Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20017
DOI URL: http://dx.doi.org/10.21474/IJAR01/20017

RESEARCH ARTICLE

PREVALENCE OF ANTERIOR KNEE PAIN AND LEVEL OF DISABILITY AMONG WEIGHTLIFTERS OF GUJRANWALA

Laiba Khalid[1], Bushra Zulfiqar[1], Umair Ashfaq[2], Saliha Shabbir[1], Asma Tahir[1] and Ramsha Malik[1]

1. Royal Medical College.
2. Lincoln University College, Malaysia.

Manuscript Info

Manuscript History
Received: 07 October 2024
Final Accepted: 09 November 2024
Published: December 2024

Key words:-
Anterior Knee Pain, Athlete's, Kujala Pain Questionnaire/ Anterior Knee Pain Scale, Disability, Gujranwala, Prevalence, Weightlifters

Abstract

Background: Anterior knee pain is commonly present in young athletes. Anterior knee pain occurs due to intense physical activities that put constant pressure on knee joint and compromised certain type of activities such as running, squatting, climbing or descending stairs. Knee pain is commonly present in weightlifters and knee injury occur due to repetitive bending of knee joint.

Objective: The aim of the study is to determine the prevalence of anterior knee pain & level of disability among weightlifters of Gujranwala, Pakistan.

Material and Method: This research was based on observational cross sectional study design. Non probability convenient sampling technique was used for the data collection procedure. The sample size was of 139 weightlifters, 33 were females and 106 were male or age range from 15-30 years. The data obtained from Kujala AKP questionnaire and analyzed by the use of Statistical Package for the Social Sciences (SPSS) 21 version. KUJALA AKP is a 13-item questionnaire designed to assess anterior knee pain in adolescents and young adults. Result: Findings of the research showed that the prevalence of anterior knee pain was more experienced in male than the female. 103 (74.1%) weightlifters were experienced anterior knee pain. The anterior knee pain in male weightlifters were 88 (63.3%) and female weightlifters were 15 (10.7%)

Conclusion: This study concluded that prevalence of anterior knee pain & level of disability was common in male weightlifters of Gujranwala.

Introduction:-

Anterior knee pain is a knee pain as a result of problems between the kneecap and femur. Patellofemoral pain syndrome is one of the main causes of anterior knee pain. A condition during which pain is often ahead of the knee and around the patella or kneecap. It's peripatellar pain (around the kneecap) arising from overuse and overload of patellofemoral joint. Anterior knee pain is caused by vigorous physical activities that impose repetitive stress on the knee joint, for instance jogging, squatting, excessive use or climbing and descending stairs (Callaghan and Selfe, 2012).

Corresponding Author:- Umair Ashfaq
Address:- PhD in Physiotherapy, Lincoln University College, Malaysia.

Anterior knee pain is also caused by subchondral bone stress. Complaints of anterior knee pain are crepitus. The clinical entity can be because of maltracking of patella within the trochlear groove that's caused by functional misalignment. During this condition, the patella is pushed out to one side of the groove when the knee is bent. (Naslund et al., 2002)

This abnormality may cause increase pressure between the rear of the patella and also the trochlea, irritating soft tissue. The functional misalignment is related to quadriceps Imbalance, hamstring tightness or iliotibial tract tightness. Misalignment of lower extremity may result within the incidence of anterior knee pain. It is related to sequence of things like genu valgum and femoral ante version.(Petersen et al., 2014)

Weight lifting may be a dynamic strength and power sport that involves three basic activities i.e. snatch, clean and jerk. Lifting the barbell from the ground to the extended position is snatching the single movement. The two movement, lift from the ground to shoulder position is clean and jerk being from shoulder to the extended position.(Kumpati and Kannan, 1990)

The training structure of competitive weight lifters is characterized by the frequent use of high-intensity resistance exercise movements. These movements if performed in a very faulty manner result in abnormal forces on the patella, causing overuse injuries to the patella. (Gharote et al., 2016)

Overuse weightlifting movement cause injuries that are typically the results of poor technique use of high volume or high intensity for an extended period of time, failure to properly warm up and poor choice of exercise training. Acute injuries typically occur as a results of an athlete losing concentration attempting to perform beyond his/her capabilities.(Stone et al., 1994)

