SHORT REPORT

Prevalence and nature of injuries among young professional cricketers of academies and clubs in Lahore; cross sectional survey

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Abstract

A cross-sectional survey was conducted from February 2021 to June 2021, to assess the prevalence and nature of injuries among young professional cricketers from various academies and clubs in Lahore. The study comprised 149 cricketers representing different academies and clubs of Lahore. Injuries acquired between January and December 2019 were included as retrospective data.

The findings revealed that 93 injuries were reported by 149 cricketers with a prevalence of 62.4%. Of these 41 (44%) injuries occurred during matches, 50 (54%) during practice, and 2 (2.1%) injuries were caused during fitness training. The head, neck, and face sustained 3 (3.2%) injuries, while the upper extremities received 35 (37.6%), the lower extremities 39 (41.9%), and the back and trunk 16 (17.2%). The most commonly injured players were fast bowlers 23 (24.7%). First time reported injuries were 66 (70.9%), while those repeated in the past were 16 (17.2%). Severe injuries were 21 (22%), due to which the players returned to the play after more than 21 days.

Keywords: Cricket, Injury, Academy, Club.

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Introduction

Cricket is a dynamic sport that involves many abstract skills and movements and has evolved rapidly in the past couple of decades. There are three unique aspects of the game: bowling, batting, and fielding that are used in all the formats of the game and are associated with risk of injuries.[1] Cricketers undergo different training and practice sessions to enhance their skills and movements and to ensure that their bodies remain fit and strong as per the requirement of the game. Although cricket is a non-contact sport, there is risk of injuries for the players as they engage in different physical activities like running, throwing, diving, and catching. In the past, cricket was categorised as moderate injury risk sport,[2] however, in contemporary era due to the high demand for physical activity like strenuous fitness training, vigorous practice sessions and back-to-back national and international playing series, the risk of injuries has increased expeditiously. In order to perform extraordinarily in modern day cricket, players train themselves for longer periods of time and start at an early age which is more challenging.[3]

Different organised studies for injury surveillance have been conducted in various countries like South Africa,[3] Australia,[4] New Zealand,[5] Sri Lanka,[6] and India,[7] which indicate different types of injuries sustained by cricket players. Anatomical locations of the injuries endured by cricketers is known to vary among previous studies with the most affected region being the lower limbs (50%) followed by the upper limbs (23%) and back & trunk (23%).[8] Club and academy cricketers are more prone to injury through the season than senior players. Injury may occur at any stage of the game, like batting, bowling, fielding, or fitness training, and affect any part of the body. while Fast bowlers sustained most of the injuries while playing, among both young and senior players.[2] Soft tissue injuries, sprains and strains were the most common reasons for presenting in emergency department in cricketers aged above 15 years.[9] The impact of these injuries is detrimental for both players and the teams in terms of numbers of matches missed, loss of playing time, and insurance claimed for treatment or hospitalisation.

Organised data regarding injury prevalence is mostly available for Australian and South African adolescent cricketers.[2] This data not only helps the players in prevention of injuries but also enables the teams' coaches to develop and train the players in a more appropriate manner.

Pakistan's men national cricket team ranks fourth, fifth, and sixth in T20, Test, and One day International (ODI), respectively (as on August 27, 2021).[10] There is no published data available to-date regarding the nature and prevalence of injuries in Pakistani cricketers. Hence, the objective of this study was to figure out the prevalence and nature of injuries among academy and club young professional cricketers in Lahore over the year 2019. The

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findings of this study will be used to develop a preventive protocol to reduce injuries, since injury surveillance is the first step in its prevention.

Methods and Results

The study was conducted from February to June 2021 among young professional players representing various academies and clubs in Lahore and the data was collected retrospectively. A minimum sample of 80 cricket players was required based on 28% prevalence of musculoskeletal injuries among Sri Lankan junior cricketers using formula $Z1\text{-}\alpha/2(p)(1\text{-}p)/d^2$ (p=0.28, d=0.05).[6] The data was collected retrospectively using a self-reported musculoskeletal questionnaire based on preceding South African researches.[3,11-13] The ethical committee of Rashid Latif Medical College, Lahore, granted permission for the study.

Lahore Regional Cricket Association (LRCA) was contacted to provide the list of cricket academies and clubs registered with it in February 2021. A formal invitation letter was sent to each academy and club in the list to participate in this study. Nine out of 17 registered academies and clubs responded positively and data was collected from National Cricket Academy, Abdul Qadir Cricket Academy, Shoaib Cricket Academy, Ittefaq Cricket Club, Stags Cricket Club, Lahore Gymkhana Cricket Club, Nawab Cricket Club, Model Town Green Cricket Club, and Shining Cricket Club and Academy. Theses academies and clubs were visited for at least 03 days during the time when maximum players were present from February to June 2021. After taking informed signed consent by each official and player non-probability convenience sampling technique was used to collect data from each player. One-to-one interviews were conducted with each player and all the terms in the questionnaire were explained. Young professional male cricketers aged between 16-20 years, permanent member of cricketing club for at least one year, who played throughout 2018, were included in the study. Non LRCA affiliated academies and clubs and players not present during the three-day visit were excluded. Any physical harm that occurred during a match, practice, or fitness training and prevented the player from completing the match was called as injury.[14] The prevalence and nature of injuries was expressed in percentage. The injuries were classified according to the body regions and different phases of the game. The bowlers were asked to give an estimated number of overs bowled to predict workload. The collected data was analysed by SPSS 25 version. Descriptive statistics were presented in frequency table and graph.

