CHALLENGES AND MANAGEMENT STRATEGIES OF SPECTATORS CROWD IN SELECTED STADIUMS, ETHIOPIA.

Dawit B.F, Wondemagegn D. (Ph.D) and Mekoya M.
Hawassa, University
Correspondent author email: 4dawitii @ gmail.com, Cell phone +251 913 578 041

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ABSTRACT

The purpose of this study is to assess the challenges and management strategies of spectators' crowd in selected stadiums, Ethiopia. Hawassa Kenema and Addis Ababa stadiums are selected for study site, whereas stadium safety feature, management strategies in terms of pre, during and post-event management activities and major hindering factors are the selected study variables. To achieve the innate objective 387 subjects are selected by multi stage sampling techniques from Spectators, volunteers, officers and executives. Cross sectional survey research design is employed to manipulate study variables. Apart from this adopted Simpson, 2000 questionnaire is administered to collect relevant information from study subject. The descriptive and Logistic regression statistical analysis using SPSS V 20 is employed to interpret the result. However level of significant is set at p <0.05. The statistical analysis reveals as the application of pre, during and post events management strategies activities are weakly planed and implemented. On the other hand Lack of sitting arrangement (41%), Lack of advanced sales ticket (40%), Lack of adequate facilities in stadium are recognized major hindering factors. On the other hand the odd ratio of Gender, e^{β} = 2.894 (p< .026), Age, e^{β} = 1.007 (p< .023), Place, e^{β} = 5.008 (p< .000), Ticketing system, 10.607 (p< .000), and Sitting arrangement 10.619 (p< .000) are identified as strongest predictor of challenging spectator crowd management. In conclusion, stadium safety features and management strategy of these two stadiums are too poor. Up on the end it is recommended that the management of the two stadiums should improve the stadium safety feature and on all Pre, Post and during event management strategies activities used to manage crowds during football matches, especially for derby matches.

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1. INTRODUCTION

1.1 Background of the Study

Every year, throughout the world in stadiums, arenas and other sports related areas, stampedes, fires, bombs, heat exhaustions, stage's collapsing, overcrowding and rioting resulted thousands of deaths and injuries (Powell, 1994). Layouts of a venue, design of circulation routes, design and location of facilities, can have a fundamental influence on crowd behavior. For instance, small entrances or a limited number of turnstiles may control crowd flow into cramped areas, but may result in dangerous build- ups on the other hand (Powell, 1994).

(Young, 2002), the primary crowd management objectives are the avoidance of critical crowd densities and the triggering of rapid group movement. Crowd management must take into account all the elements of an event especially the type of event, characteristic of the facility, size of the crowd, methods of entrance, communications, crowd control and queuing (Wann, 2006). Most major crowd disasters can be prevented by simple crowd management strategies (Garland, 2000). Particularly critical to crowd management is defining the roles of parties involved in the event, the quality of the advance intelligence and the effectiveness of the planning process. Imposing of stricter rules and legal provisions that prevent trouble-makers from entering the stadium for a period of time is a measure that can reduce crowd disaster (Garland, 2000).

Additional Contraband screening, sensitizing fans, queuing, constant monitoring of crowd behavior, security enforcements, effective emergency response and foresee ability are important measures in curbing crowd disasters (Wann, 2006). Having a properly trained staff, sufficient signage, efficient communication system, effective ejection policy and a proper alcohol management policy can easy stadium crowed management (Powell, 1994).

Fans' rivalry is a major cause of crowd violence, which more often than not leads to crowd disaster in a sports stadium, resulting to deaths, injuries or damages (NCTSO, 2012). For instance, Match between Liverpool and Juventus in Brussels, Belgium at Heysel Stadium in 1985 led to a disaster in which 39 people died and 600 were injured (Powell, 1994).

Overcrowding during sports events has also been cited as a cause of disaster in stadiums (Dimmock J., 2005). In 1989, more than 93 persons were suffocated and over 200 injured at the Hillsborough stadium, Sheffield, England (The Hillsborough Stadium Disaster, 1989). A larger than expected groups of fans striving to enter the stadium caused police to open gates to relieve the crowd pressure.