The proportion of knee injury in weight lifting occur because of repetitive bending of joint. Studies revealed that weightlifting has low rate of injuries if it's compared with other kind of sport. Short height and limb length of weight lifters provide mechanical advantages when lifting heavy loads. Moreover, the shorter body dimensions coincide with a greater mean striated muscle cross-sectional area that's advantageous to weightlifting performance. Children and junior weightlifters are more prone to injuries like subside of the burden on the body due to poor performance techniques, whereas in adults more ligament and muscle injuries are reported. Weightlifting training produce high metabolic cost. Although dietary record showed that weightlifters typically required daily energy intake, weightlifters have shown to over-consume protein and fat at the expense of adequate carbohydrate. The resulting macro-nutrient imbalance might not yield best performance gains.(Storey and Smith, 2012).

Literature Review:-

Elkin J. and his members conducted a study to assess the likelihood of injury in cross-fit and traditional weightlifting participants. 411 participants were included (122 cross-fit ,289 traditional weightlifters). This study shows that anterior knee pain is more common in traditional weightlifters as compared to cross-fit, with the prevalence of anterior knee pain is 70.3%.(Elkin et al., 2019)

Xu et al and his members conducted a study within which prevalence of patellofemoral pain and knee pain in Chinese athletes. A complete of 153 participants were included within the study. Out of 153, 55 were experienced knee pain, with a prevalence of knee pain of 35.6%. Male are more affected than female.(Xu et al., 2018)

Smith et al and his members conducted a study in which incidence and prevalence of anterior knee pain in amateur athletes.23 studies were included. Annual prevalence of patellofemoral pain syndrome in amateur athletes is 28.9%. This study shows that anterior knee pain is more common in females as compared to male.(Smith et al., 2018)

Gharote et al and his members conducted a study in national level weightlifters to judge the prevalence of patellofemoral pain syndrome & anterior knee pain. 50 players (44 males and 6 females) aged 15-30 years. 40 were diagnosed with patellofemoral pain syndrome (34 males and 6 female). Patellofemoral is more common in younger and adolescent weightlifters.(Gharote et al., 2016)

Alabbad and Muaidi or his members conducted a study to seek out the prevalence of weightlifting injuries.The most common injured locations are shoulder joint, lumber portion, knee, elbow, hand, and wrist within the weightlifters.

The share of the injuries in line with location is the shoulder (36%), low back/ spine (24%), elbow (11%), and also the knee (9%).(Alabbad and Muaidi, 2016)

Aweto et al and his members conducted a study of patellofemoral pain syndrome and anterior knee pain in adolescent female athletes. Out of 100%, 6 pecent were diagnosed with patellofemoral pain syndrome. Total 2500 students within which 150 students had patellofemoral pain syndrome.2022/7/5

Nejati and his members conducted a study of prevalence of anterior knee pain in Athletes. The study was organized in Iran. 418 athlete aged 15-35 years were examined in five sports: weightlifters (190), volleyball (103), Running (42), Fencing (45) , Rock climbing (38). The result showed that anterior knee pain were diagnosed in weightlifters(13.68%).(Nejati et al., 2011)

Methodology:-

Study Design:
It was an observational cross-sectional study.

Study Setting:
The weightlifters were taken from following clubs & gyms of Gujranwala

1. Star weightlifting club Gujranwala
2. Brother's weightlifting club Gujranwala
3. Chaudhary Ameen weightlifting club Gujranwala
4. Asif dar weightlifting club Gujranwala
5. Shaheed weightlifting club, Satellite town Gujranwala
6. Reshape fitness gym, Shalimar town Gujranwala
7. City gym & fitness center Gujranwala
8. Shapes gym, Wapda town Gujranwala
9. Champion gym, Rahman colony Gujranwala
10. Bhatti fitness gym, Shaheenabad Gujranwala
11. D. C colony men's fitness gym Gujranwala
12. Master health & fitness center, master city Gujranwala
13. World gym, GT road Gujranwala
14. Aziz gym health & fitness center, people's colony Gujranwala
15. Atif Mahmood power fitness gym Gujranwala

Study Duration:
This study was conducted in a total time period of 06 months from sep-2021 to feb 2022 after approval of synopsis.

