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EDITORIAL

SCREEN ADDICTION AMONG YOUNG PAKISTANI CHILDREN: HANDICAPPING THE TYPICALLY DEVELOPED

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Neurological predisposition of a child depends on their own knowledge and experiences. Extent of screen involvement can produce changes at genetic level with consequent enduring impact on neural development. Evidence on pragmatics concludes that prolonged exposure to screens during childhood can lead to neuro-adaptation with subsequent anatomical changes in brain similar to the cases of addiction.[1] Screen viewing now begins in infancy that gradually heaves across age groups but its predominance is high for children aged less than 24 months.[2] Prolonged exposure to screens is a growing hazard to public health that is raising significant concerns over children's psychological wellbeing, socialization, cardio-metabolic and other medical conditions.[3] Screen dependency disorders (SDD) is a term now coined for screen related addictive behaviors and common symptoms include withdrawal symptoms, failure to decrease or end screen activities, loss of interests in activities that does not involve screen, lying regarding extent of usage, way to escape hostile moods and preoccupation.[4-8]

Typically developing children acquire their first words before 15th month, and wait and watch approach is commonly used by caregivers till 2-years. If still not talking, then an evaluation is sought for a child. It challenges service providers in two ways for determining justified referral for a developmental evaluation. First, many late talkers catch up on their own and should be distinguished from children who are prone to persisting language problems. Second, children who tend to have delay in language skills need to be screened even earlier before language acquires. Research in last two decades has recognized a group of language predictors that serve as key indicators of later language development. Few language predictors are use of emotions, eye gaze, gestures, sounds, words and object.[9] Due to adverse effects of media on health and development of child from 0-5 years, American Academy of pediatricians has recently issued a policy of no screen time for children under 2-years and only 1-hour screen time per day for children 2 to 5 years.[10]

Developed countries e.g. China and US have made policies to protect young children from SDD and such policies have been made possible due to their research evidence. In Pakistan it has been observed by psychologists and speech-language pathologist (SLP) that children under 5-years with predominance of under 2- years are coming with developmental delays and impairments in pre-verbal skills, communication and behavior which exhibit as manifestations of SDD. In many cases parents/care givers report that around age of 8-10 months their typically developed child started uttering first words but as soon he started to walk it became difficult to supervise him/her in their busy lifestyle therefore they exposed their child to screens to increase his/her sitting span which consequently regressed previously developed communication milestones.

Screen dependency among young Pakistani children is alarmingly retarding communication, behavioral and cognitive milestones. As per parents prospect, outdoor plays without supervision are not safe for children due to huge number of cases of child abuse and kidnapping and at home parents do not have sufficient time due to their other social and financial responsibilities therefore to make child rearing safe and less hectic and less compromising they expose their children to screen related gadgets. Parents in joint family system are compelled to make their children's lifestyle sedentary by addicting them to screens so that they do not disturb harmony of extended family system. Parents in nuclear family system are constrained to busy their children in screens because mostly both parents are working to share financial burden or parent who stays at home has loads of household chores that do not let him/her spend quality time with children. It would certainly be not wrong to consider SDD as calm before storm. Calm behavior of children that temporarily parents achieve and appreciate by exposing them to

screens later on takes form of a storm by aggravating behavioral disruptions i.e. hyperactivity, attention deficit, irritability, oppositional and violent tendencies in addition to feeding, social communication and sleep problems.

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ORIGINAL ARTICLE

PATIENTS'S SATISFACTION REGARDING PHYSIOTHERAPY SERVICES IN URBAN AREAS OF PAKISTAN

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ABSTRACT

Aim and objective: The objective of this study was to evaluate patient's satisfaction about physiotherapy services in urban areas of Pakistan. **Materials & Methods**: A cross sectional survey study was conducted on 278 patients receiving physiotherapy services at different tertiary care hospitals in urban areas of Pakistan. Simple random sampling technique was used to collect data. The participants were assessed using semi-structured questionnaire. Reliability of questionnaire was also assessed with cronbach's alpha value (0.9). Data was presented through frequency and percentages of patients responses. Data analysis was done using SPSS. **Results**: The results of the study showed that out of 278 patients 237 (85.25%) were overall satisfied with the physiotherapy services. **Conclusion**: This cross sectional survey showed that most of the patients are satisfied with physiotherapy services provided to them at different hospitals in urban areas of Pakistan. The study results concluded that ambiance, duration of treatment session, effectiveness of the treatment and instructions regarding home program were the important factors that affect satisfaction of the patients with physiotherapy services.

Keywords: Physiotherapy, satisfaction, physiotherapy services, physiotherapy modalities

INTRODUCTION

Satisfaction is basically "the state of being gratified and act of fulfilling one's need or desires". when we talk about satisfaction related to health services then it is the reaction of recipients or the perception they developed related to the quality of care[1].Satisfaction of patients actually shows the patient's attitude about the health care services and how patients perceive about health services or health care providers[2,15].

Patient satisfaction determines the value and importance of health care. Level of satisfaction is a predictor variable that can help in evaluation of health care services and behavior of health care providers [3]. Physiotherapy is a field of rehabilitative medicine with purpose of improving mobility, relieves pain and helping patients to maintain and recover physical abilities and improves the quality of life. Physical therapists aimed at treatment, prevention and rehabilitation to promote the wellbeing of individuals. Physiotherapy includes the treatment of functional dynamic disorders and its prevention that affects the body organs and systems, caused by acquired diseases and trauma. So the important role of physiotherapy is the recovery of patients and re-introduces the patients into social interactions [4,5].

In physiotherapy, satisfaction level of patients is relatively under-utilized outcome measure [6,7]. The satisfaction level of patients plays important role in monitoring perceptions about quality of health care services.[8] Health care quality assessment services usually based on three dimensions i.e. structure, process and results. The evaluation of structure depends upon the materials and resources present in health care organization and the number of health care professionals. The evaluation of process depends upon the way of giving health care services or working procedures. The assessment of results concerns the outcomes of received care [9]. Besides these three aspects, patients and health care providers' relationship, accessibility and financial problems are also the important factors that help in assessment of health care quality [10].

The satisfaction level of physiotherapy services by users determines the quality of care or services provided in both private clinics and government hospitals. The patient's level of satisfaction has an economic impact on the physiotherapists. Mostly satisfied patients remain loyal to the physiotherapists and offer good feedback to other patients or people about physiotherapists that can lead to the success of therapist or even hospitals. The link between adherence to treatment and satisfaction results in improved cost effectiveness of care.

