Research Journal of Medical Sciences 2 (4): 185-189, 2008
ISSN: 1815-9346

Awareness and Attitude to Social and Health Hazards from Generator Use in Anyigba, Nigeria

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Abstract: Electricity supply in Nigeria is erratic and supply grossly inadequate. This has forced many Nigerians to use electric generators as alternative source of power supply. The use of the generators has resulted in having to cope with hazards associated with it. This study was carried out to examine the awareness and attitude of people to the hazards associated with use of generators. Descriptive cross-sectional survey was conducted using self-administered structured questionnaire on 360 randomly selected respondents in Anyigba town in middle-belt Nigeria. Proportion of respondents (73.2%) that use of generators was very high. Majority (78.2%) of the respondents who owned generators were aware of the social and health hazards associated with generator use. More than half, 183 (56.6%) of the respondents felt that they were prone to hazards from generator use, while (85.5%) thought neighbours of generator users are exposed to noise hazard. Majority of the respondents were favourably disposed to the plight of their neighbour when accosted due to disturbance from generator use.. There is a high level of generator use in the study population due to lack of and erratic public electricity power supply. This exposes people to a lot of hazards particularly noise. To ameliorate social and health hazards associated with use of generators in Nigeria, government should intensify efforts in boosting public power supply. Users of generators need to make effort to reduce exposure of people to noise and other hazards.

Key words: Awareness, generator use, hazards, Nigeria

INTRODUCTION

With modernization, electricity use has become an essential need for most people in developing countries. Electricity is used for domestic, commercial and industrial purpose among other forms of its use. Most cities and towns in Nigeria are connected to the national power grid. However, supply from the national grid has been a major problem in Nigeria for about a decade and people now have to get alternative source of power supply. In 1999, the power generated in Nigeria was 1500 MW which is far short of the energy need in the country (TNVS, 2003). Current power generation of about 3000 MW in a country with a population of 150 million is too low when compared with power generation of about 40,000 MW in South Africa with a population of 45 million. Availability and reliability of electricity supplies have always been a vexed issue in Nigeria (Ibitoye and Adenikinju, 2007). The major form of alternative power supply in Nigeria is from electric generators.

Use of electric generators is now very common in most parts of Nigeria. Because of the irregular public electric power supply in Nigeria, small scale businesses that would have been essentially noiseless produce heavy noise pollution from generators (Akande and Ologe, 2001). This has resulted in having to cope with some hazards associated with generator use. Common hazards associated with generator include social and health hazards like noise pollution, carbon monoxide air pollution. These hazards are not limited to the users of electric generators alone but also affect people living in the neighbourhood. The main health risks of noise as identified by the World Health Organization include: pain and hearing fatigue; hearing impairment including tinnitus, annoyance; interference with social behaviour (aggressiveness, protest and helplessness); sleep disturbance, cardiovascular effects; hormonal responses (stress hormones) (WHO, 2004). In developing countries, there is a dearth of enforced noise control laws, noise pollution can pose severe hearing impairment and other health risks.

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Very few studies have examined the social and health problems resulting from generator use in Nigeria. Information on these problems is hardly available. This study examined the awareness and attitude of people to the hazards of generator use in Anyigba, Nigeria. Findings from the study can be helpful in understanding the problem and putting in place necessary measures to reduce this public health problem.

MATERIALS AND METHODS

This descriptive cross-sectional study, which examined the awareness and attitude of people to social and health hazards of generator use, was conducted in Anyigba, a new urbanizing University town in North Central Nigeria. A total of 360 randomly selected respondents were included in the survey. The community is one of the prominent towns in Dekina Local Government Area (LGA) in Kogi State, Nigeria. Anyigba has power supply from the National Grid power supply from Power Holding Company of Nigeria (PHCN) though supply is not regular. As a result of the establishment of a state university in the community since 1999, the population of the community has increased of recent with people from various other LGAs in the state and some other states of the Country.

