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Comparative Study on Preparedness and Response to Fire Incidents by State Fire Services in South-South States of Nigeria

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Abstract
This study compared the level of preparedness and response to fire incidents by State fire service within the south-south States, Nigeria. two constructs, namely; level of Training and logistic were used to capture level of preparedness while promptness and responsiveness were the constructs used to capture level of Response. The study adopted a combination of cross-sectional and inferential research designs. The respondents comprised of sampled fire service workers in the states fire service station in the South-South and fire incidents victims across the States in this region. Two sets of questionnaires, namely Fire Service Team Response Questionnaire on Preparedness (FSTRQP) and Fire Incident Victims Questionnaire on Fire Team Response (FIVQFTR), designed based on 5-point Likert scale for data collections. Data analyses were done using descriptive statistics, ANOVA and Tukey multiple comparison test from SPSS version-20. The results revealed that the level of training is good for all the states (WA>3.0), Delta state has the highest level of training (3.93>3.0) while Bayelsa state has the least (3.03>3.0), ANOVA results revealed that there is significant difference in level of training among the states (p-value =0.0001). The level of Logistic and equipment availability is poor in Akwa-ibom Bayelsa and Edo state ((2.98, 2.67, 2,83 <3.0) respectively and good in the remaining states, River state has the highest level of logistics availability (3.52 >3.0) while Bayelsa state has the least (2.67<3.0). ANOVA results also revealed that there is significance difference in level of logistics among the states (P-value =0.0001). The results revealed that the level of promptness is low in four states; Akwa-ibon, Bayelsa, Cross-river and River state (WA<3.0) and good in two states; delta and Edo states (WA>3.0). and ANOVA results revealed that there is substantial difference in level of promptness among these states. Finally, the results showed that the level of responsiveness of the is good in all the states, akwa-ibom state has the highest (4.08) while Bayelsa state has the least (3.15) and ANOVA results showed that significance difference exist in level of responsiveness among the fire service workers within these states.
Key Word; *Evaluation, Preparedness, Response, Fire Service Stations, South-South States/region, Nigeria*

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I. Introduction

In Nigerian, Alali (2019) noted that many fire disasters have been recorded. It is estimated by the Nigerian National Fire Statistic database that Nigeria has lost an estimated six trillion naira (₦6T) to various fire outbreaks. For example, the Kano market fire incident is projected to cost about two trillion naira (₦2T) (Isa *et al.*, 2016). Again, the Garki and Wuse Market fire disasters in Abuja, with losses estimated at over One hundred million naira (₦100M) led to the calls on the necessity to put in preventive strategies aimed at curbing the incessant occurrence of fires (Sunday et al., 2019). There are many other fire tragedy in Nigeria like that of the University of Jos which took place in 2016 (Rasaki, 2019) and the mass burns disaster from a petroleum pipeline failure in Lagos (Fadeyibi et al., 2019). Between January 1 and 24, 2019, Lagos State recorded 119 fire incident cases with 33 casualties and over three billion four hundred- and thirty-million-naira (₦3.43B) worth of property destroyed (Lagos fire service,2019) while Anambra state recorded 53 fire incidents with 10 casualty and property losses worth over two billion and twenty-two million naira (₦2.22B) (Premium Times, 2019).

In the south-south States/Region of Nigeria which comprises of Akwa-Ibon, Bayelsa, Cross-Rivers Edo, Delta and Rivers States. There are several reported cases of fire incidents, for instance, in Akwa-Ibom state, the office of the Independent national electoral commission (INEC), located in Essien Udim Local Government Area of Akwa Ibom State, was gutted by fire. They attributed the cause of the fire incident to arsonists. They explained that both sensitive and non-sensitive electoral materials valued at fifty-six million naira (₦56M) were destroyed by the fire incident and all effort to get the State Fire Service Team quick intervention proof abortive as their emergency lines were not reachable. As reported by eye witness, on August 15, 2021**,** a mysterious fire razed down a school and a hotel same day but at different locations in Akwa –Ibom State. The affected hotel is Dignified Palace Hotel, Uyo and the school is Annang Secondary Commercial School, Idung Esimuk, Odoro Ikot in Essien Udim Local Government Area of the State. The losses were estimated at twenty-seven million, one hundred thousand naira (₦27.1M) and fifteen million naira (₦15M) respectively