Participant selection:
Sampling Technique:
Non-probability convenient sampling technique was used.

Inclusion Criteria:

1 Eligibility Criteria: Age 15-30 years
2 Gender: male or female
3 Subject weight more than 50 kg
4 Trained = practice from last 6 months, regular
5 Untrained = less than 3 months, not regular

Exclusion Criteria:

1 History of Trauma
2 Fracture
3 Hip or knee surgery
4 Radiological evidences of any pathological condition
5 ACL tear
6 Meniscal injuries
7 Degenerative diseases (e.g. RA)

Results:-

In this study total 139 subjects were included out of which 106 (76.3%) were male and 33 (23.7%) were female. This study revealed that prevalence of anterior knee pain was noted in 103 weightlifters (74.1%).

The overall significance of anterior knee pain was significantly higher in male weightlifters which is 88 (63.3%) than in female weightlifters which is 15 (10.8%). According to the results, the prevalence of anterior knee pain in trained weightlifters were 99 (71.2%) and untrained weightlifters were 40 (28.8%). While collecting data by using Kujala questionnaire pain exaggerated in squatting among trained weightlifters during weightlifting. This study showed that the prevalence of knee pain in squatting is 85 (61.2%), running which is 83 (59.7%) and going up or down stairs were 76 (54.2%). According to the results, the prevalence of bilateral knee pain was 11 (7.9%) and right knee pain was significantly in 79 (56.8%) and left knee pain were in 14 (66.9%) in which right knee was more affected. The person in the Kujala anterior knee pain scale scoring in the excellent result is 20(14.4%) and good subjects were 15(10.8%), fair were 33(23.7%) and the poor scoring in the weightlifters were 71(51.1%).

Table.1:- Experience.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	trained	99	71.2	71.2	71.2
	undertraining	40	28.8	28.8	100.0
	Total	139	100.0	100.0	

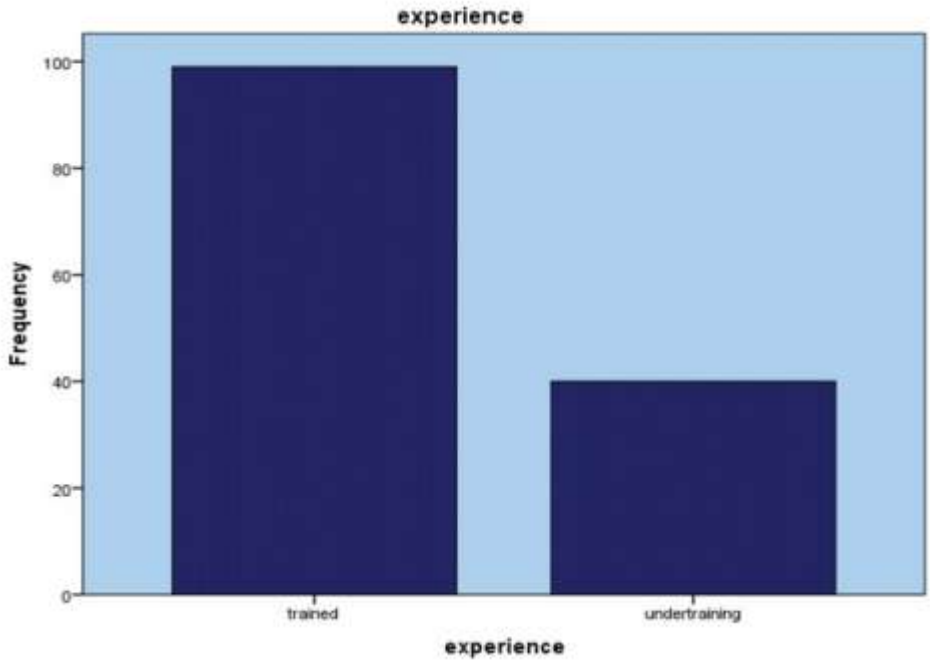

Fig.1:- Out of 139.

99(71.2%) weightlifters were trained
40(28.8%) weightlifters were under training

Table. 2:- Do you have knee pain?

