2	2	46.54	1	1	33.91	156	-0.338	0.023*
ODI Score	0 week	27	7	34.83	26	16	32.43	234	-0.06	0.665
	2nd week	24	13	44.96	19	9.5	30.45	142.5	-0.374	0.012*
	4th week	18	10	48.54	9	10	31.89	114.5	-0.472	0.002**

Significance Level: p<0.05, p<0.01**, p<0.001***.*
Correlation coefficient (r) for effect size

The ability of travelling was significantly improved {X^2(2) =31.65, W=0.72, *p<0.001*} with medium effect size and the pair wise comparison also showed significant improvement from 0 to 2nd week (*p=0.000, r=0.74*) and 2nd to 4th week (*p=0.005, r=0.59*). Total ODI score of stability ball exercise show significant improvement {X^2(2) =36.86, W=0.84, *p<0.001*} with large effect size and also significant improvement showed in pair wise comparison from 0 to 2nd week (*p=0.000, r=0.84*) and from 2nd to 4th week (*p=0.000, r=0.77*) as shown in Table 1.

When comparing the stability ball exercise (SBE) and ergonomic setting (ES), the pain intensity (*U=110.5, p<0.001, r=-0.502*), and walking ability (*U=110, p<0.001, r=-0.519*) was significantly improved after 4 week intervention in stability ball exercises as compared to ergonomic training group. Moreover, significant improvement was also observed in stability ball exercises group as compare to ergonomic training group regarding the ability of personal care with medium effect size (*U=156, p=0.021, r=-0.344* & *U=135, p=0.005, r=-0.423) after 2nd & 4th week* , sitting (*U=123.5, p=0.001, r=-0.484*) and standing (*U=158.5, p=0.020, r=-0.346*) with medium effect size after 2nd week and after 4th week sitting (*U=110.5, p=0.001,r=-0.51*) and standing (*U=92.5, p<0.001, r=-0.57)* improved significantly with large effect size. The social life (*U=143, p=0.009, r=-0.389* & *U=159, p=0.026, r=-0.333*) and over all disability (*U=142.5, p=0.012, r=-0.374 & U=114.5, p=0.002, r=-0.472*) in 2nd & 4th week were also improved with medium effect size respectively. The traveling was significantly improved with small effect size after 2nd week (*U=170.5, p=0.049, r=-0.293*) but after 4th week (*U=156, p=0.023, r=-0.338*) improved with medium effect size. The lifting ability in the participant did not showed any significant difference between the groups throughout the intervention period. There was moderate significant difference in overall ODI score between SBE and ET group after 2nd {19(9.5) vs 24(13), p=*0.012, r=-0.37*) and 4th week {9(10) vs 18(10), *p=0.002, r=0.472*}. (Table 2)

DISCUSSION

The aim of the study was to determine the effectiveness of ergonomic training and stability ball exercises on Oswestry Disability index, in women with pregnancy related low back pain. The hypothesis of the study was that the stability ball exercises are more effective as compared to ergonomic setting. The results of the study showed significant improvement in the group of ergonomic settings after the second week of intervention while clinically significant results was found in stability ball exercises group after the first week of intervention with larger effect size. Hence, null hypothesis was accepted.

The post interventional analysis of the current study showed significant improvement in pain intensity, personal care, walking, sitting, sleeping, sex life, social life, and travelling in ergonomic settings. The previous study conducted by Sabino J et al, demonstrated that proper posture plays an important role in the management of low back pain, similar to the results of current study, [9] and maintaining proper posture decreases the mechanical load on the spine. [16] Furthermore, load on facet joint increases during pregnancy leads to the pain and functional limitations.[17] In previous study, proper postural training in which performing activities in neutral spine position reduces extra mechanical load on lower back.[18] Similar to the results of current study, postural training and ergonomics is important for maintaining balance and reducing pain, which ultimately boost daily life functions.[17, 18]

Also, clinically significant improvement was observed in pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life, and travelling in the group of stability ball exercises. In pregnancy, increased trunk mass leads to the changes in the posture that effect the centre of gravity, which is considered as a main cause of pregnancy related low back pain. [14] However, the previous studies reported the efficacy of stability ball exercise, which improved muscular alignment, and posture as well as centre of gravity during pregnancy. Hence contributes to reduce the low back pain and improves daily life activities, similar to the results of present study.[19] Forward shifting of centre of gravity during pregnancy requires good core muscle strength to stabilize the lumbar spine and pelvic girdle.[20] Stability ball exercises strengthens the core muscle and stabilize the trunk, which reduces the chance of back injury and also declines the back pain, [14] thus, improves functional status which correlates with the current findings.[21]

Moreover, exercises on balancing ball increases the sense of balance and has positive effects on muscle endurance, flexibility and power, increase coordination and stability and improves proprioception.[22] Also, previous studies reported significant improvement in walking, lifting, sitting, standing, static and dynamic balance after Swiss ball training in geriatric population,[23] and ankylosing spondylitis.[24] However the results of current study showed significant improvement in reducing pregnancy relate lumbago, which might be a reason of improvement in walking, lifting, sitting, and standing as discussed in the previous literature.

