Current Science Research Bulletin
Volume 02 (12), December 2025, pp. 366-372
CrossRef DOI: 10.55677/csrb/01-V02I12Y2025
Available on: https://csrbjournal.org/
e-ISSN: 3050-7103
p-ISSN: 3050-709X

Fire Safety Management in Workplaces of Dapitan and Dipolog Cities Based on Preparedness, Response and Recovery Phases

Jocelyn G. Dalman, RU
College of Nursing and Allied Health Sciences, Jose Rizal Memorial State University Main Campus, Dapitan City
Program Chair, College of Nursing and Allied Health Sciences, Jose Rizal Memorial State University Main Campus, Dapitan City

ABSTRACT: This study aimed to evaluate the level of preparedness, response, and recovery phases experienced by the respondents in terms of age, sex, length of service, and educational attainment. The researchers did a random selection of respondents found in Dapitan and Dipolog's bus terminals and public markets as well as from the Budget Office, Accounting Office, Human Resource and Development Office, Cashier's Office, and Registrar's Office of both JRMSU Main and Dipolog Campus. This study utilized the descriptive correlational method of research using a questionnaire as the main tool in data gathering. Results revealed that majority of the workers age from 46 to 55 years old, female workers were the dominant respondents, the length of service was five years and below, and mostly college graduates. Most of the workers had an average weighted mean of 3.56, 3.73, 3.39 in terms of preparedness, response, and recovery phases as to fire safety management. Nevertheless, there was a significant difference in terms of educational attainment in the preparedness and response phases as well as to sex in the recovery phase. To enhance the fire safety management the researchers proposed that there would be a collaboration of services for both agencies namely: the Bureau of Fire Protection and Emergency Medical Service.

KEYWORDS: Fire Safety, Management, Preparedness, Recovery Phases, Response

1.0 INTRODUCTION

Fire safety management is the set of practices intended to reduce the destruction caused by fire. Fire safety measures include those that are intended to prevent ignition of an uncontrolled fire, and those that are used to limit the development and effects of a fire after it starts.

The most common workplace emergency is fire, but by being prepared for emergencies and knowing how to respond appropriately, risk can be minimized. Adequate knowledge on fire safety as well as availability of fire safety equipment procedures and precautions in every learning institution is paramount to attaining fire safety preparedness.

Despite the technological advancement in fire safety, fire remains the leading cause of lives and property loss at commercial and industrial facilities worldwide. Consequently, understanding how individuals behave in the case of fire evacuation is essential to bring fire safety measures into line with occupants' needs during an incident. That is why general fire response procedures must be implemented immediately upon suspicion of a fire. While the recovery efforts may also be conducted this primarily concerned with actions that involve rebuilding destroyed property, re-employment and the repair of other essential infrastructure.

Disaster preparedness is one of the important elements in disaster risk reduction and it encompasses community awareness and readiness to render appropriate responses and quick recovery (Ejeta et al., 2015).

In addition, Ali Ardalam and Douglas Paton (2005) stated that preparedness for disasters and emergencies at individual, community and organizational levels could be more effective tools in mitigating of disaster risk and ameliorating their impacts.

On the other hand, lack of disaster preparedness as it has been reported in some categories of disaster such as fires (Kukali and Kabuka 2009) can result in negative economic and social consequences (Wilson et al., 2007).

This study on fire safety management evaluates employees from different workplaces on the level or extent of their preparations, knowledge, appropriate actions and efforts in terms of preparedness, response and recovery phases in case of fire outbreaks.

Corresponding Author: Jocelyn G. Dalman

Objectives

This study aimed to evaluate the level of preparedness, response, and recovery phases in the public markets and bus terminals of Dapitan and Dipolog City as well as the Budget Office, Accounting Office, Human Resource and Development Office, Cashier's Office, and Registrar's Office of both JRMSU Main and Dipolog campus.

Theoretical Conceptual Framework

This study was anchored on the Application of Behavioral Theories to Disaster and Emergency Health Preparedness, by Luche Tadesse Ejeta, Ali Ardalan, and Douglas Paton (2005), which stated that preparedness for disasters and emergencies at individual, community and organizational levels could be more effective tools in mitigating (the growing incidence) of disaster risk and ameliorating their impacts. That is, to play more significant roles in disaster risk reduction (DRR).