Dissatisfied patients may cause potential economic harm because dissatisfied patients spread negative views and may not return for care and seeks another physiotherapist for better services [2,10]. Considering all these aspects, Physical therapists should struggle to identify the items or factors that are closely linked to satisfaction of patients.

Common observation in Pakistan the patient's satisfaction is mainly being affected by timing issues of therapist as limited therapist are available for more patients and this can affect professionalism and due to patient burden therapist are unable to apply skills that can affect the satisfaction level of patients to a greater extent. Scheduling of appointments, easy access to the service area are some other factors affecting the satisfaction of patients. This study was conducted to explore the level of satisfaction of patients using physiotherapy services and identifying the areas lacking in physiotherapy services that will be helpful in the betterment of physiotherapy services and in achieving higher degree of patient satisfaction.

METERIAL & METHODS

A Cross sectional survey was conducted at different hospitals of urban areas of Pakistan after the approval from ethical committees of related hospitals. Simple random sampling technique was use to select 278 patients receiving physiotherapy. The study is completed over time period of five months from March 2016 to July 2016. The male and female patients who are above 18 years of age were included in the study and patients having any type of speech, comprehension or cognitive impediments were excluded from the study. Semi-structured likert scale was use to collect the data regarding satisfaction of patients. Cronbach's alpha value of scale was 0.9, which indicates a high level of internal consistency for scale. Anonymity and confidentiality of participants' data was maintained throughout the research. Informed consent was obtained from all the study participants prior to recruiting in the study. SPSS ver. 21 was used to analyze the data and frequencies and percentages were used to present the results of the study.

RESULTS

The mean of the study participants was 40.45±15.6 years. From the total sample size n=170(61.2%) were females and n=108(38.8%) were males in the study. There were n=208(74.8%) married people who participated in the study and n=70(25.2%) unmarried people and it indicates that the percentage of the married people is higher.

There were 80(28.8%) patients between the ages of 18-28 years, 49(17.6%) patients between the ages of 29-38 years, 60(21.6%) patients between the ages of 39-48 years, 48(17.3%) patients the ages of 49-58 years, 30(10.8%) between the ages of 59-68 years, 9(3.2%) patients between the ages of 69-78 years, 2(0.7%) patients between the ages of 89-98 years. This indicates the highest number of patients receiving physiotherapy services is between the ages of 18-28 years.

The results showed that 68(24.5%) patients were with no education at all, 29(10.4%) had 5 years of education, 9(3.2%) had 8 years of education, 40(14.4%) had 10 years of education, 30(10.8%) had 12 years of education, 59(21.2%) had 14 years of education, 43(15.4%) had 16 years of education. Majority of the patients who participated in the study had no education at all. 21(7.6%) patients who participated in the study took treatment for neck region, 69(24.8%) patients took treatment for shoulder, 16(5.8%) took treatment for elbow, 14(5%) took treatment for wrist, 3(1.1%) took treatment for hand, 69(24.8%) took treatment for lower back, 12(4.3%) for hip, 37(13.3%) for knee, 7(2.5%) for foot, 1(0.4%) for TMJ, 6(2.2%) for stroke, 21(7.6%) for spinal cord and 2(0.7%) for nerve injury. The majority of patients who participated in the study were taking treatment for shoulder and lower back.

128(46) patients who participated in the study were referred by the orthopedic specialist, 18(6.5%) by neurologist, 54(19.4%) by general practitioner and 78(28.1%) self-approached. This shows that highest numbers of patients were referred by the orthopedic specialist and had musculoskeletal problems. 76(27.3%) patients received manual therapy, 21(7.6%) received electrotherapy, 150(54%) received combination of manual and electro therapy, 14(5%) received combination of manual therapy and medicine, 1(0.4%) received a combination of electrotherapy and medicine and 16(5.8%) received a combination of manual therapy, electrotherapy and medicine.132(47.5) patients received treatment from the male therapist and 146(52.5%) received from female therapist so the no of patients receiving treatment from female therapist is higher. The patient's satisfaction regarding physiotherapy services are presented in table 1.

DISCUSSION

The study was carried out to determine the satisfaction level of patients receiving physiotherapy services. The result of study showed greater number of patients were satisfied with physiotherapy services.

The study results demonstrated that most (24.8%) of the patients participated in study were receiving treatment for shoulder and lower back. There were 46% participants who were diagnosed by orthopedic specialist. The study results showed that only small percentage mentioned that they have faced problem regarding availability of physiotherapy services. A study conducted by Machado NP et.al on Brazilian population showed that 14% were dissatisfied with the services because of increase waiting time for treatment sessions [4].

The results of the study showed that older patients were completely satisfied with the physiotherapy services. The result of this study was supported by McKinnon et.al, who

Table 1: Satisfaction of study participants regarding physiotherapy services

	Mean±SD	Very satisfied n(%)	Satisfied n(%)	Neither n(%)	Dissatisfied n(%)	Very dissatisfied n(%)
The location of the physiotherapy department was convenient for me	1.82±.74	89(32)	164(59)	15(5.4)	6(2.2)	4(1.4)
I was seen promptly when i arrived for the treatment	1.95±.90	89(32)	142(51.1)	25(9)	17(6.1)	5(1.8)
The physical therapist gave me enough time during the session	1.79±.84	116(41.7)	120(43.2)	28(10.1)	12(4.3)	2(7)
My physical therapist understood my problem or condition	1.71±.67	115(41.4)	132(47.5)	29(10.4)	2(0.7)	-
I am getting good results with the procedures that the physical therapist performed.	1.83±.90	120(43.2)	107(38.5)	31(11.2)	19(6.8)	1(0.4)
I encountered no interruptions during the treatment session.	1.68±.70	120(43.2)	133(47.8)	20(7.2)	4(1.4)	1.(0.4)
My privacy was respected during my physical care	1.56±.60	136(48.9)	130(46.8)	10(3.6)	2.(0.7)	-
The atmosphere of the physiotherapy unit was calm and relaxing.	1.74±.69	106(38.1)	146(52.2)	20(7.2)	7(2.5)	-
The physical therapist gave me detailed information regarding the treatment and the home program.	1.82±.75	97(34.9)	144(51.8)	30(10.8)	5(1.8)	2(0.7)
My physical therapist was courteous and considerate.	1.63±.67	130(46.8)	124(44.6)	22(7.9)	1(0.4)	1(0.4)
Overall satisfaction	17.5180±5.37	128(46)	109(39.2)	34(12.2)	6(2.2)	1(0.4)

reported that older patients showed more satisfaction towards particular aspects of physiotherapy services [10].

The study results showed that majority of patients agreed that location of physiotherapy department was convenient for them. Casserley-Feeney et.al reported in his study that some of the participants showed negative feedback related to the location of the physiotherapist's clinics [11].

