



Organization of a Major International Sporting Event in the Midst of Covid-19 Pandemic in Eastern India: An Observational Review Detailing Health and Safety Measures

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Sports have been long neglected in our country both in terms of excelling in any sport and hosting events. Even if the country hosts, usually the opportunity goes to the capital city or other metros. Covid 19 pandemic had further compounded the stalemate over the last two years due to evidence against crowd events. But, Odisha state has taken everyone by surprise by hosting the World cup men's hockey and the study is a basic descriptive observational showcase of health-related safety measures that were ascertained during the matches. The event not only let 3 cities in the state namely Bhubaneswar, Rourkela, and Cuttack get a makeover in terms of tourist destinations but also a fast track check was done on the safety preparations within the stadium. Tool used was a

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self-devised pre-tested checklist as per Event management standards and the results were that almost international standards were adhered to in terms of crowd management for parking, entry points, sitting arrangements, water, and toilets. Covid appropriate behavior was disregarded due to zero case reporting for over a year. Public was also satisfied with the preparedness and there was a renewed enthusiasm for sports for all age groups, which was a welcome sight after the restricted activity during Covid. The state has taken baby steps towards establishing itself on the Global map as a state that could take up Global sporting events effortlessly. It has added advantage of propagating the rich heritage and culture of the state as well as promoting sports among the public.

Keywords: Covid-19 appropriate behaviour; crowd management; health and safety; men's world cup of hockey; rescue services.

1. INTRODUCTION

A mass gathering is defined by WHO as a planned or spontaneous event that gathers substantial numbers of attendees who might strain the health planning and response capacities of the host community, city, or country. [1] Mass gatherings can pose significant public health challenges related to the health of attendees, of the host country population and a burden on their health services. In most countries, such gatherings are confronted during the hosting of popular games/ sports, which far exceed any other conglomeration. Covid-19 turmoil has made it mandatory for sports to set the foundation of a new era responsible for up-keeping the safety of the natural disease disabling environment.

The COVID-19 pandemic in 2020 caused unprecedented disruption to the global economy and world trade, with production and consumption falling dramatically in many economies. Organizations around the world responded in many ways, from implementing working from home and restricting non-essential employee travel to cancelling events [1]. In light of the threat on the health and safety of all people in South Africa, the City of Cape Town took the decision to revoke all permits for previously approved events (African News Agency, 2020 [2]). Similar restrictions were imposed for almost all the major sporting events of the world. Participants in mass gathering events were perceived to be at risk of acquiring imported and locally endemic infectious diseases, and with the fear still lurking, it has now become a mandate for the organizers to strategize for preparedness for health safety [3].

In India, with the steep decline in the number of COVID-19 cases and stepwise reopening post-lockdown, with the added benefit of robust mass vaccination; events warranting gatherings and large transits are getting conditional permission. It is also a brisk

response to revive the economical and social (reclusive) damage conferred by the pandemic. The local bodies as well as the central and regional governments are proactively preparing standard operative modules as per the local needs for mass events but at par with international standards [4]. Depending on the present National guidelines, a safe and evidence-based gradual resumption of training and sports was deemed essential, something which was neglected before [5]. Importance of hand hygiene, cough and sneeze etiquette, social distancing, use of mask while not exercising hard, other good public hygiene practices, staying home if sick, frequent cleaning and disinfection of frequently touched surfaces, early detection, isolation and adequate treatment for the positive cases and strictly following government guidelines are now compulsory [6].

Odisha, once considered one of the most backward states of the country, has in recent days made great progress in all fields including sports [7]. Development of world-class stadiums with a special focus on hockey and football has been a key area of focus for the Government of Odisha. Odisha in the recent past hosted the 2018 Hockey Men's World Cup followed by 'Khelo India'-University Games in 2019. In 2021-22 Odisha hosted the FIFA Women's Under-17Football World Cup in the state capital of Bhubaneswar. Thus, post-pandemic too Odisha continued to be the forerunner to host the Hockey Men's World Cup 2022-23 for the second time on a much grander scale than the previous edition, in its cities of Bhubaneswar and Rourkela. Apart from the main sporting event, the inaugural event was held in yet another prominent destination, Cuttack. Seizing an opportunity to arrange for one of the largest sporting events hosted in India, post-pandemic restrictions, all eyes were on the state once known for its dismal developmental parameters.

