

Volunteers in public health and emergency management at outdoor music festivals

Earl, Stoneham and Capra report on a study undertaken involving volunteers at an outdoor music festival in Queensland.

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This article will report on a study undertaken involving volunteers at an outdoor music festival in Australia. The study was designed to assess the volunteers' knowledge and skills in emergency management. The findings are based predominantly on self-report data. Findings from the study indicated that a major proportion of the volunteers in the study expressed some level of confidence in dealing with an emergency situation within their work locations at the festival. This level of confidence was associated with volunteer training and knowledge of public health and emergency management. However, less than half of the study participants had knowledge of emergency and public health management for the festival. Furthermore, less than one quarter had knowledge of the festival's emergency management plan. It was evident that there was a need to increase the number of volunteers with knowledge of public health and emergency management for the festival. All these findings support continued volunteer training programs to improve emergency and public health management at the festival.

Introduction

In Australia, many communities are prone to natural hazards such as tropical cyclones, floods or bushfires and manmade hazards such as industrial accidents and hazardous substances spills (Dunn (1983) cited in Cronan 1998). The safety of the public during these times is managed by emergency services. These services in turn rely on community members to operate (Enders 2001) and generally, this involvement is voluntary. These emergency service volunteers come from all walks of life and their contributions include localised service delivery through to strategic roles such as membership of boards

and committees (Summers 2001). However, emergencies are not the only activities for which these volunteers become involved. They also contribute to many aspects of community life including regeneration projects (e.g. Land Care), police investigations and a range of roles at entertainment events (mass gatherings) including Outdoor Music Festivals (OMFs).

This article will report on a study undertaken involving volunteers at a specific OMF in Australia. The study was designed to assess the volunteers' knowledge and skills in emergency management. From this study recommendations will be made to enhance the volunteers' capacity in public health and emergency management for that festival. Public health and emergency management are intrinsically linked, sharing many features including a focus on prevention using a systems approach. It is for this reason that both these paradigms are considered concurrently in this study. The festival to be discussed in this article from this point on will be known as the 'study festival'.

Volunteering at OMFs

Volunteers have a long history with OMFs both internationally and in Australia. The most common use for volunteers at OMFs in Australia is through organisations such as the St John Ambulance Service, Rural Fire Services and the State Emergency Service. These organisations are used for a variety of roles including staffing first aid stations, providing fire safety, supporting security operations and managing vehicle movements.

Volunteers have additional roles in the management of other public health hazards at OMFs. These hazards include providing clean, safe toilets and camping areas, managing areas for recovery and rest, and reducing the impacts of alcohol and social drug consumption. Volunteers also contribute to managing easy and safe access to and from events for patrons (EMA 1999; Earl & Van Der Heide 2001).

An important management issue is not to exceed the capacity of volunteers at OMFs. For example, crowd management roles given to volunteers at a specific OMF

in Europe resulted in increased risks for patrons and concern for OMF management (CMS 2002). Increased training resulted in improvements to crowd management operations, but Wertheimer (cited in CMS 2002), a crowd safety expert, considered the volunteers still lacked experience and had been given responsibilities that should have been left to highly skilled, trained professionals.

Many OMFs have attracted negative media attention in recent years due to crowd safety issues including riots, injuries and deaths to patrons (CMS 2002). The festivals reported most often have aggressive musical performances and considerable homogenic patronage with a considerable male bias. Predominantly, injuries are the result of high-risk behaviours such as 'moshing', 'stage diving' and 'crowd surfing' (Commons, Baldwin & Dunsire 1999). Commonly, the specific crowd related factors are homogeneity, excessive movement, physical and environmental limitations and crowd pressures generated (Ministry of Culture 2000; Fruin 2002).

The Study Festival—a description

None of the high-risk conditions discussed earlier were evident at the study festival making the study festival low risk in relation to crowd safety issues (Fruin 2002; Ministry of Culture 2000). Other public health hazards related to the disposal of sewage, provision of a water supply, the safe storage and preparation of food, and all types of injuries, fatal or otherwise. Such injuries are possible at any OMF events and include snake or insect bites, bone breaks, deep lacerations and heart attacks. There were planned management strategies in place to address these issues at the study festival.

To operationalise these planned management strategies involves the use of volunteers in both short and longer-term roles. These volunteers undertake tasks such as managing the water treatment and sewage facilities, cleaning of ablution blocks, carrying out waste management, general administration and traffic management. As a result, volunteers have considerable influence on the success and safe functioning of a festival. The volunteers involved in the study were recruited from the volunteers in longer-term roles, Rural Fire Services (RFS) and the State Emergency Service (SES).