Disaster preparedness was one of the basic components of DRR.Preparedness strategies were developed through a hazard identification and mapping, vulnerability analysis and risk assessment, with behavior change strategies being used to inform how the outcome of this process can translate into protective actions.

Disaster and emergency preparedness efforts focused predominantly on human behaviors. Human behaviors derived from diverse factors that range from people's risk perception to lessons from direct and indirect past experiences of disaster events and emergencies through to interaction between individuals and environment. These factors interact to influence the nature and level of people's disaster and emergency health preparedness level.

The enactment of Republic Act 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010 had laid the basis for a paradigm shift from just disaster preparedness and response to disaster risk reduction and management (DRRM).

2.0 METHODOLOGY

This study utilized the descriptive correlational method of research. The data were gathered throughout the use of self-made questionnaire. The statistical tools used were frequency counting and percentage.

2.1 Research Environment

This study was conducted specifically at the bus terminal, public market and 5 administrative offices (budget, accounting, human resource, cashier, and registrar) of Jose Rizal Memorial State University in both Dapitan and Dipolog City.

2.2 Research Respondents

The selected population of the said areas conducted in Dapitan and Dipolog cities.

3.0 RESULTS AND DISCUSSION

Table 1 shows the percent distribution of the respondents in terms of age. Among the age brackets provide, respondents whose age from 46 to 55 years old had the highest number of frequency which was 31 or with the percentage of 25.8% of the total number of respondents. Age 36-45 followed, with the frequency of 29 or with the percentage of24.2%. The least frequency fell under the age of 56 years old and above and with the frequency of 14 or with the percentage of 11.7%. This means that there were few workers aged 56 and above who are still working in the workplaces of Dapitan and Dipolog City.

The study of Hotopp (2005, 2007) stated that older workers are becoming more prevalent in the workforce, there are fewer new workers joining the labor force and older workers are continuing to retire early. According to lmarinen, (2006); McNair et al., (2007), the research in this area suggests that employers can have stereotyped views of the abilities and attitudes of older workers, which can both positively or negatively, influence the retention and recruitment of older individuals.

Table 1. Percent Distribution of the Respondents in terms of Age

		Frequency	Percentage
AGE	1. **46 to 55 years old**	**31**	**25.8%**
	2. 36 to 45 years old	29	24.2%
	3. 25 years old and below	27	22.5%
	4. 26 to 35 years old	19	15.8%
	5. 56 years old and above	14	11.7%

Table 2 is the percent distribution of the respondents in terms of sex. Results showed that females were dominant with a total frequency of 76 or with the percentage of 63.3% compared to the frequency of males which is 44 and with the percentage of 36.7%.

Corresponding Author: Jocelyn G. Dalman

The study of World Development Report (2012) about Gender differences in employment and why they matter, suggested that over the past quarter century, women have joined the labor market in increasing numbers, partially closing the gender participation gap.

Table 2. Percent Distribution of the Respondents in terms of Sex

		Frequency	Percentage
SEX	1. Female	76	63.3%
	2. Male	44	36.7%

Table 3 is the percent distribution of the respondents in terms of length of service. Results showed that the highest number of years in service is five years and below with the frequency of 52 or with the percentage of 43.3%. Followed by 6-10 years with the frequency of 40 or with the percentage of 33.3%. Ten years and above was the least number of years in service with the frequency of 28 or with the percentage 23.3%.Thus, most of the workers in the workplaces of Dapitan and Dipolog City were working five years and below.

According to the study of Titus Oshagbemi (The Queen's University of Belfast, Belfast, UK), the enquiry is premised on the assumption that the less satisfied workers tend to resign while the more satisfied ones tend to remain in a job, as some literature suggests.

Most of the respondents were college graduates, which comprised 58.3% with the frequency of 70. Other educational attainment followed such as college level with the frequency of 27 or 22.5%, secondary graduate with the frequency of 7 or 5.8% and post graduate with the frequency of 6 or 5.0%. Secondary level has the lowest frequency of 2 or 1.7%.

