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Perception of the Effects of Fire Wood Usage on Rural Women's Health in Ogun State Nigeria

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Abstract
The study assessed the effects of firewood usage on rural women health in Ogun State. Samples of 128 respondents were randomly selected from four local government areas of Ogun State. Data were collected with the aid of structured questionnaire. Percentages were used for data analysis. Majority of the respondents were married (91%) with a mean age of 50 years. Most of the respondents (86.7%) used firewood for cooking, the preference of the utilization of firewood over other alternatives was due to non-availability of other sources (40%) and availability of firewood (33%). Some perceived health effects on the respondents were discomfort caused by the smoke from the firewood ($\bar{x}$ = 2.81) and eyes irritation (= 2.53). The study recommended alternative energy sources that are with lesser health hazards be made readily available at subsidized rate in the rural areas since this was the major attractive driving force for the use of firewood.

Keywords: Fuel wood, rural women, alternative energy sources.

Introduction
Energy is a fundamental necessity for human existence because of its every day reliance by humans for household (lighting, cooking, warming), modern (mechanical, transportation and correspondence) and exercises. Cooking in a family unit include the utilization of solid and non-solid fuel. The solid fuel comprises of coal which is a petroleum product and biomass fuel (BMF) like wood, charcoal, manure and yield deposits. The non-solid fuel comprises of lamp oil, Liquefied Petroleum Gas (LPG), gas and power (Desalu 2012; Emagbetere 2016; Hameed 2016). More than 50% of the population of the developing countries rely on traditional biomass as energy source and also about 68% of Africans rely on this for cooking (Mosa, 2016).The utilization of some solid fuels has been related to indoor contamination and dangerous dimensions of harmful outflow which can enter profoundly into the lungs which could be harmful to human health.

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Fire wood as energy source in rural area is a major source of air pollutants such as carbon monoxide, particulate matters, Polycyclic Aromatic Hydrocarbons (PAHs) and others which are detrimental to human health (Oyebanji, Adeofun, Adedeji, Ekpo, Oguntoke, Ojekunle,2013)
Interestingly studies suggest that exposure to wood smoke is associated with a variety of adverse health effects in humans. This is in line with the position of World Health Organization (2018) which states that about 4 million individuals dies from ailment owing to family unit air contamination with women been progressively defenseless against these common conditions. Exposure to indoor air pollution during cooking could account for deterioration of health (James , Shetty , Kamath , Shetty, 2020) .The negative effects is not limited to health as over dependence on firewood is a threat to ecosystem (deforestation, climate change, erosion, biodiversity loss).

Poverty and inadequacy of alternative form of energy promotes firewood usage despite the negative effects among rural households. The cheap cost and ability to get for free could explain the preference for it by rural people. Fuel wood is the main source of energy in most rural communities (Oladeinde, 2006). The majority of rural dwellers use fuel wood as a primary or secondary energy source (Hassan, Mbuli and Dlamini, 2002). Given the popular use despite its hazardous effects, it is imperative that this study be conducted .It is against this backdrop that this study therefore aimed to determine the perception of the effects of fire wood usage on rural women`s health in Ogun State, Nigeria**.**

Objectives were to:
1. identify the socio economic characteristics of the respondents in the study area;
2. ascertain the energy source used by the respondents;
3. examine the perceived effect of firewood usage on the health of respondents.

Methodology
The research was carried out in Ogun State, Nigeria. Ogun State lies within latitude 6°N and 8°N and longitude 2° E and 15° E. Multistage sampling procedure was used to select the sample for the study. A multistage sampling procedure was used, the first stage was to dichotomize the Local government of the state into Rural and Urban, after which there was a random selection of four (4) rural local government areas in the state. The third stage involved the selection of (2) communities from each of the local government areas. In the fourth stage, random selection of 16 respondents from each of the eight (8) communities. This gave a total number of 128 respondents that were interviewed for the study. Descriptive statistics such as frequency and percentages were used to present results based on the objectives.

