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PATTERN OF PATELLO FEMORAL DYSFUNCTION IN DIFFERENT SPORTS PLAYERS AND ITS IMPACTS ON ACTIVITIES OF DAILY LIFE IN SPORT CLUBS PESHAWAR; A CROSS SECTIONAL STUDY

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Abstract

INTRODUCTION

Patello-femoral Dysfunction (PFD), or Patello-femoral Pain Syndrome (PFPS), is a common knee condition characterized by pain, instability, and limited mobility. It is typically diagnosed through symptoms and physical examination. While the Q angle was once thought to be a risk factor, PFPS is influenced by multiple factors, including muscle imbalances and biomechanics. PDP which is one of most overuse injuries occurred in basketball, volleyball and runners This condition greatly decreases contribution in sports, causing continuous pain and uneasiness, fitness levels to drop, and reproducing general health weakening.

OBJECTIVE

To determine pattern of PFD in different sports players and its impacts on activities of daily life in sport clubs Peshawar.

METHODS

Descriptive cross sectional study was carried on PFD among different sports players. Data had been collected by researchers in sports clubsof Peshawar including Hayatabad sports complex, Qayyum sports complex and Gym Khana. For the data collection we used standard kujala questionnaire. Included participants were 155.

RESULTS

Out of 155 participants, male participants were 131 (84.51%) while 24 (15.4%). The result showed that 87 (56.15) were having PFD, while 68 (43.9%) of participants have no PFD. Among all participant's n = 54 (34.85) were having mild PFD. Right knee was documented as most involved knee (58.62%). 57.4% of the participants reported limited ADLs. There is strong association (P=0.000) among PFD and ADLs of the participants.

CONCLUSION

In present study we concluded that majority of the sports participants experienced PFD while one fourth of the population have no evidence of PFD. Mostly the included participants were of young age and energetic, being prone to injuries that might enhance the prevalence of reported PFD. Minimum participants reporting

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sever PFD reported limited ADLs. There is strong association among PFD and ADLs of the participants.

INTRODUCTION

It is defined as imbalance, instability at knee joint during extension followed by, pain and inflammation[1]. Patello-femoral dysfunction (PFD) or patella-femoral pain syndrome (PFPS) is a serious painful MSK(Musculoskeletal) condition which gives pain at the front and back side of knee joint, resulting in limited mobility, discomfort, instability at the knee joint [2]. The identification of PFPS is usually consequential from a person to person's history and their symptoms. By bodily examination we can rule out other related problems such as tendinopathy, meniscal or ligament tear, fracture and dislocation. PFPS is secretarial for 11-17% of knee aching presentations in the over-all practice and 20-40% of all knee problems are seen in the athletic population[3].The Q angle measures patellar alignment by assessing the angle between the ASIS (Anterior Superior Iliac Spine)-to-patella midpoint line and the tibial tubercle-to-patella midpoint line. It helps evaluate knee stability and potential issues. The Q angle varies between males (about 14 degrees) and females (about 17 degrees). While a higher Q angle was once thought to increase the risk of PFPS due to lateral forces on the patella [4]. Best intervention to treat this condition is Exercise therapy. Clinical trials, have demonstrated that muscle-strengthening exercises can improve patellar alignment and alleviate symptoms such as pain and reduced functionality in the knee [5]. The conservative management is best for many of peoples suffering from PFPS, in addition utilizing knee orthoses, foot orthoses, patellar taping and exercise therapy[6]. Patellar taping can quickly reduce joint discomfort in PFPS patients during activities requiring strong balance. This relief is linked to increased skin sensitivity, altered knee muscle activity, corrected patellar position, improved patellofemoral joint function, and enhanced central nervous system excitability[7].

A common cause of "anterior knee pain," broad-based PFP primarily affects young athletes who do not have any structural abnormalities[8]. PFP is a group of symptoms that are best described as non-specific anterior knee pain that is followed by a malfunction in the forces that act on the patella and femur bones[9].

