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Health communication and awareness of aluminium-waste disposal effects among Ogun state housing corporation residents

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Abstract

This paper determines the awareness profile of residents of Ogun state housing corporation, who have resorted to collecting aluminium waste as a cheap alternative to assuage the deplorable state of road networks in the estate. A total of 200 copies of a questionnaire were randomly distributed to the residents of the estate. The survey determined their level of awareness of aluminium waste disposal, and their level of involvement in the collection, use and contact with these waste materials. In cases of awareness about the health implications, the medium through which they gained such awareness was further queried. The findings recommend that harnessing the participation of all stakeholders would bring stability to the growing demand for these materials within the estate. Similarly, coordinating educative and informative campaigns in the estate would expedite enhanced consciousness and eventual cessation of the possibilities of contact and inhalation of aluminium waste in the housing estate.

Keywords: Aluminium waste, awareness, communication, public health.

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1. Introduction

The rapid urbanisation rate which more often is ‘unplanned and uncontrolled’ in developing nations have caused changes in the environment, especially as it relates to the management of waste materials generated (Onibokun, 1999; Owoeye & Okojie, 2013). Increased production of waste materials is a by-product of industrialisation, overpopulation and chiefly, inadequate funding and training to foster effective waste management systems.

In the view of (Owoeye & Okojie, 2013), ‘factories produce waste during manufacturing and mining; also, agriculture generates leftovers that must be disposed.’ All of these constitute waste that on a daily basis must be trashed – but where?

Adewole (2009) pointed out how studies have revealed that households account for about 50% in weight of solid waste generated in many developing countries. For instance, in Lagos state, as cited by Adewole (2009), ‘the estimated daily generation is about 764 tons in all the 20 local government areas including 37 developing areas.’

Pollution, therefore, becomes a major concern caused by indiscriminate disposal of waste which could take several forms, from food remnant to plastic, wood, metal, textile, glass, paper etc.

1.1. Ogun State Housing Corporation Estate Ota

The Ogun state housing corporation estate was established sequel to the formal approval and creation of Ogun state from the western region of Nigeria in the first quarter of the year 1976. This housing scheme was passed into law following the enactment of the Ogun State Edict No. 11 which was published in the Ogun State of Nigeria Gazette No 12, Volume 2 of 16th June 1977.

The presence of over 65 industries, plants and factories in the Ogun state housing corporation estate, Ota which serves for both residential and industrial purposes come with a heavy demand on the road network in the estate. This is due to the heavy-duty trucks and earth moving machines plying the roads on a daily basis. This has led to a total degradation of the road and a few other alternative routes in the estate. In a bid to correct this anomaly, some residents have resorted to receive aluminium waste from factories which is considered to be a cheap alternative to asphalt for correcting the damages made by the heavy demand on the road which has left the road deplorable. The negative side to all these which is hardly known or considered are the health implications of inhalation or contact with such chemical metal and aluminium waste on a daily basis. Research findings have accented that close and continuous contact with such chemical substances could lead to skin cancer and lung cancer (being the fourth highest cause of death globally, accounting for over 1.2 million recorded deaths in 2015 alone) (WHO, 2017).

Following the possibility of this health (and long-term environmental) impacts of contact with these waste materials among residents; this paper has these objectives:

1. To determine the awareness level of residents about the negative health/environmental implications of contact, inhalation or ingestion of aluminium waste (fumes and particles).
2. To identify the medium of information through which awareness was obtained.
3. To determine the frequency of information regarding waste management.
4. To proffer solutions to the knowledge gap deficiency about the negative health/environmental implications of aluminium waste.

2. Waste management

The management of waste materials embody the process of ‘generation, collection, transportation, processing or disposal of waste materials, usually ones produced by human activity in an effort to

reduce their effect on human health and communities' (Anchor, Ehikwe & Nwafor, 2014). Since dumping of wastes could result in sanitary vulnerabilities as well as nuisance publicly, it befits that strategies be put in place as it suits the environment to deal with the waste in a way that it minimises the negative health and environmental impact of having such materials around.

The attitude to waste in many parts of the developing world could expedite environmental problems like an offensive stench, aesthetic intrusion and eventually makes the environment a breeding ground for vectors of communicable diseases such as diarrhoea and dysentery (Anchor et al., 2014; FME, 2006; WHO, 2004).

The inability to identify the hazards, that could occur as a result of the chemical component present in industrial waste, has encouraged nonchalance in handling industrial waste as aluminium; this ignorance in the end has the ability to cause great danger to health. For example, dust particles or fumes from aluminium, titanium and magnesium contains hexavalent chromium — a known carcinogen which can cause lung cancer being the most vulnerable organ after the fine capillaries in the kidney and intestines. Long-term exposure to dust fumes and contact with solid aluminium waste particles could as well accelerate the possibilities of bladder cancer, immunity disorders and neurodegenerative disorders in extreme cases (Simms, 2015).

