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**ASSESSMENT OF OCCUPATIONAL HEALTH RISK AND
AWARENESS OF SCAVENGERS TO COVID-19 IN ABUJA
MUNICIPAL AREA COUNCIL, NIGERIA**

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ABSTRACT

Purpose: The aim of this study was to evaluate the occupational health risk of scavengers and their awareness to covid-19 in Abuja Municipal Area Council of the FCT a view to acknowledge the vulnerability of scavengers in the pandemic and how they simultaneously pose a threat to the general public.

Methodology: A descriptive survey research was employed for the study. The population consisted of 277 scavengers, from 12 sites in Abuja Municipal Area Council. The instrument used for this study was a structured questionnaire. The questionnaire was divided into five sections. The first section collected information on socioeconomic characteristics of scavengers. The second section collected information on awareness on Covid 19 and sources of information. The third section was on use of safety tools and hygiene practices of scavengers. The forth section was on occupational injuries and diseases associated with scavenging and the fifth section was on measures taken to reduce health effects of scavenging. The questionnaire was interview-administered to the scavengers.

Findings: The study revealed that 82.6 % of scavengers believe in the existence of Covid-19 pandemic. About 58.4% do no use hand gloves and 64.6 % do not wear boots during work. Majority (90 %) of scavengers have sustained injuries from glass and sharp objects and about 71 % form nails .Occupational disease associated with scavenging include skin rash and (83.4 %), back pain, (71.6%), chest pain, (61.4 %), Diarrhoeal (56.5 % and cough (45.20%). Majority (80.7 %) of the scavengers were not prepared to change their jobs, only about 30.4 % of them were prepared to purchase and use personal protective equipment as a measure to reduce occupational injury and diseases. About 53.9 % of them use illicit drugs (mainly marijuana) to overcome the stress of the job.

Recommendations: The study, recommend that scavenging be legalized, so that the government and nongovernmental organizations can help in educating the scavengers on the importance of personal hygiene and personal protective equipment in reducing occupational injuries and diseases.

Key words: *Diseases, Injuries, Personal Protective Equipment (PPE), Public and Waste.*

INTRODUCTION

The International Labour Organization (2004) defines Scavenging as manual sorting and picking of recyclables/reusable materials from mixed waste at legal and illegal landfills, dumpsites, street bins and piles, transfer points as well as waste collection trucks. A scavenger is a person who salvages reusable or recyclables to sell or for personal consumption (Owusu-Sekyere, 2014). In this role, scavengers are mediators in the relationship between societies and their environment (Downs and Medina, 2000) Scavenging from waste reduces waste reaching the landfill site and also provide jobs for the urban poor.

It is an economic activity that provides income for over 15 million people worldwide (Medina 2010). Kashyap and Visvanathan (2014) noted that up to 2% of the population in African, Asian and Latin American cities lives on scavenging income. Scavengers are important players with a very positive and important role in waste management sector of developing countries (Yahaya, 2018). In Nigeria, scavenging is a source of income and employment generation for the youth. It is also a source of raw material of the construction industry, bottling plants and plastic manufacturers (Asibor & Edjere, 2017).

Solid waste management is a major concern in many urban centres in Nigeria. Nigeria generates more than 32 million tons of solid waste annually, out of which 20 – 30% is collected (Bakare, 2016). Due to lack of sufficient funds, enough labour, vehicles and expertise, the waste management agency is not able to effectively manage waste in many cities in Nigeria. The waste disposal option in many cities is predominantly open dumping. The Abuja Environmental Protection Board (AEPB) which is responsible for solid waste management in Abuja, have no formal recycling programme or strategy for the city of Abuja. No material recovery facility exists in the city either. As such materials re-use and recycling activities throughout the municipality is limited to household re-use and scavenging activities of the urban poor (Ezeah, Roberts, Phillips, Mbeng & Nzeabibe 2014)

Scavengers, carry large plastic sack and use bare hands or sometimes iron hook to rummage materials through the waste dumps sites to recover or salvage valuable discarded materials such as scrap metals, plastics, bottles, paper, electronic and electrical equipment, household furniture, textile material, wood, construction and demolition wastes and sometimes food. These reusable or recyclables materials are then sold to wholesale buyers.

Despite their vital role in solid waste management, scavengers are generally socially marginalized, they live and work without basic economic and social security, under conditions which are extremely hazardous to health and detrimental to family, social and educational development (Oyelola, Babatunde, Abiodun and Popoola 2018) Scavengers are exposed to a number of health hazards and suffer injuries as they rummage materials through the waste dumpsites. Over the past months, with the present of novel coronavirus pandemic in Nigeria, scavengers are at huge risk. This is because in Nigeria, healthcare waste is collected and disposed in conjunction with normal domestic/household waste in open dumpsites. (Ebisike, 2010; Adekiya & Anokwu, 2020).