		Frequency	Percent	Valid Percent	Cumulative Percent
	right knee	79	56.8	56.8	56.8
	left knee	14	10.1	10.1	66.9
	both knee	11	7.9	7.9	74.8
	none	35	25.2	25.2	100.0
Valid	Total	139	100.0	100.0	

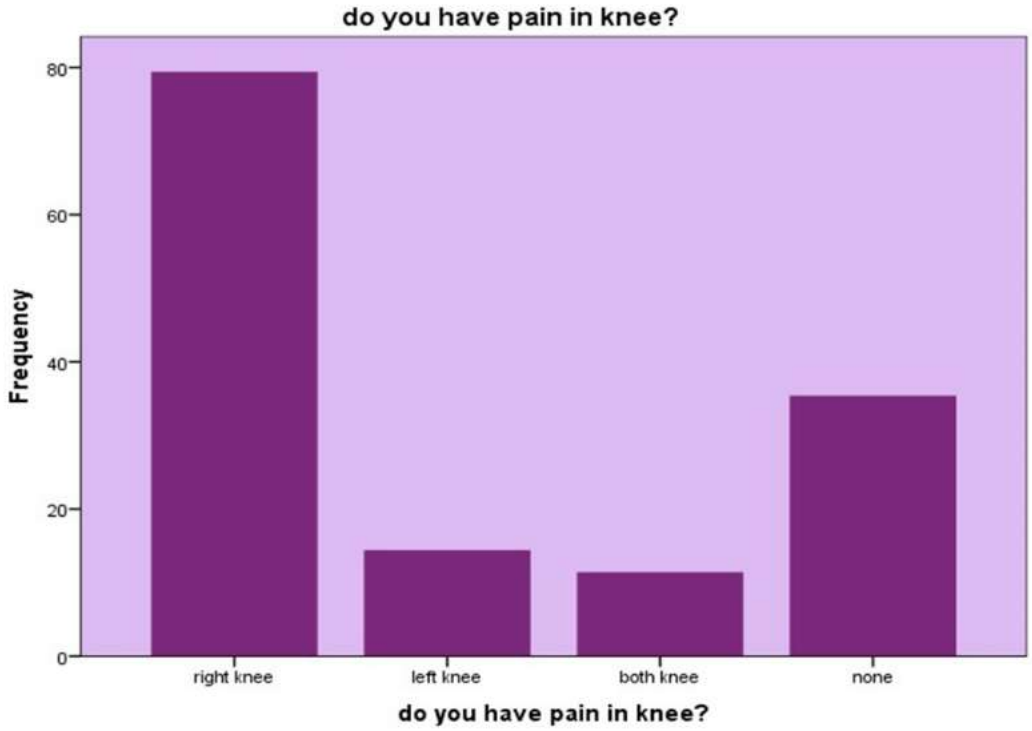

Fig. 2:- Out of 139.

79(56.8%) weightlifters were right knee pain
14(10.1%) weightlifters were left knee pain
11(7.9%) weightlifters were both knee pain
35(25.2%) weightlifters were experienced never pain

Table.3:- Intensity of pain.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	mild	33	23.7	23.7	23.7
	moderate	62	44.6	44.6	68.3
	severe	9	6.5	6.5	74.8
	never	35	25.2	25.2	100.0
	Total	139	100.0	100.0	

Fig. 3:- Out of 139.

33(23.7%) weightlifters were experienced mild intensity of pain
62(44.6%) weightlifters were experienced moderate intensity of pain
9(6.5%) weightlifters were experienced severe pain
35(25.2%) weightlifters were experienced never pain

Table. 4:- Do you have pain in walking?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	81	58.3	58.3	58.3
	mild	47	33.8	33.8	92.1
	moderate	11	7.9	7.9	100.0
	Total	139	100.0	100.0	