The study findings demonstrated that 91.3% participants were satisfied, 7.9% were remained neutral and only 1.08% were not satisfied about the behavior of the physiotherapist. The results of the study also showed that 90.2% of the participants were satisfied with the ambiance of the physiotherapy department. The study conducted by Chetty Verusia et.al in South Africa about satisfaction and adherence of patients reported that all of the participants (100%) were satisfied with the physiotherapist's kind and caring behavior and 85.7% showed satisfaction related to the setting or environment of the physiotherapy clinic. [12]

The results of the study demonstrated that majority (84.8%) of the patients were satisfied with the time the physiotherapist spent with them during treatment. Current study was supported by a study, conducted in Kenya about satisfaction level of patients with low back pain concluded that 83.6% patients were comfortable with duration of session and there is strong association between time factor and satisfaction of patients. The study also reported that 86.1% were agreed and 16.4% were not agreed about instruction of physiotherapists regarding home programme [13]

The study results showed that out of 278, 7.1% patients were disagreed, 11.3% were neutral and 81.6% were agreed with the effectiveness of treatment. Machado NP et.al[4] concluded in his cross sectional descriptive study that 97% users showed complete satisfaction with the services because they were receiving better results. [4]

The findings demonstrated that all the participants showed complete agreement with the competence of physiotherapists. Patients were agreed that physiotherapists understood their condition or problem. Results of another study conducted in intensive care unit showed that patients had complete satisfaction with the knowledge, skills and competence of physiotherapists. The study results showed that only 2 females were disagreed about the privacy respected during physiotherapy care.99.2% patients were completely satisfied with the privacy during session. A study was conducted by Stiller K on satisfaction level of ICU patients about physiotherapy services and he reported that 33 out of 34 patients (97.0%) were satisfied with the privacy and reported that physiotherapists had respected their privacy and dignity [6].

The findings of the study showed that 84.2% males and 85.88% females were overall satisfied with the physiotherapy services so it is concluded that male patients were less satisfied as compared to the female patients. Hills R et.al concluded in his systematic review that female's patients were more satisfied as compared to the male patients [14].

CONCLUSION

The study results showed that most of the users are satisfied with physiotherapy services they received.

Patients showed a high degree of satisfaction with the accessibility, availability and time duration of the services. Results also showed a high degree of satisfaction with the competence and efficiency of the therapist. Majority were satisfied with the effectiveness of the treatment, privacy, ambiance of the physiotherapy unit, communication and behavior of the therapist. They results also showed that majority of the participants were overall satisfied with their experience with physiotherapy services.

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ORIGINAL ARTICLE

DEPRESSION, ANXIETY AND STRESS IN RURAL AND URBAN POPULATION OF ISLAMABAD

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ABSTRACT

Background: Depression, anxiety and stress are most prevalent causes of disease burden in common population. Due to rapid economic and social changes same increasing trend of these disorders has also been observed in Pakistan. **Objective**: To compare level of depression, anxiety and stress between rural and urban population of Islamabad, Pakistan. **Methodology**: A cross-sectional comparative survey was administered on a sample of n=386 participants. A total of n=193 participants belonged to rural population and n=193 belonged to urban population of Islamabad. Participants were interviewed and responses were rated on Depression Anxiety Stress 21 scale (DASS). Data was analyzed by using frequency, percentages, mean and standard deviation. To compare rural and urban population independent t-test was used. **Results**: The mean age of study participants was 32.46±9 years and 33.75±9.98 years in urban and rural population respectively. There was no significant difference at p≥0.05 between total scores of depression, anxiety and stress among rural and urban participants. **Conclusion**: Rural and urban population of Islamabad does not vary significantly on the basis of depression, anxiety and stress level.

Keywords: *Anxiety, DASS 21, Depression, Anxiety, Islamabad, Pakistan*

INTRODUCTION

Anxiety and depressive disorders being most common across the world [1] contribute substantially to global burden of disease (GBD) and by 2020 they are expected to be the second commonest cause of disability.[2] Anticipated early onset of these disorders in life [3] with their chronic course [4] associates them with considerable impairment consequently enhances need to use primary care services thus leads to economic burden. [5] These disorders put low income countries in a challenging situation where infectious diseases and malnutrition are rife and general population can only allocate a low proportion of gross domestic product to health care services.[6]. Even developed countries like United States could not exempt themselves from bearing economic consequences that anxiety disorders pose. Estimated annual cost on anxiety disorders was reported to be forty two billion dollars in 1999.[7]

Some of the symptoms of depression are excessive or decreased appetite, sleep and psychomotor activity, anhedonia and fatigue. [8] Gender issues, employment problems, family setup, social status and social support influence mental wellbeing. In depressive disorder family and social support provides buffer against it, in contrast economic problems and family conflicts aggravate depression.[9-11] Additional associated risk factors among adolescents were identified as female sex.[12] low parental education,[14] and weak inter-parental relationship. [14]

Some reviews on rural- urban differences for psychiatric disorders show urbanization as risk factor while others contradict this concept.[15] Islamabad, the capital of Pakistan has five zones among which two are designated for urban development and other three for rural development.[16] Islamabad is well developed in health care facilities and its rural population can conveniently approach these facilities in contrast to other deprived rural areas of Pakistan. Considering this, present study aims to explore rural-urban differences in prevalence of anxiety, depression and stress in Islamabad. The objective of the study was to compare the prevalence of anxiety, stress and depression in rural and urban population of Islamabad, Pakistan.

METERIAL & METHODS

This cross-sectional comparative survey was administered on n= 386 participants among which n= 193 participants belonged to rural population and n= 193 belonged to urban population of Islamabad. Data from rural population was collected from rural areas of Islamabad i.e. Farash town, Ali pur and Thanda pani. Sample from Urban population was taken from sectors of G-6, G-9 and G-10. Random sampling technique was used for data collection. Tool used for data collection was Depression, Anxiety and stress scale ver. 21 (DASS 21) which is reliable measure for adult population. [17] Ranges for DASS 21 score distribution are mentioned in Table 1. To meet inclusion criteria, participants' having literacy level of matriculation or above was taken in this study to ensure comprehension of study scales for self-administration. Participants' age range was 20-55 years that refers to young and middle adulthood.

Scales were self-administered after ensuring consent from study participants. Data analysis was done using SPSS version 21 and included frequencies and percentages for categorical variables and mean±SD for continuous variables. Differences across study groups were measured by using independent sample t-test.

