

Original Research Article

Health Risk Implication among Solid Waste Workers in Obio Akpor LGA of Rivers State.

ABSTRACT

~~The Aaims of the study was + To~~ examine the Health Risk implication among solid waste workers in Obio Akpor LGA of Rivers state.

~~Study design: Descriptive design~~

~~Place and Duration of Study:~~ The study was carried out at the Rivers State Waste Management Agency in Obio-Akpor Local government area of Rivers State between January 2019-March 2019.

~~Methodology:~~ The survey method was employed ~~whilst 265~~whilst 265 copies of questionnaire were used to elicit information from the number of employee.

~~Results:~~ The ~~results~~ findings showed that the major source of solid waste is from the residential area and plastics is one of the major composition of solid waste furthermore it was discovered ~~that majority~~that majority of the individuals in Obio akpor local government area prefer to dump their waste at authorized dump site and this is normally done within 1-5days and this is done daily. It was also discovered that majority of ~~the respondents~~the respondents had a pre requisite knowledge on the effect of poor waste disposal to human health likewise the health implication of such action as they indicated that they are prone to typhoid and other forms of diseases. ~~It was~~

~~Conclusion:concluded that Thethe~~ Government of Rivers State should adopt a Waste Policy which entails occupational safety, health and environmental management issue

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Keywords: Health and solid waste

1. INTRODUCTION

Solid waste comprises of different type of discarded goods mainly left-over food, textile, glass, paper, metals and other spoiled goods [1].The process of generation, storage, collection, transportation and final disposal of waste are important process which most times involves the use of human labour in many developing country including Nigeria [2].

It is also of importance to note that waste management contributes tremendously in upholding public health by reducing the risk of diseases, however the job exposes those who are involved and are known as solid waste workers to high risk of fatal and non-fatal occupation accidents [3] .

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However, in the early days, the population of humans were small and there were relatively no adverse health effects of waste considering the large land mass. People migrated from one location to another, so there was tendency to relocate from previous waste dump site to new environment. Thus, waste was disposed of without the fear of its consequences to the environment and of any serious health risk to people [5].

As man increased on the surface of the earth, as well as the onset of civilization, the quality and quantity of waste production also changed and increased. The advent of industrialization has altered the nature and quantity of waste generated on a higher level. The increasing complicated arena of waste handling harbours significant potential for human health and safety risks- [6]. Contend that workers not properly and adequately managed may cause some health and environmental risk which may result in sickness, impaired health and well-being or significant discomfort among people [ref.](#)
~~The aim of solid waste workers is to remove garbage to safeguard public health and welfare as well as prevent environmental pollution.~~

Despite the significance of this job done by the waste workers, they are exposed to several kinds of hazards in the cause of discharging their duties. Major hazards faced by solid waste workers can be chemical, biological, agronomic, physiological hazard.

Amongst the injuries experienced by theses solid waste workers are accidental injuries such perforation wounds, laceration, burns, dog and rat bites which are deep cuts caused by scrap metals, jagged edges of cans and bins, glass cutters or nails in waste bag and when they drop heavy containers on their feet or legs [7]

In developing countries example [Nigeria-Nigeria](#), waste segregation is rarely practised, that is why traces of medical waste and poisonous industrial wastes are mixed with the domestic waste stream [8].Furthermore nothing has really be done about the health and safety of these solid waste workers.

The aim of solid waste workers is to remove garbage to safeguard public health and welfare as well as prevent environmental pollution.

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66 | It is against this background that the aim of this research ~~was~~ was to
67 examine the Health Risk Implication among solid waste workers in Obio
68 Akpor LGA of Rivers State . The specific objectives of the study were to:
69 identify the source and composition of solid waste in Obio Akpor Local
70 Government area of Rivers State, Identify the waste disposal method in Obio
71 Akpor local government area and to identify the Waste disposal method in
72 Obio Akpor Local Government area of Rivers State.

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74 **2. METHODOLOGY**

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76 The population of the study will consist of the staff of Rivers state waste
77 management agency (RIWAMA). For the purpose of the study the sampling
78 technique adopted was the simple random sampling technique. This
79 technique helped in giving a number to each subject or individual from the
80 open populace putting the numbers in a compartment and picking them
81 randomly. It gives every unit of the population an equal and known chance of
82 being chosen in the sample and it has to do with a definite number of
83 population. Furthermore sampled respondents were given structured
84 questionnaires.