Objective of the study: To observe the preparedness in the stadiums of Bhubaneswar, Rourkela, and Cuttack in the event of the hockey matches and the administrative pre and post-preparations, even in the eye of another wave of the pandemic and to know the adherence of the crowd, staffs and management authorities of the event to the various health and safety protocols and to know the Practice of the General Public who came to watch the match Key words: Covid-19 appropriate behaviour; crowd management; health and safety; men’s world cup of hockey; rescue services.

of India at 17° 49’ North- 22° 0 34’ North Latitude & 81° 29’ East-87° 29’ East Longitude (Fig. 1). Odisha is located on the eastern coast of India. Bordered by Chhattisgarh in the west, Andhra Pradesh in the south, West Bengal in north-east, Bay of Bengal in the east and Jharkhand in the north, the state extends to an area of 1,55,70,Sq. km. The stadiums are in Bhubaneswar-the state capital, Cuttack-the millennium city and the ancient capital of Odisha cities and Rourkela-the steel city of Odisha were taken up as the study areas as in these places various events and matches were held.

1.1 Objective

Primary:

-To observe the crowd management preparedness of the stadiums hosting the World Cup event

-Observe and describe the various health safety measures taken in the event areas

Secondary: Assess the opinion of the public visiting the stadium

2. MATERIALS AND METHODS

2.1 Setting and Population

Field of the study was stadiums of Odisha. The state of Odisha is located on the eastern coastal

A Descriptive observational survey was conducted between January 13, 2023 to January 29,2023. World cup hockey took place in two cities of Odisha-Bhubaneswar and Rourkela and the inaugural was held in Cuttack. Three Stadiums Kalinga stadium, Bhubaneswar and Birsa Munda stadium, Rourkela and Barabati Stadium Cuttack were the study areas (Fig. 2a-c). Being a complete public event, with no intervention planned, ethical clearance was waived off. Public health specialists were a part of the organizing team invited to view the matches and augment the morale of both crowd and players. Investigators along with Interns formed a group and interviewed the spectators in three stadiums.

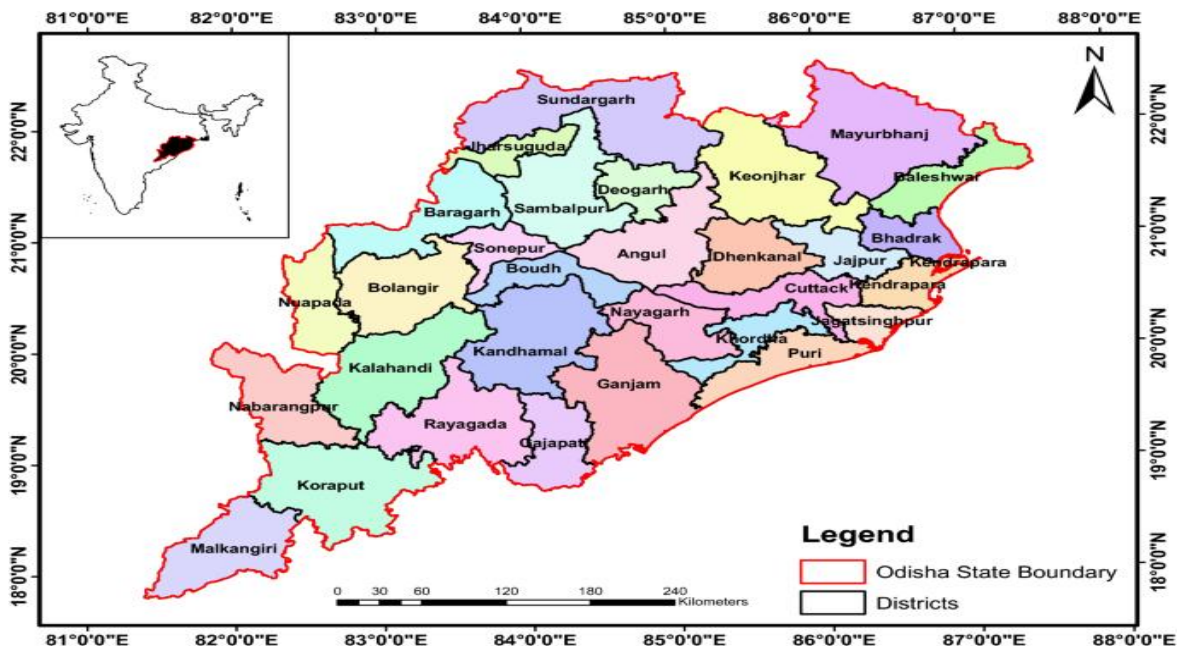


Fig. 1. Geopolitical map of Odisha



Fig. 2a)-Kalinga Stadium Bhubaneswar; b) Birsa Munda Stadium, Rourkela; c) Barabati Stadium, Cuttack