Fans clashed are another cause of stadium disaster, resulting to deaths, injuries or damages. For example, in Kenyan football leagues fans clash happen between Gor-Mahia and AFC Leopards football club at February 2nd 2014 resulted to serious damage to *Nyayo National*

Stadium. In which the stadium is banded from hosting international game and teams are subjected to punished 2.4-2.8 million Kenya shillings (Kwalimwa, 2014) .

Ethiopia is not an exception in matters of crowd chaos and disaster during football events. Football violence is becoming the norm in big matches, especially in derby those involving St. George and Ethiopia Coffee football club. Fans' rivalry contributes to crowd violence and disaster in Addis Ababa stadium leading to damage to property and serious injuries (Dawit, 2017)). One year before match between Weldia city and Fasil city football club was halted due to Crowd disaster occurred by fan violence at Sheke Ala-Mudine Stadium. Over a year incidence of Crowd disaster is becoming cause for loss of funds, poor spectator turn-up, reduced interest in sports participation and development in Ethiopia (Young, 2002).

2. STATEMENT OF THE PROBLEM

The purpose of this study is to assess the challenges and management strategies of spectator crowd in Hawassa and Addis Ababa stadiums, Ethiopia. Sport events attract many people; fans, marketers and businessmen/ women. In view of the large crowds that attend football events, the safety must be guaranteed as crowded places are potential trouble is often high (Powell, 1994)

Spectator violence in stadiums had a life slaying consequence, For instance 74 people dead in Egypt at 2012 and several people were injured following fracas of Cameroon fans rioted after a draw with Senegal in June 2011 (Ayari, 2011). However similar investigation was not implemented yet in Ethiopia to figure out such kind of incidence and their consequence. On the other hand there is indicative sign of challenging spectator crowed management in Ethiopia, such as 2018 Sheke Ala-Mudine Stadium, and October 2017 Addis Ababa stadium crowd disasters Dawit (2017). Therefore, these studies investigate the challenges and management strategies of spectator crowd at Addis Ababa and Hawassa Kenema stadium, Ethiopia.

3. OBJECTIVES

1. To explore the actual strategies employed to manage spectators' crowds in practice.
2. To find out the hampering factors in spectators' crowd management.
3. To determine the relationship between safety features, selected pre, post and during event strategy in spectator crowd management.

4. CONCEPTUAL FRAMEWORK

The study is based on the concept of crowd gathering phases which include: *the assembling process, the temporary gathering and the dispersal process as indicated in figure 1.1 below, adapted from (Simpson, 2000)*. Crowd gathering has a beginning, middle and an end.

