

ASSESSMENT OF OCCUPATIONAL HAZARDS AND HEALTH PROBLEMS AMONG FEMALE FARMERS IN NORTH-EASTERN NIGERIA

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Abstract

Farming is the main occupation of the rural people in Northeastern region of Nigeria. It constitutes 60-75% of the population of the area and involves both male and female alike. However, a postharvest aspect of production is mostly handled by women. Thus the female farmers are more exposed to farming occupational hazards than their male counterparts. The aim of the study was to identify the occupational hazard problems encountered by female farmers in Northeastern region of Nigeria. Specifically, to (i) determine the prevalence of injuries and diseases of women farmers; (ii) assess types of treatments available to women farmers; and (iii) assess the protective measures employed in preventing injuries and diseases. A cross-sectional descriptive study was conducted using a pre-tested questionnaire to collect data. Eight hundred questionnaires were administered. Multistage sample method was used to select the respondents. The results showed that 662 (82.8%) of the female farmers interviewed complained of back pains. Six hundred and twenty-four or (78.0%) of the respondents suffered lacerations from the usage of farm implements such as hoes, axes, sickles, cutlass, and also from grasses and thorns. Insect stings were the third most prevalent diseases and constitute 59.5% of the respondents. Other diseases prevalence were: sunburns, snake bites, fractures, and injuries from falling trees and branches, which constitute 20.6% of the farmers. The respondents got treatments at homes, traditional healers, and hospitals. The use of chemicals was not popular among the respondents, herbicides, (9.8%), pesticides, (13.1%) and insecticides (21.4%). Accordingly, the awareness of the harmful effects of these chemicals was low. Farming activities of the women farmers in northeastern, Nigeria was found to be their means of livelihoods. There is a need to increase agricultural mechanization in order to reduce injuries and pains associated with crude farm tools. Female farmers require more enlightenment on the need of using protective materials for farming activities.

Keywords: women farmers, occupational diseases, North-Eastern, Nigeria

1. Introduction

The role of agriculture in Nigeria's economy cannot be over-emphasized. It provides food for its growing population, employment for the majority of the population as well as raw materials for agro-industries. In addition, before the discovery of oil and advent of oil boom era in Nigeria, agriculture was the main source of foreign exchange earner. According to Von Braun *et al.* (2008), world agricultural productivity, particularly in poor countries, is key to global food security and the fight against hunger and poverty. In Nigeria, especially in the rural populace, which constitutes 70% of the population of the country, farming activity is the main occupation. Women make up a large percentage of farmers, and hence make a great contribution to food and fibre production and help in food security.

FOS (2009) reported that poverty has been enormous, persistent and overwhelming a greater proportion of Nigeria society. In corroboration, Ojo (2008), reported that poverty in Nigeria is assuming a worrisome dimension as over half of its populations is living in abject poverty. Furthermore, Abiola and Olaopa (2008), gave the resultant effect of poverty in Nigeria as hunger, ignorance, malnutrition, disease, unemployment, poor access to credit facilities and low life expectancy as well as a general level of human hopelessness. Despite its importance, agriculture in Nigeria still faced with numerous problems resulted in low productivity.

International Labour Organization, (ILO, 2000) regarded occupational hazard as any working condition that can lead to illness or death. The organization further affirmed that health status in rural areas is lower than in urban centres in both developed and developing countries. Asuzu (1994) viewed occupation health as the sum total of all activities and programs engaged upon for attaining and maintaining the highest level of health and safety for all people in whatever work they are engaging. United Nations Development Programme, UNDP (2012) reported that about 75% of the world's poor live in rural areas and most of them dependent on farming. Therefore, addressing world poor agriculture must be part of world economic growth, poverty reduction, and environmental sustainability.