One hundred and sixty-eight participants were included in the study and only 149 questionnaires were returned filled. The response rate was 88.7% with the mean age of 17.60±1.20 years (Range 16-20 year). Players who responded included 103 (69.12%) all-rounders, 19 (12.75%) batsmen, 15 (10.06%) bowlers, and 12 (8.05%) wicket-keepers. Out of these, 77 players had played nationally at an under-19, under-16, and under-13 district, region, and zonal level while 67 players had represented the club, and while three were first-class players and two were domestic players. Only 72 (48.3%) players followed the pre-season training, but all kept themselves engaged

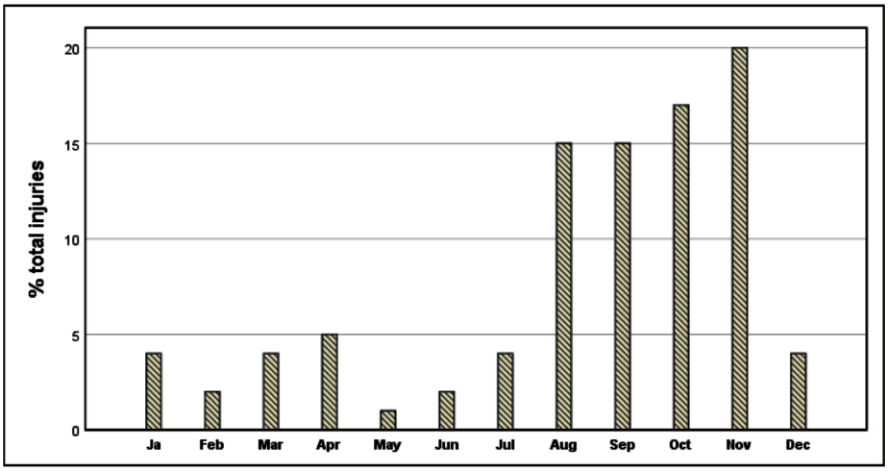

Figure-1: Bar chart of monthly percentage of injuries.

Table-1: The role of players and their weekly working load.*

	1-5 hours		6-10 hours		11-15 hours		15-20 hours		Total	
	N	%	N	%	N	%	N	%	N	%
Bowler	8	5.4	6	4.0	1	0.6	0	0	15	10.1
Batsman	16	10.7	14	9.4	1	0.6	0	0	31	20.8
All Rounder	69	46.3	27	18.1	6	4.0	1	0.6	103	69.1
Total	93	62.4	47	31.5	8	5.4	1	0.6	149	100

*Wicket-keepers were categorised as batsmen for this comparison.

Table-2: A summary of the anatomical site of injuries and phases of play in which it occurred.

Anatomical Site of Injury		Batting		Bowling		Fielding		Training		Total	
		N	%	N	%	N	%	N	%	N	%
Head, Neck, Face		1	1.1	2	2.2	0	0	0	0	3	3.3
Upper Limb		2	2.1	7	7.5	26	27.9	0	0	35	37.5
Back & Trunk		4	4.3	9	9.7	3	3.2	0	0	16	17.2
Lower Limb		5	5.4	23	24.7	9	9.7	2	2.2	39	42.0
Total		12	12.9	41	41.1	38	40.8	2	2.2	93	100
Nature of Injury											
Strain	Shoulder	-	-	8	19.5	4	10.5	-	-	41	44.0
	Lower Back	-	-	5	12.2	-	-	-	-		
	Abdominal	-	-	2	4.9	-	-	-	-		
	Cervical	-	-	1	2.4	-	-	-	-		
	Deltoid	-	-	4	9.8	-	-	-	-		
	Groin	2	16.7	1	2.4	-	-	-	-		
	Hamstring	2	16.7	-	-	4	10.5	-	-		
	Iliopsoas	-	-	1	2.4	2	5.3	-	-		
	Inter-coastal	-	-	-	-	4	10.5	-	-		
	Infraspinatus	-	-	1	2.4	-	-	-	-		
Sprain	Ankle	-	-	3	7.3	3	7.9	1	50	21	22.0
	Finger	-	-	-	-	3	7.9	-	-		
	Elbow	-	-	-	-	4	10.5	1	50		
	Thumb	2	16.7	-	-	-	-	-	-		
Fracture	Lumbar	-	-	1	2.4	-	-	-	-	6	6.4
	DIP	-	-	-	-	2	5.3	-	-		
	Rib	2	16.7	-	-	-	-	-	-		
	Finger	-	-	-	-	1	2.6	-	-		
Joint Dislocation /Subluxation	Phalanges	-	-	2	4.9	1	2.6	-	-	9	9.6
	DIP	-	-	2	4.9	2	5.3	-	-		
	Finger	-	-	1	2.4	-	-	-	-		
	MCP	-	-	1	2.4	-	-	-	-		
Other Soft Tissues Injuries	Patella Tendonitis	1	8.3	-	-	-	-	-	-	9	9.6
	ACL Tear	-	-	1	2.4	-	-	-	-		
	Rotator Cuff Tear	-	-	1	2.4	-	-	-	-		
	Tennis Elbow	-	-	1	2.4	1	2.6	-	-		
	Thrower Elbow	-	-	1	2.4	1	2.6	-	-		
	Wrist Tendonitis	1	8.3	-	-	1	2.6	-	-		
Skin Related Injuries	Calf Bruise	-	-	-	-	1	2.6	-	-	7	7.5
	Open Wound	1	8.3	-	-	1	2.6	-	-		
	Nail Tear	-	-	-	-	1	2.6	-	-		
	Skin Laceration	1	8.3	-	-	1	2.6	-	-		
	Toe Bruise	-	-	-	-	1	2.6	-	-		