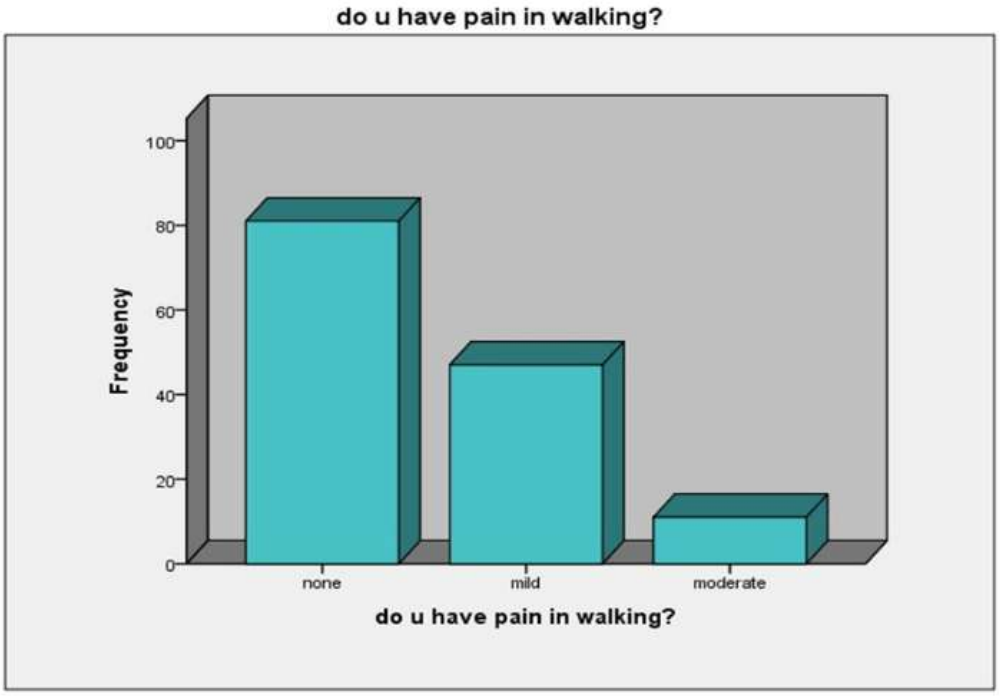

Fig. 4:- Out of 139.

81(58.3%) were never experienced pain in walking 47(33.8%) were experienced mild pain in walking
11(7.9%) were experienced moderate pain in walking

Table. 5:- Do you have pain in running.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	56	40.3	40.3	40.3
	mild	77	55.4	55.4	95.7
	moderate	6	4.3	4.3	100.0
	Total	139	100.0	100.0	