When both groups were compared significant difference was observed in pain, personal care, walking, sitting, standing, sleeping, sex life, social life, and travelling which corresponds with the previous study. In which exercises on stability ball improves posture and thus reduces PR-LBP which ultimately improves tasks of everyday life.[19]

It was single-centered study and sample size was not enough to generalize the results. A group in which proper postural and ergonomic training was instructed for activities of daily living is a bit unreliable group, as it was not confirmed whether the participants followed the instruction at home or not. The other limitation is that only few females were willing for stability ball exercises as it was totally new experience for them.

CONCLUSION

It was concluded that both groups; ergonomic training and stability ball exercises were effective for low back pain and improves daily function tasks. But a stability ball exercise was more effective for PR-LBP and reduces disability during and after pregnancy. A multi-centered and larger sample size should incorporate in future researches. A body mass index and number of pregnancies should also be considered which may affect the results.

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RESEARCH ARTICLE

RELATIONSHIP BETWEEN DIETARY FAT AND PHYSICAL FITNESS AMONG PAKISTAN'S NATIONAL ATHLETES

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ABSTRACT

Objective: to evaluate the relationship between dietary fats and physical fitness in young athlete of Pakistan. **Methodology:** An correlational study conducted in Pakistan Sports Board (PSB) in 2018, after the approval of Director Admin of Pakistan Sports Board (PSB), a total sample size of n=130 elite athletes (both male and females) were recruited from the camp for National games held in PSB through convenience sampling technique. The data was collected about the age, gender, BMI and physical fitness. Physical fitness was measured through following tests; back ward throw with 3kg medicine ball, 30 meter Speed Test, Single-leg hope three step test, Agility T test and 800 meter Endurance test. The pre camp dietary fat intake was calculated through online software Self Nutrition Data by entering the meal recipe and Nutrition Facts label was generated according to the nutrition labelling standard maintained by the FDA. The results were presented in terms of n (%), mean±SD and to determine association Pearson product-moment correlation coefficient was used. **Results:** The mean age of participants was 23.63±5.30 years. The results showed positive correlation of agility T test (sec) with saturated fat (r=0.180, *p=0.040*), mono unsaturated fat (r=0.199, *p=0.023*), poly unsaturated fat (r=0.187, *p=0.033*), Omega 3 fatty acids (r=0.187, *p=0.033*) and total fat intake(r=0.202, *p=0.021)*. The 800 M endurance test was positively correlated with polyunsaturated fat (r=0.187, *p=0.033*), omega 6 fatty acids (r=0.182, *p=0.038*) and total fat intake (r=0.181, *p=0.039*). While leg strength test was found to be negatively correlated with monounsaturated fats (r=-0.174, *p=0.048*) and polyunsaturated (r=-0.175, *p=0.047*). **Conclusion:** Nutrition rich in dietary fats results in decreases performance and ability of athletes involved in agility and endurance training, while for those involved in strength training dietary fats may enhance their performance.

Keywords: Physical performance, fat, athlete, physical fitness.

INTRODUCTION

Nutrition plays a very significant role in physical fitness of an athlete [1]. It is defined as supply of food for living, scientifically consumption and utilization of food is known as nutrition [2]. Simply, the food is a fuel, which has calories and these calories should be burned by an individual's body to power ones all body's functions [3]. Inadequate nutrients in an athletic diet would rapidly result in an easily exhausted athlete, as it is an important factor for muscular rebuild [4]. Without it an athlete is not able to perform at his/her maximal potential [5]. Literature supports a variety of dietary strategies in enhancing physical fitness of an athlete [6].

Dietary fat is a significant part of an athletic eating regimen, providing basic fatty acids and upgrading ingestion and absorption of fat-solvent nutrients [7]. Dietary fat is additionally significant for guaranteeing satisfactory caloric admission to meet the rise in consumption which happens with physical activity [8]. Triacylglycerol is the primary part of dietary fat, comprising of a glycerol particle esterified to three fatty acid molecules [9,10]. The 2015–2020 Dietary Guidelines for Americans no longer focuses on a cut off for total fat intake yet at the same time prescribes restricting saturated fat to 10% of calories or less prevent rise of low-density lipoprotein (LDL) cholesterol [11]. Academy of Nutrition and Dietetics & American College of Sports Medicine suggest that dietary fat give 20%–35% of complete calories, which is the current satisfactory macronutrient circulation range [12]. The attention on fatty acid sort has brought about advancement of more prominent admission of omega-3 polyunsaturated fatty acids and decreased admission of saturated fatty acids and Trans fats, unsaturated fats. [13]. fat give most of the energy required for muscle withdrawal in endurance practice [14]. Fat is the dominating fuel for moderate-intensity work out, with maximal fat oxidation being reached at roughly 59%–64% of VO2max in endurance-prepared competitors and 47%–52% of VO2max in undeveloped people [15]. As intensity rises, starch usage increments, with glycogen as the primary source of this fuel [16].