The patella bone lies front to the knee joint and the central point for attachment of quadriceps and patellar ligament. It is the large, flat, triangular sesamoid bone lies within the quadriceps tendon[10]. People with PFP frequently exhibit distinct biomechanics during functional movements. Due to health controls, PFP patients may run, walk, and climb stairs with less knee flexion, which could be interpreted as a pattern of reimbursement[11]. In sports medicine, pressure fractures are among the most commonly reported injuries, that is identified when other conditions, such as chondral defects, patellar tendinopathy, or PFOA [12]. Most common injury patterns seen with knee displacement are medial sided damages while in chronic aggravated stage most common injuries were of cartilage [13]. This describes a diffuse pain pattern over the front of the knee, exacerbated by activities that may increase patella-femoral joint (PFJ) compressive load, such as squatting, stair climbing, prolonged sitting, and repetitive actions like running[14]. Patient with instable patella complain of knee slipping, giving way or giving out. Athletes are more likely to have these kinds of ailments. However, keep in mind that overuse injuries might manifest as an acute relapse of a problem; as a result, PFPS frequently causes an acute on chronic condition[15].The prevalence of PFD among 418 athletic female in which the percentage of soccer had 13.68% PDF (26 out of 190), volleyball had 20.38% PDF (21 out of 103), runners had 16.66 PDF (7 out of 42),fencers had 13.33%PDF (6 out of 45) and rock climbers had 26.31% PFD (10 out of 38),making them the most affected athletes in this group secondly volleyball and runners [16]. PDP which is one of most overuse injuries occurred in basketball, volleyball and runners and the prevalence of PFD in female athletes who play soccer, volleyball, running,

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fencing, and rock climbing is 13% and 26%, respectively. The PFD ratio among young adult and adolescent is 2 to 10 times greater than in males [17]. Injuries often result from actions like jumping, cutting, and pivoting, which eccentrically load the patella. Patellar tendon (PT) issues affect 11.8% to 14.4% of non-elite athletes, with 53% quitting sports due to knee pain. Patellar tendon injuries account for 29.5% of high school athletes' knee injuries, more than ACL (25.4%) and meniscal (23%) but less than MCL (36.1%). In experienced basketball players, patellofemoral injuries make up 10.1% of all injuries and 10.2% of knee injuries in expert baseball players[18]. The aim of current study is to determine the prevalence of PFD among sports players, particularly in cricket, football, runners and basketball. Furthermore, this research work will provide a pathway to establish the causative and risk factors PFD among sport participant in future through analytical studies.

METHODOLOGY

To determine the pattern of PFD in different sports and its impacts on activities of daily life in sport clubs of Peshawar, Pakistan, the researcher selects a cross-sectional study. Study was conducted at Hayatabad sports complex, Qayyum sports complex, Gym Khana, Peshawar. All the registered welling participants who are playing different sports games like cricket, football, basketball, volley ball with age limit of 18-50 years, those who participate in sports for at least 3 times in a week, and those with minimum participation of 5 minute in one session were included and those sports players with any other mimic disorders, (ACL/MCL tear) were excluded from this study. Sample size of research study was 155. Sampling technique was a non-probability convenience sampling technique. Data was collect by using questionnaire was filled through interview. These questions were used to collect nominal and ordinal data for research findings and were setup sequentially. There were questions relating to PFD among sports players. Data was collected through a standard and validated Kujala Questionnaire/AKPS.

Data was collected from above mention sports club of Peshawar KPK, from those participant, who were fulfilling the eligibility criteria of study. The data was analyzed by using SPSS version 25.0, Pie charts, bar graphs, and tables were used to display the data. The numerical data like age will be presented in the form of mean + SD. Categorical data like gender group will be presented in the form of frequency (Percentage). A p-value of less than and equal to 0.05 will be considered significant.