The Study

A cross-sectional design was utilised for this study (Morton, Hebel & McCarter 1990, Protney & Watkins 1993) involving a survey methodology for the collection of self-report data from the study participants. The study was conceptualised as an exploratory study and as such no formal hypothesis testing was conducted. The results have been presented in a descriptive form in tables showing counts and percentages.

Sample

For the purpose of collecting data, the study festival was divided into three components. These included the main festival, the camping area and the performer area. Study participants were recruited through a central location where volunteer activities were coordinated in each of the three areas. Volunteers were encouraged by key festival staff and the researchers to participate in the project. For logistical reasons it was not possible to sample the entire volunteer population or acquire a random sample. Consequently, convenience sampling was utilised for this project (Portney & Watkins 1993).

Survey Questionnaire

The questionnaire used in the study was developed to collect data on the knowledge and skills of emergency management among volunteers at mass gatherings. Prior to the study the questionnaire was piloted with a small sample of volunteers (n=5) and modified before its use. An expert group of environmental health practitioners and researchers also contributed to the questionnaire development.

The questionnaire was designed for completion within 5 to 10 minutes, and was composed of three sections. The first section related to demographic information. This included age, gender, number of times the respondent had volunteered at this and other festivals and their usual occupation. The second section of the questionnaire related to the identification of public health hazards, management strategies used and their role in managing these hazards at the festival. The final section of the questionnaire related to emergency management planning and the volunteer's confidence in emergency situations.

Statistical Methods

As this was an exploratory and descriptive study, little statistical testing was employed. The associations between variables were summarised in tables showing counts and percentages. Only findings that are statistically significant or have notable associations (greater than a difference of 10.0% in figures within tables) have been discussed in this article.

Representativeness of the sample

A total of seventy-five (75) volunteers agreed to participate in the study. Basic demographic data were collected from section one of the questionnaire. The data collected on age and gender were compared with data from a patron survey from the 2000/2001 festival to determine the representativeness of the sample. The survey data was considered appropriate as anecdotal evidence indicated that the volunteer demographic should correspond with the festival demographic. The gender distribution for the study cohort was representative when compared to the patron survey data. The age distribution for the study cohort was

Table 1: Age and Gender Distributions

Gender	Study Data (number and %)	Festival Patron Survey Data (% only)
Females	55.0% (n=41)	55.0%
Males	45.0% (n=33)	45.0%
Age		
20 years and younger	19.0% (n=14)	7.0%
21 to 30 years	28.0% (n=21)	30.0%
31 to 40 years	26.0% (n=19)	24.0%
41 to 50 years	15.0% (n=11)	26.0%
51 years and older	12.0% (n=9)	13.0%

similar to the patron survey data, however there was over-sampling in the youngest age group (20 years and younger) and under-sampling in the 41 to 50 years age group (Table 1).

Volunteer’s employment history and volunteering background

The study findings indicated a variety of working and volunteering backgrounds. There was a considerable portion of blue-collar (19.0%; n=13) and white-collar (25.0%; n=17) workers and students / unemployed (36.0%; n=24). Only 7.0% (n=5) of the overall sample group had full time experience in the field of health or related industries. Over one third (36.0%; n=27) of the study participants indicated they had some level of experience in the areas of emergency and public health management. This experience ranged from emergency management training (44.0%; n=12) through to first aid certificates (33.0%; n=9).

Twenty-five percent (25.0%; n=19) of the study participants had previously volunteered for Australian (Evolution Arts, Down to Earth & Lismore festivals) and international festivals (Reading [UK], Wildwood [Germany], Greenbelt [Scotland] & Des Infants [Canada]). Fifty percent (50.0%; n=37) of the study participants had volunteered previously at the study festival.

Public Health Management

Hazards Identified

Seventy-one percent (71.0%; n=53) of the study participants identified hazards that they considered would impact on the health of the patrons at the festival. For the study participants who did not indicate a public health hazard the most common reason given was ‘there are no issues’. Identified hazards were summarised into themes and then placed into more specific sub-themes. Each volunteer had the opportunity to offer more than one hazard.

Roles in Public Health Management

Results showed that of the study participants who identified public health hazards, 62.0% (n=33) also had knowledge of management strategies for the festival and their roles within these strategies. The roles identified by the study participants varied considerably, including both formal and informal being and related to positions within the festival organisation. The following provide examples of volunteer’s roles at the festival specific to sun exposure— ‘make patrons comfortable and advise about the symptoms of dehydration and if necessary contact the festival doctor’; ‘encourage people to dress appropriately (e.g. not to remove their shirts as they will get sunburnt)’; and ‘assist by providing first aid’.