There was paucity in the literature regarding different types of fat and their association with physical fitness. Hence the objective of the study was to evaluate the association between dietary fat and physical fitness in Pakistani athlete.

METHODOLOGY

This was an analytical study design conducted in the time duration of 6 months from Pakistan Sports Board (PSB). A total sample size of n=130 elite athletes (both male & female) were recruited after the approval of Director Admin PSB. Players of at least national level were included in the study through convenience sampling from the camp for National games held in PSB during July – September 2018. The data was collected about the age, gender, BMI and physical fitness. Physical fitness was measured through following tests; back ward throw with 3kg medicine ball, 30 meter Speed Test, Single-leg hope three steps test, Agility T test and 800 meter Endurance test. The pre camp dietary fat intake was calculated through online software Self Nutrition Data by entering the meal recipe and Nutrition Facts label was generated according to the nutrition labelling standard maintained by the FDA. The results were presented in terms of n(%), mean±SD and to determine association Pearson product-moment correlation coefficient was used in SPSS version 21.

RESULT

A total of n=117 male and n=13 female participated in this study. The mean age of study participant was 23.63±5.30 years. The mean BMI was 22.53±3.09, ranged from 14.4 to 32.20. The frequency distribution according to game can be seen in figure 1.

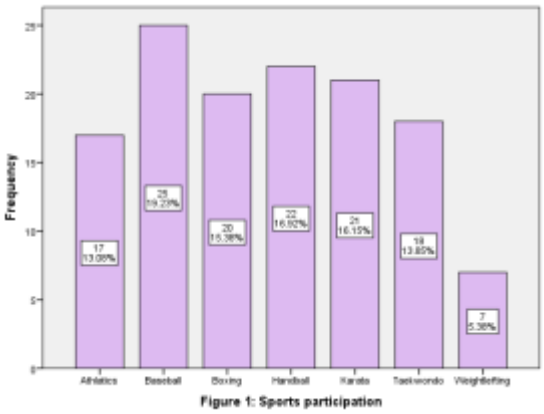

Figure 1: Sports participation

The results showed positive correlation of agility T test (sec) with saturated fat (r=0.180, *p=0.040*), mono unsaturated fat (r=0.199, *p=0.023*), poly unsaturated fat (r=0.187, *p=0.033*), Omega 3 fatty acids (r=0.187, *p=0.033*) and total fat intake(r=0.202, *p=0.021)*. The 800 M endurance test was positively correlated with polyunsaturated fat (r=0.187, *p=0.033*), omega 6 fatty acids (r=0.182, *p=0.038*) and total fat intake (r=0.181, *p=0.039*). While leg strength test was found to be negatively correlated with monounsaturated fats (r=-0.174, *p=0.048*) and polyunsaturated (r=-0.175, *p=0.047*).(Table 1)

Table 1: Association between Dietary Fat and Physical Fitness

			Backward Throw With 3kg Medicine Ball (m)	Speed Test 30 Meter (sec)	Leg Strength Test (m)	Agility T Test (sec)	800 M Endurance Test (sec)
	Mean±SD		10.27±2.43	4.58±0.46	6.39±0.91	11.20±1.02	3.18±0.63
Saturated Fat (gm)	56.29±37.14	R	-.078	.053	-.146	.180	.164
		p-value	.378	.549	.098	.040*	.062
Mono unsaturated Fat (gm)	41.32±28.15	R	-.107	.043	-.174	.199	.168
		p-value	.226	.629	.048*	.023*	.056
Poly unsaturated Fat (gm)	14.04±3.76	R	-.160	.017	-.175	.187	.187
		p-value	.070	.848	.047*	.033*	.033*
Omega 3 fatty acids (mg)	1827.25±842.09	R	-.080	.058	-.139	.187	.167
		p-value	.367	.513	.115	.033*	.057
Omega 6 fatty acids (mg)	12163.14±3037.90	R	-.160	.007	-.159	.168	.182
		p-value	.068	.934	.071	.056	.038*
Total Fat (gm)	138.82±70.97	R	-.105	.054	-.165	.202	.181
		p-value	.233	.544	.061	.021*	.039*

*Level of significance: <0.05**

DISCUSSION

The main aim of this study was to evaluate the association of dietary fat and physical fitness in

young Pakistani athletes, though this study was successfully conducted and outlaid results showed significant correlation of agility, strength and endurance with different dietary fats (saturated, monounsaturated, polyunsaturated, omega 3 and 6 fatty acids and total fat intake). The monounsaturated fats showed positive correlation with agility test and negative correlation with leg strength test. The total fat intake was found to be positively correlated with agility and endurance. Another astonishing thing found was that the poly unsaturated fat intake showed positive correlation with agility and endurance, while it was found to be negatively correlated with leg strength. Whereas, backward throw was found to have insignificantly negative correlation with dietary fats and speed test showed no correlation at all with that of dietary fats intake.