In Bayelsa State, according to an eye witness, the Bayelsa mechanic village in Yenagoa was gutted by fire on Sunday**,** September 6, 2020, resulting to the destruction of goods and properties worth over Four hundred million naira (₦400M). Also, in Bayelsa State, over 300 persons were rendered homeless when fire gutted a neighbouring suburb of Ekeki in the State capital, Yenagoa. No life was lost but properties valued at over Twenty-five million naira (₦25M) were destroyed to the incident. Gbetiokum oilfield in **S**outhern Ijaw Local Government Area, was engulfed by fire and explosion on the 7th of July, 2020 killing seven (7) persons.

Delta State, has recorded 134 fire incidents within the last six (6) months as a result of carelessness in the manner electrical equipment and appliances are being handled at homes and in the factories/industries. Substandard electrical equipment and appliances are serious contributing factors. The most worrisome out of the 134 fire incidents in the State is the gas explosion in Agbor where many lives were lost and properties worth millions of naira destroyed. These facts were revealed by the Director of Delta State Fire Services Commission, Mr Eugene Oziwele during an interview with the Guardian Newspaper in his office at Asaba, Delta State. Mr Oziwele disclosed that the State has 22 fire Service Stations spread round with functional fire trucks positioned for emergency response, but pleaded with the public to desist from raising false fire alarms.

Also, in Benin City, Edo State capital, the famous Oba market on kings Square was engulfed by fire in the late night of Tuesday, June 23, 2020.The news of the incident was a huge shock to the traders considering the amount of goods and properties estimated at over four hundred million naira (₦400M) that were lost to the incident. The Oba market fire incident is the 4th market fire disaster in the State within one month. Other market fire incidents within the same period include, the spare parts market fire at Uwelu, Santana Market Fire incident and Ekiosa market fire incident all within Benin City. The cause of the fire at Oba market was attributed to arsonists. Again, **t**he Benin Electricity Transmission Company Nigerian limited (TCN) located along Sapele Road in Benin City, was gutted by fire on Sunday, 30th of June, 2019. The fire incident impacted some States like Delta, Ondo and most parts of Edo State where power supply was cut-off completely as a result of the partial system collapse.

In Cross Rivers State, over 100 shops and goods valued at One hundred and three million naira (₦103M) were lost in the fire incident that engulfed the popular Mariam market located in Calabar Metropolis. In another fire incident within the State, a family of four, a father, Okon Esua Abanga and three (3) of his sons were burnt to death. The incident occurred on Monday,24th of August,2021 at about 10pm at their home in Ikot Ekpo Street, Calabar while one of the late man's sons was trying to refill a burning lamp with an adulterated kerosene he procured resulting to an explosion and fire that killed them while other family members escaped with different degrees of burns. All efforts to contact the State Fire Service Station to come to the scene was fruitless (Daily-post, 2021).

In River State, Sahara report of November 13, 2014 reported a fire outbreak at Heritage filling station along St. Johns Street in Rumuolumeni, Port-Harcourt. According to the Newspaper, the fire outbreak at the filling station was also caused by a tanker discharging petrol to the filling station. The inferno was so serious that it burnt down the filling station and another nearby residential building. The reporter also stated that the inferno was finally quelled by youths of the area who angrily confronted and chased back the fire-service personnel who came hours after the fire had been extinguished. It was reported that the fire-outbreak would have been quelled earlier if the Fire Service Personnel were quick in their response.