Sifting through the rubbish with bare hands, scavengers are exposed daily to Covid-19 disease through hazardous waste. These hazardous waste comprises of coronavirus test kits, face masks,

hand gloves, medical dressing stained with blood and pus, etc. Covid-19 disease has presently infected 104 million people globally and claimed over 2 million lives.

It is against this background that this study aimed at evaluating the occupational health risk of scavengers and their awareness to covid-19 in Abuja Municipal Area Council. This is with, a view to acknowledge the vulnerability of scavengers in the pandemic and how they simultaneously pose a threat to the general public.

LITERATURE REVIEW

The Practice of Scavenging

Scavenging and recycling activities have existed for millennia. In Africa, it is believed that early hominids scavenged in order to complement their diet, especially during the dry season, when plant food were most scarce. The risk associated with hunting was also avoided by scavenging for animal meat killed by predators or dead from natural causes (Blumenschine & Cavallo, 1992). Archaeological evidence have also suggested that metal scraps and metallic objects no longer useful may have been melted and recycled as early as 3000 BC (Downs & Medina, 2000). Throughout the medieval and renaissance periods in Europe and America, scavengers played a crucial role in papermaking by supplying rags to the paper mills for nearly 1,000 years. Artisans in medieval Europe collected urine and dog excrement for industrial purpose and used them to make saltpeter (potassium nitrate). Human excrement also provided fertilizer for backyard gardens and household garbage was fed to pigs (Downs & Medina, 2000).

In the nineteenth century, urbanization and industrialization played major roles in the development of scavenging and recycling activities. At this time scavenging acquired the meaning of cleaning out, street sweeping, cleansing rivers and refuse collection. Other names for scavenging were known as "rag and bone men", "totters" and "rag pickers" (Furedy, 1984). Statistics compiled at the end of the nineteenth century showed that the scavenging team performed the bulk of refuse collection in many U.S cities. In Boston in 1890 for example, scavenging team collected approximately 350,000 loads of household waste, ashes and street sweeping. In Manhattan, scavenging team collected an average of 612 tons of waste daily (American Public Works Association, 1976). From the 1950s, the trade in bones, bottle etc. diminished gradually in the developed countries. In America however, scavenging continue to exist among the poor and homeless, who recover materials from waste for reuse or recycling. Scavengers also recover food to eat from restaurants waste, form dumpsters at grocery stores, discarded clothes for reuse and recyclable items as books and reparable appliances for sale (Downs & Medina, 2000). In developing countries, scavenging plays an important role in supplying raw materials to industry and represent a common survival strategy for the poor. Since most of the third world countries, usually lack recycling programs, the bulk of recycling activities are carried out informally by scavengers (Bartone, 1988).

Economic impact of Scavenging

Scavenging contributes to reduce the amount of solid waste to be disposed, it contribute to preservation of natural resources by diverting waste from dumpsites back to material cycle. It provides income to unemployed individuals, supply inexpensive raw materials to industries and

reduce the demand for collection, transport and disposal equipment and facilities (Asibor & Edjere, 2017; Yahaya, 2018)

Occupational Health Hazard of Scavenging

Scavengers are exposed to numerous hazards: such as infectious waste from hospitals, smoke and fumes from burning waste feces, contaminated needles, toxic paper, heavy metals from batteries, bottles, chemical waste containers and harsh weather conditions. In addition, scavengers spend most of the time working in a bent position as such, scavengers suffer from chronic backache (Al-Khatib, Al-Sari & Kontogianni 2020).

Scavengers are vulnerable to three major health risks: accidents, infection, and chronic diseases. Accidents could lead to injury or death and this could be caused by heavy equipment, fire outbreaks, falling from heights and buried in the waste. Infections is caused by direct contact with infectious waste, bites from dogs (with threat of rabies), and enteric infections transmitted by insects feeding on waste. Chronic diseases such as respiratory diseases is caused from exposure to dust and toxic compounds. Cardiovascular disorders, and heat stress due to exposure to excessive temperature, and hearing function loss result from exposure to excessive noise. Hazardous health care waste also exposes scavengers to human immune deficiency virus (HIV) and hepatitis infection. (Gutberlet & Baeder 2008; Aboagye-Larbi, Acheampong & Carboo 2014; Jajulwar, Saji & Suryawanshi 2017; Al-Khatib *et al* 2020).