85 The questionnaires were self-administered randomly to selected sample
86 respondents of RIWAMA. The data retrieved from the questionnaire was put
87 together using the statistical package for social sciences (SPSS). For the
88 purpose of a clear and detailed representation of data, the uses of tables
89 were employed in order to present the gathered data for the research study.
90 Descriptive analysis was used which consists of the Mean, Median mode of
91 analyzing

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94 **3. RESULTS AND DISCUSSION**

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96 **3.1: Demographic Characteristics of Sampled Population**

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98 **Table 1: Distribution of Solid waste handlers at RIWAMA according to**
99 **their job task**

Job Task	Number of employees (N=265)	(%)
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Truck Drivers	46	17
Refuse Collector	67	25
Street sweepers	79	30
Waste Pickers	73	28
Total	265	100

100 Source: [8]

101 Table 1 above shows the distribution of Solid waste handlers at RIWAMA
 102 according to their job task. It reveals that majority of the respondents under
 103 survey 30% (79) were street sweepers, 28% (73) were waste pickers,
 104 25% (67) were refuse collector and the least 17% (46) are truck drivers. The
 105 implication of this result is that majority of the respondents have an overview
 106 of the issue discussed based on their experience in the handling of solid
 107 waste in course of their job description

108 3.2 Sources and composition of solid waste in Obio Akpor LGA

109 To examine the source and composition of solid waste in Obio Akpor LGA
 110 two category of questions were asked, they included what are the source of
 111 Solid waste and what are the type of Solid waste

112

113 Sources of Solid Waste

114 Table 2 Sources and Types of Solid Waste (n=470265)

Items	Freq.	%
Residential	178	6737
Commercial	67	2514
Industrial	87	3318
Institutional	78	2916
Others	65	2514
Total	475	100

115 Source: [8]

- 116 • Multiple Response

117 Table 2 above shows the sources of solid waste as indicated by the
 118 respondents. Data Analysis based on multiple response revealed that
 119 majority of the respondents had their opinion that the major source of solid
 120 waste is 37% (178) from residential buildings, 1833% (87) respondents had
 121 opinion that the source was from industrial, 1629%(78) had opinion that the
 122 source was from institutional while 1425% (67) and 1425% (65) respondents
 123 had opinion that the major source of solid waste was from commercial and
 124 other sources not mentioned respectively.

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126 Types of Solid Waste

127 **Table 3: Types of Solid Waste (n=712265)**

Item	Freq.	%
Paper	45	647
Plastic	187	2674
Glass	76	1129
Metal	95	1336
Sanitary	77	1129
Food Waste	87	1233
Debris	22	38
Hazardous Waste	66	925
Animal Waste	24	39
Ashes	33	542
Total	712	100

128 Source:[8]

- 129 • Multiple Response

130 On the type of solid waste, data analysis as seen in table 3 revealed that
 131 136% (95) of the respondents indication that metal was part of the
 132 composition of the solid waste they handle, 1233% (87) respondents
 133 indicated food waste, 1129% (77) indicated sanitary waste, 925% (66)
 134 respondents indicated hazardous waste , 542% (33) respondents indicated
 135 ashes, 647% (45) indicated paper 1129% (76) respondents indicated glasses
 136 and majority 2674% (187) indicated plastic as major composition of solid
 137 waste.

139 3.3 Waste Disposal Method in Obio Akpor LGA

141 To identify the waste disposal method three categories of questions were
 142 asked, they included the waste disposal method, how long it takes to dispose
 143 waste and how often do they dispose waste.

145 Waste Disposal Method

146 **Table 4: Waste disposal Method**

Item	Freq.	%
RIWAMA	23	9
Authorized dump site	164	62
Unauthorized empty plot	34	13
Burning	15	6
Personal Bin	29	11

Total 265 100

147 Source: [8]

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149 Table 4 shows the waste disposal method adopted by residents. Data
150 analysis reveals that majority of the respondents 62% (164) indicated that
151 residents use authorized dump site to dispose their waste, 13% (34)
152 respondents indicated that residents use unauthorised empty plot so as to
153 dispose their waste, 11% (29) of the respondent indicated that most
154 residents use their personal bin , 6% (15) of the respondents indicated that
155 most residents prefer burning and 9% (25) use RIWAMA as a source of
156 dumping their waste

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159 **How long does it takes to dispose waste**

160 **Table 5: Duration of Waste Disposal**

Items	Freq.	%
1-5 days	198	75
6-10 days	23	9
11-15 days	44	16
>15 days	-	-
Total	265	100