Table 2: General Hazard Categories identified by the Volunteers

Hazard Categories	Number and %
SYSTEMS (includes themes such as Emergency Management, Vehicle Safety, Waste Management, Camping Safety and Communication)	n=39 (28.0%)
INFRASTRUCTURE (including themes such as Drainage Problems, Uneven Ground, Amenities, Trip Hazards, Electrical Safety, Construction Hazards and Sun Safety)	n=39 (28.0%)
ENVIRONMENTAL (including themes such as Sun Exposure, Water, Insects and Snakes, Trip Hazards and Biological Hazards)	n=39 (28.0%)
PUBLIC (including themes such as Vehicle Safety, Personal Safety and Fire Safety)	n=20 (16.0%)

Table 3: Experience with Public Health

Knowledge of PH	Volunteering at the Study Festival		Volunteering at other festivals		Training		Totals
	Yes	No	Yes	Yes	No	Yes	
Knowledge	21 (72.0%)	10 (43.0%)	8 (73.0%)	23 (56.0%)	12 (60.0%)	19(59.0%)	31 (60.0%)
No Knowledge	8 (28.0%)	13 (57.0%)	3 (27.0%)	18 (44.0%)	8 (40.0%)	13 (41.0%)	21 (40.0%)
Totals	29 (100%)	23 (100.0%)	11 (100%)	41 (100%)	20 (100%)	32 (100%)	52 (100%)

Missing Data = 23

Specific Training

From the study participants who indicated a hazard, 36.0% (n=27) also advised they had received specific training either through the festival (e.g. briefing of duties) or from other sources (e.g. RFS, SES, First Aid Instruction, Nursing etc).

experience gained volunteering at the study festival or other festivals, and improved knowledge of public health management. However, the association between training and improved knowledge of public health management was much less.

Knowledge, Experience and Training in Public Health Management

Table 3 indicates the association between experience of volunteering, training and knowledge of public health management. There were notable associations between

Emergency Management

Emergency Management Plan

Approximately one-quarter of the study participants (24.0%; n=18) indicated knowledge of the study festival's emergency management plan (EMP). The remaining study participants indicated one of three

Table 4: Knowledge of EM by Experience

Knowledge of EM	Volunteering at the Study Festival		Volunteering at other festivals		Training		Totals
	Yes	No	Yes	Yes	No	Yes	
Knowledge	21 (64.0%)	12 (33.0%)	8 (44.0%)	25 (49.0%)	13 (50.0%)	20 (47.0%)	33 (48.0%)
No Knowledge	12 (36.0%)	24 (67.0%)	10 (56.0%)	26 (51.0%)	13 (50.0%)	23 (53.0%)	36 (52.0%)
Totals	33 (100%)	36 (100%)	18 (100%)	51 (100%)	26 (100%)	43 (100%)	69 (100%)

Missing Data = 6



Sun exposure was considered a significant public health issue for the festival

responses. These were that there was no EMP (20.0%; n=15) that they were not aware of an EMP (48.0%; n=36), or they offered no comment (8.0%; n=6). From the study participants with knowledge of the emergency management plan, 61.0% (n=11) had knowledge of their responsibilities within that plan.

Coordination of Emergency Responses

Forty-four percent (44%; n=33) of study participants were able to correctly identify a coordinator for emergency activities within their work area.

The coordinators at the study festival according to the volunteers in this study included workplace supervisors, department heads, fire wardens, SES, the site manager and the police.

Knowledge, Volunteering and Training in Emergency Management

Table 4 details the associations between experience volunteering, training and the volunteer's knowledge of emergency management for the study festival. There were no significant or notable associations between training, experience gained at other festivals and emergency management for the volunteers. There was however, a notable association between experiences gained volunteering at the study festival and knowledge of the emergency management plan.

Confidence Dealing with Emergency Situations

The study participants were asked to indicate a level of confidence (ranging from 'not confident' to 'very confident') with regards to their responses to an emergency situation in the areas where they worked.

Factors Affecting Level of Confidence in Volunteers

There were no significant or notable associations between volunteer experience and volunteer level of confidence. However, there were notable associations between volunteer training and confidence and knowledge of public health/emergency management and confidence. Eighty percent (80%; n=19) of study participants with training expressed some level of confidence. This compared to sixty-seven (67%; n=28) of the study participants who had no training. Seventy-eight percent (78%; n=14) of the study participants with knowledge of public health/emergency management

indicated some level of confidence in an emergency situation. This compares with only forty-two (42%; n=5) of the study participants without this knowledge. Also this included thirty-nine (39%; n=7) of the study participants with knowledge indicating they were very confident compared no study participants without this knowledge.

Discussion

Less than half of the study participants had knowledge of either public health hazards at the festival (43.0%; n=32) or emergency management at the festival (44.0%; n=33). Not surprisingly, volunteers with previous experience at the study festival also had good knowledge of public health and emergency management for the study festival. Volunteers with training and experience from other festivals also had a higher level of knowledge of public health management. However, this was not the case for knowledge of emergency management. Based on research findings, only experienced volunteers from the study festival indicated knowledge of emergency management for the study festival site.