Aluminium/aluminum is a chemical component in the boron group with symbol (Al) and atomic number 13. Aluminium could be silvery-white, soft, non-magnetic and ductile. Aluminium melts at 660.3°C and boils at 2,470°C. Leigh (2010) notes that 'of all the earth's natural elements, aluminium happens to be the third most abundant resource in our planet in its raw form'. Aluminium comprises about 8% of earth soil and rocks (with silicon and oxygen gas making up about 28% and 47% respectively). Naturally, aluminium is found only in chemical compound in company with other elements such as silicon, sulphur and a larger portion of oxygen.

Exposure to aluminium dust may possibly increase the risk of dementia of the Alzheimer's type and cardiovascular diseases (Peters, Reid, Fritschi, de Klerk & Musk, 2013). Alzheimer's disease is characterised by slow decline in memory, reasoning and thinking ability, a slow progressive disease of the brain that in the end may cause grave disturbances in speech, thinking and reasoning (Howard, 2015).

Similarly, dust particles, if inhaled could aggravate respiratory tract irritations, coughing, respiratory difficulties; it may also result in nausea, vomiting and diarrhoea if ingested. In extreme cases, contact with aluminium waste may result in pulmonary diseases which can trigger asthma symptoms and the chronic obstructive pulmonary disease being third on the list of highest causes of death globally. It was claiming that 3.2 million recorded deaths in 2015 alone (WHO, 2017).

Sustainable waste management would therefore entail 'the treatment and subsequent disposal of waste in a manner that will not cause any health or environmental hazards to both the present and future inhabitants of the locality.' (Udoakah & Akpan, 2013).

3. Methods and materials

Following the objectives of this research which was to determine the awareness level of residents about the negative health implications of contact, inhalation or ingestion of aluminium waste (fumes and particles), a survey was necessary. An interview with the branch manager of the Ogun state housing corporation estate, Ota was also conducted. Judging by the architectural plan which was shown to the researchers during the interview session, the housing estate has 260 houses under the Shell housing scheme and a lot others which were designed and built personally by residents. A total of 200 copies of the questionnaire were purposively distributed to residents within the Shell housing scheme. The rationale for this demarcation was that houses within the Shell Housing Scheme were closely-knitted and the aluminium wastes were concentrated on the roads leading to where these

houses were located. It was necessary to focus on these residents as they are more likely to have contact with these materials more often.

4. Results

4.1. What is the awareness level of residents about the negative health/environmental implications of contact, inhalation or ingestion of aluminium waste (fumes and particles)?

Table 1 shows the level of awareness that respondents had about the negative health implications of contact, inhalation or ingestion of aluminium waste materials. Far less than one third of the study population are informed about negative health and environmental implications of these substances. The bulk of respondents (73%) do not possess the knowledge about the negative health implications of these substances.

Table 1. Perception of respondents about negative health impact of aluminium waste

		<i>f</i>	%
Valid	I am aware	54	27.0
	I am not aware	100	50.0
	I can't really say	46	23.0
	Total	<i>n</i> = 200	100.0

The results from Table 2 depict a rather low level of awareness about the possibilities of developing lung cancer upon inhalation of aluminium waste materials. Over 81% of the study population are not aware that frequent inhalation of aluminium waste could trigger the possibilities of developing lung cancer. On the flip side, less than 20% of the study respondents are aware of the negative implications of breathing in these dust fumes and particles.

Table 2. Awareness about the possibilities of developing lungs cancer

		<i>f</i>	%
Valid	Strongly agree	18	9.0
	Agree	18	9.0
	Undecided	41	20.5
	Disagree	90	45.0
	Strongly disagree	33	16.5
	Total	<i>n</i> = 200	100.0

Table 3 present the level of awareness about the possibilities of developing skin cancer as a result of long-term contact of the skin with aluminium dust particles and fumes. The results indicate that a little less than 19% of the study population are aware of the negative impacts of contact with these waste materials. On further observation of the results, 60% of respondents are not aware of the negative health implications.

Table 3. Awareness about the possibilities of developing skin cancer

		<i>f</i>	%
Valid	Strongly agree	27	13.5
	Agree	9	4.5
	Undecided	44	22.0
	Disagree	67	33.5
	Strongly disagreed	53	26.5
	Total	<i>n</i> = 200	100.0

Table 4 reveals that only 15% of the study population are aware of the negative health implication of ingesting these materials. Like it is often observed of those who deal with these waste materials, a

few of them are found having their meal while sitting on these waste materials. Contrarily, 63% of the population are not aware and a little above 20% are undecided.