Table 1: Score Distribution of DASS 21 scale

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

RESULTS

In current study total participants were n=386, n= 193 participants were from urban population and remaining n=193 were from rural population. The mean age of study participants in urban population was 32.46±9 and 33.75±9.98 in rural population restively. Total number of male participants were n=177(45.9%) out of that n=111(57.5%) were from urban population and remaining n=66(34.2%) were from rural population. Total female participants in the study were n=209(54.2%), out of that n=82(42.5%) were from urban population and n=127(65.8%) were from rural population. Results showed that n=156(70.8%) urban and n=150(77.7%) rural population of Islamabad was found depressed. The frequency of anxiety was found n=172(90.2%) in urban and rural population equally. A total of n=119 (52.6%) from urban population and n=111(47.5%) from rural population were found stressed. Frequency distribution of study participants according to severity of depression, anxiety and stress in rural and urban population is shown in table 2.

No significant differences (p≥0.05) were found between scores of rural and urban participants across all items of depression, anxiety and stress, except item 4 was about 'experiencing breathing difficulty without any physical exertion related to anxiety' showed significantly greater score (p=0.04) in Urban population (1.24±0.88) as compared to rural population (1.02±0.87). (Table 3)

Table 2: Frequency distribution depression, anxiety and stress in rural and urban population

	Depression n(%)		Anxiety n(%)		Stress n(%)	
	Urban	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
Normal	37(19.2)	43(22.3)	19(9.8)	19(9.8)	74(38.2)	82(42.5)
Mild	25(13)	34(17.6)	23(11.9)	37(19.2)	37(19.2)	34(17.6)
Moderate	72(37.3)	67(34.7)	34(17.6)	44(22.8)	56(29)	50(25.9)
Severely	37(19.2)	36(18.7)	25(13)	20(10.4)	24(12.4)	24(12.4)
Extremely severe	22(11.4)	13(6.7)	92(47.7)	73(37.8)	2(1)	3(1.6)

DISCUSSION

In this study more sum of participants were rated on moderate to extremely severe depression and anxiety. In comparison to rural population more participants in urban population experienced moderate, severe and extremely severe depression. Data from Canadian community survey explored more deprivation in urban population due to adverse living conditions which consequently showed increased rates of depression and anxiety in them.[18] In a meta-analytic study conducted to find urban-rural differences in prevalence of psychiatric disorders published since 1985, it was exhibited that pooled total prevalence was significantly higher in urban population as compared to rural population for psychiatric disorders.[15] In another study conducted in US no significant association was seen between urbanity and prevalence of depression. In this study no significant differences were found in adults of large metropolitan and rural areas.

This study concluded that prevalence of mental disorders is not subject to urbanity suggesting that consideration of mechanistic explanations as risk factors of psychiatric illness in urban environment is still immature.[19] In another study conducted on US population, contrary to expectation, the prevalence of most psychiatric disorders was similar across rural-urban continuum which concluded rurality as not being a risk factor for any psychiatric disorder or trauma exposure.[20] Few studies link Urbanization as a risk factor for mental disorders [15] and on contrary literature also reveals high prevalence of major depressive disorders in rural areas. [21]

Prevalence of anxiety disorders was reported to be 18% in US [1] and in European Union more than sixty million people gets affected per year. [22] GBD study projected that Disability-Adjusted Life Years (DALYs) was around 26.8 million due to anxiety disorders.[23] For past few decades anxiety disorders are getting increased attention globally for research purposes due to greater recognition of

Table 3: Comparison of depression, anxiety and stress b/w Rural & Urban population

	Area	N	Mean	SD	p-value
I found it hard to wind down	Urban	193	.78	.813	.388
	Rural	193	.86	.950	
I was aware of dryness of my mouth	Urban	193	1.24	1.074	.774
	Rural	193	1.21	1.052	
I couldn't seem to experience any positive feeling at all	Urban	193	1.27	.963	.353
	Rural	193	1.37	1.111	
I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	Urban	193	1.24	.888	.014
	Rural	193	1.02	.878	
I found it difficult to work up the initiative to do things	Urban	193	1.22	.917	.957
	Rural	193	1.23	.979	
I tended to over-react to situations	Urban	193	1.49	.974	.201
	Rural	193	1.36	1.011	
I experienced trembling (eg, in the hands)	Urban	193	1.08	.929	.107
	Rural	193	.92	1.022	
I felt that I was using a lot of nervous energy	Urban	193	1.55	1.050	.102
	Rural	193	1.38	.998	
I was worried about situations in which I might panic and make a fool of myself	Urban	193	1.28	.954	.561
	Rural	193	1.22	.972	
I felt that I had nothing to look forward to	Urban	193	1.07	.930	.054
	Rural	193	.88	.964	
I found myself getting agitated	Urban	193	1.20	.944	.089
	Rural	193	1.04	.906	
I found it difficult to relax	Urban	193	1.35	1.026	.337
	Rural	193	1.25	.986	
I felt down-hearted and blue	Urban	193	1.12	.942	.224
	Rural	193	1.00	.979	
I was intolerant of anything that kept me from getting on with what I was doing	Urban	193	1.42	.845	.635
	Rural	193	1.38	.871	
I felt I was close to panic	Urban	193	1.35	.958	.055
	Rural	193	1.16	1.000	
I was unable to become enthusiastic about anything	Urban	193	1.16	.896	.121
	Rural	193	1.02	.938	
I felt I wasn't worth much as a person	Urban	193	1.17	.932	.084
	Rural	193	.99	1.008	
I felt that I was rather touchy	Urban	193	1.12	.887	.457
	Rural	193	1.20	1.022	
I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	Urban	193	1.29	.924	.153
	Rural	193	1.43	.993	
I felt scared without any good reason	Urban	193	1.19	.924	.706
	Rural	193	1.23	.963	
I felt that life was meaningless	Urban	193	1.21	1.089	.023
	Rural	193	.96	1.007	
Depression score	Urban	193	8.24	3.856	.102
	Rural	193	7.60	3.845	
Anxiety score	Urban	193	8.69	3.695	.241
	Rural	193	8.24	3.842	
Stress score	Urban	193	8.92	3.171	.128
	Rural	193	8.40	3.490	