For this study, knowledge of emergency response coordination within individual work areas was considered the minimum knowledge of emergency management required by volunteers. Less than half of the study participants were able to identify a coordinator for their work areas. At a more strategic level, less than one-quarter of the study participants (24.0%, n=18) were aware of the study festival's emergency management plan and the volunteer's roles within that plan. This finding can be assimilated to the wider community's knowledge of emergency management as found by Dyer, Neller & Neller (2001). In addition, Smith (cited in Dyer et al. 2001) indicated that for an emergency management system to be effective, all members of the community need to be aware of these plans and associated strategies, and it is this finding which could be applied to the volunteers at the study festival. Consequently, based on these findings, there is a need to increase the volunteer's knowledge even at a basic level.

Awareness of emergency management was higher for members of emergency organisations (SES and RFS) at the festival as would be expected (Dyer et al. 2001). However, a number of the RFS volunteers responsible for fire safety in the patron camping areas at the study

Table 5: Distribution of Confidence Levels

Not Confident	Undecided	Confident	Quite Confident	Very Confident
6 (9.0%)	13 (20.0%)	15 (23.0%)	12 (18.0%)	20 (30.0%)

Missing Data = 9

Seventy-one percent (n=47) of the study participants considered they would respond with some degree of confidence if an emergency situation arose in the areas they worked.



Photo courtesy of Mr Didier Moutia, St John Ambulance Australia, Granville Division, 2001 Black Christmas Bushfires

The most common use for volunteers at OMFs is through organisations such as the St Johns Ambulance

festival indicated that they were not aware of evacuation assembly areas or routes of escape through the festival. Paton & Flin (1999) suggest that effective emergency management plans are based on a detailed and comprehensive analysis of operational demands, and the identification of at least one area where current emergency management planning is deficient for operational demands for this study festival and the potential for other issues to exist, is an area of concern. This indicates that a review of the current emergency management processes is required.

Only one-third of the study participants (32.0%; n=24) indicated they had been given training to assist with the management of public health hazards at the study festival. This specific training ranged from limited (pre-briefing before the festival) to extensive (training associated with the RFS) sessions. This group indicated significantly higher knowledge of both public health and emergency management than those who had no training. These findings support continued on-site training by the event managers and the recruitment of volunteers with existing skills and training.

Seventy-one (71.0%; n=47) of the study participants expressed some level of confidence in dealing with an emergency situation within their work locations at the

festival. Level of confidence was notably associated with volunteer training and knowledge of both public health and emergency management at the festival. Surprisingly, the level of confidence was not associated with previous experience volunteering at this or other festivals, even though volunteering experience was associated with knowledge of public health management. These findings support the provision of volunteer training programs that include information on both emergency and public health management for the events.

Implications for Volunteers

Findings from this study indicated that increased confidence in dealing with emergency situations at the festival was associated with volunteer training and knowledge of emergency and public health management at the festival. However, less than half of the volunteers in the study indicated having this knowledge, and even less had volunteer training. Most notably, knowledge of emergency management and planning was especially low within the study participants even when compared to knowledge of public health management. Only 44% (n=33) of the study participants could identify a coordinator responsible for emergency response within the organisation, the most basic of emergency management knowledge that all volunteers should have.

Clearly, findings from the study support continued volunteer training programs at the study festival. Additionally, there needs to be an increased focus on training for public health hazards and especially emergency management within these programs.

Limitations of the study

Limitations in this study included the difficulty in determining the representativeness of the sample due to a lack of available, accurate demographic data on the volunteers at the festival, the small numbers within the sample collected and the use of a convenience sampling method as opposed to a random sampling method (Portney & Watkins 1993).

Conclusion

A major proportion of the volunteers in the study expressed some level of confidence in dealing with an emergency situation within their work locations at the festival. This level of confidence was associated with volunteer training and knowledge of public health and emergency management. However, less than half of the study participants had knowledge of emergency and public health management for the festival. Furthermore, less than one quarter had knowledge of the festival's emergency management plan. It was evident that there was a need to increase the number of volunteers with knowledge of public health and emergency management for the festival. All these findings support continued volunteer training programs to improve emergency and public health management at the festival.

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Background to the Authors

This article is reporting on a study undertaken at a festival in Queensland. This study involved looking at volunteers and public health management at the festival. The principle investigator was Cameron Earl, a staff member of the School of Public Health at Queensland University of Technology. The other authors are also staff members and all the authors teach within the Environmental Health program at the School. It is hoped that the article once published will be included in a research portfolio for a Doctor of Health Science for Cameron Earl.