THE STUDY AREA

The Federal Capital Territory (FCT) was created in 1976, it is 1,100kilometres away from Lagos. It is located in the heartland of the country. It lies between latitude $8^{\circ} 25''$ and $9^{\circ} 21''$ north of the equator and longitude $6^{\circ} 45''$ and $7^{\circ} 39''$ east of the Greenwich meridian. Its area of land coverage is $8,000\text{km}^2$. The Federal Capital Territory is divided into six area councils namely: Abaji, Kwali, Kuje, Bwari, Gwagwalada and Abuja Municipal Area Council (AMAC). The AMAC which is the study area, has an estimated land of $1,769\text{km}^2$. The projected population of AMAC is estimated to 3.2 million (Federal Capital Development Authority, 2017).

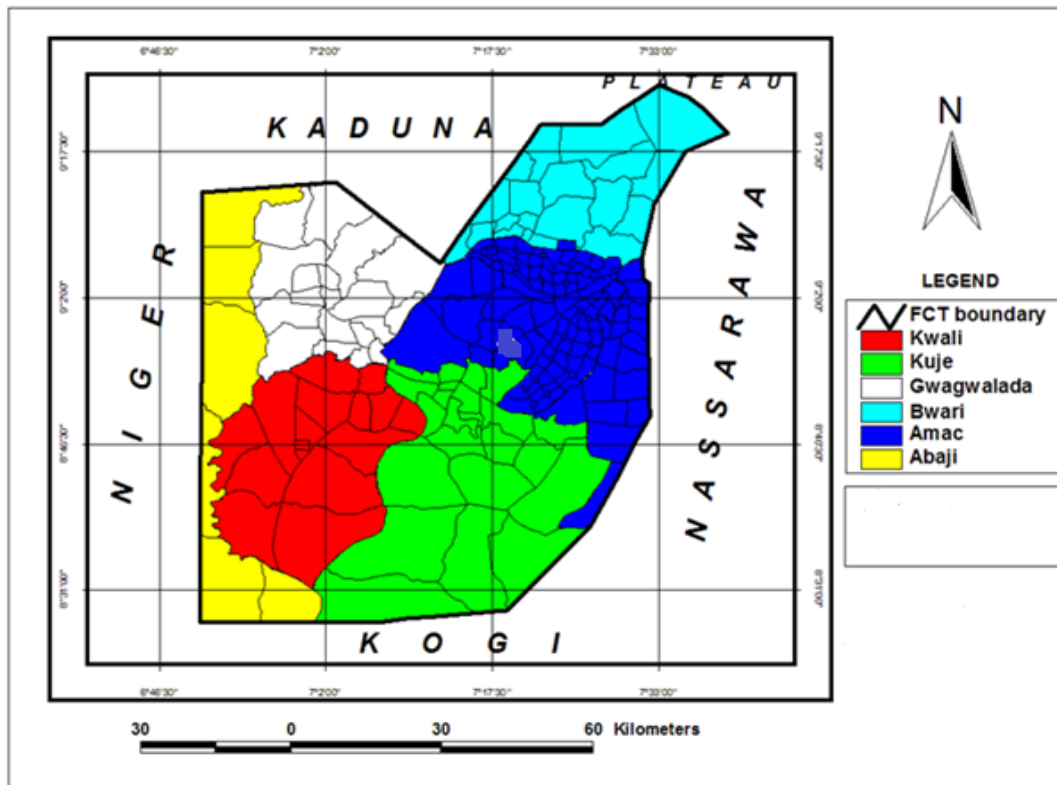


Figure 1: FCT showing the six are councils including Abuja Municipal Area Council (AMAC)

METHODOLOGY

Study population

A descriptive survey research was employed for the study. The population consisted of 277 scavengers, from 12 sites in Abuja Municipal Area Council (AMAC) of the FCT. All the scavengers used for this study belonged to the scavengers association. Two types of scavengers which exist in the city were used for the study; the itinerant pickers, who go from house to house picking useful items from bins and those scavengers that operate solely at the dumpsite, picking recyclable materials.

Instrumentation

The instrument used for this study was a structured questionnaire. The questionnaire was divided into five sections. The first section collected information on socioeconomic characteristics of scavengers and economics benefit of scavenging. The second section collected information on awareness on Covid 19, source of information and its effect on their job practices. The third section was on use of safety tools and hygiene practices of scavengers. The fourth section was on occupational injuries and diseases associated with scavenging and the fifth section was on measures taken to reduce health effects of scavenging, such as routine medical checks, possible change of job etc.

The questionnaire was interview-administered to the scavengers and where necessary the questions were translated to Hausa language. Both open-ended and closed-ended questions were included in the questionnaire. The questionnaire was administered to the scavengers in the evening at a site where the scavengers' gather after the day's work. All the participants were informed of the field research aims before the interview, this was done to facilitate the data collection process and to obtain their consent. Data collection lasted for a period of three months (August to November 2020).

Data Analysis

The statistical method used for the analysis of the data collected was descriptive statistics and the results was presented in charts and frequency tables, with the aid of Microsoft Excel and Statistical Package for Social Sciences (SPSS).