The agility test was found to have positive correlation with saturated, monounsaturated, polyunsaturated, omega 3 fatty acid and total fat intake which indicates that increase of these mentioned dietary fats intake increases the time taken to accomplish the agility test. A study was conducted in Greece to evaluate the low-fat, high carbohydrate & high-fat, low carbohydrate diet's effect, which in result showed that diet rich with dietary fat had a converse effect on Athlete's performance by decreasing his speed and distance covered and resulting in losing a match [17]. In this connection, above studies indicate that diet rich in fats (<20-35%) calories would decrease athletic performance. Team sports are considered to be an extended low-to moderate-intensity effort, with repetitive high-intensity spurts that might approach maximal exertion, with little recovery times [18,19]. Assumed to be the worldwide status of soccer, research concerning team competition has attention primarily on this specific sport. Though average oxygen consumption all over a soccer game play has been likely at 70%–80% VO_2max [20,21] prominent to substantial glycogen depletion [22] and glycogen depletion all through a soccer match has remained associated with the reduction in speed and the distance covered [23].

Dietary fat restriction might result in trouble meeting energy requirements for an athlete, particularly those involved in endurance trials. Consuming a sufficient amount of calories is precarious to improve performance and must be a thing of attention for athletes [5]. Energy restraint that might occur from decreasing fat intake can upset endocrine function in females [24-26], lessen strength and endurance, and can compromise immune function [27] similarly a study conducted in United States aimed to assess the performance level in middle distance runners by restricting fat from their diet for 7 days; despite the fact, energy intake for those athletes with high carbohydrate and low fat diet was adequate but there performance was negatively affected, effecting there exhaustion time [28] in this connection, present study concluded the result by positively correlating dietary fats, specifying the poly-unsaturated fat, omega-6 fatty acid and total fat intake, to have negative impact on endurance test performed on young Pakistani athlete. Pons et al. reported in their study that caloric restriction in athletes lead to decrease lean and fat body mass, which in turn decreases the expenditure of energy thus enhancing the athletic performance[29].

Perhaps, for a lot of strength athletes follow low-carbohydrate and high-fat diet yet sparse in research in this area is fount at this point. A study conducted in United States aimed to evaluate the effect of high-fat, carbohydrate-restricted diet for strength training in men. The study found that the same diet, as mentioned, helped in increasing the lean body mass feasibly increasing their strength gains [30], similarly the current literature also describes the negative correlation, as shown between strength (evaluated by leg strength test) and the dietary fat specifically presenting the mono-unsaturated and poly-unsaturated fat intake, which plays the key role in enhancing the performance of an athlete in leg strength test.

Henceforth, the present study showed no significant correlation of dietary fat with that of speed test and backward throws. This might be due to the reason that the use of dietary fat before and after exercise has no such impact evident by literature on athletic performance.

CONCLUSION

The present study concluded that the increase in different type of dietary fat can result in variety of effect on physical fitness among Pakistani elite athletes. Although it has much concerning negative impact in decreasing the agility and endurance component of the physical fitness of Pakistani elite

athletes, but it has positive effect in enhancing the strength of an athlete

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RESEARCH ARTICLE

EFFECTIVENESS OF KEGEL'S EXERCISES IN ELDERLY MALE AND FEMALE WITH URINARY INCONTINENCE

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ABSTRACT

Objective: to determine the effectiveness of Kegel exercises in elderly male and female patients with stress urinary incontinence. **Methodology:** A quasi experimental study was conducted at In Department of urology of Shaheed Mohtarma Benazir Bhutto medical university, Chandka medical college Larkana Sindh from January 2017 to June 2019. The non-probability convenient sampling technique was used for sample selection. The n=43 patient with the age above 55 years was included in the study. Patient with neurological, cognitive and male with prostate problem were excluded from the study. Both male and female were received intervention of Kegel exercise (KE) for three months and 3-4 time/day. The urinary distress inventory (UDI) and Incontinence impact questionnaire was used for urinary distress and quality of life. The data was obtained at baseline, at 6th week and after 12th week. The mean±SD, n(%), Mean difference (MD), p-value ($p<0.05$) and effect size (Cohen's d & partial eta square was use to describe the data. For within group analysis Repeated Measure ANOVA was used and for between the groups analysis independent t-test was used. SPSS ver 21 was used for data analysis. **Results:** The mean age of the study participants was 64.97±9.36 year. Within group analysis showed large significant improvement in both, males and females ($p<0.05$). However, between group differences showed significant improvement with larger effect size in males as compared to females ($p<0.05$). **Conclusion:** Kegel exercises are effective therapy for urinary incontinence in both genders. But Kegel exercises are more effective in males for urinary incontinence in improving urinary distress and quality of life.