Results

DEMOGRAHICS AND CLINICAL CHARACTERISTICS

The table shows the demographics and clinical characteristics of the sample size used in our study. While we look our age the majority of the sample was in group of 18-29 with a percentage of 86.5 and the lowest which was 1.3 percent of the total population was in age group of 41-50. Whereas while we look over gender the majority were male and lesser were the women (131:24). The sample was collected from different sports player including basketball (33.5%), football (27.1%), cricket (22.6%) and runners were (16.8%) of the total population. Prevalence of patellofemoral dysfunction was about (56.1%) among the selected sample and majority were effected with right knee. Based on the Kujala score for patellofemoral dysfunction severity, 43.9% had normal scores, 34.8% had mild PFD, 13.5% had moderate PFD, and 7.7% had severe PFD.

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Characteristics	Category	Frequency	Percentage
Age	18-29	134	86.5
	30-40	19	12.3
	41-50	2	1.3
Gender	Male	131	84.5
	Female	24	15.5
Sports Played	Basketball	52	33.5
	Football	42	27.1
	Cricket	36	22.6
	Running	26	16.8
PFD Prevalence	YES	87	56.1
	NO	68	43.9
Involved Knee Side	Right	92	59.4
	Left	63	40.6
Kujala Score (PFD Severity	Normal (73-100)	68	43.9
	Mild PFD (41-72)	54	34.8
	Moderate PFD (19-40)	21	13.5
	Severe PFD (0-18)	12	7.7

Cross-Tabulation of Patellofemoral Dysfunction (PFD) with Other Variables

The cross-tabulation of Patellofemoral Dysfunction with other variables shows association of PFD and age group, gender, involved knee side, and limitations in activities of daily living (ADLs). While look over the age, PFD was most common in the 18-19 years' group with 77 of sample size, compared to 8 people in the 30-40 years' group and 2 people in the 41-50 years' group. Males have a higher ratio of PFD (79 cases) as compared to females (8 cases). The right knee was more commonly involved in 51 of the people than the left knee which was 36. Notably, all individuals with limited ADLs have PFD (50 cases), whereas those without limitations in ADLs were 37 players of PFD and 68 without PFD. The Chi-Square test shows value of <0.001 which shows a significant association between these variables and PFD.

Variable	Category	Has PFD	No PFD	Total
Age Group	18-19 years	77	57	134
	30-40 years	8	11	19
	41-50 years	2	0	2
Gender	Male	79	52	131
	Female	8	16	224
Involved Knee Side	Right	51	41	92
	Left	36	27	63
Limited Activities of Daily Living (ADLs)	Yes	50	0	50
	No	37	68	105
Chi-Square Test	<0.001			

DISCUSSION

Male and female injury rates varied during practice and competition, according to our research. According to Hinton et al., male lacrosse players sustain injuries at a slightly higher rate than their female counterparts. Hinton and

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colleagues proposed that this discrepancy could be primarily attributed to the differences in the rules between male and female lacrosse players: male players are expected to wear a lot of protective gear and are permitted to make a lot of contact, while female players are not [19]. Powell and Barber-Foss reported that males had a higher risk of injury than females while playing soccer [20]. The data derived from this study shows, 92 participants (59.4%) are those in whom right knee is affected. While in 60 (40.6%) participants left knee was involved. Patcharin Nilmart et al reported that there were 31 participants (20.39%) with bilateral PFPS and 121 (79.61%) with unilateral PFPS [21]According to different games, 27.1% participants played football, while 33.5% were playing basketball, 22.6% involved in cricket and 16.8% were runners. Parisa Nejati et al shows that From 190 soccer players 26 athletes had PFPS, with a prevalence of approximately 13.68%, and 7 athletes from 42 runners had PFPS, with a prevalence of approximately 16.66% [22].Among the 14 sports, basketball players experienced the highest frequency of knee pain, followed by handball and mini-basketball [23].