General preliminary investigations involving interview with traders, facility owners and other interested parties and victims of these fire incidents within these States/region have provided the basis for this research. It was claimed/alleged that poor preparedness and coordination in cases of fire disaster is a big reason for the slow response by State Fire Service. Other people cited the delay in response time of fire service personnel to inadequate equipment for extinguishing fire and the absence of Fire Service Stations around the locations of fire incidents. It is also noted that fire emergency response challenges faced by developing countries include financial resources, understaffing, and poor infrastructure (Kruk, 2008). It is on this forgoing that this current study seeks to carry out a comparative study to ascertain the level of preparedness and response to fire

incidents by the States Fire Service Stations in South-South States of Nigeria. Thus, the aim of this study was to compare the level of preparedness and response to fire incidents by state fire service in South-South States of Nigeria and the objectives are to; one, assess the level of preparedness (Training and logistics) of the States firefighting Service within the south-south region, Nigeria. two, ascertain the level of response level (promptness and responsiveness) of State Fire Service personnel within these states., three determine whether there is difference between the level of preparedness and response of the States Fire Service among the states in the regions.

II. Methodology

2.1 Research design

The research design adopted for this study was a combination of cross-sectional and Inferential research design. Cross sectional design was adopted to determine the response of the fire-fighters on their preparedness to combat fire incidents and also the experience of the fire accident victims on the response of the fire-fighters during fire incidents. This research design is suitable for this section of the research because in cross sectional, the researcher measures only the opinion, response, outcome, exposures or perception of the study respondent or participants using quantitative data obtain from them and thereby determine the degree or level of the opinion, response, outcome, and exposure or perception of the respondent or participants without expressing any form of relationship between the variables being studied.

Inferential design was adopted in this study to ascertain whether there is significant difference between the level of preparedness (training and logistics) and level of response (responsiveness and promptness) among the fire service workers in the states,

2.2 Study area

The geographical area of coverage for this study was South-South States of Nigeria which comprises Akwa-Ibom, Bayelsa, Cross Rivers, Delta, Edo and Rivers and is made up of different ethnic groups. The region is bounded on the North by Kogi, Anambra, Imo and Abia States, on the South by the Atlantic Ocean, on the east by Ondo State and on the west by Ebonyi and Benue States. The region occupies approximately 85,303 square kilometres (kms). The National Population Census (NPC, 2006) puts the population of the South-South States at 21,014,655 (Emeh *et al.*, 2011). This region is where most of the Oil fields of the Oil and Gas Companies (OICS) are located, so crude oil forms part of the mainstay of their economy. The populace in this region are merchants, farmers, fishermen, industrialists, traders and so on. Their activities in farming, fishery, poultry, palm produce, petroleum, carving, and tinkering, welding, and general trading among others are hallmarks for entrepreneurial development. (Obose, 2013). The availability of crude oil in this region makes it a pacesetter for large scale commercial activities. The choice of this area was inspired by the number and scale of fire incidents in the region, and constraints to effectively respond to these fire emergencies. Figure 1 is a detailed map showing the six states that make up the south-south states of Nigeria.

