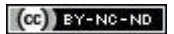


Prevalence of Injuries in National Level Kabaddi Players in India- A Cross-sectional Survey

SAJJAN PAL¹, SAURABH KUMAR², ANKUSH SHARMA³, SHALU THARIWAL⁴

ABSTRACT

Introduction: Kabaddi is a contact sport and national game of India and is widely played in all regions of India. In the recent past decade, it has been grown in popularity at the national level or the international level also. It is a highly strategic game that involves rapid forceful movements of the body, thus, injuries are inevitable in this field.

Aim: To record the prevalence of injuries in the past and present, in terms of various body parts and to record awareness and access of physiotherapy in Indian Kabaddi players.

Materials and Methods: A cross-sectional survey of 80 professional national-level male Kabaddi players (mean age=21.65 years) presenting with various sports-related injuries were identified in the 1st All India Inter-University Kabaddi Tournament (2014-2015) held in Punjabi University, Patiala. Samples were selected by a convenient random sampling technique and scheduled questionnaire was the tool for data

collection with three domains: demographic features, the present and past injuries, awareness and access of physiotherapy. Data was analysed using Microsoft excel and SPSS 20.

Results: It was found that out of 80 players, the prevalence of present injury was 42.5% (n=34) and 62.5% (n=50) of injuries were recorded in the past two years. In the upper limb, the most common injured location was shoulder (21.25%) followed by the arm (5%). In the lower limb, knee (21.25%) was the most commonly injured site followed by the ankle (13.75%) while lower back (14.25%) constituted most of the injuries in the trunk. It was found that only 53.75% (n=41) players had awareness about physiotherapy and 23 (67.65%) players out of 34 players have chosen physiotherapy as treatment at the time of data collection.

Conclusion: As kabaddi is a highly combative sport in nature, so athletes are more prone to get injured. More epidemiology studies are needed in Indian context to know the biomechanics of injuries.

Keywords: Contact sport, Epidemiology, Incidence, National game, Sports injury

INTRODUCTION

Kabaddi is one of the most popular forms of combat sport which has its origin in South Asia and has spread gradually to other countries like Canada, Iran, Japan, the UK, etc., [1]. It is the state game of Haryana, Punjab, Tamil Nadu, Bihar, and Maharashtra. Since 1990, it is part of the Asian Games [2]. Contact sports can be defined as the sport in which players physically interact with each other, trying to prevent the opposing player or athlete from winning the game or sport [3,4]. Kabaddi is a traditional game that is played in all regions of India and requires tremendous physical strength, stamina, agility, neuromuscular coordination, quick reflexes, intelligence and presence of mind in athletes [5,6]. It involves rapid and forceful movements of the body during playing, hence injuries are inevitable [7]. It requires offensive and defensive skills which makes the players prone to many types of sports-related injuries [8]. As Kabaddi is a contact sport so there are chances of various injuries to occur in the athletes during competition and training. Stress injuries and calf muscle injuries occur more in Kabaddi athletes. Players get injuries due to wrong technique or overload that may cause overuse injuries, knee injuries, and muscle strain and ligament sprains [6].

There is a dearth of evidence on epidemiology in Kabaddi players. There are only few studies on Indian kabaddi players. Dhillon MS et al., studied the epidemiology of knee injuries in Kabaddi players [5] and found that most common knee injuries in Kabaddi players were Anterior Cruciate Ligament (ACL) injuries and other studies also [7,9,10] found that knee and ankle injuries were the most common in lower limb in Kabaddi players.

The present study aimed to document the prevalence of injury in terms of various body parts in Indian Kabaddi players and to record the awareness level and management by physiotherapy among Indian Kabaddi players.

MATERIALS AND METHODS

This cross-sectional survey was conducted at the 1st All India Inter-University Kabaddi Tournament (2014-2015) held in Punjabi University, Patiala. An informed consent was taken from all the athletes. Common injuries related to this sport were identified with the help of a questionnaire from present and previous injury records. Five players were not related to the Kabaddi game, so excluded from the study. Thus, finally the study was conducted on 80 male national-level Kabaddi players, selected by a convenient random sampling technique.

Inclusion and Exclusion criteria: Indian Kabaddi players with national level experience of playing within the age 20-25 years that participated in the tournament were included in the study. Recreational players and those with below national-level experience were excluded from the study.