Table 3. Percent Distribution of the Respondents in terms of Length of Service

		Frequency	Percentage
LENGTH OF SERVICE	1. 5 years and below	52	43.3%
	2. 6 - 10 years	40	33.3%
	3. 10 years and above	28	23.3%

Table 4 is the percent distribution of the respondents in terms of educational attainment. Results showed that most of the respondents are college graduates with the frequency of 70 or the percentage of 58.3%. Followed by college level with the frequency of 27 or the percentage of 22.5%. Secondary level has the lowest frequency of 2 or the percentage of 1.7%.

This study contradict to the study of Kaitlin Mulhere (2017) which suggested that over qualification rate is significantly lower than the results of previous studies, which estimated that as many as 48% of bachelor degree holders were overqualified for their jobs. In surveys, recent graduates overwhelmingly rate their college experience as worthwhile, and much research shows that the pay gap between those with and without college degrees has expanded. Yet other studies suggest that it's harder today for recent grads to find good jobs.

Table 4. Percent Distribution of the Respondents in terms of Educational Attainment

		Frequency	Percentage
EDUCATIONAL ATTAINMENT	1. College graduate	70	58.3%
	2. College level	27	22.5%
	3. Secondary Graduate	7	5.8
	4. Post Graduate	6	5
	5. Elementary Graduate	5	4.2
	6. Elementary level	3	2.5
	7. Secondary level	2	1.7%

Table 5 shows the extent of fire safety management of the respondents in their workplaces in terms of preparedness phase, response phase, and recovery phase.

1. Extent of Fire Safety Management of the Respondents in their Workplace in termsof Preparedness Phase

The respondents' level of preparedness to fire safety management in their work place showed that descriptor 1 to 10 received an average weighted mean of 3.56 which described as great extent or the person gave almost full preparation in all activities and functions in preparedness phase.

Corresponding Author: Jocelyn G. Dalman

This means workers in the workplaces of Dapitan and Dipolog City rendered almost full preparation regarding the fire safety management in terms of preparedness phase.

Knowledge among the workers on the level of preparedness can lead to the extent of awareness of the worker, well informed plan and decisions. On the other hand, lack of such knowledge in preparedness phase as it has been reported in some categories of disasters such as flood and slides (Miceli et al., 2008), earthquakes (Srivinas and Nargawa, 2008), and fires (Kukali and Kabukn, 2009) can result in a negative economic and social consequences (Wilson et al., 2007).

2. Extent of Fire Safety Management of the Respondents in their Workplace in termsof Response Phase

The respondents' level of response to fire safety management in their workplace showed that descriptor 1 to 10 received an average weighted mean of 3.73 which described as great extent or the person gave almost full preparation in all activities and functions in response phase.

This means the workers in the workplaces of Dapitan and Dipolog City rendered almost full preparation regarding the fire safety management in terms of response phase.

According to the study which stated that numerous individual studies and research syntheses have contrasted common sense ideas about how people respond during crisis based on actual behavior.

Nevertheless, enhancing public understanding of awareness and trust in preparedness measures and in organizations charged with managing fire disasters can lessen the likelihood of panic (Glass and Spana, 2002).

3. Extent of Fire Safety Management of the Respondents in their Workplace in terms of Recovery Phase

The respondents' level of recovery to fire safety management in their workplace showed that descriptor 1 to 10 received an average weighted mean of 3.39 which described as great extent or the person gave almost full preparation in all activities and functions in recovery phase.

This means the workers in the workplaces of Dapitan and Dipolog City render almost full preparation regarding the fire safety management in terms of recovery phase.

According to the study which stated that fire disaster impacts among businesses, public market and establishments because of pre-existing variation in the vulnerability of social units within each of these categories. Specifically, social vulnerability is people's capacity to anticipate, cope with resist and recover from the impacts of a natural hazard (Wisner et al., 2004).

Table 5. The extent of fire safety management of the respondents in their workplaces in terms of preparedness phase, response phase, and recovery phase.

