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Original Article

RISK MANAGEMENT AMONG SOCCER PLAYERS IN ALIGARH CITY: A CROSS-SECTIONAL QUANTITATIVE ANALYSIS

GESTÃO DE RISCOS ENTRE JOGADORES DE FUTEBOL DA CIDADE DE ALIGARH: UMA ANÁLISE QUANTITATIVA TRANSVERSAL

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RESUMO

O futebol em Aligarh não é apenas um jogo; é uma paixão que pulsa por toda a cidade. No entanto, quando se trata de riscos, o esporte apresenta um quadro preocupante. Uma lesão grave no futebol pode encerrar a carreira profissional do atleta. Assim, o presente estudo teve como objetivo explorar e dissecar os múltiplos aspectos dos riscos associados aos jogadores de futebol na região de Aligarh e sugerir medidas adequadas para mitigá-los. Os pesquisadores adotaram uma metodologia de pesquisa descritiva por levantamento. Utilizou-se uma técnica de amostragem em múltiplas etapas para selecionar 50 jogadores de futebol do sexo masculino (25 de cada uma de duas instituições de alto prestígio) da região de Aligarh. O pesquisador seguiu critérios adequados de inclusão e exclusão, com base no tempo de permanência dos atletas em seus clubes, que conforma sua maturidade e conscientização. Um questionário foi aplicado pessoalmente aos participantes selecionados. A análise dos dados foi realizada por meio do teste t. Os resultados mostraram diferença significativa nas médias de todos os itens, agrupados em quatro seções do questionário ($P < 0,05$). Além disso, os achados revelaram que o terreno irregular e as superfícies duras são as principais causas de lesões entre todas as causas relacionadas à superfície de jogo. As lesões na região lombar são as mais comuns entre os jogadores de futebol, seguidas por lesões no joelho e no tornozelo. As conclusões do estudo indicaram a ausência de planos adequados de gestão de riscos em ambas as instituições. Mesmo com a disponibilidade de treinadores certificados, o treinamento científico moderno foi negligenciado. A manutenção inadequada dos equipamentos, o padrão abaixo do ideal do campo de jogo, a falta de exames médicos adequados, de primeiros socorros e de atendimento a emergências médicas, e a indisponibilidade de especialistas em medicina do esporte constituem, em conjunto, fatores de risco externos. Além disso, o estudo identificou alguns fatores de risco pessoais, como a falta de uso de equipamentos de proteção, de conhecimentos de nutrição e de hidratação adequada.

Palavras-chave: gestão esportiva; planejamento de riscos; futebol; prevenção de lesões; medidas de segurança.

ABSTRACT

Soccer in Aligarh is not just a game; rather it's a passion that palpitates throughout the city. However, when risks are concerned, the game displays an intimidating picture. A critical soccer injury may end the professional career of the player. Thus, the present study aimed to explore and dissect the multifaceted landscapes of risks associated with the soccer players in Aligarh region and to suggest appropriate measures for mitigating those risks. The researchers adopted a descriptive survey research methodology for this study. A multi-stage sampling technique was employed to select 50 male soccer players (25 each from two institutions of high repute) from the Aligarh region. The researcher followed proper inclusion and exclusion criteria based on the players' timespan at their clubs forming their maturity and awareness. A questionnaire was personally administered to the selected participants by the researcher. Data analysis was done using the t-test. The study results showed a significant difference in the mean values of all the items classed into four sections of the questionnaire with $P< 0.05$. Furthermore, study findings revealed that bumpy ground and hard surfaces are the major causes of injuries among all the causes related to playing surface area. Lower back injuries are the most common injuries among soccer players, followed by Knee and ankle injuries. Study conclusions revealed a lack of proper risk management plans in both institutions. Even after the availability of certified coaches, modern scientific training was neglected. Improper maintenance of equipment, low-par standard of playing ground, lack of proper medical check-ups, first-aid and medical emergency, and unavailability of sports medicine experts together constitute an external risk factors. Moreover, the study also unveiled some personal risk factors, such as lack of use of safety equipment, nutritional knowledge, and proper hydration.

Keywords: sport management; risk planning; soccer; injury prevention; safety measures.