Survey Instrument

After an extensive review of literature, an interview schedule was developed. The initial draft of questionnaire consisting of 48 questions was shown to a Kabaddi coach and a senior physiotherapy expert to validate the content. As per their suggestions, 15 questions were deleted. Thereafter, the questionnaire containing 33 questions was field tested on 20 kabaddi players. It was found that 5 questions were difficult to comprehend, therefore, deleted. The questionnaire was in English version. The final interview schedule consisted of 28 questions which were further divided into three following sections:

- Section A included eight questions about the demographic details.
- Section B included the thirteen questions about the present and past injuries (in terms of various body regions).

- c) Section C included seven questions about the awareness and access of physiotherapy treatment.

Survey Protocol

Informed consent was taken from all the players who were present in the tournament. Coaches were taken into confidence by explaining them in detail about the importance and details about the purpose and significance of the study. Instructor was present to clarify any doubts and players were interviewed during the competition and practice schedule. The study focused on the present and the past injury status of two years of the Kabaddi players. This study documented the prevalence of total injury in terms of various body regions (upper limb, lower limb and other body parts) among Kabaddi players. The injury scenario specifically related to tournament or practice time injury was documented. It also recorded the awareness level and importance of physiotherapy among players, whether athletes have taken physiotherapy as management for injuries or not. It was explained to all participants that the information taken from them would be used only for research purposes and it was assured that no information about the individual player would be revealed to anybody during and after the study. No incentives or awards were given to the participants. Physiotherapy was advised to those players with musculoskeletal injuries during competition.

STATISTICAL ANALYSIS

Data was entered into MS excel and analysed using the SPSS software version 20. Descriptive statistics (mean, percentage) were calculated.

RESULTS

The mean recorded age at presentation was 21.65 years (range: 20-25 years). It included 80 national-level male Kabaddi athletes. Seventy nine athletes were professional national-level Kabaddi players and this group included one player who represented India on International platform also. The study had only male players.

[Table/Fig-1a,b] showed that 62.5% (n=50) of athletes were injured in the past two years and 42.5% (n=34) of athletes were injured presently i.e., at the time of data collection. It was also found that out of 50 players that were injured in the past, 12 were injured in the present too (at the time of data collection).

Injury status		
Present injury status	Number	Percentage (%)
Yes	34	42.5
No	46	57.5
Past injury status of players (in 2 years)		
Yes	50	62.5
No	30	37.5
Total	80	100

[Table/Fig-1a]: Prevalence of past and present injuries.

Variable	Injured 2 years ago	Not injured 2 years ago	Total, n
Presently injured	12	22	34
Presently uninjured	38	8	46
Total, n	50	30	80

[Table/Fig-1b]: Cross table representation for past and present injuries.

[Table/Fig-2] showed the prevalence of upper limb injuries and found that in the upper limb, the shoulder is the most commonly injured joint followed by arm, forearm, elbow, wrist, hand, and fingers. Total 21.25% present injuries of shoulder and 25% in the past two years were recorded. It also showed that in the lower limb, knee and ankle and thigh were mostly injured in present injury status which represented 21.25%, 13.75%, and 6.25%, respectively. Lower back contributed to 13.75% of present injury whereas 22.5% in the past two years.

According to body parts (n=80)	Past Injury n (%) (in 2 years)	Present Injury n (%) (at the time of data collection)
Upper limb		
Shoulder	20 (25)	17 (21.25)
Elbow	2 (2.5)	3 (3.75)
Wrist	2 (2.5)	2 (2.5)
Finger	2 (2.5)	1 (1.25)
Arm	4 (5)	4 (5)
Forearm	4 (5)	3 (3.75)
Hand	2 (2.5)	1 (1.25)
Total	36 (45%)	31 (38.75%)
Lower limb		
Hip	4 (5)	0
Thigh	8 (10)	5 (6.25)
Knee	16 (20)	17 (21.25)
Leg	5 (6.25)	3 (3.75)
Ankle	13 (16.25)	11 (13.75)
Foot	2 (2.5)	0
Total	48 (60%)	36 (45%)
Other body parts		
Buttock	3 (3.75)	2 (2.5)
Lower back	18 (22.5)	11 (13.75)
Upper back	2 (2.5)	3 (3.75)
Neck	4 (5)	3 (3.75)
Head	2 (2.5)	0
Face	2 (2.5)	0
Eye	0	2 (2.5)
Total	31 (38.75%)	21 (26.25%)

[Table/Fig-2]: Prevalence of injuries in upper limb, lower limb and other body parts.

From [Table/Fig-3], it can be observed that only 53.75% of players had awareness about physiotherapy.