Keywords: Gender, Geriatric population, Kegel exercises, Urinary incontinence

INTRODUCTION

According to the International Continence Society (ICS), the urinary incontinence is defined as involuntary leakage of urine,[1] and can occurs in all ages because of many different reasons.[2] Urinary incontinence (UI) is more common in females as compared to males. It is considered as the main cause of UI in males is damage to the incontinence mechanism during radiotherapy or surgery for prostate cancer or enlargement of prostate. However, dysfunction of pelvic floor muscles and bladder during pregnancy or sometimes after menopause is the main reason behind UI in females.[3]

The UI is classified as stress, urgency, and mixed urinary incontinence. In stress urinary incontinence (SUI), leakage of urine due to increased intra-abdominal pressure such as coughing,[2] sneezing, physical exertion,[3] while sudden desire to void which is difficult to control occurs in urgency urinary incontinence (UUI). But, a combination of both is mixed urinary incontinence (MUI).[2] The SUI is more common which is 50%, followed by UUI which is 14% and prevalence of MUI is 32%.[1]

The prevalence of UI is 2 times more common in older female as compared to males. The UI affected 20-33% of adults and 11-55% elder population.[4] According to ICS, UI is social and hygienic problem,[5] which leads to social isolation.[4] The UI has significantly affect quality of life because of depression, anxiety, psychological distressed, emotionally disturbed and ultimately poor life satisfaction.[4]

Number of treatment regimen such as behavioural therapy, pharmacological and surgical procedures has been used for the management of UI included. Behavioral therapy included schedule toileting, bladder training, fluid manipulation, and pelvic floor muscle exercises.[3] Conservative management is considered as the first line of treatment due to less significant side effects and more improvement in symptoms. In previous studies it has been found that pelvic floor exercises is effective in more than 50% of population with UI.[6]

Furthermore, Kegel exercises (first designed by Dr. Kegel, in 1948)[7] have 30-90% success rates in women with SUI.[8] The number of contractions and duration of holding time in Kegel exercises, is usually custom made according to the patients' need. Currently, there is no specific protocol for Kegel exercises has been designed, but fundamental rules

include, identification of muscles to slow the urine, contraction of muscle in a correct manner, and repetitions of cycle for several times. Also, fast and slow contractions are important components of exercise.[7]

Though many studies have been conducted to determine with effectiveness of Kegel exercises with this condition however there is limited literature available on the gender base difference in urinary incontinence and quality of life. The objective of the study was to determine the effectiveness of Kegel exercises in elder males and females with urinary

METHODOLOGY

A quasi experimental study was conducted at In Department of urology of Shaheed Mohtarma Benazir Bhutto medical university, Chandka medical college Larkana Sindh from January 2017 to June 2019. The patient with the age above 55 years was included in the study. Patient with neurological, cognitive and male with prostate problem were excluded from the study. The non-probability convenient sampling technique was used for sample selection. A total of n=107 patients were evaluated for inclusion criteria and n=51 patient fulfil the criteria. A total of n=8 participant were declined to participate in the study. So n=43 participant were allocated Male (n=20) and Female (n=43) group. (Figure 1)

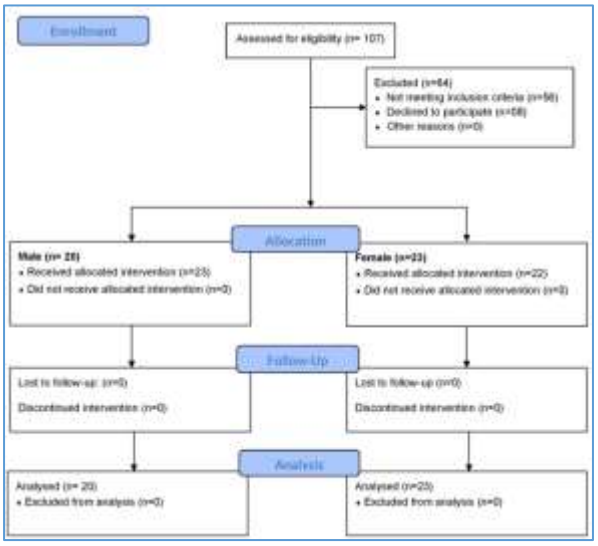

Figure 1: CONSORT diagram

Both male and female were received intervention of Kegel exercise (KE) for three months and 3-4 time/day. The procedure of Kegel exercises were explained and guided to the participant and initial three days participants were asked to visit the hospital, to check the proper application of KEs.