Introduction

Soccer, one of the most beloved and widely practiced games in the world, brings people together, inspires passion, and showcases the remarkable athleticism of its players. However, beyond the cheers of the crowd and the euphoria of victory lies a challenging reality – the game

of soccer is not without its perils[1]. Soccer has been demonstrated to be among the most hazardous of organized team games, and injury is a frequent event in soccer[2,3]. All the possible risk factors can be broadly categorized as intrinsic (player-related) factors and extrinsic (facility-related, equipment-related, environment-related) factors[4]. The extrinsic risk factors such as equipment quality, ground maintenance, lack of scientific training and medical check-ups, unavailability of qualified coaches, physiotherapists, doctors, first-aid, and nutritious food, etc., faced by soccer players are a subject of paramount concern for both the athletes and the entire sports community[5,6].

Aligarh, a culturally rich city in Uttar Pradesh, is a place of educational institutions and various sports academies. Aligarh's population profile is notably youthful, among 1.6 million residents, 29% are aged between 15-29 years. In Aligarh, soccer is not just a game. Instead, it is a passion that resonates throughout the city. From secondary to higher education, educational institutions prioritize sports education besides academics, integrating soccer into their curriculum and extracurricular activities. Soccer tournaments such as the Aligarh exhibition Soccer championship, inter-school, inter-halls, under-16, under-19, and open category championships provide a competitive yet nurturing environment for soccer players to showcase their abilities and promote healthy rivalries. Even so, there are still issues that persist in Aligarh despite the vibrant soccer culture. Obstacles to the growth of the sport include a lack of strategic risk management planning in terms of infrastructure, training facilities, availability of expert coaching assistants, equipment, and play fields[7-9]. Understanding the intricate relationship between soccer and its inherent risks is vital not only for the safety and well-being of the athletes but also for the preservation and advancement of the sport itself. Though the risk of injury can not be completely eliminated from sports[10], it can be mitigated either through risk acceptance or through risk reduction[4,11], and some risks are predictable hence can be controlled[12].

This research explores and dissects the multifaceted landscape of risks associated with soccer in Aligarh, addressing the physical, psychological, infrastructural, and managerial risks leading to injury and below-par performance that the players face on and off the pitch. A study revealed the prevalence of mental health challenges among professional soccer players, including anxiety, depression, and performance-related stress[13]. Recursive model of etiology in sports injury[14] depict that the potential risks can interconnect to raise the combined interaction effects. These psychological issues can have profound effects on an athlete's well-being and performance, and thus, they form a significant part of the risks associated with soccer[11].

When coaches do not know their duties, they put their athletes in an unsafe situation, and they also put themselves at legal risk, which in most cases results in a civil action against the coach and sometimes cause criminal prosecution against the coach by the injured[15-17]. Accordingly, the performance of the coaches' duties can reduce the athletes' injury on one side, and on the other side, it can reduce the legal liability of the coaches[18-20].

Soccer authorities, medical professionals, and athletes need to collectively engage in the pursuit of better risk management strategies that ensure a balance between the spectacle of the game and the health of its participants[21].

This research embarks on a journey to examine the risks and their management in context of soccer in Aligarh city. Through a rigorous analysis of all the possible risks associated with soccer players, whether it is due to their personal conduct or managerial negligence, this paper aims to contribute to the development of safer, more sustainable practices in soccer. As we delve into this vital exploration, we remain committed to fostering a safer and more inclusive future for the game we cherish. The present research aims to identify the associated risks and suggest the mitigating measures accordingly. Through a descriptive survey research methodology researchers intends to identify all the possible risks associated with soccer players, whether it is due to their personal conduct or managerial negligence, this paper aims to

contribute to develop safer and more sustainable practices in soccer. Moreover, the present research also compares risks involved with intervarsity level and state level soccer players.

Methods

Sample

The professional male Soccer players of Aligarh city representing Inter-varsity and state level were the target population for this study. A total of 50 male soccer players aged between 22-26 years with mean age 23.95, and standard deviation 1.25, were selected from the two prominent Soccer clubs of Aligarh namely Soccer Club of Aligarh Muslim University (inter-varsity level) and the Soccer Club of Ahilyabai Holker Sports Stadium (state level). A prior informed consent was obtained from all the participants.