161 Source: [8]

162

163 On how long it takes residents to dispose their waste, majority of the
164 respondents said most residents normally dispose their waste within 1-5 day,
165 16% (44) of the respondents indicated that most residents dispose their
166 waste within 11-15days while 9% (23) of the respondents dispose their waste
167 within 6-10days

168

169 **Frequency of Waste Disposal**

170 **Table 6: Frequency of Waste Disposal**

Items	Freq.	%
Daily	95	36
Once a week	103	39
Twice a week	67	25
Total	265	100

171 Source: [8]

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173 On how often they do dispose their waste, majority of the respondents
 174 indicated that majority 398% (103) indicated that residents dispose their
 175 waste once a week, 36%(95) respondents indicated that residents dispose
 176 their waste daily and 25% (67) indicated that residents dispose their waste
 177 twice a week

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179 **3.4 Major health risk affecting solid waste solid waste workers in Obio**
 180 **Akpor LGA**

181 To identify the major health risk affecting solid waste workers in Obio Akpor
 182 LGA two categories of questions were asked, they included if poor waste
 183 disposal are harmful to human health and its health implication.

184

185 **If Poor Waste disposal are harmful to Human Health**

186 Data analysis as seen in Table 7 reveals that all the respondents were
 187 conscious of the fact poor waste disposal is harmful to human health.

188 **Table 7 Harmful consequences of poor waste disposal to human Health**

Item	Freq.	%
Yes	265	100
No	-	-
I don't know	-	-
Total	265	100

189 Source: [8]

- 190 • Multiple Response

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193 **Health Implication**

194 **Table 8: Health Implication**

Item	Freq.	%
Malaria	143	<u>1954</u>
Diarrhoea	109	<u>1444</u>
Typhoid	178	<u>2467</u>
Acute Back pain	56	<u>724</u>
Painful joint	67	<u>925</u>
Possible Liver and Kidney damage	23	<u>39</u>
Others	178	<u>2467</u>
Total	754	100

195 Source: [8]

196 • Multiple Response

197 Table 8 shows respondents opinion on the health implication of poor waste
198 disposal, 2467% (178) of respondents indicated that when waste are not
199 properly handled it could make them vulnerable to typhoid, 1954% (143)
200 respondents had opinion that they could be vulnerable malaria, 1441% (109)
201 respondents had opinion that they could be vulnerable to Diarrhoea, 925 %
202 (67) respondents had opinion they could be expose to experiencing painful
203 joints, 724% (56) respondents had opinion that they could be exposed to
204 experiencing acute back pain, 39% (23) had opinion that they could
205 experience a possible liver and kidney damage and 2467% (178)
206 respondents had opinion that they could experience other symptoms not
207 mentioned

208

209 **4. CONCLUSION**

210 This study was able to examine the sources and composition of solid waste
211 in the study area. In this study participant under survey expatiated on the
212 source and composition of solid waste. In order to get the views of the
213 understanding of the question posed, respondents were asked the sources of
214 solid waste and the type of solid waste. This question was posed so as to
215 see if really they had a deeper understanding of the issues on ground. From
216 the analysis it indicated that majority of the respondents indicated that the
217 major source of solid waste is from the residential area while the plastics is
218 one of the major composition of solid waste.

219 **Waste Disposal Method in Obio Akpor LGA**

220 On the waste disposal method data analysis revealed by respondents that
221 majority of the individuals in Obio akpor local government area prefer to
222 dump their waste at authorized dump site, also it was discovered that it takes
223 1-5days for majority of the individuals to dispose their waste and this occurs
224 daily

225 **Major health risk affecting solid waste workers in Obio Akpor LGA**

226 On the aforementioned objective it was concluded that majority of the
227 respondents understudy had a pre requisite knowledge on the effect of poor
228 waste disposal to human health likewise the health implication of such action
229 as majority indicated that they will be prone to typhoid and other forms of
230 diseases.

231 **ACKNOWLEDGEMENTS**

232

233 The Authors would like to acknowledge the comments and suggestions from
234 Sokorie Andra from the Department of Geography and Environmental
235 Management, University of Port Harcourt. Choba Rivers state

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237 **COMPETING INTERESTS**

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239 Authors have declared that no competing interest exist

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241 **ETHICAL APPROVAL**

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243 Approval for this study was obtained from the Department of geography and
244 Environmental Management, University of Port Harcourt Choba. Also, verbal
245 informed consent was obtained from each respondent. All the participants
246 were informed that the study is voluntary and that they could opt out of the
247 study at any time. Also participants were assured that confidentiality would
248 be maintained during and after data collection and that information given will
249 be used for research purposes only. And lastly articles and authors used
250 were sighted accordingly in this research

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