Table 4. Awareness about the possibilities of developing bladder infections

		<i>f</i>	%
Valid	Strongly agree	9	4.5
	Agree	18	9.0
	Undecided	47	23.5
	Disagree	66	33.0
	Strongly disagree	60	30.0
	Total	<i>n</i> = 200	100.0

4.2. How was the knowledge about the negative health/environmental implications of aluminium waste obtained?

Bearing in mind that a larger percentage of the study population (73%) are not aware of the negative health and environmental implications of these waste materials. The little fraction of the population that was aware of the negative health implications of these was queried on how they gained such knowledge. A fraction said they gained knowledge through the television (6.6%), 19.9% obtained this knowledge in a printed publication they had come in contact with, a larger percentage of the study population either experienced the initial symptoms of these health implications (36%) or were told by a close friend (37.5%).

The implications of these are that a larger percentage of the study population who had gained knowledge of the health and environmental implications of aluminium waste did so through word of mouth and not through the mass media.

On a further probe, respondents were asked if they had come across any advert on the media, informative and social debates programme or phone-in programmes on radio that addressed the issue of aluminium waste. To this question, only 19% responded in the affirmative, the 81% left denied having come across any of such information through adverts, social debate programmes or phone-in programmes.

4.3. How frequent have respondents been exposed to information regarding the negative health/environmental implications of aluminium waste?

In determining how frequent respondents were exposed to information regarding the negative health implications of these scrap metals, the results indicate that only 9% of the population had contact with such information at least once a week, 21% had access to such information only once in a while. A larger percentage of the population (70%) had never at any time come in contact with such information. In a different set of questions, 94.5% of the study population had never seen or heard any public service announcements on television or radio which emphasised the negative impact of these materials on their health and by extension, the environment.

5. Conclusion

There is an existing knowledge gap on the negative health (and in the long run, environmental) impacts of contact with aluminium dust particle, fumes and scrap waste. This existing knowledge gap forms a warrant upon which communication approach would be taken to sensitise with the aid of diagrams, charts and teaching aid, the need to abstain and totally seek an alternative to the use of aluminium scrap materials as cheap alternative to asphalt and tar in road and land filling. Research findings have linked some health conditions as pulmonary infections, Alzheimer’s disease and chronic

cases of lung, bladder and intestinal diseases coupled with asthmatic symptoms have been linked with inhalation, ingestion and contact with these waste materials in the past.

Upon presentation and inclusion in the public dialogue of members of the housing estate, it is expected that a new attitude be formed towards the collection and spread of aluminium waste cheap alternative to land filling in the area.

Based on the findings of this paper, the following are recommended:

- a. Massive awareness drive to sensitise occupants on the housing estate of the negative health (and long term environmental) impact of contact with aluminium dust particles, fume and waste materials.
- b. There is a need to begin with a mini-awareness scheme for the leaders and executive members of the associations – this is in tandem with the two-step flow theory which advocates information from the media flow in two stages. These executives are the influential members of the association; therefore, having them see a reason for a change would make the social change process successful.
- c. There is a dire need to draft a communication message and approach as discussed in the preceding section of this paper to enlighten the residents based on training already provided to the volunteers on the health implications of these substances.

6.Recommendation

Stakeholder identification and analysis



Figure 1. Stakeholder identification and analysis

Stakeholder relationships demand more than mere awareness creation, but a synergy of strategies that would express proper understanding of the individual commitments of all stakeholders in the waste control programme without recourse to a need for acts of coercion. It must be understood that the challenge of aluminium waste is the concern of all, and all hands must be on deck to see to effect a lasting change. All members of tripartite association are stakeholders in the Ogun state housing corporation estate and must be carried along in the change and restoration process.

Interpersonal communication strategy

Moemeka (2000) identifies the *interpersonal strategy* to be the oldest strategy to generate social change or development. The main thrust of this strategy is disseminating information with the aim of instigating dialogue and bringing the attention of targets to an idea they may have not noticed or paid close attention to. The idea behind this is that with dialogue, and continuous one at that, the citizenry base will begin seeing reasons why the new idea should be adopted, after considering its benefits and the stand point of being relatively advantageous to what is currently operational.

It is expected that an issue as the detrimental impact of aluminium waste would gain attention for continuous dialogue and would thereafter become an issue of public discourse among residents within

the estate. As the Ota branch manager, Ogun housing estate corporation mentioned in the interview; *'over 55% of residents in the estate have these aluminium waste in front of their houses'*. This issue affects a large number of the residents of this estate and as such, should get sufficient hearing in the forthcoming meetings.