	Weighted Mean	Description
Extent of Fire Safety Management of the Respondents in their Workplace in terms of Preparedness Phase	3.56	Great Extent
Extent of Fire Safety Management of the Respondents in their Workplace in terms of Response Phase	3.73	Great Extent
Extent of Fire Safety Management of the Respondents in their Workplace in terms of Recovery Phase	3.39	Great Extent

Table 6 is the test of Difference in the Fire Safety Management (Preparedness Phase) of the Respondents when analyzed as to their Profile. This study presented the Kruskal-Wallis test of difference between the respondents' level of preparedness in the fire safety management when data were analyzed as to their profile. It showed that p-values of 0.273, 0.168, and 0.108 were all greater than the alpha level or level of significance of 0.05 with H-test statistic of 5.139 and 4.451 and U-test statistic of 1419.0. Since the p-values were greater than the chosen alpha level of 0.05, it can be concluded that there was an insufficient evidence to reject the null hypothesis. Therefore, the data did not support the hypothesis that there was no significant difference in the level of preparedness when analyzed according to age, sex, and length of service, in the fire safety management. This means that responses of the respondents at 0.05 level of significance did not significantly vary.

The study implied that the workers in the workplaces of Dapitan and Dipolog City whose age brackets are 25 years and below, 26-35 years old, 36-45 years old, 46-55 years old and 56 years and above; and those who are males and females, and those whose length of service are 5 years and below, 6-10 years, 10 years and above, did not significantly differ.

This study showed that the p-value of 0.003 was less than the alpha level of or level of significance of 0.05 with H-test statistic of 19.459. It can be concluded that there was an insufficient evidence to accept the hypothesis. This means that responses of the respondents significantly does vary at 0.05 level of significance.

The study implied that the workers in the workplaces of Dapitan and Dipolog City whose educational attainment are elementary level, elementary graduate, secondary level, secondary graduate, college level, college graduate, and post graduate, did significantly differ.

Corresponding Author: Jocelyn G. Dalman

According to the study of Haulihan, etal.; Peacock et al. (1999) stated that educated people will have tendency for higher disaster preparedness. According to Digian (2005) several studies illustrated variation in experiencing impacts on individual due to different education level; the differences was mostly due to differences in understanding the dangers of potential hazards, knowledge regarding hazard behavior, preparation techniques, interpreting and receiving forecasting, warnings, and accessing electronic media. Also, according to the study conducted by Thrush et al., (2005) lack of information due to the different education level also lead uneducated people to be more disposed to material damage.

According to the study of Lauren Menard (2014) on Americans that self-reported emergency preparedness varies as a function of educational attainment level. An expectation is that those with a post-secondary degree are more likely to be prepared than those with a high school diploma or less.

Table 6. Test difference in the fire management (Preparedness Phase) of the respondents when analyzed as to their profile.

Profile	Test Statistics		p-value	Decision on Ho	Remarks
	Mann-Whitney U Test	Kruskall Wallis H Test			
Age	-	5.139	0.273	Accept Ho	No Significant Difference
Sex	1419.0	-	0.168	Accept Ho	No Significant Difference
Length of service	-	4.451	0.108	Accept Ho	No Significant Difference
Educational Attainment	**-**	**19.459**	**0.003**	**Reject Ho**	**Significant Difference**

Table 7 is the test of Difference in the Fire Safety Management (Response Phase) of the Respondents when analyzed as to their Profile. This study presented the Kruskal-Wallis test of difference between the respondents' level of response in the fire safety management when data were analyzed as to their profile. It showed that the p-values of 0.087, 0.220 and 0.261 were all greater than the alpha level or level of significance of 0.05 with H-test statistic of 8.141 and 2.686 and U-test statistic of 1447.0. Since the p-values were greater than the chosen alpha level of 0.05, it can be concluded that there was an insufficient evidence to reject the null hypothesis. Therefore, the data did not support the hypothesis that there is no significant difference in the level of response when analyzed according to age, sex, and length of service, in the fire safety management. This means that responses of the respondents at 0.05 level of significance do not vary.

This study implied that workers in the workplaces of Dapitan and Dipolog City whose age brackets are 25 years and below. 26-35 years old, 36-45 years old, 46-55 years old and 56 years and above; those who are males and females and those whose length of service are five years and below, 6-10 years, 10 years and above, did not significantly differ.

It also showed that the p-value of 0.002 was less than the alpha level of or level of significance of 0.05 with H-test statistic of 17.683. It can be concluded that there was an insufficient evidence to accept the null hypothesis. Therefore, the data did not support the hypothesis that there was a significant difference in the level of response when analyzed according to the educational attainment, in the fire safety management. This means that responses of the respondent at 0.05 level of significance significantly did vary.