The age, BMI was taken as demographic data. The urinary distress inventory (UDI) and Incontinence impact questionnaire was used for urinary distress and quality of life. The data was obtained at baseline, at 6th week and after 12th week. The mean±SD, n(%), Mean difference (MD), p-value ($p<0.05$) and effect size (Cohen's d & partial eta square was use to describe the data. As the data met the assumption of parametric tests, so for within group analysis Repeated Measure ANOVA was used and for between the groups analysis independent t-test was used. SPSS ver 21 was used for data analysis.

RESULT

The mean age of the n=43 study participants was 64.97±9.36 year. A total of n=23 participants were female and remaining n=20 were male. The average BMI of the participant was 26.11±3.86. The frequency distribution of BMI according to gender can be seen Figure 2.

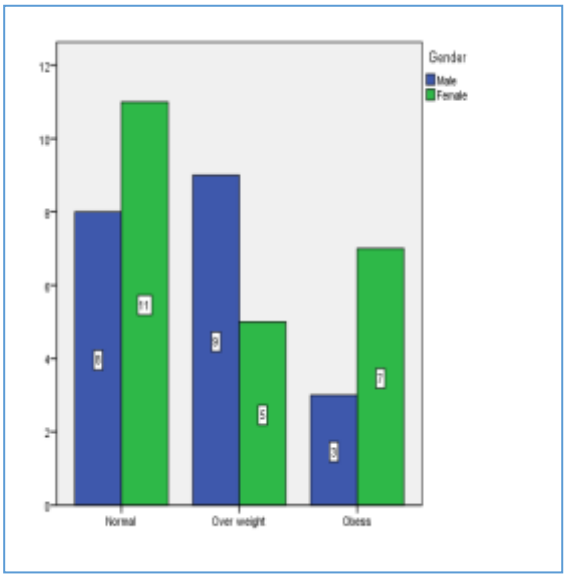

Figure 2: Gender based distribution

Within group analysis of Incontinence impact questionnaire showed significant improvement from 0 to 12th week in male ($\eta p2=.781$, MD=15.55, $p<0.05$) with large effect size as well as in female group ($\eta p^2=.808$, MD=-22.13, $p<0.05$) and the total score urinary distress also showed significant improvement from 0 to 12th week in male ($\eta p2=.759$, MD=-16.66, $p<0.05$) and female group with large effect size. (Table 1)

While comparing groups, Incontinence impact questionnaire and urinary distress was significantly improved at 6th and 12th week of intervention in male group as compared to female group with large effect size (p<0.05). (Table 2)

Table 1: Within group changes (IIQ &UDI)

		Male (n=20)		MD/ F(df)	d/ ηp^2	p-value	Female (n=23)		MD/ F(df)	d/ ηp^2	p-value
		Mean	SD				Mean	SD			
IIQ-SF (total)	Pre	55.15	16.55	11.55	1.20[a]	0.000***	69.48	12.40	4.50	0.64[a]	0.006**
	6th week	43.60	17.63	15.55	2.07[b]	0.000***	64.97	17.63	22.13	2.31[b]	0.000***
	12th week	28.05	19.19	2,38(57.67)	0.78[c]	0.000***	42.83	19.01	2,44(92.29)	0.80[c]	0.000***
UDI (total)	Pre	45.83	6.75	4.79	0.64[a]	0.010**	47.46	6.61	1.63	0.54[a]	0.016**
	6th week	41.04	6.92	16.66	1.60[b]	0.000***	45.83	7.64	7.42	0.82[b]	0.001**
	12th week	24.37	7.06	2,38(59.69)	0.75[c]	0.000***	38.40	9.31	2,44(17.82)	0.44[c]	0.000***

[a]Pre ver. 6th week, [b]6th week ver 12th week, [c]Pre to 12th weeks
Significance Level: p<0.05, p<0.01**, p<0.001***.*
Cohen'd (d), partial eta squared (ηp^2) for effect size

Table 2: Between Group analysis (UDI & IIQ-SF)

		Male (n=20)		Female (n=23)		MD	p-value	d
		Mean	SD	Mean	SD			
IIQ-SF (total)	pre	55.15	16.55	69.48	12.40	-14.32	0.002**	-0.89
	6 week	43.60	17.63	64.97	17.63	-21.36	0.000***	-1.04
	12 week	28.05	19.19	42.83	19.01	-14.78	0.015*	-0.72
UDI (total)	pre	45.83	6.75	47.46	6.61	-1.63	0.430	-0.24
	6 week	41.04	6.92	45.83	7.64	-4.79	0.038*	-0.62
	12 week	24.37	7.06	38.40	9.31	-14.03	0.000***	-1.29

Significance Level: p<0.05, p<0.01**, p<0.001***.*
Cohen'd (d) for effect size

DISCUSSION

The aim of the study was to determine the effectiveness of Kegel exercises on urinary incontinence in males and females. However, the results of study showed significant improvement in both genders presented with urinary incontinence.