-burden they cause and their associated implications with untreated illness. Anxiety disorders contribute as a risk factor for substance abuse and mood disorders and these comorbidities makes treatment difficult thus contributes to poor prognosis, decreased remissions rate and increased risk of suicide.[24] Increased cost of untreated anxiety at personal and societal level is being associated with frequent health care visits, unemployment, declined work productivity and problems in social relationships. [25] In 2016 Pakistan was ranked as seventh most stressed country in the world.[26] Depression is the second leading cause of DALYs in both sexes across age 15 to 44 years and

is expected to take second place in DALYs' ranking for both sexes across all ages by 2020.[27] Around the world approximately one million people commit suicide annually due to depression and nearly 150 million people suffer from depression at some point in their lives. [28] Doctors in primary care setups seldom make appropriate diagnosis of depression and when they make, it often leads to inappropriate treatment recommendations. [29] In Pakistan reasons behind inadequate diagnosis and treatment include time constraints, reluctance of doctors to let patient discuss emotional problems, medical comorbidities that complicate diagnosis, greater case load of patients competing for medical attention and patients' reluctance due to perceived stigma towards psychiatric treatment.[30] Social problems are major contributors to depression and anxiety with reported prevalence of 34% in Pakistan while scarce budget of less than 1% GNP is allocated for mental health.[31] Risk factors for depression in developing countries including Pakistan were reported to be unemployment, traditional occupation, overcrowding, low SES, poverty, illiteracy, no formal education or low level of education, recent bereavement, malnutrition, marital discord, divorce and women's age greater than 35 years. [32,33]

CONCLUSION

Studies that associate rurality as a risk factor of psychiatric disorders conclude it on the basis of social stratification and incapability to use appropriate skills to cope up with stress. Findings of our current study contradict rurality as risk factor might be because rural areas of a well-developed urban city like Islamabad have not major difficulty in accessing urban health care facilities and rural areas of Islamabad are not as deprived with health care facilities as other poor population of rural areas that one could imagine.

LIMITATIONS AND RECOMMENDATIONS

This study lacks generalizability due to small sample size and specificity of areas only to zones of Islamabad. For better generalization of results this study needs to be conducted on larger sample size. Rural-urban comparisons of Islamabad with other provincial capitals of Pakistan i.e. Lahore, Karachi, Peshawar and Quetta are recommended to study in extension of this research. Prevalence in other rural and urban areas of Pakistan should be calculated and compared with national and provincial capitals. Socio-demographic correlates also present as risk factors for depression, anxiety and stress which are not considered in this study. In further extension of this study socio-demographic correlates will be explored.

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ORIGINAL ARTICLE

EFFECTS OF ENDURANCE AND RESISTANCE TRAINING ON BODY COMPOSITION

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ABSTRACT

Objective: The purpose of the study was to compare the endurance and resistance training effects on body composition. **Material and Methods:** Forty healthy male and female participants, aged 20 to 35, were equally assigned to 12 weeks of Endurance (n=20) and Resistance training (n=20) groups. Both trainings comprised 3 sessions per week of 45-60 minutes each with progression induced with the passage of time. Body mass, body mass index, %body fat, %muscle mass, %body water, waist circumference, hip circumference, and waist-to-hip ratio were calculated with bioelectrical impedance analysis and measurement tape. Data collection was repeated after 12 weeks of training. Between-group analyses were done by independent-samples t test while paired-samples t test was used to analyze within-group changes. **Results:** After endurance training, all parameters improved significantly ($p<0.001$) except for the waist-to-hip ratio ($p=0.054$). Conversely, there was no significant change after resistance training in any parameter except for a significant reduction in hip circumference ($p<0.05$). **Conclusion:** Results suggested that 12 weeks of Endurance training had positive effects on body composition and other variables while resistance training did not affect body composition.

Keywords: *Body composition, Endurance training and Resistance training*

INTRODUCTION

Having a healthy body composition means having a relatively low level of body fat, with most of body weight coming from lean mass, including muscle tissue. Main constituents of human body are fats, proteins, carbohydrates, minerals, vitamins and above all water. Water makes up nearly 70% of the body. Regarding body composition, body can be divided into two main components: fat component and fat-free component.[1] Obesity is a serious health issue in Pakistan nowadays. Unhealthy and energy-rich diet, cooked in large quantity of oils, combined with sedentary lifestyle has contributed enormously to the root causes of obesity in Pakistan.[2]

Endurance training carried out on regular basis improves physical fitness and enhances recovery rate [3]. Endurance training is one of the most advocated kinds of exercising workouts for treatment of weight problems [4] Endurance training decreases insulin resistance and reduces visceral fats [5]. But there no effect was observed in elderly people and obese female on the muscle mass as maximal muscle power drops at higher rate with decreased muscle lean mass. It was also reported that resistance exercises reduces glycosylate hemoglobin, total fat mass and increase insulin resistance.[6,7,8,11,15]

Body composition is associated with training-based adaptation, physiological parameters, and maximal performance. For instance, people having the same fat-free mass (FFM), a larger body fat proportion suggests a reduced overall achievement in weight-bearing bodily things to do such as climbing stairs and walking [9]. Some studies have recommended that normal physical workout has a beneficial effect on physique, body composition, health, and these benefits are independent of gender. Although resistance workout helps to build FFM and bones mineral density as properly as well as modifications in physique, composition changes in biochemically neurological and morphologically factors against power workout typically outcomes in substantial adjustments in body composition [10]. Resistance training workout is valuable for growing muscular strength, bone strength, and also bone mineral contents [11]. Physical exercise ought to be carried out in weight problems management protocol, irrespective of the beginning body weight or fat loss goals. Physical training is recognized to be following with body fat loss and with rate reducing of diabetic, cardiovascular and all causes of mortality, mainly to enhance life expectancy and counted the terrible health have an effect on of weight problems. [12] Endurance persistence exercise is the much

advocated kind of workouts in the treatment of obesity. Rather the consequences of latest research point out several potential advantages of resistance training in the remedy of obesity which include increased muscular strength, avoidance of sarcopenia with old age maintenance of density of bone mineral and reduction of body fats.[24] There was no such study found in Pakistan so the purpose of the study to determine and compare the effects of endurance and resistance training on body composition.

METERIAL & METHODS

This study was designed to be a quasi-experimental trial in which two groups were formed: Endurance training group (END) and resistance training group (RES). The study was conducted in a physical fitness center in Islamabad, Pakistan. The total number of participants, recruited through non-probability convenience sampling, included in the study was 40, assigned equally to END group and RES group, resulting in 20 participants in each group.

Ethical approval for the study was obtained from the relevant ethics committee and written informed consent was obtained from the participants before the study began. Inclusion criteria included individuals of both gender aged between 20 and 35 years. Individuals with history of fracture or major musculoskeletal disorder within last year, current pregnancy, and heart disease were excluded from the study. Time for the resistance training was 45 to 60 minutes per session. The frequency of sessions was 3 in a week. The intensity of the workout was gradually increased with the passage of time. Detailed description of the training can be found in table 1. Similarly, the time for the endurance training was 45 to 60 minutes per session. The frequency of sessions was 3 in a week. The intensity of the training was gradually increased with the passage of time. Activities included in the training are presented in table 2.