Relevant data on respondents' demographic characteristics, nature and reasons for generator use, awareness and attitude to social and health hazards were captured using structured self-administered questionnaire.

The data obtained were entered and analyzed using EpiInfo 2000 software package. Frequency distribution and cross-tabulation was done and $p<0.05$ was considered as statistically significant.

RESULT

Socio-economic characteristics: A total of 360 respondents were involved in this study. Among the respondents, 166 (50.3%) were below 20 years of age, 103 (31.2%) were aged 21-30 years and 61 (18.5%) were between 31 and 40 years. Majority of the respondents, 239 (71.3%) were males and less than half, 96 (28.7%) were female gender.

More than half of the respondents, 229 (66%) were unmarried, 111 (32%) were married. Only 7 (2.1%) of the respondents had no formal education. 8 (2.4%) had primary education, 44 (12.9%) had received secondary education and a large majority 281 (82.6%) had tertiary education. Table 1 also revealed that 48 (14.8%) and 107 (33.0%) were business men and women and civil servants, respectively and a little above half, 169 (52.2%) of the respondents were neither in business nor civil service.

Table 1: Respondents Socio-demographic characteristics

Variables	No (%)
Age group (years) N=330	
≤20	166 (50.3)
21-30	103 (31.2)
≥31	61 (18.5)
Sex (N=335)	
Male	239 (71.3)
Female	96 (28.7)
Marital Status (N=347)	
Married	111(32.0)
Single	229 (66.0)
Separated	3 (0.9)
Divorced	4 (1.1)
Educational Level (N=340)	
None	7 (2.1)
Primary	8 (2.4)
Secondary	44 (12.9)
Tertiary	281 (82.6)
Occupation (N=324)	
Business	48 (14.8)
Civil Service	107 (33.0)
Others	169 (52.2)
Ethnic group (N=353)	
Igala	234 (66.3)
Igbo	26 (7.4)
Yoruba	59 (16.7)
Others	34 (9.6)

Table 2: Possession, frequency, nature and reasons for use of generator

Variable	No (%)
Possess of generator (N=351)	
Yes	257 (73.2)
No	94 (26.8)
Frequency of Use (N=290)	
Anytime power is needed	166 (57.2)
Anytime PHCN takes off electric power	75 (25.9)
In the evening when PHCN takes off power	49 (16.9)
Nature of use (N=274)	
Commercial (workplace)	28 (10.2)
Domestic home use	239 (87.2)
Industrial use for production	7 (2.6)
Reasons for use (N=277)	
As an alternative to power outage	97 (35.0)
Lack of electricity	180 (65.0)

Generator usage: Table 2 shows that a large proportion of the respondents 257 (73.2%) possessed electric generator, while 94 (26.8%) did not own generator (s). About half of the generator owners 166 (57.2%) use generators when in need of electric power, 75 (25.9%) use it only when Power Holding Company of Nigeria (PHCN) takes off power and 49 (16.9%) use their generator in the evening when there is no electricity. Most of the respondents use their generators for domestic purpose, 28 (10.2%) use it for commercial workplace and only 7 (2.6%) use it for industrial production. About two-third of the respondents 180 (65%) use their generators for lack of electricity in the community, while 97 (35%) use it as an alternative to power outage.

Table 3: Awareness of social and health hazards associated with generator use

Awareness	Yes	No	Not Sure	Total
Aware of hazards	266 (78.2)	74 (21.8)		340
Generator causes disturbance	325 (95.3)	16 (4.7)		341
Can cause impaired hearing	297 (84.6)	54(15.4)		351
Increase risk of deafness	235 (67.7)	25 (7.2)	87 (25.1)	347
Can cause sleeplessness	259 (78.7)	70 (21.3)		329
Bring about friction with neighbours	311 (88.6)	40 (11.4)		351
Prone to hazard from use	183 (53.6)	88 (25.4)	73 (21.0)	347
Aware of other social problems	171 (51.0)	164 (49.0)		335
Aware of other health problems	183 (59.2)	126 (40.8)		309