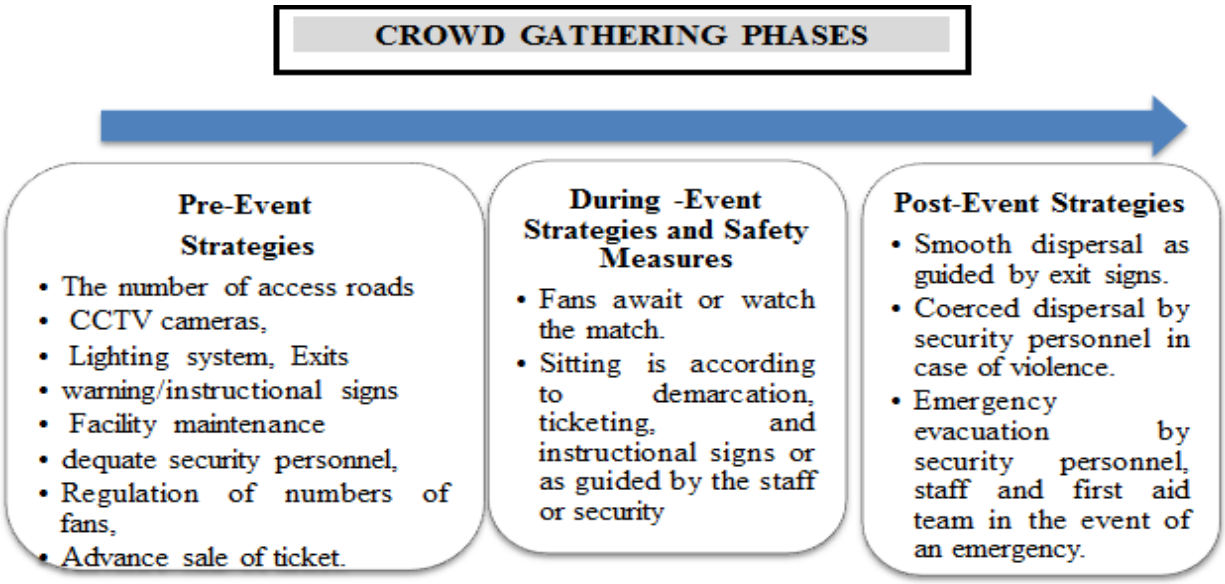

Figure 1, The Phases of Crowd Gathering and Dispersal as adapted from (Simpson, 2000),

5. RESEARCH DESIGN AND METHODOLOGY

5.1 Study Area

The study was conducted in Addis Ababa and Hawassa cities of Ethiopia. Addis Ababa/Finfine is the capital city of Ethiopia which geographically located at 9^0 1' N 38^0 44''E at 2326 m above sea level. Whereas Hawassa is the capital city of South Nation Nationality People Regional State of Ethiopia (SNNPRS) which located at 275 km away from Addis Ababa city in south direction and also geographical located at 7^0 06' N 38^0 48'E on 1697m above sea level.

Table 1, Profile of selected Stadiums

Full name	Addis Ababa Stadium	Hawassa kenema stadium
Capacity	25,000	3,000
Surface	Grass	Artificial, Synthetic Grass
Construction	Opened, 1940	Opened, 2007
Tenants	Ethiopia national Team, Saint George, Ethiopia Coffee and Defense F.Cs	Hawassa kenema and Debube police F.C

5.2 Research Design

A cross-sectional survey research design was employed to achieve intended purpose of this study. Beside this stadium Crowd management is framed as dependent variable, whereas Safety feature, Pre-event management activities, during the event management activities, Post-event management activities and Major hindering factors are independent variables.

5.3 Target population

The source of population comprises Government staff (sport facility officer, and Security officers) Ethiopia football federation officials and Spectators that are directly involved during 2017/2018 Ethiopia male football premier league sport events.

5.4 Source of Data

Both primary and secondary sources were used to secure sufficient data or information. Primary data were collected from Spectators (Fans and Club members), Government staff and from Ethiopian football federation official's through questionnaires, interview and observation of the event session. Secondary data was obtained from deferent federation officials report.

5.5 Sample Size and Sampling Techniques

To realize the objective of the study, multi stage sampling was used in the study, to ensure that each group of the target population were represent and to reduce sampling error.

For the case of Government officers and Ethiopia football Federation officials; - census and purposive sampling method were employed based on criteria such accessibility of the data. Spectators were sampled randomly before start of football matches at the designated sports stadium by using Fisher's formula used (Mugenda D.M & Mugenda, 2003). It was assumed that the two sport stadiums operate at full capacity.

$$n = \frac{Z^2 * (p) * q \text{ or } (1-p)}{d^2}$$

$$\frac{(1.96)^2 * 0.06 * 0.04}{(0.00513)^2}$$

$$n = 350$$

Table 2, Sample Techniques

Subject	Participant	Population	Sample	Method
Government bodies	Police	55	20	**Purposive**
	Officers,	3	3	**Census**
Ethiopia football Federation	Technical	2	2	**Census**
	Executives and	2	2	
	Volunteers	10	10	
Spectators	Fans/club members	28,000	350	**Simple R.S**
Total		28,072	387	**Multi S.S**

6. DATA COLLECTION INSTRUMENTS

6.1 Questionnaire

The questionnaire was adapted from (Simpson, 2000). Structured questionnaires were used to measure stadium safety future, Pre, During and Post event management activity and hindering factors. The question was accompanied by a list of possible alternatives and Likert scales method. However it was translated into Amharic whiles the data collection, in order to avoid ambiguity

and decrease language difficulty and evaluated by expertise for face and content validity.

6.2 Interview

In-depth interview was conduct for government office, Ethiopia football federation, club deputy technical directors and volunteers to identify their opinions, views, feelings, perception, and/or practices regarding the spectator crowd management strategies in selected Ethiopia stadium.