This study implied that workers in the workplaces of Dapitan and Dipolog City whose educational attainment are elementary level, elementary graduate, secondary level, secondary graduate, college level, college graduate, and post graduate, did significantly differ.

Table 7. Test of Difference in the Fire Safety Management (Response Phase) of the respondents when analyzed as to their profile.

Profile	Test Statistics		p-value	Decision on Ho	Remarks
	Mann-Whitney U Test	Kruskall Wallis H Test			
Age	-	8.141	0.087	Accept Ho	No Significant Difference
Sex	1447.0	-	0.220	Accept Ho	No Significant Difference
Length of service	-	2.686	0.261	Accept Ho	No Significant Difference
Educational Attainment	**-**	**17.683**	**0.002**	**Reject Ho**	**Significant Difference**

Corresponding Author: Jocelyn G. Dalman

Table 8 is the test of Difference in the Fire Safety Management (Recovery Phase) of the Respondents when analyzed as to their Profile. This study presented the Kruskal-Wallis test of difference between the respondents level of response in the fire safety management when data were analyzed as to their profile. It showed that the p-values of 0.203, 0.410, and 0.095 were all greater than the alpha level or level of significance of 0.05 with H-test statistic of 5.943, 1.784, and 10.806. It can be concluded that there was an insufficient evidence to reject the null hypothesis. Therefore, the data did not support the hypothesis that there was no significant difference in the level of recovery when analyzed according to age, length of service, and educational attainment in the fire safety management. This means that responses of the respondents at 0.05 level of significance did not significantly vary.

This study implied that the workers in the workplaces of Dapitan and Dipolog City whose age brackets are 25 years and below. 26-35 years old, 36-45 years old, 46-55 years old and 56 years and above; those whose length of service are five years and below. 6-10 years, 10 years and above; and those whose educational attainment are elementary level elementary graduate, secondary level, secondary graduate, college level, college graduate, and post graduate, did not significantly differ.

It also showed that the p-value of 0.009 was less than the alpha level of or Level of significance of 0.05 with U-test statistic of 1196. It can be concluded that there is insufficient evidence to accept the null hypothesis. Therefore, the data did not support the hypothesis that there was a significant difference in the level of recovery when analyzed in terms of sex, in the fire safety management. This means that responses of the respondents at 0.05 level of significance significantly did vary.

This study implied that the workers in the workplaces of Dapitan and Dipolog City who are males and females, did significantly differ.

According to the study of Mirza Ali Ashraf and Md. Abul Kalam Azad (2015) on Gender Issues in Disaster: Understanding the Relationships of Vulnerability, Preparedness, and Capacity, the distribution of aid was unequal, in the sense that aid was directed towards male-headed households. It is evident that there was a lack of participation of women in post-disaster recovery planning. In addition, it is also noted that officials turned away some widows seeking compensation for their lost husbands because they could not produce the body. This simply shows what type of unexpected situation being faced by women at the time of disaster. According to Oxfam, widowed women had trouble in obtaining benefits and cash, due to the system that only gives out these benefits to the men as heads of the household.

Table 8. Test of difference in the fire management (Recovery Phase) of the respondents when analyzed as t their profile.

Profile	Test Statistics		p-value	Decision on Ho	Remarks
	Mann-Whitney U Test	Kruskall Wallis H Test			
Age	-	5.943	0.203	Accept Ho	No Significant Difference
Sex	**1196**	**-**	**0.009**	**Reject Ho**	**Significant Difference**
Length of service	-	1.784	0.410	Accept Ho	No Significant Difference
Educational Attainment	-	10.806	0.095	Accept Ho	No Significant Difference

4.0 FINDINGS, CONCLUSION AND RECOMMENDATION

4.1 Findings

The study revealed the following findings:

1.Majority of the workers in the workplaces of Dapitan and Dipolog cities were: in the age bracket of 46-55 years old (31 or 25.8%),females (76 or 63.3%), having length of service for 5 years and below(52 or 43.3%) and college graduates (70 or 58.3%).

2. Majority of the workers were of great extent in terms of preparedness phase (ave. weighted mean =3.56), response phase (ave. weighted mean=3.73) and recovery phase (ave.weighted mean =3.39) as to fire safety management.

3.There was a significant difference as to educational attainment in the preparedness and response phases, and as to sex in the recovery phase when analyzed according to profile.