2.2 Outcome Measures

The present study examined the level of awareness, preparedness toward prevention of COVID-19, Emergency response, rescue services, arrangements for the hockey and the cleanliness and hygiene of stadium.

A short opinion from the different stakeholders of the event from players to authorities and audience was also collected.

2.3 Study Tool

A self-designed structured checklist was developed based on the standard operating protocols set by the State health and sports authorities [8]. The checklist had sections that offered insight into the preparedness during the world cup hockey matches [9]. Sections on crowd management, security, parking areas, cleanliness and hygiene in the stadium, Information, education and communication material on the awareness and COVID appropriate behavior in the stadium, Emergency response, rescue services were noted in all 3 stadiums, where the games were held. A team of researchers visited on the day of starting, mid, and close to final matches to document the survey information, which was done only on observation.

A small section of the audience was asked a self-reported questionnaire. The first part of the questionnaire was designed to obtain background information, including demographic characteristics (age, gender, level of educational, and occupation). The second part of the survey consisted of questions that address awareness concerning COVID-19 (a reliable source of

information on the opinion and perception towards the arrangements of the hockey stadium population).

2.4 Data Collection and Analysis

Data were collected using a convenient sampling method and entered in the excel sheet and analysed

3. RESULTS AND DISCUSSION

3.1 General Preparedness of Stadium

Table 1 shows the general observations at Kalinga Stadium Bhubaneswar, Birsa Munda Stadium Rourkela and Barabati Stadium, Cuttack.

The three stadiums are some of the best facilities in Odisha with all modern amenities. As evident from the table, Hockey world cup 2023 is the first event which is being organized with no compulsory COVID restrictions but still some were practiced in the newly built Birsa Munda Stadium at Rourkela, which is the world's largest sitting capacity stadium for hockey, wherein the infrastructure is modern and contemporary. There is better management of water and hygiene in Rourkela than in the other two venues. This area needs reinforcement as it could offer a chance for spread of infections. The stadiums had ample gates for separate entry and exit ensuring that no point of time there was congestion in crowd movement, which is the main concern during any large-scale event. After a match sanitization of the crowd area was also reported and that should be made a practice for all sporting events.

Table 1. Observation of facilities at the hockey match venues

Assessment Criteria	Kalinga Stadium	Birsa Munda Stadium	Barabati Stadium (Only for inauguration day)
A. Crowd Management			
Stadium Established	2010	2022	1958
Stadium Capacity	16,000	21,000	45,000
Expected footfall	18,000	25,000	30,000
No. of Gate	09	09	15
Separate entry and Exit Gates	Yes	Yes	Yes
Average No. people entering through each gate in 5 mins	140-150	160-180	80-100
Queue barricades present	No	No	Yes
B.COVID Appropriate Behaviours			
Is it mandated to use mask	No	No	No
Sanitisers present in entrance/exit	Yes	Yes	No
Awareness IEC* for Covid-19 appropriate behaviours through Boards	No	No	Yes
Social Distance being maintained in entry and exit points	No	No	No
Social Distance being maintained in seated areas	No	No	No
Pan/Tobacco spit marks present	No	No	Yes
Do people maintain hygienic etiquettes while coughing	No	No	No
Dustbins properly placed at ample distances	No	Yes	No
Sale of Food items inside stadium	Yes	Yes	No
Litters* seen in Stadium	No	No	Yes
Separate drinking and washing area	No	Yes	No

*Litters are paper, cans, and bottles left lying in an open or public place

*IEC – Information, Education and Communication

Table 2 depicts the security and parking facilities at the venues. Adequate security personnel from Odisha Police were deployed inside and outside the stadium. There were adequate arrangements for disaster management. Mock drills were practiced before every match in Bhubaneswar and also before the inauguration in Cuttack. In Rourkela, though facilities were available there was not many mock drills, due to its distance from the capital. Special provisions for media vehicles and journalists were made in the stadiums with separate annexures for their sitting and movement. The parking areas of Rourkela and Cuttack were at least 1.5km away from the main stadium gate however in Kalinga Stadium the parking area is just 500m away from the stadium gates. This also is a way of decongesting the crowd and giving space for

walking and moving out of the stadium. The lack of alarm system and bomb squad speak of the relatively peaceful ambience of the state, with law and order in proper place, however should be looked into in future.