Inclusion and Exclusion criteria

The inclusion and exclusion criteria for this study were established on the basis of players' timespan at their clubs. This timespan was supposed to form their maturity and awareness about the associated risks within the infrastructure and facilities provided by their soccer clubs. Thus, only those soccer players, who had been practicing in their clubs for the past one year till the date of survey, were assumed suitable for this study as the timespan of one year was supposed enough for them to get informed and aware about the possible associated risks. Based on the similar criteria, the players who recently joined their clubs and not completed a year were assumed as uniformed and unaware about the said risk factors, thus, excluded from being the participants of this study.

Procedure

A descriptive research methodology was adopted by the researchers. A survey questionnaire, developed by Gray was used after slight modifications[22]. Modifications were made in order to meet the research objectives. This questionnaire consisted of 17 questions based on a 5-point likert scale. These questions were bifurcated into four major sections viz. qualification & availability of coaching/training staff, precautions related to equipment, precautions during training schedule, and other essentials of risk management. In addition to these four sections, the questionnaire also included three separate questions focused on the major causes of injuries occur due to the surface area of playing field, the most common injury types among soccer players, and the major causes of common soccer injuries respectively. The questionnaire was personally administered to 50 male soccer players (25 each from two soccer clubs of Aligarh) after taking their prior consent. These players belonged to two prominent soccer clubs of Aligarh, i.e., the Soccer Club of Aligarh Muslim University and the Soccer Club of Ahilyabai Holker Sports Stadium. A multi-stage sampling technique was employed to select the participants. Firstly, a purposive sampling technique was used to select the two prominent soccer clubs of the city based on their uniformity. The inclusion and exclusion criteria for selecting these two soccer clubs were based on the availability of the professional soccer players as well as the long lasting history of existence, and competitive environment these clubs provide to their trainees. After selecting these clubs, random sampling technique was employed for the selection of soccer players.

Statistical analysis

Both descriptive and inferential statistical techniques were adopted to analyze the collected data. Mean, standard deviation, and frequency distributions were used to describe the respondents' responses. Post Shapiro-Wilk normality check, a t-test was used to compare

whether the difference in the responses was recorded between inter-varsity soccer players and state-level soccer players. The 0.05 level of significance was taken for this study.

Results

This section consists two parts, i.e., Part A and Part B.

Part A

This part highlights the findings of the gathered data regarding various risk factors such as qualification of the coaching/training staff, precautions related to equipment, precautions during training schedule, and other essential risk management.

Table no. 1 shows the significant difference between the mean scores obtained by both groups on all three items of "Qualification of coaching and training staff." Intervarsity soccer players scored higher than the state-level soccer players on all three items, viz. certification of coaching and training staff ($t = 7.42$, $P<0.05$), availability of coaching assistance like fitness trainer, sports physiotherapist and sport medicine experts ($t = 2.59$, $P<0.05$), certification of other assistance like fitness trainer, physiotherapist and masseur ($t = 18.93$, $P<0.05$) respectively.

Table 1. Qualification of coaching and training staff

Item	Group	N	Mean	SD	t-Value	P
Certification of coaching and training staff.	Soccer players (SL)	25	2.48	0.59	7.42	<0.05
	Soccer players (IL)	25	3.68	0.56		
Availability of coaching assistants like fitness trainer, sports physiotherapist, and sports medicine experts.	Soccer players (SL)	25	2.15	0.63	2.59	<0.05
	Soccer players (IL)	25	2.60	0.60		
Certification of other assistants like fitness trainer, physiotherapist, and masseur.	Soccer players (SL)	25	2.64	0.49	18.93	<0.05
	Soccer players (IL)	25	4.88	0.33		

Note: N = Number of Participants, SD = Standard Deviation, SL = State Level, IL = Intervarsity Level
Source: Authors

Table no. 2 shows the significant difference between the mean scores obtained by both groups on all three items of "Precautions related to equipment." Intervarsity soccer players scored higher than the state-level soccer players on all three items, viz. satisfaction with the condition of ground available for training ($t = 6.29$, $P<0.05$), the safety of different equipment are properly maintained ($t = 8.74$, $P<0.05$), use of appropriate footwear with cleats to prevent injuries during practice sessions ($t = 9.78$, $P<0.05$) respectively.