6.3 Observation

One set of observational checklist was design and develop to determine to what extent the availability of facility in stadium and equipment were found. An observation check list was used to gather information on availability, numbers, strategic positioning and functionality of the various security features installed in the stadiums in comparison to recommendations by (FIFA, 2008)

7. Method of data Analysis

Descriptive statistics including frequency and percentage, Logistic Regression model, The Chi-square statically analysis was employed by SPSS V 20. In addition, qualitative analysis was conduct by summarizing the words of open-ended items of questionnaire, interview and observational cheek lists. Finally, the data were analyses and discussed to reach at certain findings which in turn were used to give conclusion and possible recommendation.

8. RESULT

8.1 The Demographic Characteristics of the Respondents

The total sample of this study was 387, out of which, 333 (86%) were male and 54 (14 %) were female, from this, 63.3% were Single, 35.5% were Married and 4 (1%) divorced. However 350 (90.4. %), were spectator*, (223, (57.6%) were fans, 120 (31 %) were club members*) 10 (1.8%) were volunteers, 7 (2.6%) were Ethiopia Football Federation officials/experts and 20 (5.2%) were police officers. On the other hand, 199 (51.4%) of respondent were university graduate whereas, 18 (4.7%) primary level of education graduate.

8.2 The Actual Practice of Spectator Crowd Management

8.2.1 Stadium Safety Features

To measure the extent of adequacy of stadium safety features, the respondents were required to indicate their opinions and questionnaire administered as with the options provided "No =*None,* VI= *Very Inadequate*, IN *Inadequate*, Ad=*Adequate* VI =*Very Adequate.*

Table 3, Frequency, Percentage and Chi-Square test result of Stadium Safety Feature

No	Variables	Response										Chi-Square		
		No		VI		In		Ad		VA		df	Calc. Value	P-vale
		N	%	N	%	N	%	N	%	N	%			
1.	Lighting System	30	8	133	34	145	38	58	15	21	5	4	4.399	0.355
2.	Adequacy of Access Roads	112	29	113	30	140	36	22	6	22	6	3	10.86	0.012
3.	Adequacy of CCTV Cameras	328	85	45	12	12	3	1	1	1	1	4	1.251	0.870
4.	Adequacy of Emergency. Exits	158	41	91	24	132	34	5	.5	1	.5	4	.757	0.994
5.	Adequacy of Posted In. Signs	117	30	114	30	146	38	8	1.5	2	.5	4	4.78	0.311
Aggregate		**149**	**38**	**97**	**24**	**115**	**30**	**17**	**5**	**9**	**3**	**4**	**4.41**	**0.50**

Most opinions of respondent was recognized as safety feature in the two stadiums are not installed and ($\chi 2$= 4.41, p = 0.50), indicate there was no significant association with challenging spectator crowd management. But, the item 2, indicate there were inadequate installed access roads in the two stadiums with the result, ($\chi 2$= 10.863, p = 0.012) indicating significant association between access roads and challenging spectator crowd management. The observation also assure as Stadiums haven't fulfilled strategically, suitable and available of stadium safety features such as lighting system, access road, CCTV surveillance camera, and emergency exits.

With respect to qualitative finding from interview according to security and Ethiopia football federation officer spodeo name G/hiwote and Yerga (2018);

> *"…Addis Ababa and Hawassa Kenema stadiums are not conducive to conduct crowded football match specially derby football match and it is challenging to manage spectators crowd and there were no enough adequate stadium safety feature and facilities like sitting place, CCTV and barriers."*

8.2.2 Pre – Event Management Activities

To measure the practice of pre-event management activities, the respondents required to indicate their opinions and questionnaire administered as with the options provided "SD =*Strongly Disagreed,* Di=*Disagreed*, Un=*Undetermined*, Ag=*Agreed and* SA =*Strongly Disagreed*

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Table 4, Frequency, Percentage and Chi-Square test of Pre-Event Mgt. activities

Higher number of the respondents indicated that most opinions of respondent there was disagreed about pre-event strategic management activities in the two stadiums. However exceptionally advanced sale of tickets in the two stadiums ($\chi2$= 68.504, p = 0.000), indicating that there is significant association with challenging spectator crowd management. The interview and observation result also secure this finding.