According to Cole (2006), Park (2011), and Idio and Adejare (2013), occupational hazard in agricultural sector could be classified into seven: (i) climate: dehydration, heat cramps, heat exhaustion, heat stroke, and skin cancer; (ii) Snakes and insects: injurious bites and stings; (iii) Tools and farm equipment: Injuries, cuts, and hearing impairment; (iv) Physical labour: musculoskeletal disorders, e.g. pain and fatigue; (v) Pesticides: poisonings, neurotoxicity, reproductive effects, and cancer; (vi) Dusts, fumes, gases, particulates: Irritation, respiratory tract, allergic reactions, respiratory diseases such as asthma, chronic obstructive pulmonary disease, and hypersensitivity pneumonitis, and (vii) Biological agents and vectors of disease: Skin diseases, fungal infections, allergic reactions, malaria, schistosomiasis, sleeping sickness, leishmaniasis, ascariasis, and hookworm.

Literature further revealed linkages between farmers' health and their efficiency. For example, Egbetokun *et al.* (2012) found that one percent improvement in the health condition of the farmers will increase efficiency by 21 percent. According to Hawkes and Ruel (2006), poor health of farmers reduces their income, efficiency, and productivity. While, Cole (2006) informed that health capital is affected by a number of preventable diseases such as malaria fever, HIV/AIDS, farm injuries, cholera fever, schistosomiasis, diarrhea, respiratory diseases and skin disorders.

Adedeji *et al.* (2011), Olowogbon (2011) and Idio and Adejare (2013) reported that rural farmers in Nigeria are exposed to occupational hazards of various types. In another study carried on women farmers in Edo state, Nigeria, health problems experienced by the women were muscular fatigues, fever, dermatitis, migraines, respiratory diseases, impaired vision and hearing as a result of exposure to extreme temperature, use of chemicals, fertilizers, dusts and insect bites, (Egharebva and Iweze, 2004). In addition to the health problems inherent in the occupational hazard, women farmers' health become more complicated, because of far distance from health providers, bad road status, the high cost of transportation, the low source of information in accessing health centers facilities, (Adesiji *et al.* 2012). Additionally, Killen (2005) informed that rural farmers in Nigeria incur heavy losses due to poor health through expensive healthcare fees and the menace of fake drugs. Badilescu-Buga (2013) identified that knowledge gap is a key element in the adoption of innovation

Jeyenatnam (1992) reported that most of the agricultural workers in developing countries, especially in the rural peasant sector, are women and children. The report further stated that they are faced with a high risk of a host of occupational health hazards. Specifically, in Nigeria, Sabo

(2006), Tologbonse *et al.* (2013) and Nuhu *et al.* (2014) informed that in farming activities, women constitute about 60-80% of the labour used for planting, weeding, transportation, processing, marketing and storage of products in Nigeria. The report further informed that women produced two-thirds of food crops produced in the Nigeria.

Though considerable research on agricultural health problems has been undertaken in some parts of Nigeria, there is a paucity of such research in the northeastern part of the country. It is, therefore, important to find out the prevalent occupational hazards and their health needs because their productivity is very much dependent on their health status. A basic and absolute prerequisite to this highly desired initiative will obviously be a preliminary study of the assessment of occupational hazards and health problems among female farmers because of their vulnerability to farming activities. The aim of the study was to identify the occupational hazard problems encountered by female farmers in northeastern Nigeria. Specifically, to (i) determine the prevalence of injuries and diseases of women farmers; (ii) assess types of treatments available to women farmers, and (iii) assess the protective measures employed in preventing injuries and diseases.

2 Methodology

2.1 Description of Study Area

The study was carried out at Gwoza and Madagali local government areas of the north-eastern area of Nigeria. The areas have two types of seasons, the wet and dry seasons. The wet season starts in June and ends in October, while the dry season is from November through May. However, the months of November to March are harmattan months with cool dry air dusty wind blowing from the Sahara desert northeast. The rainfall is between 750 mm and 1000 mm, while the temperature is 24⁰C to 31⁰C. The hottest months are April and May. Iloeje, (2001), and Oyenuga, (1967)

Crops grown include millet, guinea corn, cow peas, groundnut, and cotton. Animal husbandry is quite commonplace resulting to overgrazing in some areas. Tree felling for firewood is the sole source of energy for cooking. Primary health care centres are located in each local government headquarters, while health clinics are found in most of the villages.