RESULTS

Socio-Economic Characteristics of Scavengers

Table 1: Socio-Economic Characteristics of Scavengers

Gender	Frequency	Percentage
Male	227	100
Female	0	0
Total	227	100
Age	Frequency	Percentage
15-25	154	67.8
26-36	51	22.4
≥37	22	9.6
Total	227	100
Educational Qualification	Frequency	Percentage
No formal education	171	75.3
Primary education	50	22
Secondary education	6	2.6
Total	227	100
Working hours/day	Frequency	Percentage
1-4 hours	47	20.7
5-8 hours	118	51.9
9 hours +	62	27.3
Total	227	100
Years of working	Frequency	Percentage
<1 year	55	24.2
1-5 years	140	61.6
5 years +	32	14
Total	227	100
Daily income in Naira	Frequency	Percentage
N1, 000-N2, 500	85	37.4
N2, 500-N3, 500	103	45.3
N3, 500 and above	39	17.1
Total	227	100

In Table 1, all the scavengers (100%) were males. The table shows that 67.8 % of the scavengers are between the ages of 15-25 years, 22.4 % are between 26-36 years, and only 9.6 % are 37 years and above. Majority of the scavengers (75.3 %) have no formal education. The study revealed that 51.9 % of scavengers work for 5-8 hours per day. Over 60 % of the scavengers have 1-5 years working experience. About 37.4 % of the scavengers earned between N1, 000-N2, 500 per day, 45.3 % earned between N2, 500-N3, 500 per day and 17.1 % earned N3, 500 and above daily.

Awareness of the Existence Covid 19 Pandemic

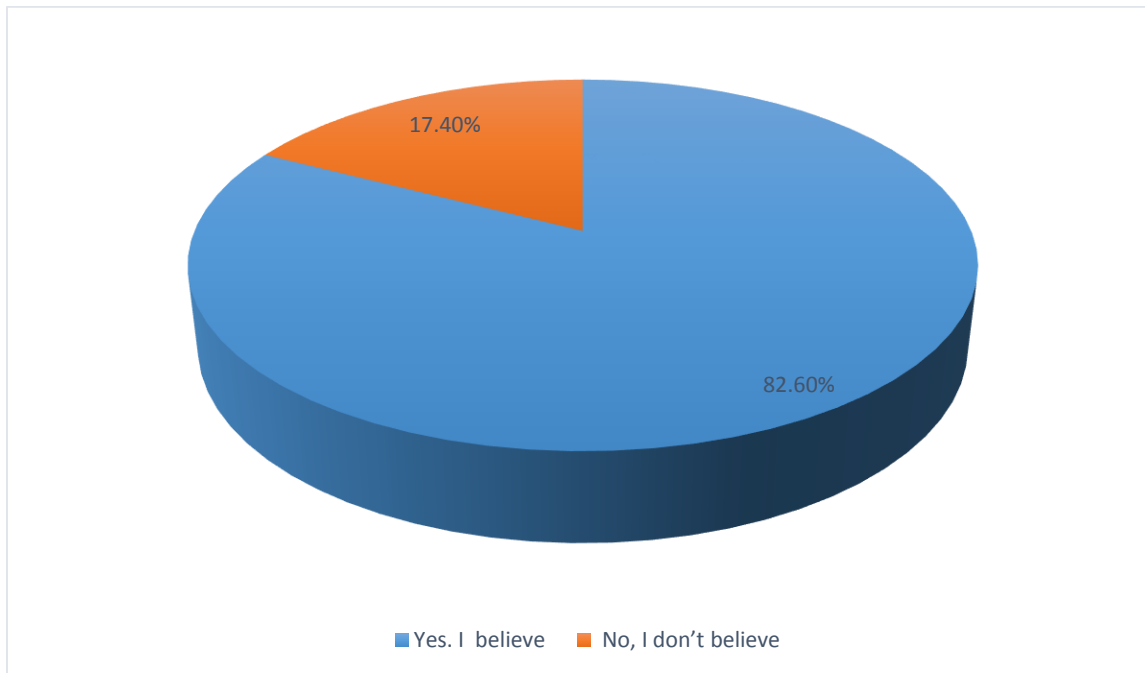


Figure 2: Awareness on the Existence Covid 19 Pandemic

Figure 2 shows that 82.6 % of scavengers believe in the existence of Covid-19 pandemic in Nigeria, while 17.4 % claimed that they not believe in its existence.

Source of Information

The different sources of Covid-19 information are presented in figure 3. Majority (40.8%) of the scavengers got their information through Radio jingles. Other sources include, television jingles, posters and friends.