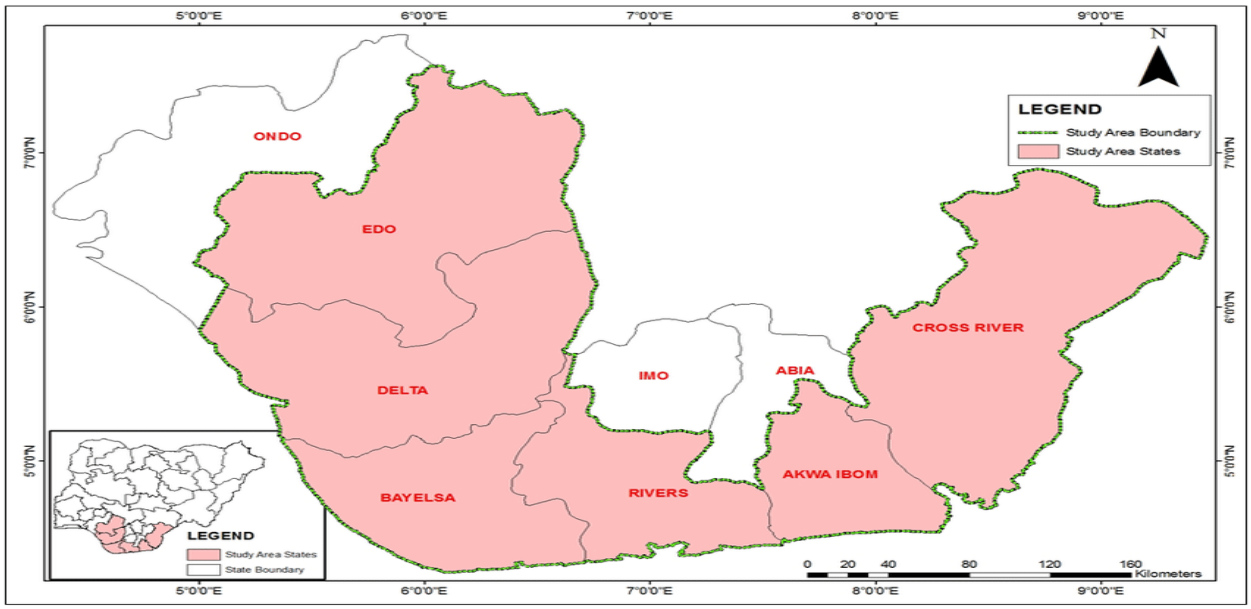

Figure 1: Map of South-south Region, Nigeria

2.3 Study Population and Sample Size

The population of this study were grouped into two which include, Staff of the States Fire Service Stations within the South-South States who will give the research information on preparedness of the Fire-Service Station and the victims of fire accidents in the States who will give research information on the response of the Fire Service Team during fire incidents. There are fifty-five (55) Fire Service Stations across of the States in the South-South region, however, most of the State Fire Service Stations could not disclose the number of Staff working with them.

Based on the nature of this study, multiples sampling technique was adopted. For the Fire Service Staff, all the five-Fire Service Station were sampled. For the sample size, since the population of the State Fire Service Staff was unknown, the sample size was derived by computing the minimum sample size required for accuracy in estimating proportions by considering the standard normal deviation set at 95% confidence level (1.96), percentage picking a choice or response (50% = 0.5) and the confidence interval (0.05 = ±5) (Singh & Masuku, 2014). Using the Singh Masuku formula for sample size:

$$\text{sample size} = \frac{2ZP^2}{c^2} \quad (1)$$

Where: z is the standard normal deviation set at 95% confidence level (1.96), p is the percentage picking a choice or response (50%), c is confidence interval (0.05), thus, the sample size is given as sample size = 385. A sample size of more than 385 was ideal for the analysis according to the rule of thumb (Roscoe, 1975). For statistical convenience and to increase the confidence of the researcher, sample size of 400 was considered. Kothari (2004) added that a bigger sample size better represents a population.

Proportionate sampling technique was used to ascertain the number of sampled respondents for each of the fifty-five Fire-Service Station within the States using proportional fraction of their numbers of Fire Service Stations. See Table 1 for the number of respondents calculated per State to make up the 400 fire service workers used as respondents. The same sampling technique was used to ascertain the respondents on the side of the victims who provide information on level of response of the fire service operatives see Table 2

Table 1: shows the South-South State and the number of sampled fire service workers

S/N	States	Number of LGA	Number of Fire Stations	Number of Respondents for Fire Service Staff
1	Edo State	18	8	58
2	Delta State	25	22	160
3	Bayelsa State	8	1	8
4	Rivers State	23	5	38
5	Akwa Ibom State	31	16	117
6	Cross River State	18	3	21
	TOTAL	**123**	**55**	**400**

Table 2 the South-South States and the number of sampled fire incident victims.

S/N	STATES	Number of GA	Number of Respondents for Fire Victims
1	Edo State	18	67
2	Delta State	25	67
3	Bayelsa State	8	66
4	Rivers State	23	67
5	Akwa Ibom State	31	67
6	Cross River State	18	66
	TOTAL	**123**	**400**

2.4 Method of Data Collection

Two sets of questionnaires, namely Fire Service Team Response Questionnaire on Preparedness (FSTRQP) and Fire Incident Victims Questionnaire on Fire Team Response (FIVQFTR), whose reliability was tested using Cronbach's alpha see Table 3 and designed based on 5-point Likert scale was used for data collections and the response rate summary is shown in Table 4.