8.2.3 During – Event Management Activities

To measure the practice of During-event management activities, the respondents required to indicate their opinions and questionnaire administered as the options provided "SD =*Strongly Disagreed,* Di=*Disagreed*, Un=*Undetermined*, Ag=*Agreed and* SA=*Strongly Disagreed.*

Table 5, Frequency, Percentage and Chi-Square test result of During-Event Mgt. activities

The chi-square analysis revealed as a higher number of the respondents indicated on during-event management activities in the two sports stadium was strongly disagreed and ($\chi2$= 18.55, p = 0.249) it indicates there was no significant association with spectator crowd management. But the item 3,4 and 5, Chi-square test returned ($\chi2$= 52.110, p = 0.000), ($\chi2$= 22.818, p = 0.000) and ($\chi2$= 12.001, p = 0.02), indicated that the practice of the demarcation of sitting arrangement, removal disruptive fans and Suitable exit for emergency had a significant association with challenging spectator crowd management respectively.

Observation result also stipulated during-event spectator crowd management activities in the two Stadiums didn't practice strategically like

demarcation of sitting arrangement, removal disruptive funs. In addition, the result from interview the key informant asked for the question on during-event management activities.

One Ethiopia football federation official spodeo named Yerga (2018) stated his idea;

> *"...the practice of During-event spectator crowd management activities like demarcation of sitting arrangement and removal of disruptive funs in both stadiums was poor, because there is no sitting place to demarcation sitting arrangement and there is no adequate access road during the event it was crowded to remove disruptive funs. They recommend that its need to assign professional staff and secure adequate security personnel."*

According to one of security officer spodeo name Bongee (2018);

> *"...to the effectiveness of the practice of during-event spectator crowd management activities securing adequate security personnel is a crucial part of this activities to secure contraband screening. But, there were not assigned enough security personal"*

8.2.4 Post – Event Management Activities

To measure the practice of Post-event management activities, the respondents required to indicate their opinions and questionnaire administered as the options provided "SD =*Strongly Disagreed,* Di=*Disagreed*, Un=*Undetermined*, Ag=*Agreed and* SA=*Strongly Disagreed.*

Table 6, Frequency, Percentage and Chi-Square test result of Post-Event Mgt. activities

No	Variables	Response										Chi-Square		
		SD		Di		Un		Ag		SA		df	Calc. Value	P-vale
		N	%	N	%	N	%	N	%	N	%			
1.	Opening of exit gates	120	31	180	46	16	4	62	16	9	3	4	2.764	0.598
2.	Communication about emergency	157	41	156	40	20	5	48	12	6	2	4	5.485	0.243
3.	Information post	128	33	153	40	23	6	74	19	9	2	4	5.177	0.270
4.	Coordination of dispersal process	197	51	141	36	17	4	30	8	2	1	4	7.606	0.107
5.	Coerced dispersal by security,	215	56	112	29	21	5	30	8	9	2	4	8.898	0.064
Aggregate		**164**	**42**	**149**	**39**	**19**	**5**	**48**	**12**	**7**	**2**	**4**	**5.986**	**0.256**

The post-event management activities in the two sports stadium was strongly disagreed and Chi-square test returned ($\chi 2$= 5.986, p = 0.256), indicating that there was no significant

association with challenging spectator crowd management. But the observation result also shows as post-event spectator crowd management activities didn't practice strategically like opening of exit gates and coordination of dispersal process.

With respect to qualitative finding from interview according to Ethiopia football federation computation director spodeo named Yerga (2018);

> *"... the practice of post-event spectator crowd management activities like coordination dispersal process and coerced dispersal process by security personnel during violence was poor, because spectators always expect winning, and it's difficult to control such disorders in crowded stadium by our current manpower resource and stadium safety feature ...."*

According to one of volunteers at Ethiopia football federation spodeo name Melaku (2018);

> *"...lack of coordination dispersal process and coerced dispersal process by security personnel during in case of violence are the major limitation on the practice of post-event management activities...."*