4.2 Conclusions

This study concluded that the fire safety management in the workplaces of Dapitan and Dipolog City in terms of preparedness, response, and recovery phase is perceived as with good preparation in all activities and functions as well as with complete continents and knowledge with regards to fire safety measures. Furthermore, the educational attainment in terms of preparedness and response phases did significantly differ which means that the higher their educational attainment, the higher

Corresponding Author: Jocelyn G. Dalman

their level of preparedness and response to fire. Also, sex in terms of recovery phase did significantly differ which means that male recovers easily than female.

4.3 Recommendations

Based on the findings and conclusion drawn, the researchers propose, in collaboration with the Bureau of Fire Protection (BFP), the Emergency Medical Service (EMS) may have strong tandem in rendering services to the community in terms of preparedness, response and recovery phases of fire safety management that would uplift their capabilities, skills and knowledge. Additionally, the Bureau of Fire Protection and Emergency Medical Service might have a consistent open communication and regular gathering or assembly with regards to their services offered such as in conducting plans, seminars and trainings, and in monitoring of facilities in the workplaces of Dapitan and Dipolog City in order to have improved quality of service and/or there would be less or no incident of fire.

Enforcement also of building codes that advocates, among others, provision of the facilities for the firefighting to ensure compliance to all the safety requirements, as well as imparting knowledge on the use of installed facilities and awareness on the appropriate responses in case of fire outbreaks, are also necessary for the bureau of fire protection agency to be implemented.

While the disaster preparedness can be enhanced through strengthening the community capacities, education and improving the preventive mechanisms. And taking preventive steps, implementing trainings and drilling simulation exercises can lower risk and prepare employees in case a fire ever does break out in the workplace.

REFERENCES

1. Ejeta, L.T., Ardalan, A. & Paton, D. (2015). Application of behavioral theories to disaster and
2. emergency health preparedness: A systematic review', PLOS Currents 7.n.p. http://dx.doi.org/10.1371/currents.dis.31a8995ced321301466db400f1357829
3. Federal emergency management agency (2007). National preparedness guidelines. Washington, DC: Department of Homeland Security.
4. Florida Atlantic University (2002). Fire safety manual. Available at:
5. Government of hong kong (2012). Code of practice for fire safety buildings, buildings
6. Hart, S. R., Yajnik, A., Ashford, J., Springer, R. and Harvey, S. (2011). Operating room fire safety. The Ochsner Journal, 11(1), pp. 37-42.
7. http://www.fau.edu/provost/files/facultyhandbookl1-12.pdf [accessed October 2, 2012].
8. Paton, D. (2003). Disaster preparedness: A social cognitive perspective. Disaster Prevention and Management: An International Journal 12. 210-216. http://dx.doi.org/10.1108/09653560310480686.

Internet Sources

1. www.ndrrmc.gov.ph/attachments/article/41/NDRRMPlan 2011-2028.pdf erepository.nonbi.ac.ke/bitstream/handle/11295/75893/muindi_an%of20workplacefile%safety preparedness.pdf?sequence=3
2. https://journalissuesorg/wp.content/uplaods12075108/ogbonna-and.Nwaogazie.pdf
3. https://journalissues.org/wp-content/uploads/2015/08/Ogbonna-and-Nwaogazie.pdf
4. http://erepository.uonbi.ac.ke/bitstream/handle/11295/75839/Muindi_An%Assessment%20of%20Workplace%20Fire%20Safety%20Preparedness.pdf?sequence=3z
5. www.ijhssnet.com/journals/Vol_7_No_4_April_2017/5.pdf
6. http://www.hse.gov.uk/research/rrpdf/rr832.pdf
7. https://www.researchgate.net/publication/235962112_Disaster_preparedness_and_educational_attainment
8. http://www.emeraldinsight.com/doi/abs/10.1108/03068290010286546
9. http://siteresources.worldbank.org/INTWDR2012/Resources/7778105129969996858 3/7786210-1315936222006/chapter-5.pdf
10. http://time.com/money/4658059/college-grads-workers-overqualified-jobs/
11. http://www.hrpub.org/download/20150930/EER4-14004224.pdf
12. http://www.dilg.gov.ph/PDF_File/reports_resources/DILG-Resources-2012116-420ac59e31.pdf

Corresponding Author: Jocelyn G. Dalman