Table 3 depicts the health care facilities in the stadium. For the match officials and players the official hospital partner of the event had made arrangements near the player dugouts. For others the first aid centres were available in both Kalinga Stadium and Birsa Munda Stadium. There were mobile medical unit attached to only in Kalinga Stadium. The medical personals from the nearby government hospitals were available. In Cuttack, since only the inauguration ceremony was only being held so there was not much medical facility arrangement there.

Table 2. Observation of security and parking facilities

Assessment Criteria	Kalinga Stadium	Birsa Munda Stadium	Barabati Stadium
Type of Security	Odisha Police+ Private security	Odisha Police	Odisha Police
Covid Vaccination of security personnel's	Yes	Yes	Yes
Fire extinguisher and exit(functional and updated)	Yes	Yes	Yes
No. of Fire Brigades	5	3	2
Alarm system available	No	No	Yes
Bomb Squad	No	No	No
Special provision for controlling of hooglism and unruly behaviour	Yes	Yes	Yes
Parking Areas	03	03	05
Parking Area distance from entry gate(in Kms)	0.5	02	1.5

Table 3. Health preparedness and facility at the venues

Assessment criteria	Kalinga Stadium	Birsa Munda Stadium	Barabati Stadium
First Aid centre available	Yes	Yes	No
Mobile Medical Unit	Yes	No	Yes
Ambulance Facility	Yes	Yes	Yes
Nearby Referral Hospital	Capital Hospital, Apollo Hospital	IGH hospital, Hi-tech Medical College	SCB MCH
Wheel Chair Facility	Yes	No	Yes

3.2 Practice of the General Public

A small representative population of the audience who came to see the match were asked few questions related to their personal preparedness for attending the function. Fig. 3 depicts the adherence to Covid appropriate behaviours of the supporters. Women and children were in near equal proportion, which highlights the generalized increase in interest in sports in our country, which decade back was considered a choice of men and few elite women. All age groups were spotted among the attendees, but 20-40 years were more common. Seats arrangements were made for people of all socio-economic strata and hence all attendees were satisfied with the availability of tickets. Outside stadium and within 10km aerial LED television sets on high stands also offered a good view of the matches, for those who would want to avail the opportunity besides live telecast of matches over various television channels. Excitement of children was palpable as after a long time they could view a live event on ground and wanted desperately to break free of the forced pandemic home bound times. Along with the euphoria, a newly imbibed discipline of mask,

maintaining cleanliness, hand etiquette was also observed among all age groups. However, washroom hygiene and rampant throwing of rubbish could not be controlled adequately.

Fig. 4 shows that most of the visitors who visited the stadiums were satisfied with the safety and security, crowd management and health preparedness facilities at the stadiums.

Sporting events held during the COVID-19 pandemic in the professional leagues, international federations and the summer and winter Olympic Games. For example, at the Tokyo Olympic Games, impactful countermeasures included (1) physical distancing, hand hygiene, mask wearing and enhanced room ventilation; (2) rigorous testing, contact tracing and isolating of positive cases and (3) a worldwide vaccination distribution programme for National Olympic Committees showed good results in containing the spread of COVID-19 with almost less COVID positive cases [10]. Odisha was almost the first state in India to have opened up for hosting of sports events as early as June 2020 and since then the state government and the sports authorities in

particular have hosted many events under strict guidelines [11]. State achieved the remarkable feat of hosting this event for the second time in a row which itself speaks of the states preparedness to host such mass events [12]. In

the long run, it seeks to give a fillip to international sports tourism by attracting more international tourists to attend sporting events (there has been a rise of both domestic and international tourists during sporting events) [12].