Results of this study shows that 7.7% of players were severe PFD, while 13.5% have moderate PFD, 34.8% were having mild PFD and 43.9% are normal. Roy T.H. Cheung et al found the different relationships between the Kujala and SF-36 sub scores in professional and amateur athletes. The Kujala score had a good association with PF (P= .001) and a moderate correlation with RP (P= .002) in amateur athletes . [24].of results of this study shows, 56.1% players were having PFD, while 43.9% are normal. Patcharin Nilmart et al stated that PFPS was found in 15% of the young adult women population with low to moderate PA [25]

This study reveals that due to PFD, 50 out of 155 participants were have affected their daily life activities. According to Roy T.H et al shows that athletes competing at different elite levels may view PFP differently and how it affects their physical well-being in turn. The findings of this study may emphasize how important it is to take psychosocial factors into account when developing rehabilitation plans for athletes with PFP [25].Study by Michael Skovdal Rathleff et al found that even in the face of persistent knee pain, adolescents with PFP or OSD, aged 10 to 14, exhibit high levels of intense physical activity. They report having trouble playing sports and having their knees function less well in terms of painless control [25].

Conclusion

A descriptive study was conducted to determine the prevalence of Patello femoral dysfunction in various athletes and how it affected their everyday activities at Peshawar's sports clubs. There were 155 participants in the sample for the study. The study concluded with the following based on its findings. According to the study, one-fourth of the population has no evidence of PFD, whereas the majority of athletes reported experiencing PFD. The majority of the included participants were young and active, making them more likely to sustain injuries that could increase the frequency of PFD reports. Limited ADLs were reported by minimum participants who reported severe PFD.

Limitation

- It is only limited to Peshawar sports clubs i-e qayyum sports complex, Hayatabad sports complex and gym khana where gym khana was under construction so data was not collected due to following reason.
- Due to lack of time and resources this study could not include a large population.
- In addition, due to norms, values and culture in our society we couldn't perceive female's participant due to less involvement in extra-curricular activities as compared to male participants.

Recommendations

- A series of important recommendations is to increase sample size and time duration which may improve results.
- Further studies should be developed to cover more area as we include just three sports club in Peshawar which also may limit our findings. In addition, due to norms, values and culture in our society we couldn't perceive

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female's participant due to less involvement in extra-curricular activities as compared to male participants.

REFERENCES

1. Ali S, Sajjad SA, Niaz M, Rana AA, Waseem M. Prevalence of Patellofemoral Pain Syndrome Among Sports Sciences Students in Lahore. Pakistan Biomedical Journal. 2022:154-9.
2. Smith TO, Drew BT, Meek TH, Clark AB. Knee orthoses for treating patellofemoral pain syndrome. Cochrane Database of Systematic Reviews. 2015(12).
3. Group TE. EuroQol-a new facility for the measurement of health-related quality of life. Health policy. 1990;16(3):199-208.
4. Gaitonde DY, Ericksen A, Robbins RC. Patellofemoral pain syndrome. American family physician. 2019;99(2):88-94.
5. Şahin M, Ayhan FF, Borman P, Atasoy H. The effect of hip and knee exercises on pain, function, and strength in patientswith patellofemoral pain syndrome: A randomized controlled trial. Turkish journal of medical sciences. 2016;46(2):265-77.
6. van der Worp H, van Ark M, Zwerver J, van den Akker-Scheek I. Risk factors for patellar tendinopathy in basketball and volleyball players: a cross-sectional study. Scandinavian journal of medicine & science in sports. 2012;22(6):783-90.
7. Banejad M, Sarmadi A, Maddadi F. Effects of short term and long term usage of patellar kinesio taping on patellar position in women with patellofemoral pain syndrome. Journal of Rehabilitation Sciences & Research. 2016;3(2):25-8.
8. Petersen W, Rembitzki I, Liebau C. Patellofemoral pain in athletes. Open access journal of sports medicine. 2017:143-54.
9. Saltychev M, Dutton RA, Laimi K, Beaupre GS, Virolainen P, Fredericson M. Effectiveness of conservative treatment for patellofemoral pain syndrome: A systematic review and meta-analysis. Journal of rehabilitation medicine. 2018;50(5):393-401.
10. Fox AJ, Wanivenhaus F, Rodeo SA. The basic science of the patella: structure, composition, and function. The journal of knee surgery. 2012;25(02):127-42.
11. Willy RW, Hoglund LT, Barton CJ, Bolgla LA, Scalzitti DA, Logerstedt DS, et al. Patellofemoral pain: clinical practice guidelines linked to the international classification of functioning, disability and health from the academy of orthopaedic physical therapy of the American physical therapy association. Journal of Orthopaedic & Sports Physical Therapy.
2019;49(9): CPG1-CPG95.
12. Kooiker L, Van De Port IG, Weir A, Moen MH. Effects of physical therapist–guided quadriceps-strengthening exercises for the treatment of patellofemoral pain syndrome: a systematic review. journal of orthopaedic & sports physical therapy. 2014;44(6):391-402.
13. Moatshe G, Dornan GJ, Løken S, Ludvigsen TC, Laprade RF, Engebretsen L. Demographics and injuries associated with knee dislocation: a prospective review of 303 patients. Orthopaedic journal of sports medicine. 2017;5(5):2325967117706521.
14. Witvrouw E, Callaghan MJ, Stefanik JJ, Noehren B, Bazett-Jones DM, Willson JD, et al. Patellofemoral pain: consensus statement from the 3rd International Patellofemoral Pain Research Retreat held in Vancouver, September 2013. British journal of sports medicine. 2014;48(6):411-4.
15. Manske RC, Davies GJ. Examination of the patellofemoral joint. International journal of sports physical therapy. 2016;11(6):831.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