Table 3: Summary of Cronbach's Alpha Reliability Result

Variables	Dimensions/Measures	No. of items	Alpha Coefficients
preparedness	Training and competency	9	0.758
	Logistic and equipment	9	0.765
Response	promptness	7	0.712
	Responsiveness	6	0.706

Table 4: Summary of Response rate

	Fire Service workers	Fire incidents Victims
Questionnaires Administered	400	400
Returned questionnaires	385	396
Properly completed, returned and used questionnaires	379	379
Percentage of properly completed, returned and used questionnaires	94.75%	94.75%

2.5 Statistical Analysis

Data analyses were done using descriptive statistics, Analysis of Variance (ANOVA) and Tukey Multiple Comparison Test from SPSS version-20. The descriptive statistic was used to ascertain the level of preparedness and response while ANOVA and Tukey multiple component analysis was used to test the flowing hypotheses;

$Ho1_1$: There is no statistically significant difference between the levels of preparedness (training and logistics) of the State Fire Service among the states in South-South States, Nigeria.

Ho2 There is no statistically significant difference between the levels of response (promptness and responsiveness) of fire service workers among the states in South-South States, Nigeria.

III. Results and Discussions

3.1 Comparative analysis on Level of Preparedness (Training and competency Level) of the States Fire Service in South-South region

Table 5 shows the variation in training and competency based on the total weighed average of the response of the sampled fire service workers. The results revealed that fire service workers in Delta state have the best preparedness level in terms of training and competency level (3.94) followed by Rivers State (3.56) while Bayelsa state have the least (3.03). However, the response of the fire service workers in all the state is higher than 3.00 which is the threshold point for acceptance which means that all the respondents in the entire states affirm that their level of training and competency is good. Thus, the respondents in the south-south states agreed that the preparedness level of the fire service workers in terms of training and competency level is good.

Table 6 and Table 7 are the ANOVA and Tukey multiple component analysis carried to ascertain the difference in the level of training among the states. The ANOVA results revealed that there is significant difference in the level of training among the states with p-value of 0.0001 which is less than the 0.05 significance level. The Tukey multiple component analysis revealed that there are three groups of variation, group A which comprises of Akwaibom, Cross-River and Edo, group B has only Bayelsa and group C comprises of Rivers and Delta. Thus, there is no significant variation among members in same group but there is significant variation among members in different groups. Thence, the null hypothesis rejected while the alterative hypothesis is accepted which stated that there is a significant difference among the level of training and competency of the fire service workers in the south-south states.

Table 5: Weighted Average of the Response of the Respondents on Training and Competence level of fire-fighters and fire service personnel in South-South.

SN	Items	Akwa-ibom,	Bayelsa,	Cross-river	Delta	Edo	Rivers
1	The Management make firefighting training, drills and demonstration exercise available for the workers	4.54	4.00	4.47	4.80	4.09	4.06
2	The firefighting trainings provided by the management to workers are suitable to improve the competence and skills of firefighting personnel	3.52	4.08	3.00	4.80	4.00	4.03
3	The firefighting training provided by management are adequate for all kind of fire incidents	2.00	2.19	2.19	3.09	2.81	3.36
4	The firefighting trainings provided by management are sustainable	3.49	2.05	3.63	4.11	2.77	4.25
5.	The firefighting trainings provided by management are practical based.	4.39	3.65	4.09	4.80	3.81	4.25
6.	The firefighting training provided by the management are current trainings that are applicable globally	1.79	1.95	2.64	2.67	2.36	2.64
7	The firefighting demonstration exercise provided by the management are provided on regular basis	4.23	3.71	3.50	4.73	2.83	3.27
8	The firefighting trainings provided by management are of international standard.	1.44	1.82	1.54	2.06	2.42	2.25
9	On overall, the firefighting drill and exercise provided by the management have improved my firefighting skills	4.00	3.84	4.00	4.27	3.81	3.91
	TOAL	**3.27**	**3.03**	**3.23**	**3.93**	**3.21**	**3.56**