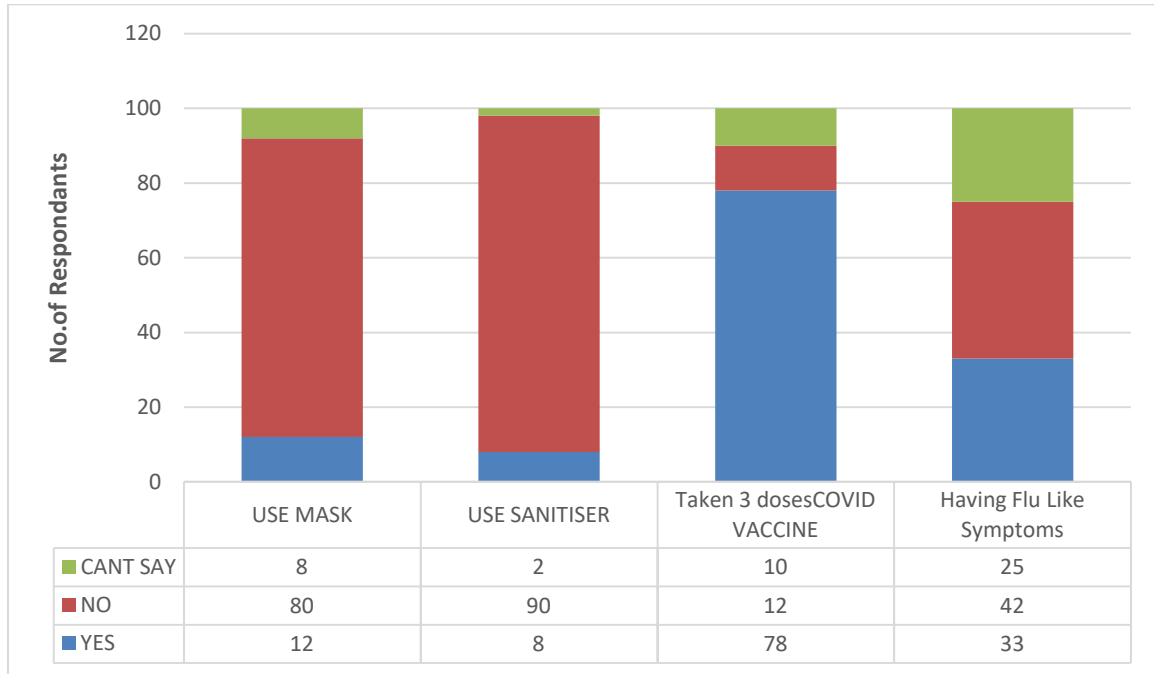


Fig. 3. Covid appropriate practices of the general public (N=100)