According to the results of the study, both male and female showed significant improvement in disease-specific quality of life and urinary distress on Incontinence Impact Questionnaire and Urogenital Distress Inventory respectively. In previous studies, it has been found that Kegel exercises is an effective therapy which improves quality of life, incontinence, and thus self-esteem in elder male and female population.[9] In many previous studies effectiveness of Kegel exercises in women has been discussed but according to the results of current study, it is equally effective for male population.[10]

According to National Institute of Health, over-activity or weak bladder and pelvic floor muscles, nerve damage that control bladder such as Parkinson's disease, diabetes, multiple sclerosis, and blockage from enlarged prostate especially in men causes UI.[11] Kegel exercises strengthens the pelvic floor muscles that cause urinary incontinence.[12] Also, a study conducted by Park SW, in which significant improvement was observed in incontinence, quality of life, and physical function after Kegel exercise in patients after radical prostatectomy.[13] The possible reasons of improvement in UI after Kegel exercise is repetitive selective volunteer contraction and relaxation of pelvic floor muscles, which strengthens the muscles of pelvic floor and thus voluntary control. Both, improved strength and voluntary control supports the urethral closure mechanism. Also, repetitions enhance re-education which improves tone of pelvic floor muscle and automatic contraction of pelvic floor muscles to guard stress event is developed. Thus, incontinence is improved in stressful conditions.[14] Thus, improving activities of daily living.[13]

On the other hand, a study conducted on female diabetic patients, incontinence was significantly improved after Kegel exercises.[15] Furthermore, in previous studies it has been discussed that prevalence of UI is more in females than males which is distressing and upsetting condition for females. Quality of life and activities of daily living is highly compromised.[16] Studies have been conducted to determine the effectiveness of Kegel exercises and significant results were reported in reducing incontinence and improved quality of life,[9, 17] similar to the results of current study.

Furthermore, a study conducted on pelvic floor exercises in females with UI reported the voluntary contraction of pelvic floor muscle causes inward movement and squeeze of pelvic floor muscle which results the stabilization, urethral closure and downward movement resistance. With that contraction of gluteal, hid adductor and abdominal also occurs. However, these muscles are not in anatomical position to support the prevention of urethral and balder neck descent. Therefore, strengthening of pelvic floor muscle may build up the structural support of pelvis. Due to which levator plate may elevated to a higher location in pelvis by increasing stiffness and hypertrophy of pelvic floor muscles and connective tissue. It would improve automatic motor unit firing and prevent descent when abdominal pressure is increased. Therefore, leakage of urine is prevented during physical activities.[18]

Moreover, between group differences showed significant improvement in males with larger effect size as compared to females. Also, frequency of training and intensity of contraction is important aspects of strength training. The proper strength training alters the pelvic floor muscle morphology and positon, which improves the activity of muscle during increased abdominal pressure.[18] However, in this study females of rural area were included and were bit negligible towards exercise protocol due to house chores as discussed in previous study,[19] which might contribute to improvement with smaller effect size.

CONCLUSION

Kegel exercises are effective therapy for urinary incontinence in both genders. But Kegel exercises are more effective in males for urinary incontinence in improving urinary distress and quality of life. A multi-centre study with large sample and socio cultural gender based differences related to Pakistan must be incorporated in future study that may confound the result of study.

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SHORT COMMUINCATION

QUALITY OF LIFE IN PATIENTS WITH NEUROGENIC COMMUNICATION DISORDER

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ABSTRACT

Background: neurogenic communication disorders e.g. Dysarthria, aphasia and Voice disorders impacts the quality of life of individuals. A comprehensive picture for an intense understanding of different dimensions, that affecting QOL in neurogenic communication disorder is needed. **Objectives:** to determine the Quality of life in patients with neurogenic communication disorders **Method:** The Study design was comparative Cross-sectional survey. A total of n=100 participants were included through Conventional sampling technique. The data was collected from speech therapy department of Pakistan Railway Hospital (PRH) and NESCOM hospital Islamabad. The male and females both were included in the study. The older adults with age range 50-75 years with neurogenic conditions like dysarthria, aphasia and voice disorders related to stroke, Bell's palsy Parkinson's disease and triatic brain injury were included in the study. The quality of life was assessed through Stroke Aphasia Quality of Life questionnaire. One Way ANOVA was used for comparison between the different conditions regarding quality of life (QOL). **Results**: the Mean±SD of age was 61.4 ± 7.9 years. A total of n=63 participant were male and remaining n-37 were female. The result of One Way ANOVA can be seen in Table 1, which shows that there no significant difference ($p \geq 0.05$) in neurogenic communication disorders regarding QOL. **Conclusion:** It was concluded that quality of life was compromised equally in +neurogenic communication disorders like dysarthria, aphasia and voice disorders.