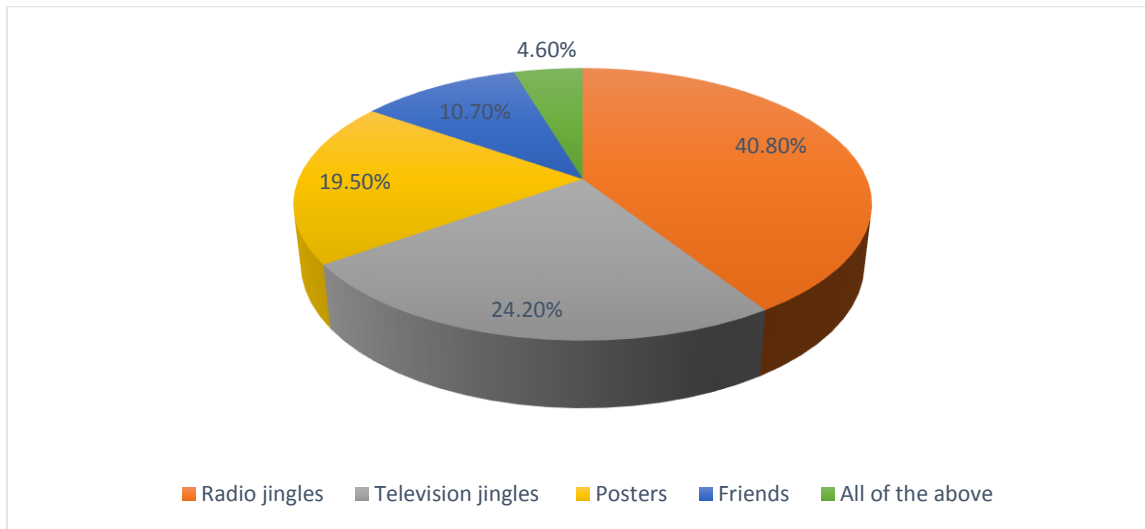


Figure 3: Source of Information

Changes in the Practice of Scavenging since Advent of Covid 19

Figure 4 revealed that 91 % of scavenger have not changed their scavenging practices, since the advent of Covid- 19. Only about 9 % of them, indicated that minor changes have been made on how they scavenge for recyclables.

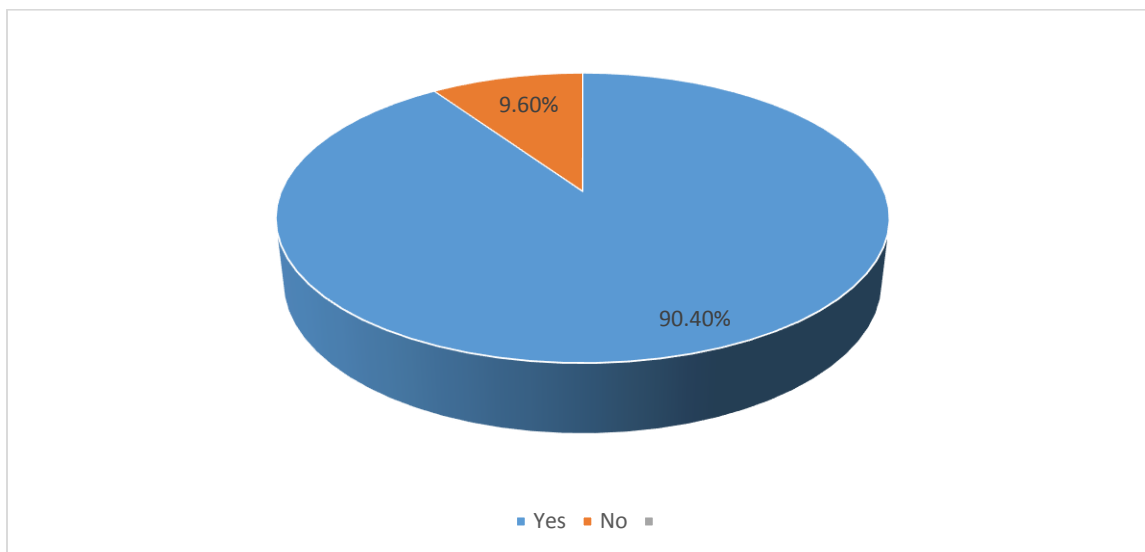


Figure 4: Changes in the Practice of Scavenging since Advent of Covid 19. Safety tools and Hygiene Practices of Scavengers.

Figure 5 revealed, that there is poor usage for personal protective equipment and poor hygiene practices among the scavengers. About 66 % of them, do not wear face mask during work, 58.4% do no use hand gloves and 64.6 % do not wear boots. The figure also revealed that 71 % of scavengers do not wash their hands after work, 57 % of them do not wash their clothes after work at home. Only about 41.8 % of scavengers take their bath at home after work.