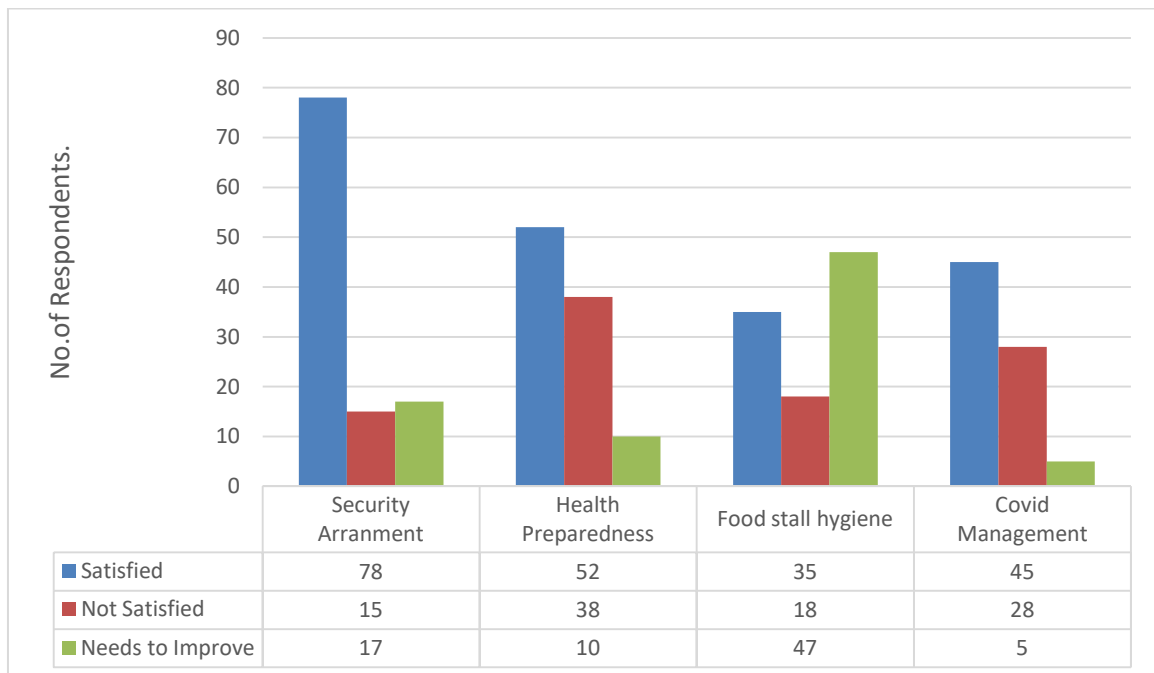


Fig. 4. Opinion of audience regarding world cup preparedness (N=100)



Fig. 5. Entry & Exit Gates with crowd management at Birsa Munda Stadium, Rourkela

Studies(Murray et.al 2022) suggests that outdoor sports carried a lower risk of transmission of SARS-CoV-2 due to physical distancing and ventilation than indoor games thus outdoor sporting events were re-introduced at the earliest in many parts of the globe [13]. Countries (eg, New Zealand and Australia) that had eliminated the virus or had lower community transmission of cases could sometimes introduce full or >50% spectators' capacity ahead of widespread vaccine roll-out. With global vaccine roll-out, countries were able to move towards full audience capacity, despite high community transmission, as evidenced by the English Events Research Programme.

4. CONCLUSION

Professional sport provides cultural, economic and employment benefits. Outdoor trainings present a low or in 'bubble environments' with robust risk assessment and risk reduction and with no, or very limited, spectators on-site. Domestic events did not increase transmission while very low case rates and transmission were seen in international sports, including the delayed 2020 Tokyo Summer Olympic and 2022 Beijing Winter Olympic Games [14]. But in all these events regular testing was a mandatory thing during the post lockdown phase. Collaboration between governments, their public health authorities and sports organizations have successfully allowed sports events to recommence, using guidance based on the best available science and practical considerations [15]. The pandemic distanced people who now want to come back to regular lives, but exercising caution has been learnt the hard way. Once in limelight for wrong reasons, now state of Odisha steals the limelight to showcase maiden efforts and is showing the way

of reversing COVID damage with conviction. It has set the stage for renaissance of sports especially Hockey, which is the National sports of the country, by recreating the love for the sports in the public, preparing its stadiums to host the biggest event in this sports World cup hockey and also by pulling it off with a touch of the spirit of Nationalism and sportsmanship. This article is dedicated to showcase the big efforts of this small state, which has rekindled the love for a sport, which had been ebbed over the times by choosing other commercial sporting events. Foreigners were only 10% of the attendees, which expresses the need to upgrade our hospitality care to global standards, holistically to attract foreign visitors. However, all cities in the state hosting the event revamped their look in terms of roads, cleanliness and civic amenities and thus such events have a public health reach too.

Good opportunities for the youth to take up sports as a career especially from the small cities are growing in India in general and Odisha in particular. The future investments in the field of sports by the governments, sporting authorities, corporate and general public is a way forward in the field of overall development of a nation

5. LIMITATIONS

The international and national players could not be interviewed for their satisfaction, it having special ethical requisites and was beyond the scope of the fast-track study. Geo-mapping of hotels, hospitality, and health centers to seek information on the comforts of travel, tourism, and access to health facilities in the vicinity of the event's venue could not be explored.

6. RECOMMENDATION

- It is recommended that if such events are tagged with infectious diseases sero-surveillance mapping, we would also have some knowledge about the circulating infection strains in the community and also being newly introduced by visitors.
- Self-designed structured checklist which was developed can be used in studies which are related to event management
- Methods used in this study can be replicated to judge the safety and health standard of events in the future.
- Such studies add scientific assurance to public and community to erase the erstwhile opinions that events are managed without caution and in a subtle way could promote sports and community outdoor entertainment, which is so essential in today's world

CONSENT AND ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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