Data was collected before the training started using Body Fat Monitor HBF-306 (OMRON Healthcare Asia) and measurement tape. Study parameters included body mass, body mass index, %body fat, %muscle mass, %body water, waist circumference, hip circumference, and waist-to-hip ratio. Data collection was repeated after 12 weeks of training. Statistical analyses compromised independent-samples t test for between-group comparisons and paired-samples t test for evaluating training-induced changes within both groups.

Table 1. Description of the resistance training

Muscle/ region	Exercises	Set/ reps
Pectoralis major	Bench press	3/10
Pectoralis minor	Inclined Dumbbell bench press	3/10
Biceps	Dumbbell bell curls (alternate)	3/10
Biceps	Preacher curl	3/10
Triceps	Cable push down	3/10
Triceps	Overhead dumbbell extension	3/10
Latissimus dorsi	One arm dumbbells rows (alternate)	3/10
Latissimus dorsi	Lateral pull down	3/10
Shoulder	Front dumbbell raise	3/10
Shoulder	Lateral dumbbell raise	3/10
Quadriceps	Leg press	3/10
Hamstring	Seated leg curls	3/10

Table 2. Description of the endurance training

Exercise	Time	Rest
Elliptical	10 minutes	30 seconds
Burpees	30 seconds	30 seconds
High Knees	30 seconds	30 seconds
Mountain climbing	30 seconds	30 seconds
Jumping jacks	30 seconds	30 seconds
Battle ropes	30 seconds	30 seconds
Treadmill	15-30 minutes jogging	-

RESULTS

The minimum age of study participants were 21-35 years and mean age was 27.35±4.51 years. A total of n=15 male and n=5 female were in END group and n=18 male and n= 2 female were in RES group respectively. At baseline both groups were significantly different regarding %Fat (END 24.4% vs. RES 20.1%; *p=0.009*), %Muscle (END 71.3% vs. RES 75.3%; *p=0.012*), %Water (END 54.9% vs. RES 58.1%; *p=0.014*). Both groups were comparable on all other parameters (Table 3).

Within the END group, there was significant change after training. All parameters improved significantly (*p<0.001*) except for waist-to-hip ratio (*p=0.054*). In contrast, there was no significant change observed after resistance training in any parameter except for significant reduction in hip circumference (Table 4).

After 12 weeks of training, significant between-group differences were evident in %Fat (END 23.0% vs. RES 19.2%; *p=0.032*), %Muscle (END 72.7% vs. RES 76.6%; *p=0.024*), %Water (END 56.2% vs. RES

59.3%; *p=0.034*). Both groups were similar in terms of other study parameters (Table 5).

Table 4: Training-induced changes in both study groups

		END			RES		
		Mean	SD	p-value	Mean	SD	p-value
Weight (kg)	Pre	78.1	15.8	0.00	72	7.3	0.13
	Post	75.3	14.9		72.8	7.5	
BMI (m/kg^2)	Pre	25.8	4.7	0.00	23.4	2.4	0.06
	Post	24.6	4.4		23.8	2.5	
Fat (%)	Pre	24.4	5.7	0.00	20.1	4.2	0.14
	Post	23	5		19.2	5.9	
Muscle (%)	Pre	71.3	5.4	0.00	75.3	3.9	0.05
	Post	72.7	4.8		76.6	5.6	
Water (%)	Pre	54.9	4.5	0.00	58.1	3.1	0.05
	Post	56.2	4.1		59.3	4.7	
Waist (Inches)	Pre	35.8	5.6	0.00	33.3	2.1	0.10
	Post	34.1	4.9		33	2.2	
Hip (Inches)	Pre	39.9	4.3	0.00	38	1.9	0.02
	Post	38.5	3.7		37.6	1.9	
Waist/Hip ratio	Pre	0.89	0.1	0.05	0.87	0.1	0.77
	Post	0.88	0.1		0.87	0.1	

Table 5: Post-training comparison of both groups

		Mean	SD	p-value
Weight (kg)	END	75.3	14.9	0.51
	RES	72.8	7.5	
BMI (m/kg^2)	END	24.6	4.4	0.43
	RES	23.8	2.5	
Fat (%)	END	23	5	0.03
	RES	19.2	5.9	
Muscle (%)	END	72.7	4.8	0.02
	RES	76.6	5.6	
Water (%)	END	56.2	4.1	0.03
	RES	59.3	4.7	
Waist (Inches)	END	34.1	4.9	0.36
	RES	37.6	1.9	
Hip (Inches)	END	38.5	3.7	0.34
	RES	37.6	1.9	
Waist to Hip Ratio	END	0.88	0.1	0.83
	RES	0.87	0.1	

DISCUSSION

In the present study, the effects of Endurance and Resistance training with no dietary restriction on the following variables were examined: body weight, BMI, %Fat, %Muscle, %Water, waist circumference, hip circumference, waist-to-hip ratio. Results suggested that 12 weeks of Endurance training improved body composition, weight, waist and hip circumference parameters while Resistance training did not have significant effects on any variables except in hip circumferences in healthy individuals aged 20 to 35.

In this present study the effects of Endurance training in 12 week had significant changes on body composition parameters, weight, BMI, waist circumference, hip circumference. At baseline some of the subjects of endurance group were overweight and obese. After 12 weeks of Endurance training which changes their body composition and other parameters with significant reduction in body weight.

There are several studies conducted to see the relationship between Endurance training and body composition parameters, weight, BMI, waist and hip circumference. Published data on the effect of exercise training intensity on body composition and regional body fat are mixed [15,16,17] With regard to total body fat loss, total caloric expenditure seems to be the key factor. Slentz et al. reported that low-amount/moderate-intensity and low/vigorous intensity endurance training (i.e., activity equivalent to 12 miles a week of walking or jogging) were

equally effective in reducing percent body fat, fat mass, waist circumference, and abdominal circumference in previously sedentary, overweight, middle-aged adults. They also reported that high-amount/vigorous-intensity endurance training was more effective in reducing percent body fat and fat mass compared with the two low-amount training groups. Although the exercise intensity was not equated across training volumes, the authors did effectively demonstrate a dose–response relationship between training volume and amount of weight change using a pooled analysis [18]