With direct application with the need to sensitise residents of the housing estate through dialogue on the need to avoid and totally seek an alternative to aluminium waste, the platform of the monthly Residents' Association platforms would be utilised. With the aid of charts, diagrams and teaching aids, a brief and in-depth informative lecture could be accomplished to describe the health hazards of contact with these waste materials. Also with *emphasis on the nonexistence of cure to contact* with these substances aside total abstinence from it, the attitude to this waste materials would henceforth be changed.



Figure 2. Proposed Timeline, Operational detailing and Work plan

Furthermore, 30 volunteers from the first briefing meeting would be trained and armed with the prerequisite information about the health implication of contact with these materials; these trained hands would be drafted into teams of threes who would do a *door-to-door awareness campaign* on Friday evenings and Saturday mornings; this is to continue for only two months (6 weeks of publicity preceding to a two-session training), this is after the first training session at the general meeting.

This initiative would achieve two main purposes, *first, to reinforce the new opinions* about these materials and *secondly, to cover for the few residents who may have been absent* in the first briefing meetings/ forum.

In addition, the choice of residents to be on the volunteer team and not 'outsiders' is due to the peculiar nature of the estate where virtually everyone is behind tall fences and security conscious. However, *access is guaranteed more when the volunteers are known faces*. With this interpersonal approach, the knowledge passed during the briefing is reinforced on the hand, and on the other becomes part of public discourse within the estate.

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References

- Adewole, A. T. (2009). Waste management towards sustainable development in Nigeria: a case study of Lagos state. *International NGO Journal*, 4(4), 173–179.
- Anchor, P. N., Ehikwe, A. A & Nwafor, A. U. (2014). Curbing/Mitigating indiscriminate waste dumping through effective stakeholder relations. *International Journal of Science and Research*, 3(4), 107–117.

- Oresanya, T., E nukora, C., Omojola, O., Oyero, O. & Amodu, L. (2017). Health communication and awareness of aluminium-waste disposal effects among Ogun State Housing Corporation residents. *New Trends and Issues Proceedings on Humanities and Social Sciences*. [Online]. 4(10), 128–135. Available from: www.prosoc.eu
- Federal Ministry of Environment. (2006). Environmental policy document: response to sanitation, climate change and other related problem. Document submitted to United Nations Environmental Protection Agency, Abuja.
- Leigh, E. (November 9, 2010). What aluminium extraction really does to the environment? Recycle Nation. Retrieved from www.recyclenation.com/2010/11/aluminium-extraction-recycling-environment.html
- Moemeka, A. A. (2000). Development communication in action. Lanham, Maryland: University Press of America.
- Onibokun, A. G. (1999). Managing the monster: urban waste and Governance in Africa. International Development Research Centre (IDRC) Books. Retrieved from http://www.idrc.ca/en/ev-9402-201-1-DO_TOPIC.html
- Owoeye, I. O & Okojie, O. H. (2013). Environmental audit of a refuse dump site in the Niger Delta Region of Nigeria. *Journal of Public Health and Epidemiology*,5(2), 59–65. Retrieved from <http://www.academicjournals.org/JPHE>
- Peters, S., Reid, A., Fritsch, L., de Klerk, N. & Musk, A. W. (2013). Long term effects of aluminium dust inhalation. *Occupational and Environmental Medicine*, 70(12), 864–868.
- Howard, C. (2015). Alzheimer’s disease. Medicine Net. Retrieved from [www.medicinenet.com / alzheimers_disease_causes_stages_and_symptoms/articles.htm](http://www.medicinenet.com/alzheimers_disease_causes_stages_and_symptoms/articles.htm)
- Simms, A. (2015). Waste materials: is it hazardous to breathe second-hand aluminium or stainless steel dust on a daily basis? QUORA. Retrieved from www.quora.com/Waste-materials-is-is-hazardous-to-breathe-secondhand-aluminium-or-stainless-steel-dust-on-a-daily-basis
- Udoakah, Y. & Akpan, U. A. (2013) Sustainable approach to municipal solid waste management in Southern Nigeria. Paper presented at the Institute of Electrical Electronics Engineers Global Humanitarian Technology Conference, October 20 – 23, 2013. Silicon Valley – San Jose, California.
- World Health Organisation. (August, 2004). Developing nations, state of environment and access to portable drinking water, New York.
- World Health Organisation. (2017). The top ten causes of death worldwide. WHO Media Centre. Retrieved from www.who.int/mediacentre/factsheet/fs310/en/