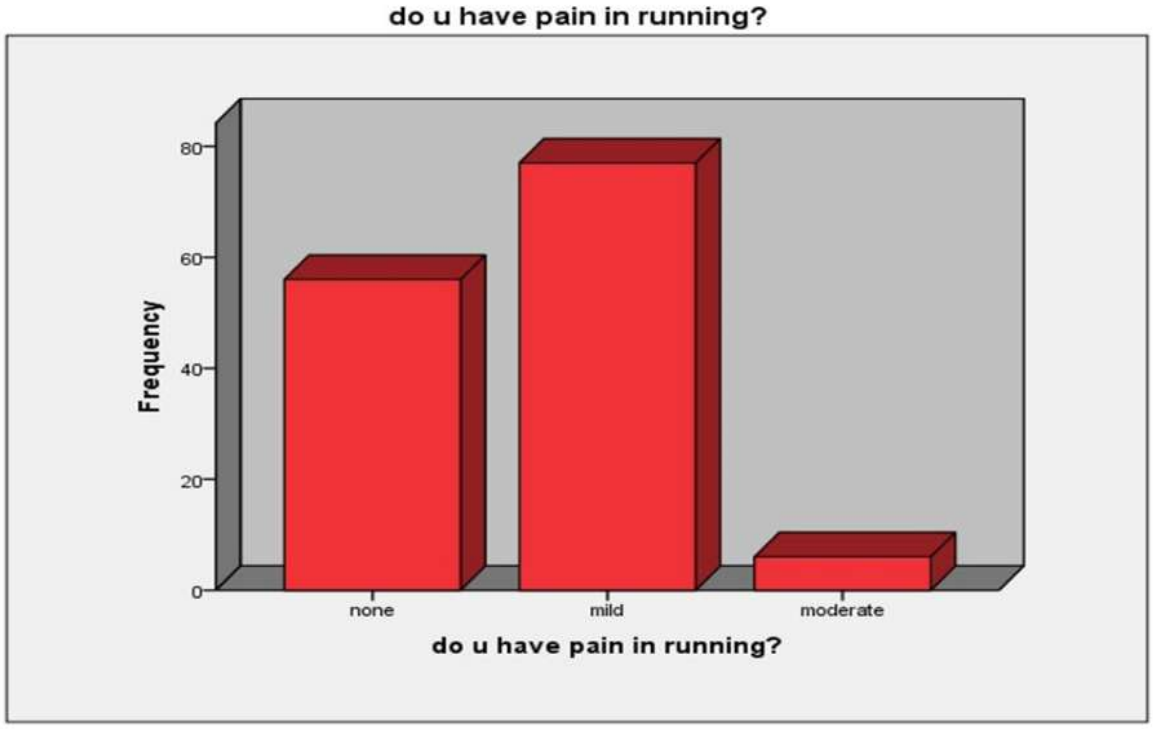

Fig. 5:- Out of 139.

56(40.3%) were experienced never pain in running
77(55.4%) were experienced mild pain in running
6(4.3%) were experienced moderate pain in running

Table. 6:- Do u feel grinding, hear clicking or any other type of noise when your knee moves?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	50	36.0	36.0	36.0
	rarely	31	22.3	22.3	58.3
	sometimes	28	20.1	20.1	78.4
	often	30	21.6	21.6	100.0
	Total	139	100.0	100.0	

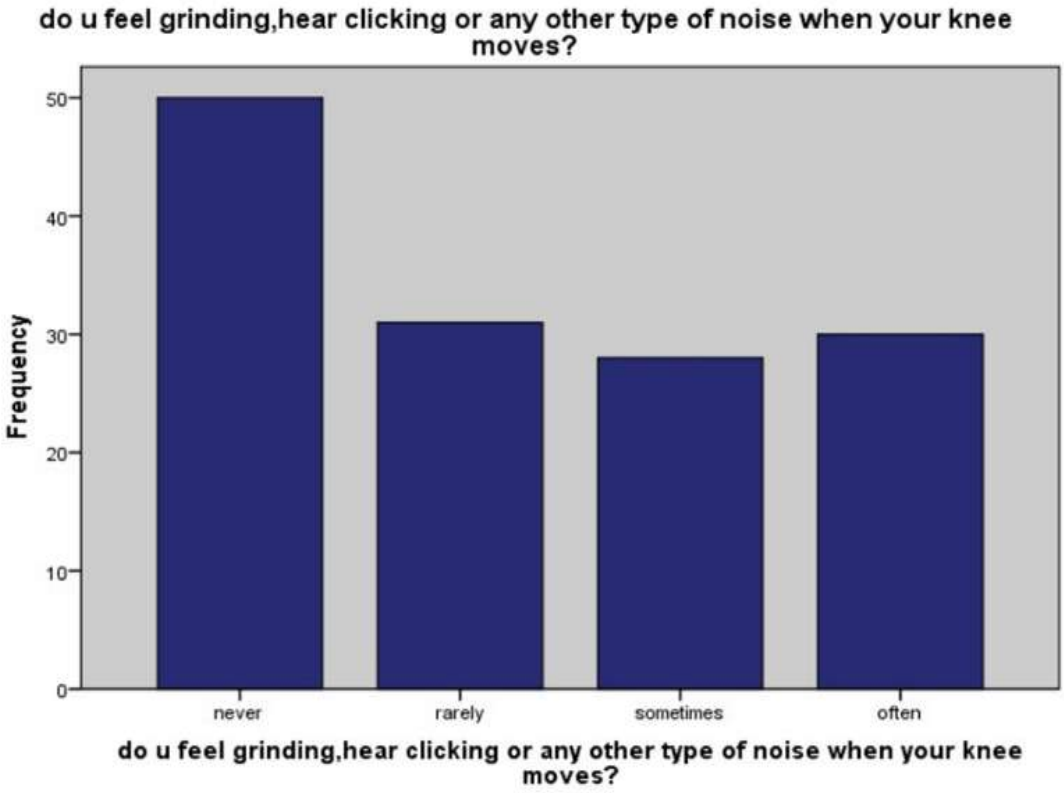

Fig. 6:- Out of 139.