The effects of endurance training on body fat distribution (as measured by skin folds and circumferences) have been previously reported in young subjects. Despres et al. initially reported that a 20-week endurance training program did 2.6-kg loss of fat with 22% and 12.5% decrease in trunk and extremity skin folds respectively as compared to initial sizes in non-obese but young men. [19] In another study in which high-intensity exercise training given for 15 weeks to non-obese young men, reported reduction in extremity fat with 27% v 15% change. And in moderately obese men 6.8kg loss of fat was reported by following a 1,000 kcal/d exercise-induced energy deficit, this reduction was more in extremity fat but overall showing reduction in total fat mass than SC fat, suggesting a loss of deep fat. Significant decrease in the WHR after 6-month endurance training program was reported in premenopausal females[20]

A past study was conducted to see the relationship between resistance training and body composition. In a 12 week circuit resistance training (CRT) program, twenty eight male volunteers with moderate activity were randomly assigned. The study showed that resistance training program is commonly used to increase FFM and decrease BF percentage [21] One of the important findings of the study were that the researchers did not find changes in all types of subjects. Only males and those females with male-type distribution of adipose tissue demonstrated significant changes. Within CRT group significant decrease in BF (-1.63%), FM (-1.03 kg), a significant increase in FFM (1.46 kg), with no change in body weight or bone mineral density (BMD) was found whereas in the control group no significant changes in BF, FM, FFM, or BMD were found. The literature supports the findings of the present study.

Shaw et al. (2009) studied the effects of resistance exercise training with 3 times per week for total 16 weeks on twenty five healthy males with mean age of 25 years and found significant decreases in BF, total skin fold, and body mass index (BMI). [21] Ferreira et al. (2010) reported that waist circumference and waist to hip ratio did not change with CRT program consisting of 10-weeks(3 days/week) but it increased FFM and decreased FM and BF percentage on 14 sedentary females (33–45 years old)[22]. Wilmore (1947) conducted a study on Forty-seven females and 26 males (mean 20.3 years). Resistance exercise for 10 weeks, 2 days per week was given to them and found no decrease in body weight but relative FM decreased by 10% and 7.6% for males and females, respectively [23]. Ryan et al. (2004) found increase in muscle mass and improved bone mineral density of the femoral region in both the healthy young and older men and women after 6 months of progressive whole-body resistance training on body composition.[24]

Literature supports this study and there are some past studies conducted to compare the both endurance and resistance training effects on body composition. In sedentary overweight middle aged males and females, 10 weeks of aerobic endurance training (AET), resistance exercise training (RET), or a control (CON) condition for absolute and relative fat mass (FM) or fat-free mass (FFM) in the total body (TB) and regions of interest (ROIs) showed that both female exercise groups improved in strength and aerobic fitness than males ($P<0.05$); however, the male exercise groups showed improvement in TB-FFM and reduced TB-FM more than the females ($P<0.05$). Male AET altered absolute FM was affected more by AET in males and RET altered absolute FFM, thus overall showing improvements in relative FFM. Despite the females responded equivalent or greater to RET or AET but respective increases in FFM or reductions in FM were lower, indicating that a biased dose-response relationship exists between sexes during exercise sessions [25]

Many studies investigating concurrent strength and endurance training have not found significant positive results [26,27] in physical performance or body composition adaptations, while other studies have observed some effects [28,29]. During combined effects of strength and endurance training adaptation, skeletal muscles can be limited by several mechanisms like neural components, fuel substrate availability, fiber type transformation, overtraining, and alterations in protein synthesis. Most of the studies report local effects are involved more for skeletal muscle adaptation rather than a systemic interference but this result contradicts with present study in which interference seems to be systemic, because both lean mass in the arms and legs and muscle thickness in the lower (11% vs. 9%) and upper (22% vs. 20%) extremities by ultrasound significantly improved in S, but not in SE,. A study with longer duration is required to confirm the results.

CONCLUSION

The study concluded that endurance training resulted in significant reduction in the body weight, body mass index, fat content, waist circumference, and hip circumference. Conversely, significant increase was observed in muscle content and water content due to endurance training. The only significant change caused by the resistance training was reduced hip circumference. Both groups were significantly different from each other regarding percent body fat, percent muscle, and percent body water before and after the trainings.

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ORIGINAL ARTICLE

ASSOCIATION OF DEPRESSION, ANXIETY AND STRESS WITH FIBROMYALGIA IN PAKISTANI POPULATION

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ABSTRACT

Objectives: to find level of depression, anxiety & stress and its association with fibromyalgia among Pakistani Population. **Methodology:** A descriptive cross sectional correlational study was carried out on n=314 participants. Sample was selected through convenient sampling technique from patients visiting department of Physical Therapy Benazir Bhutto hospital Rawalpindi (BBH) and Department of Physical Therapy Isra Institute of Rehabilitation Sciences. Both genders of all age groups, diagnosed with musculoskeletal disorder (MSKD) were included in study. The data was obtain about age, gender, weight, height, BMI, sleep hours, occupation and depression, anxiety and stress scale (DASS). To diagnose fibromyalgia from MSKD, Physical therapist used new modified 2016 criteria for fibromyalgia was used. To present data mean±SD was used for continuous variable and n(%) for categorical variable. To find association between fibromyalgia and DASS chi-square test was used. **Results:** The mean age was 41.84±16.47 years. The average height weight and BMI was 166.04±12.74 (cm), 68.03 ±12.50 (kg) and 25.05±6.57 respectively. Average sleep hours of study participants was 7.79±2.02 hr/day. The mean score of depression (5.43±4.25), anxiety (7.08±4.46) and stress (6.69±5.02) showed that maximum participants with fibromyalgia has mild level depression, moderate level of anxiety and normal level of stress respectively. The significant association of depression(X^2=23.80, *p<0.001*), anxiety (X^2=24.39, *p<0.001*) and stress (X^2=14.62, *p<0.001*) was observed with fibromyalgia syndrome. **Conclusion:** The study concludes that patient with fibromyalgia have mild depression, moderate anxiety. Fibromyalgia significantly associated with depression, anxiety and stress and vise versa.

Keywords: Depression, anxiety, stress, fibromyalgia, musculoskelatal disorders.