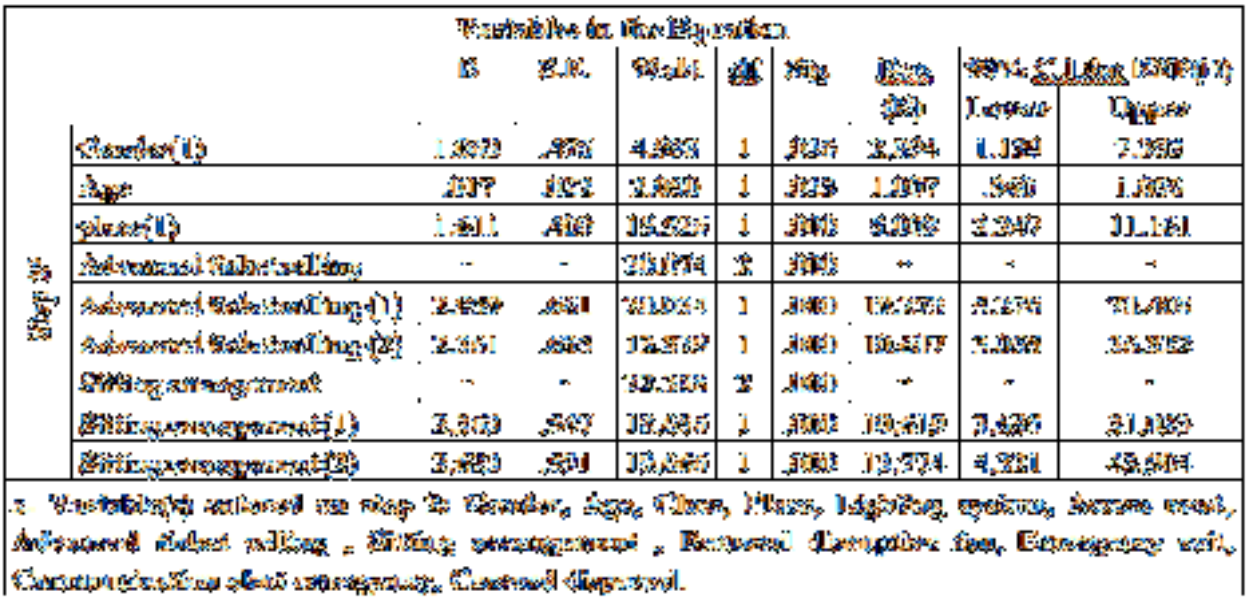
8.3 Major Hindering Factors

Top five hampering factors in spectators' crowd management was identified by spectator strong agreement,:-Lack of sitting arrangement (41%),Lack of advanced sales ticket (40%),Lack of adequate facilities in stadium (35%), Lack of removal disruptive fan (33%) and Lack of strategically deployment of Security Personnel (32%).

8.4 The Relationship between Covariant and Outcome Variables

The multi-Variant logistic regression performed to assess the impact of number of factors on the likelihood occurrence of challenging spectator crowd management. Before the application these, Uni-variant logistic regression at 25% significant levels was performed to give a chance for the variables to be used in multi variable.

Table 7, Multi - Variant Logistic Regression Result



The above table shows only five items (out of twelve), of the independent variables have a unique statistically significantly able to distinguish the relationship between covariant and outcome variables. The strongest predictors of reporting an occurrence of challenging spectator crowd management, recording an odds ratio, $e^{\beta} = 5.008$ ($p < .000$) is place of the crowd. This indicated that the odds challenging spectator crowd management in Addis Ababa stadium is 5.008 times that of Hawassa Kenema stadium; Siting arrangement recording an add ratio, $e^{\beta} =$ is 10.619 ($p = 0.000$); And, advance sale of tickets yielded and also the odds of manual ticketing system 10.607 ($p < 0.000$), more likely reported about challenged spectator crowd management. Advance sale of tickets for football matches is not applied by both the organizers and the management of the two sports stadia, as a crowd management strategy during football matches. Additionally the age and gender are also strong predictors of challenging stadium crowd managements as add ratio, e^{β} = is 2.894 and 1.00 ($p \leq 0.05$) respectively.

9. DISCUSSION

The study attempted to assess the challenges and management strategies of spectator crowd in Hawassa and Addis Ababa stadiums. The finding in stadium safety future indicates that there were insufficient safety feature in the two stadiums. And, Chi-square test returned ($\chi 2 = 10.863$, $p = 0.012$), indicating that there was significant association between access roads and challenging spectator crowd management.