Table 6: Analysis of Variance (ANOVA) for Level of Training

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	2.0016	5.3303	4.6783	< 0.0001
Error	55	6.1267	0.1806		
Corrected Total	61	8.1283			

Computed against model Y=Mean(Y)

Table 7: Tukey Multiple Comparison Test for Training

	TRAINING			
Category	Means	Groups		
Akwaibom	3.27	A		
Bayelsa	3.03		B	
Cross River	3.23	A		
Delta	3.93			C
Edo	3.21	A		
Rivers	3.76			C

Note, No significant difference between members in same group

3.2 Comparative analysis on Level of Preparedness (Logistics and equipment availability) of the States Fire Service in South-South region

Table 8 shows the difference in logistics and equipment availability level based on the total weighed average of the response of the sampled fire service workers the states. The results revealed that fire service workers in Rivers State have the best preparedness in terms of logistics and equipment availability level (3.52), followed by Delta State (3.26) while Bayelsa state have the least (2.67). However, it was revealed that the response of the fire service workers in three states namely Akwa-Ibom, Bayelsa and Edo (2.98, 2.67, 2,83) are lower than 3.00 threshold for accepting or agreeing to the constructs/variables which means that they disagree to the construct suggesting that their logistics and equipment availability level is not sufficient, the average weighted average for respondents in Cross-river is at the critical point (3.00) which means that they could not agree or disagree to this construct which suggest that they are undecided, while respondents in only Delta and Rivers state agree that the level of logistic and equipment availability is sufficient. Thus, on the overall weighed average, the respondents in the south-south states were undecided on preparedness level of the fire service workers in terms level of logistic and equipment availability.

Table 9 and Table 10 are the ANOVA and Tukey multiple component analysis carried to ascertain the variation in the level of logistics among the states. The ANOVA results revealed that there is significant variation or difference in the level of logistics among the states with p-value of 0.0001 which is less than the 0.05 significance level. The Tukey multiple component analysis revealed that there are three groups of variation, group A which comprises of Akwaibom, Cross-River and Edo, group B has only Bayelsa and group C comprises of Rivers and Delta. Thus, there is no significant variation among members in same group but there is significant variation among members in different groups. Thence, the null hypothesis rejected while the alterative hypothesis is accepted which stated that there is a significant difference among the level of logistic and equipment availability for the fire service workers in the south-south states.

Table 8: Weighted Average of the Response of the Respondents on Logistics and equipment availability level of fire-fighters in South-South

SN	Items	Akwa-ibom,	Bayelsa,	Cross-river	Delta	Edo	Rivers
1	The management, through the supervisors, make available all material and human resources needed for fire incident	2.23	2.37	2.56	3.06	2.19	3.19
2	The material resources provided by the management to workers are usually suitable for every fire incident	2.84	2.24	2.34	2.77	1.72	3.28
3	The material; resources provided by management are usually adequate for each fire incidents	1.52	2.08	1.92	2.20	2.13	2.66
4	The firefighting resource provided by the management are most current and applicable globally	1.82	1.92	1.82	1.88	1.77	2.36
5.	The management, through the supervisors, conduct routine check on the material and human resource on regular basis	4.69	3.58	4.56	4.72	3.77	4.34
6.	The management, through the supervisors, organizes routine maintenance on material resources on regular basis	3.98	2.97	4.00	4.80	3.83	4,75
7	The management of the fire=service provide a Hot-line calling system that is always available for fire victims to reach the fire-service offices	3.05	2.58	3.89	2.72	2.83	3.73
8	The management ensures that the hot-line call numbers reach the public by announcing them on social media and mass media platforms	4.10	3.42	4.11	4.39	4.08	4.05
9	On overall, the firefighting logistics provided by management and controlled by supervisors have improved firefighting activities of the fire service.	2.67	2.90	2.80	2.80	3.13	3.22
	TOAL	**2.98**	**2.67**	**3.00**	**3.26**	**2..83**	**3.51**

Table 9: Analysis of Variance for Logistics and Equipment Availability Level

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	5.1752	1.3324	12.3875	< 0.0001
Error	55	9.1806	0.0525		
Corrected Total	61	15.1400			

Computed against model Y=Mean(Y)