Table 2. Precautions related to equipment

Item	Group	N	Mean	SD	t-value	P
Satisfaction with the condition of the ground available for training.	Soccer players (SL)	25	2.68	0.85	6.29	<0.05
	Soccer players (IL)	25	3.92	0.49		
Safety of different equipment is properly maintained.	Soccer players (SL)	25	2.80	0.50	8.74	<0.05
	Soccer players (IL)	25	3.92	0.40		
Use of appropriate footwear with cleats to prevent injuries during practice sessions.	Soccer players (SL)	25	3.16	0.47	9.78	<0.05
	Soccer players (IL)	25	4.52	0.51		

Note: N = Number of Participants, SD = Standard Deviation, SL = State Level, IL = Intervarsity Level
Source: Authors

Table no. 3 shows the significant difference between the mean scores obtained by both groups on all seven items related to "Precautions during training schedule." Intervarsity soccer players scored higher than the state-level soccer players on all seven items, viz. proper warming up and cooling down to prevent undue injuries ($t = 9.78$, $P<0.05$), regularity and punctuality of coaches in the practice sessions ($t = 19.62$, $P<0.05$), application of standard and professionally accepted coaching techniques for training/coaching sessions ($t = 16.26$, $P<0.05$), regular medical examination of urine sample, blood profile and liver functioning of the athletes ($t = 11.36$, $P<0.05$), keeping a track record of personal medical examination history ($t = 4.98$, $P<0.01$), satisfaction level with the availability of first aid facilities at the training center ($t = 3.36$, $P=0.05$), availability of appropriate first aid and medical emergency facilities at the training center at the time of requirement ($t = 10.53$, $P<0.05$) respectively.

Table 3. Precautions during training schedule

Item	Group	N	Mean	SD	t-Value	P
Proper warming up and cooling down to prevent undue injuries.	Soccer players (SL)	25	3.16	0.47	9.78	<0.05
	Soccer players (IL)	25	4.52	0.51		
Regularity and punctuality of coaches in the practice sessions.	Soccer players (SL)	25	2.88	0.44	19.62	<0.05
	Soccer players (IL)	25	4.92	0.28		
Application of standard and professionally accepted coaching techniques for training/coaching sessions.	Soccer players (SL)	25	2.88	0.33	16.26	<0.05
	Soccer players (IL)	25	4.72	0.46		
Regular medical examination of urine sample, blood profile and liver functioning of the athletes.	Soccer players (SL)	25	1.12	0.33	11.36	<0.05
	Soccer players (IL)	25	3.28	0.89		
Keeping a track record of personal medical examination history.	Soccer players (SL)	25	2.52	0.59	4.98	<0.05
	Soccer players (IL)	25	3.44	0.71		

Item	Group	N	Mean	SD	t-Value	P
Satisfaction level with the availability of first aid facilities at the training center.	Soccer players (SL)	25	2.40	1.00	3.36	=0.05
	Soccer players (IL)	25	3.28	0.84		
Availability of appropriate first aid and medical emergency facilities at the training center at the time of requirement.	Soccer players (SL)	25	2.56	0.51	10.53	<0.05
	Soccer players (IL)	25	3.92	0.40		

Note: N = Number of Participants, SD = Standard Deviation, SL = State Level, IL = Intervarsity Level
Source: Authors

Table no. 4 shows the significant difference between the mean scores obtained by both groups on all four items of "Other essentials of risk management." Intervarsity soccer players scored higher than the state-level soccer players on all four items viz. habit of using stockings and shin guards during practice sessions for the prevention of injuries ($t = 4.62$, $P<0.05$), proper care of hydration level during practice and competition ($t = 9.95$, $P<0.05$), proper calorie requirement (carbohydrates, fat and protein) in different phases of training and competition ($t = 12.58$, $P<0.05$), crowd management and other related aspects for players' safety ($t = 9.53$, $P<0.05$) respectively.

Table 4: Other Essentials of Risk management

Item	Group	N	Mean	SD	t-value	P
The habit of using stockings and shin guards during practice sessions for the prevention of injuries.	Soccer players (SL)	25	2.72	0.98	4.62	<0.05
	Soccer players (IL)	25	3.88	0.78		
Proper care of hydration level during practice and competition.	Soccer players (SL)	25	2.92	0.57	9.95	<0.05
	Soccer players (IL)	25	4.44	0.51		
Proper calorie requirements (carbs, fat and protein) in different phases of training and competition.	Soccer players (SL)	25	2.60	0.65	12.58	<0.05
	Soccer players (IL)	25	4.64	0.49		
Crowd management and other related aspects for players' safety.	Soccer players (SL)	25	2.36	0.57	9.53	<0.05
	Soccer players (IL)	25	4.00	0.65		

Note: N = Number of Participants, SD = Standard Deviation, SL = State Level, IL = Intervarsity Level
Source: Authors

Part B

This part highlights the graphical representation of the results obtained on three separate questions that were focused on exploring the major causes of injuries that occur due to playing

surface area, the most common types of injuries that occur among soccer players, and the major causes of the common soccer injuries respectively via figures given below.