16. Nejati P, Forogh B, Moeineddin R, Baradaran HR, Nejati M. Patellofemoral pain syndrome in Iranian female athletes. Acta Medica Iranica. 2011:169-72.
17. Halabchi F, Abolhasani M, Mirshahi M, Alizadeh Z. Patellofemoral pain in athletes: clinical perspectives. Open access journal of sports medicine. 2017:189-203.
18. Dahm DL, Curriero FC, Camp CL, Brophy RH, Leo T, Meister K, et al. Epidemiology and impact of knee injuries in Major and Minor League Baseball players. Am J Orthop (Belle Mead NJ). 2016;45(3): E54-E62.
19. Cheung RT, Zhang Z, Ngai SP. Different relationships between the level of patellofemoral pain and quality of life in professional and amateur athletes. PM&R. 2013;5(7):568-72.
20. Iwatsu J, Yabe Y, Sekiguchi T, Momma H, Tsuchiya M, Kanazawa K, et al. Knee pain in young sports players aged 6–15 years: a cross-sectional study in Japan. BMC Sports Science, Medicine and Rehabilitation. 2023;15(1):16.
21. Nilmart P, Yodchaisarn W, Vongsirinavarat M. Patellofemoral Pain Syndrome in Young Adult Women with Low to Moderate Physical Activity Levels. Iranian Rehabilitation Journal. 2022;20(1):99-108.
22. SKOVDAL RATHLEFF M, WINIARSKI L, KROMMES K, GRAVEN-NIELSEN T, HÖLMICH P, OLESEN JL, et al. Pain, Sports Participation, and Physical Function in Adolescents with Patellofemoral Pain and Osgood-Schlatter Disease: A Matched Cross- sectional Study. Journal of Orthopaedic & Sports Physical Therapy. 2020;50(3).
23. Iwame T, Matsuura T, Suzue N, Iwase J, Uemura H, Sairyo K. Factors associated with knee pain and heel pain in youth soccer players aged 8 to 12 years. Orthopaedic Journal of Sports Medicine. 2019;7(11):2325967119883370.
24. Hinton RY, Lincoln AE, Almquist JL, Douoguih WA, Sharma KM. Epidemiology of lacrosse injuries in high school-aged girls and boys: a 3-year prospective study. The American journal of sports medicine. 2005;33(9):1305-14.
25. Powell J, Barber-Foss K. Sex-related injury patterns among selected high school sports. The American Journal of Sports Medicine. 2000;28(3):385-91.m