Table 10: Tukey multiple comparison test for Logistics

	Logistics		
Category	Means	Groups	
Akwaibom	2.98	A	
Bayelsa	2.67		B
Cross River	3.00	A	
Delta	3.26		C
Edo	2..83	A	
Rivers	3.51		C

Note, No significant difference between members in same group

3.3 Comparative analysis on Level of Response (Level of promptness) of the States Fire Service workers in the states in South-South region

Table 11 shows the variation or difference in promptness level based on the total weighed average of the response of the sampled fire incidents victims. The results revealed that fire service workers in Edo States have the best response in terms of promptness in arriving to fire incident scene with response value of 3.28, followed by Delta State (3.02) while River's state have the least (2.24). However, it was clear from figure 4.11 that the fire incident victim in four out of the six states is lower than 3.00 threshold value for accepting or agreeing to a construct which implied that majority of the respondents maintain that the promptness level is very low. Also, based on the overall weighed average, the fire incident victims in the south-south states unanimously disagreed that level of response of the fire service workers in terms of promptness level is good.

Table 12 and Table 13 are the ANOVA and Tukey multiple component analysis carried to ascertain the variation in the level of promptness among the states. The ANOVA results revealed that there is significant variation in the level of Promptness among the states with p-value of 0.0001 which is less than the 0.05 significance level. The Tukey multiple component analysis revealed that there are three groups of variation, group A which comprises of Akwaibom, Bayelsa, Cross-River and Delta states, group B and C comprises of Edo and Rivers states respectively. Thus, there is no significant variation among members in same group but there is significant variation among members in different groups. Thence, the null hypothesis rejected while the alterative hypothesis is accepted which stated that there is a significant difference among the level of promptness of the fire service workers in the south-south states.

Table 11: Response of Fire Victims on Promptness level of Response of Fire Service Personnel in South-South States

SN	Items	Akwa-ibom,	Bayelsa,	Cross-river	Delta	Edo	Rivers
1	We obtained the fire-service hot-line easily from media platforms during the fire accidents	3.63	3.18	4.35	2.98	2.68	1.54
2	The hotlines were available when we called for their response	1.98	2.98	1.84	1.84	2.29	1.95
3	We called few times before the fire=service personal responded	4.35	3.16	4.50	3.84	4.35	2.92
4	The fire-service personal that answered the calls was quite approachable.	3.10	2.65	3.29	3.67	4.32	2.00
5.	The fire-service personal that answered the calls was friendly and showed sense of urgency and signs of being concern	3.23	2.60	2.57	3.52	3.46	3.08
6.	The firefighting personal reached the fire incidents site on time considering distance of their station to position of the fire-accident	2.24	2.80	2.01	2.39	2.43	1.83
7	On overall, the promptness of the fire-service personal to our calls was quite good	2.03	2.85	2.21	2.91	3.40	2.37
	TOAL	**2.94**	**2.88**	**2.97**	**3.02**	**3.28.**	**2.24.**

Table 12: Analysis of Variance (ANOVA) for Level of Promptness of fire service workers

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	5.1752	1.3324	12.3875	< 0.0001
Error	55	9.1806	0.0525		
Corrected Total	61	15.1400			

Computed against model Y=Mean(Y)

Table 13 Tukey multiple comparison test for Level of Promptness

	Promptness			
Category	Means	Groups		
Akwaibom	2.94	A		
Bayelsa	2.88	A		
Cross River	2.97	A		
Delta	3.02	A		
Edo	2.24.		B	
Rivers	3.28.			C

Note, No significant difference between members in same group

3.3 Comparative analysis on Level of Response (Level of Responsiveness) of the States Fire Service workers in the states in South-South region

Table 14 shows the variation in responsiveness level based on the total weighed average of the response of the sampled fire incidents victims. The results revealed that fire service workers in Akwa-Ibom States have the best response in terms of responsiveness in combating fire outbreak with response value of 4.08, followed by Cross-River State (3.74) while Bayelsa state have the least (3.15). However, it was clear from figure 4.11 that the fire accident victim response value in all the six states is greater than 3.00 threshold value for accepting or agreeing to a construct which implied that the respondents unanimously maintain that the responsiveness level is high. Also, based on the overall weighed average, the fire incident victims in the south-

south states unanimously agreed that level of response of the fire service workers in terms of responsiveness level is good.