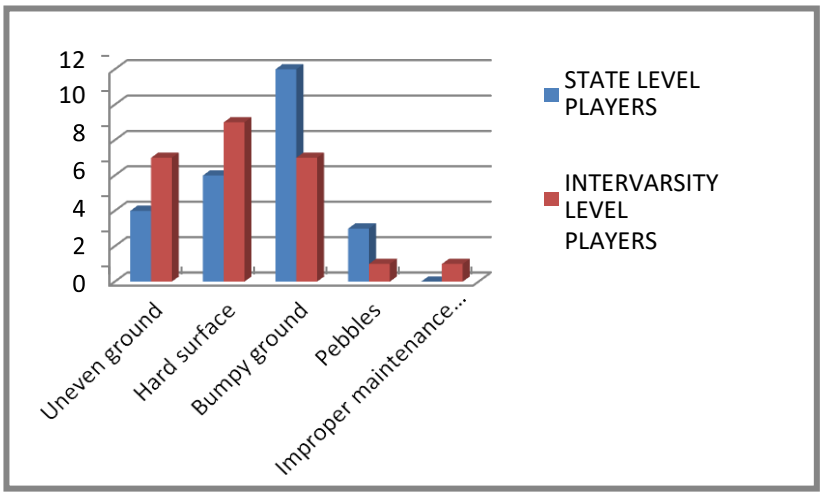

Figure 1. Major causes of injuries that occur due to the playing surface area.
Source: The authors.

Figure 1 shows that bumpy ground and hard surfaces, followed by uneven ground, are the major causes of injuries that occur due to the surface area of the playing field. With respect to bumpy ground, intervarsity soccer players reported significantly lower scores than the state-level soccer players, while on the other hand, a reverse situation has been reported in terms of hard surface and uneven ground. Furthermore, it was also observed that both groups consider improper maintenance of ground as a rare cause of injury to the players.

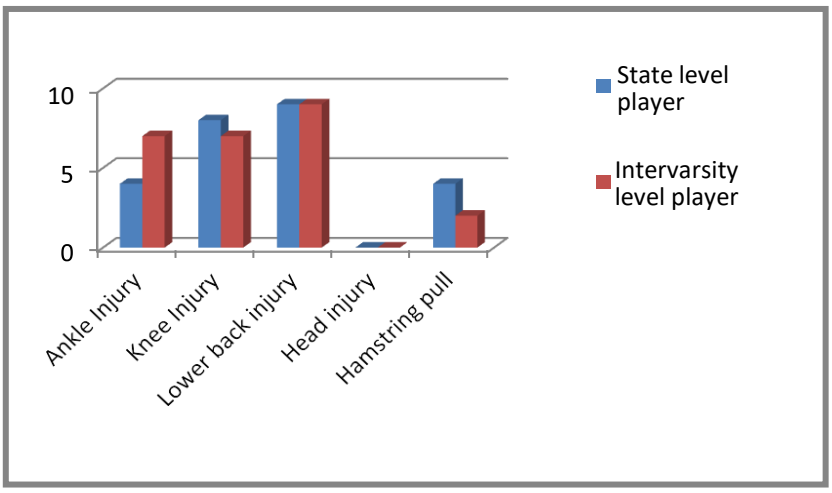

Figure 2. Most common injury types among the soccer players.
Source: The authors.

Figure 2 showcases lower back injuries as the most common injury for soccer players, followed by knee and ankle injuries which are the second and third most common injuries, respectively. Both groups reported equally on a lower back injury, while state-level soccer players reported higher than intervarsity soccer players in regard to a knee injury, and a vice-versa situation was observed with respect to an ankle injury. Additionally, it was also

observed that head injuries among state-level and inter-varsity level soccer players are rarely recorded.