[MCP]Metacarpophalangeal, [ACL] Anterior Cruciate Ligament, [DIP] Distal Interphalangeal.

playing throughout the year. The player's weekly workload is summarised in Table-1.

Injuries were recorded in 93 cricket players with a prevalence of 62.4%. Details and nature of the injuries incurred by the players is listed in Table-2.

About 66 (70.9%) injuries occurred the first time, while 16 (17.2%) were recurrent past and 11 (11.8%) were recurrent present. Bowling accounted for 41 (44%) injuries, while fielding accounted for 38 (40.8%), batting reported 12 (12.9%), and the remaining 02 (2.1%) occurred in fitness training. Severe injuries were 21 (22%), which look the players more than 21 days to recover from, while 55 (59%) injured players returned to play within seven days. All-rounders 65 (69.8%) presented with more injuries than the fast bowlers 9 (9.6%), batsmen 11 (11.8%), wicket-keepers 6 (6.4%), and spinners 2 (2.1%). Most injuries occurred in November (Figure-1). Muscle strain was the most common nature of injury which accounted for 41 (44%), followed by ligament sprain 21 (22.5%), joint related dislocation and subluxation accounted for 9 (9.6%), followed by fracture 6 (6.4%). Most common mechanism of injuries incurred by

the bowlers were run-up, delivery stride, and follow-through. During fielding, direct impact of the ball to phalanges and throwing were most common cause of injury. Batting injuries occurred as a result of direct impact from ball, running between the wickets, playing a shot, and not wearing a helmet.

Discussion

In the current study the prevalence of injuries in club players was 93 (62.4%), which is greater than in previous studies. There is a directly proportional relationship between bowlers and the workload.[15] Bowlers are more prone to injuries and remain out of the game more due to a higher workload and wrong bowling technique during net practice and matches. The second reason is the unavailability of a team physiotherapist or doctor. Therefore, more emphasis should be provided to bowlers to prevent injuries. In the current study, the lower limb (41.9%) was the most injured region, upper limb reported (37.6%) injuries, while a study on schoolboy cricketers[16] reported (31%) lower limb injuries, and (34.3%) upper limb which is lower than recent study. Back and trunk injuries (31.3%) reported in schoolboy cricketers[16] are higher than back and trunk injuries (17.2%) in the current study. There is a significant difference between injuries during matches (44%) which is lower than in schoolboy cricketers at (71.6%),[16] while (11.9%) injuries happened during practice which is lower than (54%) of the recent study. Players in the current study were more sensitised to injuries over the October and November months due to the domestic season competition. According to Finch[17] in contemporary cricket, overuse injuries are more common due to increased physical demand. Fielders and bowlers combined attributed to 81.9% of the total injuries with approximately equal injury prevalence among each. This finding is in disagreement with the finding of Australian Juniors Enjoying Cricket Safely (JECS) study where the match fielding injury rate were twice the bowling injury rate among community-level junior cricketers.[18] However, studies on provincial level junior cricketers from South Africa[19] and elite adult cricketers[20] have stated conversely with blowers being affected twice more as compared to fielders and batters.

Injury surveillance studies conducted in other cricketing nations have used different methods to determine the injuries sustained by the players like developing a database, e.g. National Electronic Injury Surveillance System,[21] Statistical Process Control Charts (SPC),[22] match time loss (MTL),[6] match injury incidence rates (match-IIR) (injuries/100 match-player-days).[23] No such strategies are employed or any data-base for players' injuries is maintained at club/academy level in Pakistan. Since the data collected in this study was retrospective, the main limitation of the study was that players were unable to recall their diagnosis given by medical officials. Coaches and players should participate in continuous education programmes that focus on physical, mental, and technical components essential for better performance in the game. Players must undergo routine musculoskeletal assessment and be given individual rehabilitation or conditioning programmes.

Conclusion

Young professional cricket players had high prevalence of sports-related injuries with muscle strain and ligamentous sprain being the most common. Most of the injuries incurred by the players were in the month of November. Prevention strategies should be planned by the team coaches and players.

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