(n=80)	Number of player	% of player
Yes	41	53.75
No	39	46.25

[Table/Fig-3]: Awareness of physiotherapy.

[Table/Fig-4] showed that out of 50 injured players in the past, only 15 (30%) athletes had taken physiotherapy in the past. But at the time of data collection, 23 (67.65%) players out of 34 players have chosen physiotherapy as treatment.

Players opted for physiotherapy	Present injured players (n=34) and (%) percentage	Past injured players (n=50) and (%) percentage
Yes	23 (67.65)	15 (30)
No	11 (32.35)	35 (70)
Total	34 (100)	50 (100)

[Table/Fig-4]: Representing the number of players choosing Physiotherapy as the treatment option.

DISCUSSION

Limited research has been conducted on epidemiology of sports injury, particularly in Indian Kabaddi players [5,7,9,10]. The present study found that among 80 national-level Indian Kabaddi players 62.5% (n=50) players were injured in the past two years and 42.5% (n=34) represented present injury status. In present study, the knee (21.25%) represented the highest injury incidence in the lower limb. This result is consistent with a study by Dhillion MS et al., a cross-sectional study on knee injuries in 76 Indian Kabaddi players [5]. It was found that the most common injury was ACL tear (89.47%) which were noted in 68.42% of the players. A study

by Mondal A and Ghosh MC found that knee ligament (sprain) was 25.71% in female Indian kabaddi players and for males it was 25.93% [9]. The main reason for sustained ACL injuries was faulty moves in kabaddi [11].

Similarly, another study by Moeini SM et al., investigated the range, incidence, location, and mechanism of injury in 73 elite male Iranian Kabaddi players using a questionnaire [12]. The majority of injuries were recorded in the upper limb (41.55%), lower limb (32.77%), head and face (15.28%), and trunk and neck (10.3%). But in the present study, the lower limb constituted most of the injuries among kabaddi players followed by upper limb and trunk similar to the studies by Prabhu A and Kumar KC and Indira NC et al., [10,13]. They reported that the majority of the injuries occurred on lower body parts (67%) than the upper body parts (33%). On the contrary, Sen J concluded that upper extremities (51%) are more vulnerable than lower extremities (46%) in Indian female Kabaddi players [7]. Knee (19%) and ankle (14%) were more prone to get injury. This finding was consistent with the present study result which showed knee injuries (20.25%) and ankle (13.75%) injuries.

As sports industry is growing up in India, sports injury rehabilitation is a crucial aspect and has to be lead by a trained sports physiotherapist to ensure full recovery and to prevent re-injury [14]. A recent study by Maan FS showed the efficiency of rehabilitation in the treatment of knee injuries in kabaddi athletes [15]. It was found that taping, massage, stretching and strengthening exercises showed reduction in pain and improvement in the range of motion of knee joint. In the present study, there was no dedicated physiotherapist with the team. Therefore, trainers and coaches with a sports physiotherapist should focus on the importance of biomechanics with a blend of characteristics such as balance, coordination, speed and strength in preventing sports injuries related to the Kabaddi technique [6] and plan an exercise program to make an athlete ready for the competition [16]. The present study highlighted the prevalence of injuries in terms of body parts, awareness of physiotherapy and access to physiotherapy in kabaddi players. More epidemiological studies are needed to understand the causes, biomechanics and risk factors of injury in kabaddi players. More studies are needed to design prevention programs for an athlete.

Limitation(s)

There were several limitations to the present study. Low sample size was the first limitation of this study. The second limitation was specific injuries were not determined by this study as diagnosis for specific injuries requires radiological (X-ray, MRI scan) examination,

clinical examination and other laboratory investigations. Third, the present study was conducted only on male Kabaddi players.

CONCLUSION(S)

Kabaddi is a high intensity, competitive sport, so the prevalence of injury is high. In the upper limb, shoulder constituted most of the injury whereas in lower limb, knee constituted most of the injuries. The present study concluded that in today's modernise healthcare system physiotherapy and a sports physiotherapist should be included in the rehabilitation service for Kabaddi players also. Hence, it is suggested by the present author in the future to undertake more studies to find out the injury prevention strategies and management of injuries in kabaddi players.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.
2. Assistant Professor, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.
3. Assistant Professor, School of Physiotherapy, Baddi University of Emerging Sciences and Technology, Baddi, Himachal Pradesh, India.
4. Student, Faculty of Physiotherapy, SGT University, Gurugram, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Sajjan Pal,
Near Chandu Bhudera, Gurugram, Haryana, India.
E-mail: palsajjan14@gmail.com

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