Table 4: Attitude to and measures to reduce neighbours disturbance from generator use

Variables	No (%)
Think neighours are exposed to noise hazards (N=337)	
Yes	288 (85.5)
No	49 (14.5)
Feel something can be done to reduce neighbours' exposure (N=325)	
Yes	240 (73.8)
No	85 (26.2)
Aware of devices and measures to reduce hazard (N=322)	
Yes	146 (45.3)
No	176 (54.7)
Neighbour ever complained of disturbance (N=321)	
Yes	197 (61.4)
No	124 (38.6)
Use ever resulted in friction with neighbour (N=315)	
Yes	118 (37.5)
No	197 (62.5)
Attitude towards neigbour when accosted (N=312)	
Feel unnecessarily challenged	7 (2.2)
Neighbour has a right to complain	68 (21.8)
Sympathetic to the complaint	110 (35.3)
Wish something can be done about it	100 (32,1)
Others	16 (5.1)

Awareness and attitudes to hazards of generator use: More than three-quarters of the respondents 266 (78.2%) had knowledge of hazard associated with generator use, while 74 (21.8%) were not aware of the hazards. Also, a vast majority of the respondents, 325 (95.3%) knew that electric generators could cause disturbance and only 16 (4.7%) did not know. Most of the respondents 297 (84.6%) were aware that electric generator noise can cause impaired hearing. About two-third of the respondents 235 (67.7%) were of the opinion that generator use can increase risk of ear deafness, 25 (7.2%) did not agree with this and 87 (25.1%) were not sure.

About half of the respondents 171 (51.0%) were aware of social problems, while 183 (59.2%) were aware of health hazards related to generator use. Most of the respondents 259 (78.1%) felt that generator use can cause sleeplessness but the rest did not think so. Also, majority of the respondents 311 (88.6%) felt that generator use can bring about friction among people in the neighborhood, only 40 (11.4%) did not feel so. More than half, 183 (56.6%) of the respondents felt that they were prone to hazards from generator use (Table 3).

Majority of the respondents 288 (85.5%) thought neighbours of generator users are exposed to noise hazard while 49 (14.5%) did not think so. Also, 240 (73.8%) felt that it is necessary to do something to reduce the hazards neighbours of generator users are exposed to and 85 (26.2%) had a contrary opinion. Less than half 146 (45.3%) of the respondents were aware of devices they can use or things they can do to reduce the hazards associated with generator use, while 176 (54.7%) were unaware of such devices and actions to reduce hazards associated with generator use (Table 4).

A little more than a third 118 (37.5%) of the respondents reported ever having frictions with their neighbours on account of noise from using generators, while more than half, 197 (62.5%) had never experienced conflict with neighbours from use of generators. Among generator owners who had ever being accosted by neighbours on account of disturbance from generator use, 7 (2.2%) felt they were unnecessarily challenged by the neighbours, 68 (21.8%) felt neighbours had a right to complain of disturbance. About a third 110 (35.3%) were sympathetic to the neighbours' complaint and 100 (32.1%) wished they could do something about the problem of neigbours' disturbance, while 16 (5.1%) were indifferent to the plight of their neighbours on disturbance from generator use.

DISCUSSION

The study population in this community is predominantly young adults and the middle-aged and they are also largely unmarried because the town following the establishment of the university is mainly made up of students and the University staff. This same factor will explain the relatively high level of education of the respondents.

The proportion (73.2%) of respondents in this town who possess and use electric generators is high. About half of the users depend mainly on generators for their power supply. The usual expectation in most societies is for generators to be used ass stand-by power supply but that is not the case in this town. This shows the low level of reliance on public power supply. This is obviously so because of the erratic power supply from public power source (Ighoroje, 2004).