INTRODUCTION

Musculoskeletal disorders (MSKD) are resulting in poor health status.[1] Poor mental health and symptoms appearance are incident in chronic musculoskeletal pain and disabilities related to musculoskeletal disorders.[2,3] Fibromyalgia is a chronic pain syndrome characterized by widespread pain, disturbed sleep, fatigue, and tenderness.[4] Depression, anxiety and stress are observed in patients with fibromyalgia. [5]

Depression, anxiety and stress are interrelated as these are body's response to any kind of threat but if untreated and persists for longer duration leads to symptoms including palpitations, shortness of breath, increased somatic activity etc. Dysregulated psycho-physiological reactions occur in patients with musculoskeletal disorders because these conditions are usually chronic which leads patient to stress and depression.[6]

Fibromyalgia is chronic illness and is prevalent in adults, middle and older age. Several studies showed that there exists a strong association between depression, anxiety and stress with fibromyalgia.[6,7] Studies showed that patients with diagnosed fibromyalgia also had Moderate to severe depression, anxiety, stress or any one of these three.[8,9,10,11]

Literature showed that due to depression, anxiety and stress people are more prone to fibromyalgia and vice versa. But no study has been conducted in Pakistan on to find level of depression, anxiety and stress and its association with fibromyalgia. Thus, this study was undertaken to find level of depression, anxiety & stress and its association with fibromyalgia among Pakistani Population.

METERIAL & METHODS

A descriptive cross sectional correlational study was carried out on n=314 patients of musculoskeletal disorders. Study was completed over a time period of 05 months from January 2017 to August 2017. Study was approved by the ethics board of Benazir Bhutto Hospital (BBH) Rawalpindi and Isra Institute of Rehabilitation Sciences (IIRS). The sample was selected through convenient sampling technique from patients visiting department of Physical Therapy BBH and Department of Physical Therapy (IIRS). Informed consent was obtained from participants before data collection. Both genders of all age groups, diagnosed with musculoskeletal disorder were included in study.

To diagnose fibromyalgia from MSKD, Physical therapist used new modified 2016 criteria for fibromyalgia that includes three conditions to be met for diagnosis; (1) Widespread pain index (WPI) Z 7 and symptom severity scale (SSS) score Z 5 OR WPI of 4– 6 and SSS score Z 9. (2) Generalized pain, defined as pain in at least 4 of 5 regions, must be present. Jaw, chest, and abdominal pain are not included in generalized pain definition. (3) Symptoms have been generally present for at least 3 months.[12] Patients who mimic similar sign and symptoms with other neurological problems, patients with presentation of other systemic problems and pregnant women were excluded in this study.

The data was obtained about age, gender, weight, height, BMI, sleep hours, occupation and depression, anxiety and stress scale (DASS). To present data mean±SD was used for continuous variable and n(%) for categorical variable. To find association between fibromyalgia and DASS chi-square test was used and p-value set at <0.05 for level of significance. Statistical analysis software (SPSS version 21) was used to analyse the data.

RESULTS

The results of the study participants showed that mean age was 41.84±16.47 years. The average height weight and BMI was 166.04±12.74 (cm), 68.03 ±12.50 (kg) and 25.05±6.57 respectively. Average sleep hours of study participants was 7.79±2.02 hr/day. The mean score of depression (5.43±4.25), anxiety (7.08±4.46) and stress (6.69±5.02) showed that maximum participants with fibromyalgia has mild level depression, moderate level of anxiety and normal level of stress respectively. The frequency distribution of gender, occupation, BMI was shown in table.

Table 1: Demographic characteristics of study participants

		n(%)
Gender	Male	128(40.8)
	Female	186(59.2)
Occupation	Employed	102(32.5)
	Unemployed	3(1.0)
	Retired	13(4.1)
	Housewife	104(33.1)
	Student	56(17.8)
	Self Employed	36(11.5)
BMI Cat	BMI < 18.5 underweight	27(8.6)
	BMI is 18.5 to <25, normal.	159(50.6)
	BMI is 25.0 to <30, Overweight	77(24.5)
	BMI is 30.0 or higher, obese	51(16.2)

The significant association of depression(X^2=23.80, *p<0.001*), anxiety (X^2=24.39, *p<0.001*) and stress (X^2=14.62, *p<0.001*) was observed with fibromyalgia syndrome. (Table 2)

Table 2: Association between DASS & Fibromyalgia

		Depression					X^2	*p-value*
		Normal (0-4)	Mild (5-6)	Moderate (7-10)	Severe (11-13)	Extremely Severe 14+		
Fibromyalgia	Yes	25(10.8%)	5(17.9%)	10(32.3%)	8(50.0%)	1(14.3%)	25.12	<0.001
	No	207(89.2%)	23(82.1%)	21(67.7%)	8(50.0%)	6(85.7%)		
		Anxiety						
		Normal (0-3)	Mild (4-5)	Moderate (6-7)	Severe (8-9)	Extremely Severe 10+		
	Yes	11(6.7%)	10(14.7%)	9(30.0%)	5(38.5%)	14(36.8%)	32.94	<0.001
	No	154(93.3%)	58(85.3%)	21(70.0%)	8(61.5%)	24(63.2%)		
		Stress						
		normal (0-7)	mild (8-9)	moderate (10-12)	severe (13-16)	extremely severe 17+		
	Yes	29(11.6%)	5(21.7%)	6(33.3%)	7(43.8%)	2(25.0%)	18.07	<0.001
	No	220(88.4%)	18(78.3%)	12(66.7%)	9(56.3%)	6(75.0%)		

DISCUSSION

The aim of the study was to find out the association between depression, anxiety and stress with fibromyalgia in Pakistani population. The result of this study showed that fibromyalgia syndrome has significant association with depression, anxiety and stress. The results of current study suggested association of fibromyalgia with depression, anxiety and stress. Several previous studies support the results of our current study whereas a study conducted by Wallit B et al[4] reported no correlation between negative emotional symptoms and fibromyalgia but related it to poor perception of health.[4]

A study was conducted by R. Torta, F. Pennazio and V. Ierac to find out anxiety and depression in rheumatological disorders particularly fibromyalgia and suggested that emotional disorders e.g. depression, anxiety and stress are highly prevalent in people with fibromyalgia.[9] Aguglia A et al.[10] conducted a study on fibromyalgia and depressive symptoms which showed that fibromyalgia is frequently associated with psychiatric symptoms, like depression and anxiety. This study included patients of 18-75 years of age with the diagnosis of fibromyalgia. Results of this study presented that 83.3% patients of fibromyalgia had depressive symptoms. These depressive symptoms affect the perception of pain and the quality of life in worse way. The results of this study are relevant with the present study as it showed depression, anxiety and stress co-exists with fibromyalgia.[10]

A study was conducted on fibromyalgia and depression by Gracely RH et al and reported that Fibromyalgia and depression might represent two manifestations of affective spectrum disorder. This study reported that fibromyalgia is associated with depression as it shares many features with it including similar pathophysiology. Results of the present study also suggest that there exists an association between depression, anxiety and stress with fibromyalgia.[11]

CONCLUSION

The study concludes that patient with fibromyalgia have mild depression, moderate anxiety. Fibromyalgia significantly associated with depression, anxiety and stress and vise versa.

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