Table 15 and 16 are the ANOVA and Tukey multiple component analysis carried to ascertain the variation in the level of responsiveness among the states. The ANOVA results revealed that there is significant variation in the level of responsiveness among the states with pr-value of 0.0001 which is less than the 0.05 significance level. The Tukey multiple component analysis revealed that there are three groups of variation, group A which comprises of only Akwaibom, group B which comprised of Bayelsa, and Edo states and group C comprised of Cross-River, Delta, and Rivers states. Thus, there is no significant variation among members in same group but there is significant variation among members in different groups.

Table 14: Response of Fire Victims on the Level of Responsiveness of Fire-fighting Workers in States in South-south region

SN	Items	**Akwa-ibom,**	**Bayelsa,**	**Cross-river**	**Delta**	**Edo**	**Rivers**
1	The fire-service personal that arrived at the fire accident site showed sense of urgency	4.00	3.42	4.48	4.27	4.00	3.65
2	The firefighting personal reached showed signs of professionalism in discharging their duty	4.40	3.40	4.32	4.27	4.00	4.62
3	The fire-service personals worked with some set plans and sense of purpose	4.35	3.23	4.16	2.86	2.98	3.65
4	The firefighting personals that responded to the fire accidents were receptive.	4.13	3.00	2.84	3.22	2.10	3.30
5.	The firefighting personals that responded to the fire accidents were aware of what is required from them.	4.15	3.00	3.77	4.39	4.00	4.10
6.	On overall, the responsiveness of the fire-service personal to fire-fighting work was quite commendable	3.47	2.82	2.84	2.94	2.49	3.29
	TOAL	**4.08.**	**3.15.**	**3.74**	**3.66**	**3.26**	**3.77**

Table 15: Analysis of Variance (ANOVA) for Level of Responsiveness

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	6	5.1752	1.3324	12.3875	< 0.0001
Error	55	9.1806	0.0525		
Corrected Total	61	15.1400			

Computed against model Y=Mean(Y)

Table 16: Tukey multiple comparison test for Responsiveness

	Responsiveness			
Category	Means	Groups		
Akwaibom	4.08.	A		
Bayelsa	3.15.		B	
Cross River	3.74			C
Delta	3.66			C
Edo	3.26		B	
Rivers	3.77			C

Note, No significant difference between members in same group

IV. Conclusion

Based on these findings above, it was concluded that, the preparedness level in the States in terms of level of training is good, River state has the highest level of training while Bayelsa state has the least, however, there is substantial difference in level of training among the states. The level of Logistic and equipment availability is poor in Akwa-ibom, Bayelsa and Edo state and good in the remaining states of Cross-river, Delta and River state. River state has the highest level of logistics and equipment availability while Bayelsa state has the least. Also, there is substantial difference in level of logistics among the states. These substantial difference in level of preparedness (training and logistic levels) among the fire service workers in different states in south-south region could be attributed to difference in level of commitment by different states government in terms of providing suitable training and equipment for the fire service workers. The results also indicated that River state government showed the highest level of commitment towards preparing the fire service workers while Bayelsa state government showed the least level of commitment to the same course.

In terms of response of the fire service worker in the states in south-south region. the finding revealed that the level of promptness is low in four states, namely; Akwa-ibon, Bayelsa, Cross-river and River state and good in two states; Delta and Edo states. The finding also revealed that there is substantial difference in level of promptness among these states. These differences in level of promptness could be attributed to availability of functional equipment like fire truck and the level of traffic problems experiences within these states especially River state. in terms of responsiveness, the finding showed that the level of responsiveness of the fire service workers in these states is good, akwa-ibom state has the highest level of responsiveness while Bayelsa state has the least. the results also revealed that there is substantial difference in level of responsiveness among the fire service workers within these states. these differences could be attributed to difference level of motivation among the fire service workers in the state,

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