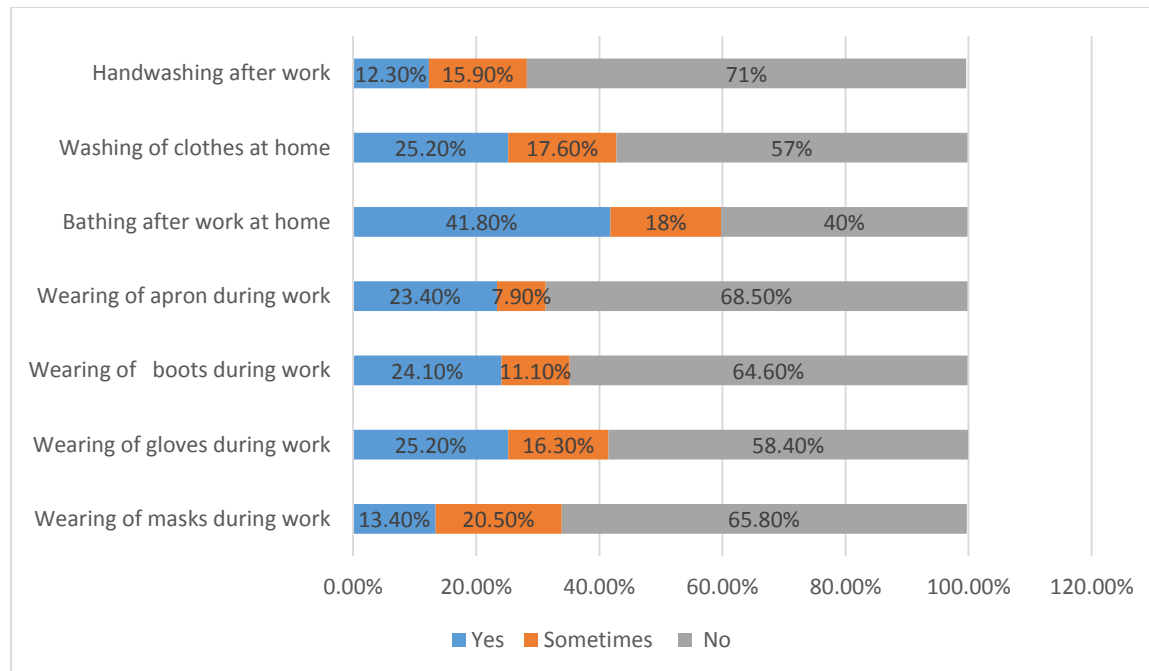


Figure 5: Safety tools and Hygiene Practices of Scavengers

Occupational Injuries associated with Scavenging

Figure 6 revealed that 90 % of scavengers have sustained injuries from broken glass and sharp objects such as shaving blades and needles. About 71 % form nails, 44.2 % from fire and 22.3 % from dog bites.