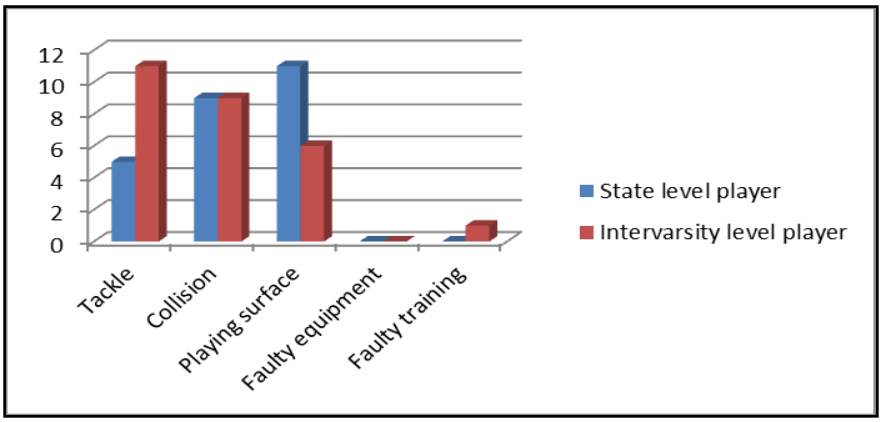

Figure 3. Major causes of common soccer injuries.
Source: The authors.

Figure 3 depicts that the playing surface, collision, and tackle are the major causes of common soccer injuries. Both groups reported equally on collision, but on the other hand, intervarsity level soccer players reported significantly lower than the state level soccer players on playing surface, and vice versa, conditions were reported regarding tackle. In addition to this, faulty equipment followed by faulty training was recorded as the most minor cause of common soccer injuries among the soccer players of both levels.

Discussion

This study aimed to assess risks in soccer and evaluate risk management across competitive levels. Results revealed notable differences between state-level and intervarsity players in coaching standards, equipment safety, training precautions, and injury management, with intervarsity players comparatively benefitting more from state-level players.

While coaches in the region are found to be certified by national bodies, the observed neglect of modern coaching techniques aligned with the findings of previous researches[23,24] in which they indicated most soccer injuries are due to improper training techniques, and coaches play a primary role in dealing with athletes' training. The absence of certified coaching assistants such as sports nutritionists, strength and conditioning coaches, sports physiotherapists, and psychologists raises concerns about the efficacy of current training practices[24,25].

Additionally, the improper maintenance of soccer equipment and the absence of modern gear on playing grounds[25] pose tangible risks to players' safety. The oversight in implementing comprehensive risk management plans, encompassing pitfalls related to coaching techniques, equipment maintenance, and emergency facilities, indicates a systemic error in the district soccer administration's approach. This outcome of our study is supported by the previous studies[8,26] in which they talked about the lack of modern managerial approach, training methods, and low-quality equipment utilization, which are responsible for the below-par sports performance of central universities in India.

Our study also highlights players' lack of awareness of nutritional efficacy and proper hydration counteracts[27] on nutritional efficacy and is supported by the same study on proper hydration. The lack of attention to common soccer injuries and crowd management during competitions further emphasizes the need for a holistic and proactive approach to mitigating risks.

Given these findings, the district soccer administration must collaborate with relevant stakeholders, drawing on evidence-based practices to develop and implement robust risk management strategies. Addressing these identified shortcomings will enhance players' safety and contribute to the overall development and sustainability of soccer in the Aligarh district.

Conclusion

This study, conducted in the Aligarh district, explored critical deficiencies in the soccer infrastructure, coaching practices, and risk management and presented significant implications for players' safety and well-being. The study conclusions suggest the formation of a dedicated committee to develop tailored risk management strategies and continuous professional development for coaches to implement modern training regimens. It recommends enrolling qualified training experts like fitness trainers, nutritionists, and physiotherapists to enhance player support and prevent injury. Maintenance of soccer fields is highlighted as extremely important for injury prevention. Educational workshops on nutrition for players and strategic alliances with medical experts are advised to ensure player well-being and safety, as well as the utilization of standardized soccer equipment to mitigate risks. Further research at different places in India is proposed to enrich risk management strategies. These measures aim to uplift the Aligarh district soccer community's loyalty to player welfare and create a safer environment for the sport.

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