Keywords: Communication disorders, Aphasia, dysarthria, voice, quality of life.

INTRODUCTION

Neurogenic communication disorder is the incompetence of a person to carry out effective communication due to weakness of the central nervous system. Individuals suffering from neurodegenerative disorders have to encounter many challenges in their daily lives; communication impairment and inability being one of them. The onset of these disorders mostly occurs in adulthood, usually as a result of stroke, tumor or injury of brain or due to progressive neurological disorders.[1,2]

Dysarthria has adverse effects on all the systems of speech, especially velopharyngeal function. One of the primary features of dysarthria is hyper nasality.[3] Individuals who suffer from ALS with dysarthria are generally incapable of taking pleasure in living. They demonstrate a rapid deterioration in their quality of life which shows as sluggish, frail, and inaccurate articulation. The disease is also presented with the incoordination of the stomatognathic system, affecting the respiratory, phonatory, resonant and articulatory systems.[4.5]

Individuals suffering from aphasia have major limitations when it comes to social participation and association. Likewise, their QOL is severely affected and may result in unemployment as well as social isolation. Early severity of aphasia reflects long term revival of aphasia.[3] The level of severity of aphasia seriously affects the quality of life in the patients, with major limitations in the social activities and associations as well as emotional distress and several other related medical issues.[4-6] There is limited literature available especially in Pakistani population regarding the impact of different communication disorder on quality of life. The objective of study is to compare the Quality of life in patients with neurogenic communication disorders.

METHODOLOGY

The study design was comparative Cross-sectional survey. A total of n=100 participants were included through Conventional sampling technique. The data was collected from speech therapy department of Pakistan Railway Hospital (PRH) and NESCOM hospital Islamabad. The male and females both were included in the study. the older adults with age range 50-75 years with neurogenic conditions like dysarthria, aphasia and voice disorders related to stroke, Bell's palsy Parkinson's

disease and triatic brain injury were included in the study. Patients with conditions other than above mentioned condition were excluded from the study. The demographic data was included age, gender and quality of life was assessed through Stroke Aphasia Quality of Life questionnaire. The mean±SD, n(%) and p-value were used for descriptive analysis. One Way ANOVA was used for comparison between the different conditions regarding quality of life (QOL). Data were analysed through SPSS 21.

RESULT & DISCUSSION

The Mean±SD of age was 61.4 ± 7.9 years. A total of n=63 participant were male and remaining n-37 were female. The result of One Way ANOVA can be seen in Table 1, which shows that there no significant difference (*p≥0.05*) in neurogenic communication disorders regarding QOL.

The study conducted to explore the quality of life among different neurogenic communication disorder. The result of study showed that quality of life was not different in dysarthria, aphasia and voice disorder. In a correlated recent study on analysis of factors affecting QOL among individuals has shown the association between the Communication disorders and the quality of life of the patients by using Pearson's correlation elicited the computed the p value .766. As the p value is >0.05 so we conclude that there is no association between QOL and communication disorders.[7]

The several study supported the result of the current study as communication disorder mostly the aphasia which is common and usually associate the with stroke significantly impact the QOL.[8,9] There are several reports concerning that neurogenic communication difficulties become more pronounced in patients. they feel helplessness as specific feeling in this area suggest that Complicated family dynamics, lack of communication, and insecure feelings in communities, inadequate social interaction, and many other factors are often associated with a negative impact on QOL.[6-10]

Table 1: comparison of neurogenic communication disorders regarding QOL

Domain	Variable	N	Mean±SD	Df	F	*Sig.*
Physical score	Dysarthria	29	3.28±1.24	2	0.848	0.431
	Aphasia	58	3.03±1.50			
	Voice	13	3.55±1.22			
	Total	100	3.17±1.39			
Communication score	Dysarthria	29	3.26±1.14	2	2.030	0.137
	Aphasia	58	3.148±1.29			
	Voice	13	3.89±1.13			
	Total	100	3.27±1.23			
Psychosocial score	Dysarthria	29	2.69±1.02	2	1.70	0.187
	Aphasia	58	2.70±.915			
	Voice	13	3.35±2.23			
	Total	100	2.78±1.19			
Mean score	Dysarthria	29	3.28±1.24	2	1.9	0.154
	Aphasia	58	3.03±1.50			
	Voice	13	3.55±1.22			
	Total	100	3.17±1.39			

Level of significance: p<0.05

CONCLUSION

It was concluded that quality of life was compromised equally in neurogenic communication disorders like dysarthria, aphasia and voice disorders. Further study with larger sample size and gender bases differences is recommended for better understanding of the QOL in neurogenic population

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