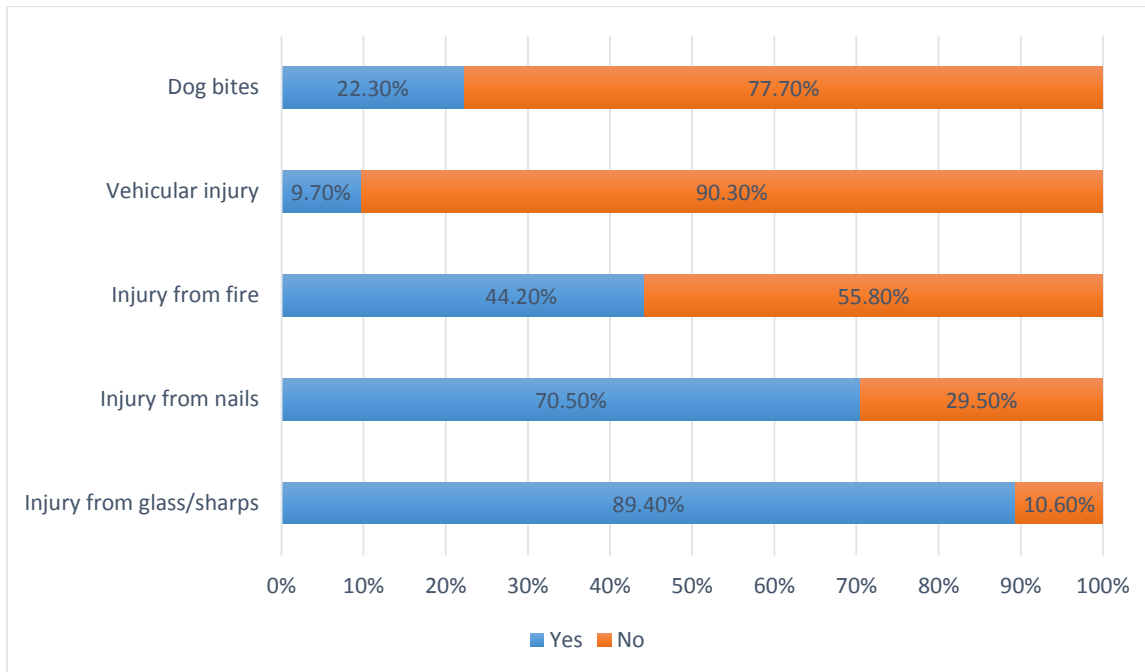


Figure 6: Occupational Injuries associated with Scavenging

Occupational Health Disease associated with Scavenging

Several type of occupational disease associated with scavenging are shown in figure 7, these include skin rash and (83.4 %), back pain, (71.6%), chest pain, (61.4 %), Diarrhoeal(56.5 %), difficulty in breathing (51.7 %), cough (45.2 %) and eye infection (37.9 %).

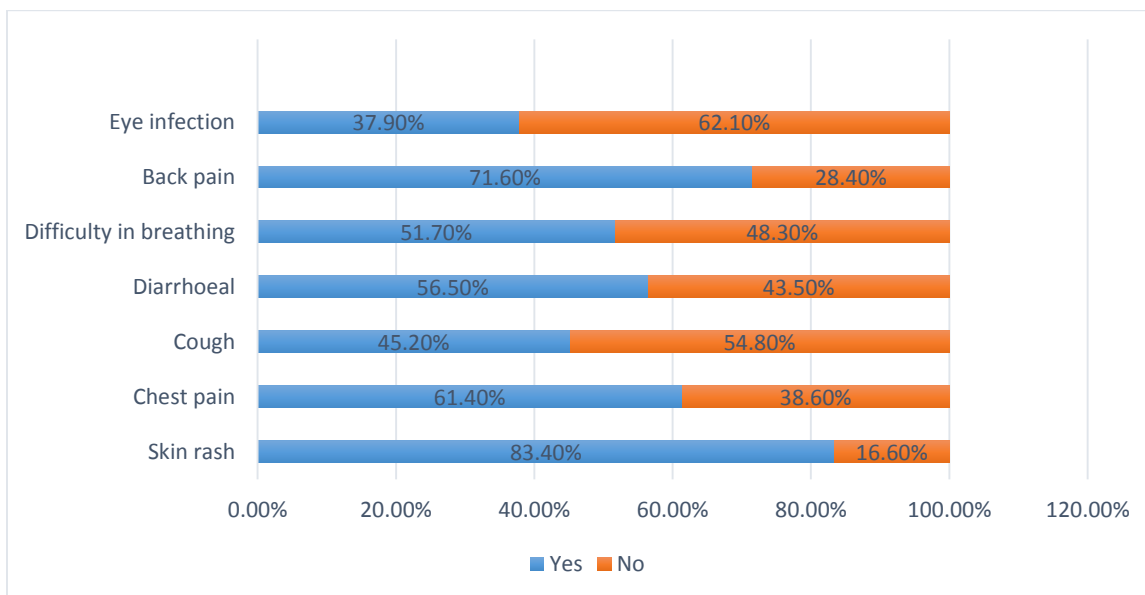


Figure 7: Occupational Health Diseases associated with Scavenging

Measures to reduce Occupational Injury and Diseases

The figure 8 revealed the different measures that are being taken by scavengers to reduce occupational injury and disease. Only 25.6 % of the scavengers visit clinics or patent medicine stores for routine check-ups. About 53.9 % of them use illicit drugs (mainly marijuana and concoction of other drugs) to overcome the stress of the job. Majority (80.7 %) of the scavengers were not prepared to change their jobs, however only about 30.4 % of them were prepared to purchase and use personal protective equipment as a measure to reduce occupational injury and diseases.