With high proportion of respondents possessing electric generators and depending on it mainly for power supply, the level of exposure to hazards from generator

use would be high. There is a high level of awareness that generator use can be hazardous. It is well known among respondents that electric generators cause disturbance particularly from the noise generated by their use. Noise has been generally found to cause hearing impairment (Elias *et al*., 2003; Minja, 2003; Bisong *et al*., 2004; Boateng and Amedofu, 2004). Since about three-quarters of respondents sampled use generators, the level of disturbance from electric generators is expected to be high. A study in Delta State reported use of electricity generators resulting from persistent power failure as a source of noise (Anomohanran and Osemeikhian, 2005).

About three-quarters of respondents felt that use of generators can cause sleeplessness and friction with neighbours. Sleep disturbance is one of the most serious effects of environmental noise. World Health Organization (WHO) guidelines say that for good sleep, sound level should not exceed 30 dB (A) for continuous background noise and individual noises events exceeding 45 dB (A) should be avoided (WHO, 2004). About half (56%) of the respondents think they are prone to hazard from generator use. This is surprisingly lower than the proportion of respondents (85.5%) that felt neighbours are exposed to noise from generators. Even though about three-quarters of respondents felt that it is necessary to reduce hazards neighbours are exposed to, only 45.3% actually knew what can be done to reduce these hazards. In another study in Nigeria, it was found that despite high level of awareness of hazard of noise induced hearing loss due to use of commercial grinding machines majority of the respondents did nothing to protect themselves from the hazard because of ignorance on measures to take (Akande and Ologe, 2001).

In this study, generator use is a common phenomenon in the study setting. This is evident in the high percentage, (73.2%) of respondents who possessed electric generator, either for domestic, commercial or industrial use. The high prevalence of generator use in the study area is a result of lack or irregular supply of public electricity generally. This is also reported from other studies to be a public health problem through the noise generated (Anomohanran and Osemeikhian, 2005; Akande and Ologe, 2003). Hearing impairment associated with noise exposure can occur at any age, exposure to less intense but still hazardous sounds, commonly encountered in workplace or in certain leisure-time activities exacts a gradual toll on hearing insensitivity initially without the victim's awareness (Osowole, 2003).

This study found that there is high level of awareness of social and health hazards of associated with generator use, like disturbance, impaired hearing, deafness and friction among neighbours. In a study in Nigeria, it was also found that there was high level of awareness of hazards associated with exposure to noise in a steel industry (Ologe *et al*., 2005a). A high proportion (73.8%) of respondents felt that something can be done to reduce the hazards neighbours of generator users are exposed to, this may be a reflection of the high level of awareness of hazards from generator use. Also, in a study in Ilorin, Nigeria among operators of music recording/ retail shops, majority of them (79%) were aware that loud music is a nuisance and can cause deafness to operators and neighbours (Ologe *et al*., 2005b). A large majority of the respondents in this study had a good knowledge that neighbours of generators users are exposed to noise hazard and (73.8%) opined that something can be done to reduce the noise the hazards.

A high percentage of the respondents (88.6%) were of the opinion that generator use can bring about social friction among people living in the neighbourhood. As much as 37.5% of the respondents reported ever having frictions with their neighbours on use of generators. The variance between ideal and the reality in the friction that emanated from generator use is probably because about three-quarters of the respondents had generators and this disturbance has become an acceptable thing that can be accommodated in the society. However, this source of conflict among neighbours is preventable if power supply from the national grid is reliable and people do not need to depend on electric generators for power supply. The situation in could probably be worse in cities in Nigeria.

On their attitude to their neighbours when accosted on account of disturbance from generator use (35.3%) were sympathetic to the neighbours' complaint and 32.1% wished they could do something about the problem. This could be as a result of their personal experience as users. However, 2.2 and 5.1%, respectively among the respondents felt unnecessarily challenged and indifferent to the plight of their neighbours on the disturbance from generator use, their actions may not be unconnected with the notion that human behavior differs from one situation to another coupled with some people's poor human relations and good neighbourliness which may result in to conflict in any setting.