50(36%) were never experienced grinding or clicking sound in knee
31(22.3%) were rarely experienced grinding or clicking sound in knee
28(20.1%) were sometimes experienced grinding or clicking sound in knee
30(21.6%) were often experienced grinding or clicking sound in knee

Table. 7:- 6scoring of patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		20	14.4	14.4	14.4
	95-100(excellent)	15	10.8	10.8	25.2
	80-94(good)	33	23.7	23.7	48.9
	60-79(fair)	71	51.1	51.1	100.0
	0-60(poor)				
	Total	139	100.0	100.0	

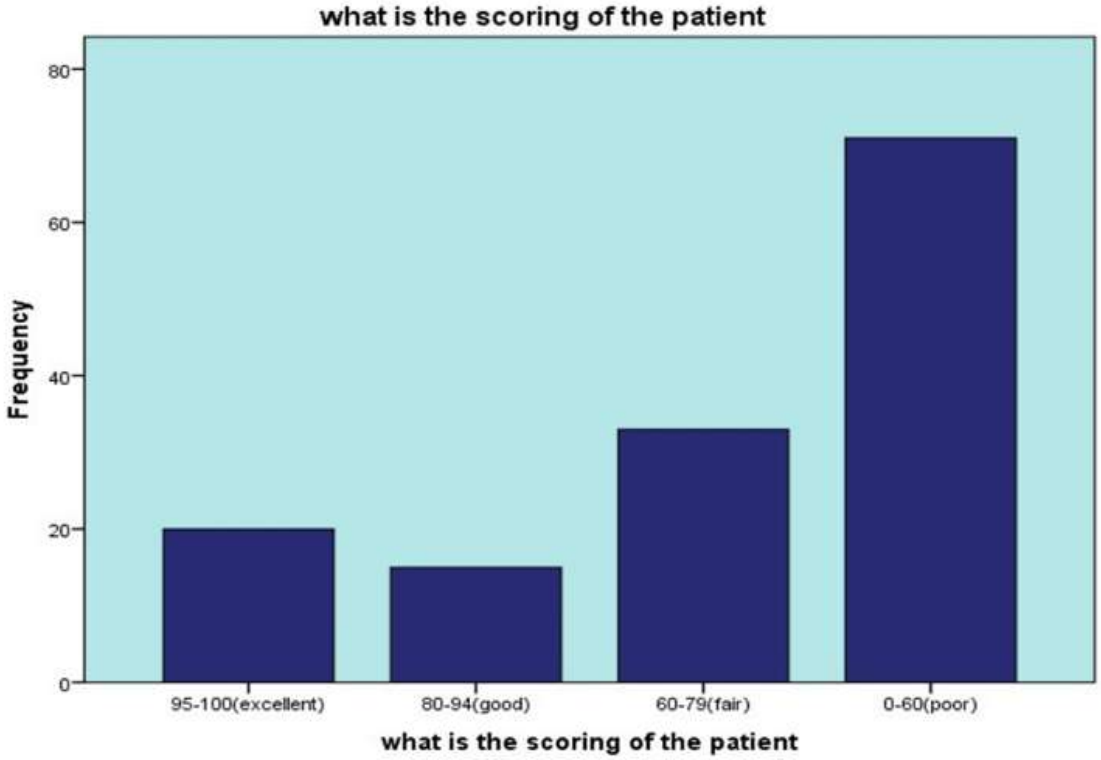

Fig. 7:- Out of 139.

20(14.4%) were experienced excellent pain scoring in knee
15(10.8%) were experienced good pain scoring in knee
33(23.7%) were experienced fair pain scoring in knee
71(51.1%) were experienced poor pain scoring in knee

Conclusion:-

This study concluded that prevalence of anterior knee pain & level of disability was more common in weightlifters of Gujranwala. Weightlifters who were trained experienced more pain. Anterior knee pain was more common in male weightlifters as compare to female weightlifters. Hence its concluded that anterior knee pain was prevalent in weightlifters of Gujranwala.

Acknowledgments:-

Firstly, and fore mostly we are grateful to Allah Almighty for giving us strength and wisdom to have made possible for us to complete this research project.