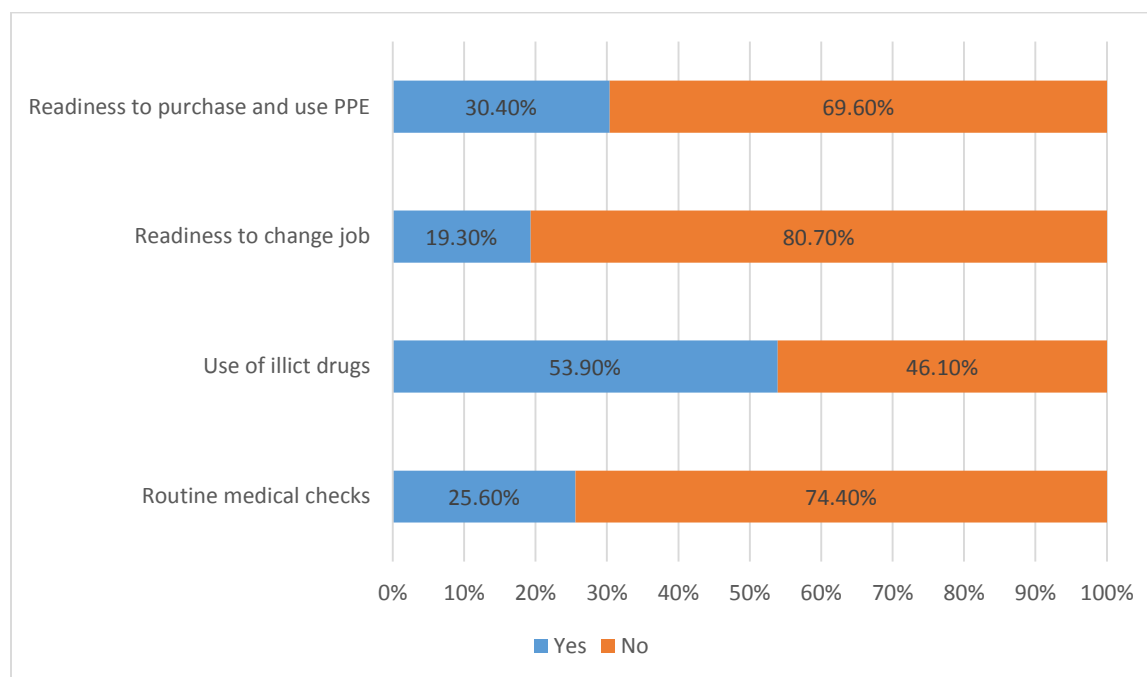


Figure 8: Measures to reduce Occupational Injury and Diseases

Discussion

Results of the study revealed that most of the scavengers were within the ages of (15-25 years). Many of the youth who enter the city in developing countries, in search of job are unskilled. Out of desperation to work, these youth are forced to do scavenging for survival, thus scavenging is the last resort for these desperate people (Avasthi, 2010; Pandey, 2004). Majority of them have no formal education, this is similar to the study of Elenwo (2015). According to his study, most of the scavengers did not have any formal education which is why they carried out the activities without recourse to safety and their health was at risk. All the scavengers make about N30, 000 per month, which is the minimum wage in Nigeria. This indicate that scavenging is a lucrative business, which keeps people self- employed, as well as keep the environment clean (Asibor and Edjere, 2017).

Lack of personal hygienic among scavengers may leave them prone to bacterial infection and related pathogenic diseases. Adekiya and Adeogun (2019) identified, Faecal *Coliform*, Faecal *Streptococci*, *Aspergillus*, *Rhizopus* and *Salmonella* among bacterial microorganisms found in the

dumpsites in Abuja. Scavengers were exposed to injuries at work due to lack of awareness on the significance of personal protective equipment (PPE), this is similar to the study of Nyathi, Olowoyo & Oludare (2018) and Adeyi & Adeyemi (2019).

Scavengers were exposed to injuries, back pain, eye infections, respiratory and dermatological infections. These findings concur with studies of Thirarattanasunthon, Siriwong, Robson & Borjan (2012); Owusu-Sekyere (2014) and Nyathi et al (2018). The use illicit drugs (mainly marijuana and concoction of other drugs) among scavengers to overcome the stress of the job is also in line with the study carried out by Magaji and Dakyes (2011).

Conclusion

The study showed that scavenging is a lucrative business because all the scavengers' earn the Nigerian minimum wage of N30, 000 per month, so they able to meet their personal and family needs. Majority of the scavenger have no formal education, this may adversely affected their understanding on the existence of Covid 19, the importance of personal hygiene and the use of personal protective equipment (PPE). Poor personal hygiene and poor use of personal protective equipment (PPE) also contributed to them being prone to illnesses.

The study also revealed that many scavengers at one point suffered from injuries and diseases such as dog bite, injury from glass and sharps, back pain, cough, stress, diarrhoeal, skin rash, shortness of breath. Some of the scavengers also use illicit drugs for coping with stress. With the numerous problems associated with the jobs, most of the scavengers are not willing to quit the job.

Recommendations

Based on the findings, the study, recommend that scavenging be legalized, so that the government or nongovernmental organizations can help in educating the scavengers on the importance of personal hygiene and personal protective equipment in reducing occupational injuries and diseases. The National Agency for Food and Drugs Administration and Control (NAFDAC) needs to sensitize and control the use of illicit drugs among the scavenger. There should be continuous awareness program on the existence of Covid- 19 in Nigeria by government and nongovernmental organizations especially among the urban poor.

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