CONCLUSION

In conclusion, this study has shown that there is a high prevalence of the use of generators among owners of electric generators in the study area. Majority of the respondents were aware of the social and health hazards associated with the use of generators. The study confirmed that attitude of the users of generators to their neighbours when accosted of disturbance was relatively

considerate. Based on the findings of the study, it can be recommended that the Federal Government should as a matter of urgency properly address the problem of erratic power supply with a view to ameliorating the hazards associated with the use of generators occasioned by lack of or incessant outage of electricity supply in Nigerian towns and cities. Also, generator users should regulate the use and device means for reducing both the noise and emission from generators. This will help to reduce friction between generator owners and neighbours and improve on concerned people's social well-being. The dearth of enforced noise control laws in many developing countries poses threat to people's health. Further studies need to be conducted on the effects on physical, social and psychological wellbeing of exposure to hazards from generator use. Health education on the hazards of generator use and related environmental issues should be promoted in our society.

ACKNOWLEDGEMENT

We wish to acknowledge the contribution of our research assistants in data collection.

REFERENCES

Akande, T.M. and F.E. Ologe, 2001. Awareness of commercial grinding machine operators in Ilorin to noise induced hearing loss. Trop. J. Health Sci., 8 (1): 28-31.

Akande, T.M. and F.E. Ologe, 2003. Noise-induced hearing loss in the middle-belt of Nigeria. Postgraduate Doctor Africa, 25: 81-82.

Anomohanran, O. and J.E.A. Osemeikhian, 2005. Comparative noise pollution study of some major towns in Delta State, Nigeria. Global J. Pure Applied Sci., 11: 285-290.

Bisong, S.A., A.N. Umana, V. Onoyom-Ita and E.E. Osim, 2004. Hearing Acuity loss of operators of food grinding machines in Calabar, Nigeria. Nig. J. Physiol. Sci., 19: 20-27.

Boateng, C.A. and G.K. Amedofu, 2004. Industrial noise pollution and its effect on the hearing capabilities of workers: A study from saw mills, printing presses and corn mills. Afr. J. Health Sci., 11: 55-60.

Elias, S.O., G.T.A Ijaduola and O.A. Sofola, 2003. Noise-induced hearing loss in laundry workers in Lagos. Nig. Med. Practit., 44: 3-6.

Ibitoye, F.I. and A. Adenikinju, 2007. Future demand for electricity supply in Nigeria. Applied Energy, 84: 492-504.

Ighoroje, A., C. Marchie and E.D. Nwobodo, 2004. Noise-induced hearing impairment as an occupational risk factor among Nigerian traders. Nig. J. Physiol. Sci., 19: 14-19.

Minja, B.M., N.H. Moshi and P. Riwa, 2003. Noise induced hearing loss among industrial workers in Dares Salaam. East Afr. Med. J., 80: 298-302.

Ologe, F.E., T.M. Akande and T.G. Olajide, 2005. Noise exposure, awareness, attitudes and use of hearing protection in a steel rolling mill in Nigeria. Occupational Med., 55: 487-489.

Ologe, F.E., E.O. Okoro and T.M. Akande, 2005. Hazard of Noise Induced Hearing Loss (NIHL) among operators of music recording/retail centres in Nigeria. Noise and Vibration Worldwide, 36 (2): 17-20.

Osowole, O.S., O.G.B. Nwaorgu and P.A. Osisanya, 2003. Perceived susceptibility to noise induced hearing loss and attitude towards preventive care among metal workers at Gate, Ibadan: A pilot study. Afr. J. Med. Med. Sci., 32: 231-233.

The Nigerian Village square. Framework for Nigeria's Economic Growth and Development (2003-2007). http://www.nigeriavillagesquare1.com/Economicframework.

World Health Organization Regional Office for Europe, 2004. Noise and sleep. Technical meeting on sleep and health. Bonn, Germany. http://www.euro.who.int/Noise/activities/20040304_1.