Results and Discussion
Energy Source used in cooking

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The result in Table 1 reveals that high percentage (86.7%) of the respondents used firewood. This implies that firewood is the major energy source used; and this could be because firewood is easily available and accessible in the rural areas. The rural areas of Ogun State are predominantly agrarian and hence, the women gather firewood from their farms or husband's farm. To corroborate this finding (Oyebanji, Adeofun, Adedeji, Ekpo, Oguntoke, Ojekunle, 2013) claimed that the choice of fuel wood by rural dwellers is determined by the zeal to maintain rural life, the affordability and availability of the fuel wood.

Table 1 Distribution of respondnets by source of energy used in cooking (n =)

Energy source	Frequency (F)	Percentage (%)
Firewood	111	86.7
Gas	3	2.3
Charcoal	8	6.3
Stove	6	4.7
Total	128	100

Source: field survey 2019

Reasons for Using Firewood

Result from Figure 1 shows that less than half (40%) of the respondents used firewood because of non-availability of other sources like gas, electricity and solar, 33.3% of the respondent used firewood because it is readily available, while 27.1% of the respondents used firewood because it is cheaper. This shows that most rural women preferred firewood in cooking because it is easily accessible from the farm. Firewood remains the commonest in Nigeria partly due to its accessibility, affordability and convenience. This also implies that is still the dominant source of energy used by most rural households in the developing world.

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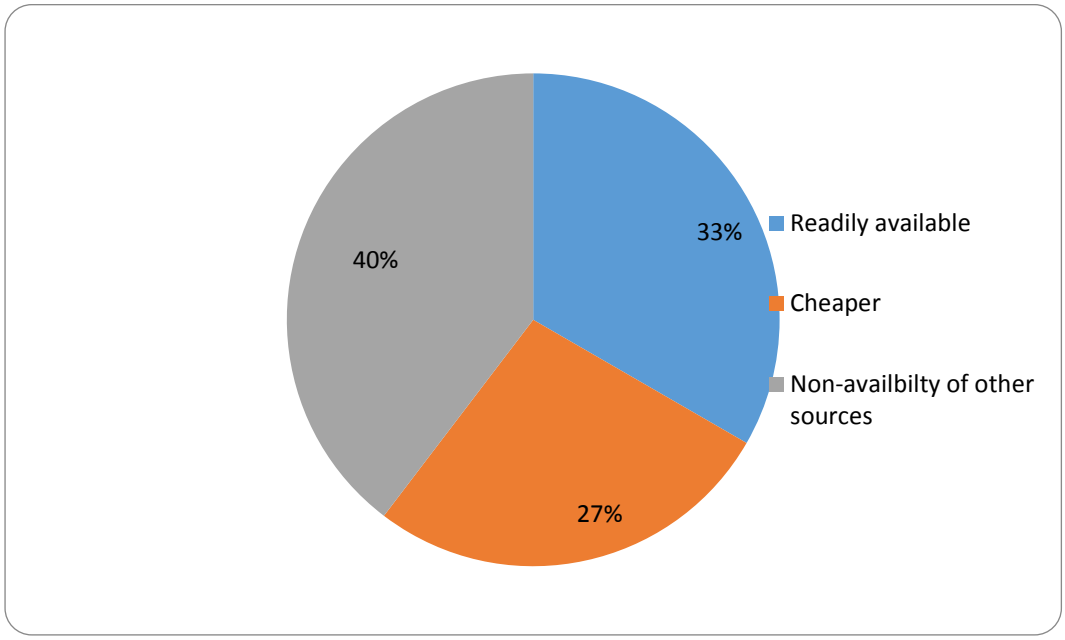

Figure 1: Reasons for Using Firewood

Distribution of respondents according to the time used for cooking

Figure 2 shows that 40 women out of the respondents spent 1hour in cooking, 66 women spent 2 hours in cooking, while the remaining women amongst the sampled population spends between 3 to 4 hours in cooking. This is because many of the respondents used firewood for cooking which can lead to delay in the readiness of the food as compared to other sources of energy. The World Health Organization (WHO 2009) states that “Over 98,000 Nigerian women die annually from use of firewood. If a woman cooks breakfast, lunch and dinner, it is equivalent to smoking between three and 20 packets of cigarettes a day.