We are thankful to our respected principal Dr. Aisha Amin for appreciating our research and Dr. Tehmina Saeed for her kind supervision. Without their significant contribution, beneficial encouragement, personal involvement and tireless support it was impossible to setup this project till completion. Also bundle of appreciation for all the coworkers who worked efficiently to make this possible.

We are also thankful to our institution, faculty members and other institutions who cooperated us. We are grateful to our parents and well-wishers for enhancing moral and practical support to make this tiresome project possible.

References:-

[1] ALABBAD, M. A. & MUAIDI, Q. I. 2016. Incidence and prevalence of weight lifting injuries: An update. Saudi Journal of Sports Medicine, 16, 15.

[2] AWETO, H. A., TELLA, B. A. & JOHNSON, O. Y. 2015. Prevalence of work-related musculoskeletal disorders among hairdressers. International journal of occupational medicine and environmental health, 28, 545.

[3] CALLAGHAN, M. J. & SELFE, J. 2012. Patellar taping for patellofemoral pain syndrome in adults. Cochrane Database of Systematic Reviews.

[4] ELKIN, J. L., KAMMERMAN, J. S., KUNSELMAN, A. R. & GALLO, R. A. 2019. Likelihood of injury and medical care between CrossFit and traditional weightlifting participants. Orthopaedic journal of sports medicine, 7, 2325967119843348.

[5] GHAROTE, G. M., SHAH, S. M., YEOLE, U. L., GAWALI, P. P. & ADKITTE, R. G. 2016. Evaluation of patellofemoral pain syndrome in national level weight lifters with anterior knee pain. Saudi Journal of Sports Medicine, 16, 192.

[6] KUMPATI, S. N. & KANNAN, P. 1990. Identification and control of dynamical systems using neural networks. IEEE Transactions on neural networks, 1, 4-27.

[7] NASLUND, J., NASLUND, U.-B., ODENBRING, S. & LUNDEBERG, T. 2002. Sensory stimulation (acupuncture) for the treatment of idiopathic anterior knee pain. Journal of rehabilitation medicine, 34, 231-238.

[8] NEJATI, P., FOROGH, B., MOEINEDDIN, R., BARADARAN, H. R. & NEJATI, M. 2011. Patellofemoral pain syndrome in Iranian female athletes. Acta Medica Iranica, 169-172.

[9] PETERSEN, W., ELLERMANN, A., GÖSELE-KOPPENBURG, A., BEST, R., REMBITZKI, I. V., BRÜGGEMANN, G.-P. & LIEBAU, C. 2014. Patellofemoral pain syndrome. Knee surgery, sports traumatology, arthroscopy, 22, 2264-2274.

[10] RASKE, Å. & NORLIN, R. 2002. Injury incidence and prevalence among elite weight and power lifters. The American Journal of Sports Medicine, 30, 248-256.

[11] SMITH, B. E., SELFE, J., THACKER, D., HENDRICK, P., BATEMAN, M., MOFFATT, F., RATHLEFF, M. S., SMITH, T. O. & LOGAN, P. 2018. Incidence and prevalence of patellofemoral pain: a systematic review and meta-analysis. PloS one, 13, e0190892.

[12] STONE, M. H., FRY, A. C., RITCHIE, M., STOESSEL-ROSS, L. & MARSIT, J. L. 1994. Injury potential and safety aspects of weightlifting movements. Strength & Conditioning Journal, 16, 15-21.

[13] STOREY, A. & SMITH, H. K. 2012. Unique aspects of competitive weightlifting. Sports medicine, 42, 769-790.

[14] TÁLLAY, A., KYNSBURG, A., TÓTH, S., SZENDI, P., PAVLIK, A., BALOGH, E., HALASI, T. & BERKES, I. 2004. Prevalence of patellofemoral pain syndrome. Evaluation of the role of biomechanical malalignments and the role of sport activity. Orvosihetilap, 145, 20932101.

[15] WITVROUW, E., LYSENS, R., BELLEMANS, J., CAMBIER, D. & VANDERSTRAETEN, G. 2000. Intrinsic risk factors for the development of anterior knee pain in an athletic population: a two-year prospective study. The American journal of sports medicine, 28, 480-489.

The order in which the references are submitted in the manuscript is the order they will appear in the final paper, i.e., references submitted non-alphabetized will remain that way.