FIFA and DCMS (2008), suggested the stadium entry, exit points and the concourse surrounding should be designed in such a way as to facilitate the flow of persons and vehicles in and around. All access gates must be able to opened or closed quickly without causing any danger and each gate should be clearly marked on both the inside and

the outside with its identifying number. However this finding had shown gets and access road of both stadiums were not adequate and functional.

FIFA, set installing adequate, effective and strategically deployed CCTV surveillance cameras as a standard for international stadiums. Invers to this the finding indicates as those two stadiums had no any CCTV surveillance cameras. However lowery and his collogues exploit as CCTV surveillance cameras are important to the safety features which contribute effectively to manage crowd, reduce numbers of security personnel and in post-incidents investigations (Lowrey, 2002) and (NCTSO, 2012).

According to this finding, the application of pre-event management activities, like advanced sale of ticketing and effective facilities maintenance in the both Stadiums didn't practice strategically. However, Hanna 1994, Abbott 2001 and DCMS, suggested advance tickets selling helps for effectively organizing movement and control access to the stadium. Since the entry card from the ticket should clearly identify the location of accommodation for which it has been issued. Apart from this during event crowd management activities, like the removal of disruptive funs, the availability of suitable exit for emergency and the demarcation of sitting arrangement in the two stadiums indicating that there is association with challenging spectator crowd management. Respectively, in other hand the odds ratio of sitting arrangement 10.619 times more likely reported about challenged spectator crowd management than properly demarcated of sitting arrangement. In the fact any one of the emergency exits are not opened to the public. Whatever Hanna 1994 exploited siting demarcation as those most serious crowd-related injuries where admission takes without reserved. Reserved seating should be strongly considered as the only seating allowed for those events that attract excitable and competitive crowds. This helps to easily eliminated by advance sale of tickets, through reducing the numbers specified entry or exit. However in this two stadium respondents failed to recognize that there were emergency exits within the structures of the two sports stadium.

(FIFA, 2008), recommend that emergency exit gates should have one door, wide enough, remaining staffed and unlocked at all times. The emergency exits gates should be of a different color from the surroundings and easily identifiable by numbers or letters on both sides. If the stadium contains a running track, at least one side must be kept clear to allow the passage of vehicles. The two sports stadium fall short of these recommendations because all of the emergency exits remain closed during football matches and are not manned at all. Different colors and correct measurements of the width and the height are also not adhered to.

Though responses by the respondent indicated that this strategy is disagreed about effectiveness, this may have been out of ignorance of the details that comprise this strategy. The management of

the two sports stadium does not seem to have taken a deliberate action to fulfill the requirements on separation/demarcation of sitting arrangements.

10. CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

- Lighting system, access roads and adequacy of posted warnings/instructional signs in the two sports stadium was found to be inadequate. And, also a higher proportion of the respondents indicated emergency exits and CCTV surveillance cameras in the two sports stadium was not installed.
- Effective facility maintenance, provision of first aid, regulation of numbers of spectators being admitted, advanced ticket sales and secure of adequate security personnel in the two sports stadium were not get optimal emphasis.
- Contraband screening of spectators, strategically deployment of security personnel, demarcation of sitting arrangement and removal of disruptive fans in the two stadium are weak.
- Opening of exit gates, information post, communication to stakeholders during emergencies and coordination of dispersal process of exit outlets is not effectively carried out.
- Lack of sitting arrangement, Lack of advanced sales ticket, Deficiency of adequate facilities in stadium, inefficient removal disruptive fan and strategically deployment of Security Personnel are the major hampering factors of crowd management.

11. RECOMMENDATIONS

Based on the findings and conclusions of the study the following recommendations are made:

- It's needed to establish crowd management command post particularly for sport event.
- All Ethiopian soccer clubs to construct standardized stadiums since having standard stadium is among the criteria set by FIFA.
- Management should have a planned preventive maintenance schedule which should always be implemented.
- Sports stadium management and Ethiopia football federation should adopt the practice of advance sale of tickets to spectators.
- Giving specific crowd management training for security personnel, volunteer, stewards, clubs and Ethiopia Football Federation officials.

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