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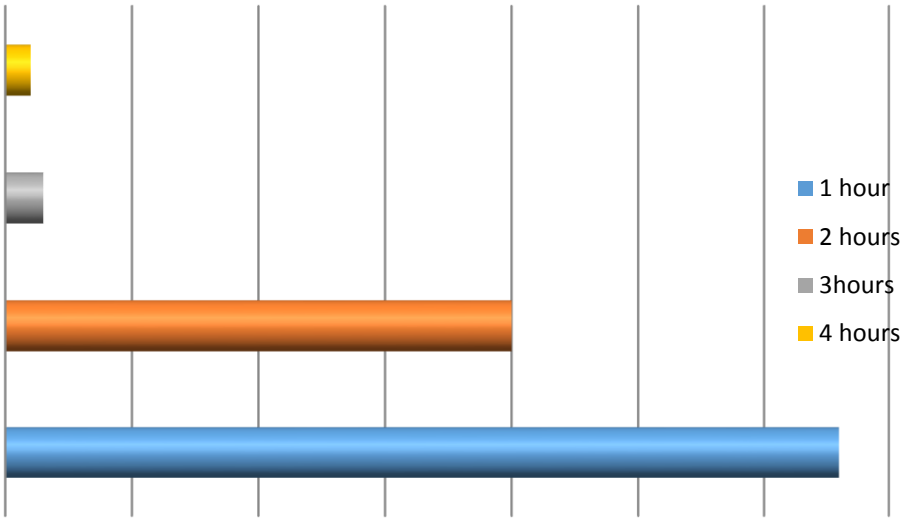

Figure 2: **Frequency distribution of respondents according to the time used for cooking**

Perceived effects of firewood usage on respondents' health

The use of firewood is associated with emission of smokes that are harmful to human. The result on the perceived effect of firewood usage on health from Table 2 reveals that firewood usage by rural women in cooking has some perceived health effects, ranging from breathing complication to eyes irritation and discomfort in breathing caused by the smoke, many women in Nigeria suffer ailments resulting from the use of firewood. This position was asserted by Bede-Ojimadu, and Orisakwe (2020) that wood smoke exposure are detrimental to health. Despite this implication 90% of rural households still use this. The women who do the cooking are most exposed to this indoor air contamination. Piabuo and Puatwoe, (2020) reported in their study that there are devastating health effect related to exposure to firewood with about 2million deaths annually from ailments such as pneumonia, cancer, chronic lung diseases which are as a result of exposure to biomass combustion.

Table 2: Percentage distribution of respondents according to perceived effect of Firewood on Health (n =)

Variable	Mean	Std. Dev

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Smoke from the firewood is uncomfortable	2.81	0.411
Eye irritation is always happening while cooking	2.53	0.720
The heat produced while cooking is high	2.35	0.598
Fire wood cooking leads to cough	2.28	0.698
Nose irritation is always experienced during cooking	2.12	0.289
Breathing is more complicated after cooking	2.02	0.913
Coking with firewood is always stressful	1.96	0.970
Cooking with fire wood is time consuming	1.85	0.905
Chest pain always happen after cooking with fire wood	1.17	0.100
The food smell is unpalatable smell	0.84	0.950

Source: field survey 2019

Conclusion and Receommendations

The majority of the rural women were in their active age with relatively fair educational background and medium household size. Also, the major reason for the preference of the utilization of firewood over other alternatives was due to its sustainable availability within their locality. Firewood usage by rural women in cooking has some health effects on their health status, ranging from breathing complication to eyes irritation and uncomfortability caused by the smoke.

Energy sources that are with lesser health hazards should be made readily available at cheaper price (subsidized) in the rural areas since this was the major attractive driving force for the use of firewood.
Rural women should be sensitized by environmental extension experts fully empowered by government on forest conservation to ensure sustainability
There should be environmental sensitization and education in the rural areas to enlighten the residents on the health problems associated with exposure to high level air pollutants within the house

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