2.2 Research Design

The study was a cross-sectional descriptive type, 400 women farmers were randomly selected from each Local Government Area (LGA). A multi-stage sample method was employed in selecting the respondents. The first stage, one district was randomly selected from each LGAs. The second stage, two villages were randomly selected from each district chosen. The third stage, two wards were selected randomly from each village chosen, thereafter, questionnaires were administered on household bases using systematic sampling. Each ward was administered 100 questionnaires that comprise of 20 questions. The questions were on demographic characteristics, occupational hazards encountered, types of implements and chemicals used, protective measures taken, and treatments options. Data obtained was analyzed using the data analysis software Epi info for Windows, version 3.4.1 of 2007.

3 Results and Discussion

3.1 Socioeconomic of Women Farmers

All questionnaires administered were answered, that is, Eight Hundred (800). Analysis of the data revealed that most of the respondents, 610 (76.3%) were within the age group of 15-44 years, which was considered the most active productive life of the people. Five (0.6%) of the respondents were less than 15 years of age. The rest, 185 (23.1%) were 45 years and above. The marital status of the female farmers were: married 656 (82.0%), widows 64 (8.0%), single and divorced 40 (5%) each. The educational status revealed that majority of respondents 461 (57.6%) were illiterates. While, those with formal education, quranic and western educations constitute (42.4%). The demographics of the respondents is presented in Table 1. The result obtained was in agreement with the survey conducted for Nigeria in 1993-1994 by Food and Agriculture Organization of United Nation, (FAO, 1995). However, the finding of Okwu and Umoru (2009) at Apa Local Government Area in Benue state, Nigeria was not in agreement with the finding of the study.

Table 1: Demographic Characteristics of the Female Farmers in North-Eastern Nigeria.

Demographic variables	Frequency	Percentage %
Age		
<15	5	0.6
15 – 29	308	38.5
30 – 44	302	37.8
45 – 59	140	17.5
>59	45	5.6
Total	800	100.0
Marital status		
Single	40	5.0
Married	656	82.0
Divorced	40	5.0
Widowed	64	8.0
Total	800	100.0
Level of education		
Illiterate	461	57.6
Qur’anic	139	17.4
Adult education	10	1.3
Primary	113	14.1
Secondary	69	8.6
Tertiary	8	1.0
Total	800	100.0

3.2 Prevalence of Women Farmers’ Diseases

The majority of the respondents 662, (82.8%) complained of back pain. This result was in agreement with similar study carried out in Kampala, Uganda, (Jeyenatnam, 1992). Similarly, International Fund for Agricultural Development/ Food and Agriculture Organization (IFAD/FAO) found that the usage of hand hoe was the hardest job and causing both fatigue and

backache, from the study of African women farmers, (IFAD/FAO, 1998). The hand-hoe and other hand tools used by the women working in a stooping posture for a long time could be responsible for the development of a backache. Closely to back pain incidence was a laceration, 624 (78.0%), which occurred mainly from the use of farm implements such as hoes, axes, sickles, cutlass, and also from grasses and thorns. Insect stings, 476 (59.5%) ranked third of the prevalence of injuries experienced by women farmers. Though snakes ranked four, 96 (12.0%), the respondents informed that the species are mostly harmless. Table 2 presents the frequencies of occupational health challenges encountered by the respondents. Others 165 (20.6%) of respondents had fatigue, muscle, and joint pains. However, health hazards such as sunburn, haematuria, (indicating urinary schistosomiasis), groin and abdominal swelling/ herniation were relatively uncommon, and are found in the ranges of 2.0% to 6.3% of the respondents. This was not in agreement with the finding of Cole, (2006) and Egharebva and Iweze (2004). The differences could be attributed to ecological differences and heavy machinery activities on the farms.

Table 2: Distribution of Diseases Encountered by the Female Farmers in North-Eastern Nigeria.

Diseases Encountered by Women Farmers	Frequency (n = 800)	
	Yes	No
Back pain	662 (82.8%)	138
Laceration	624 (78.0%)	176
Insect sting	476 (59.5%)	324
Snake bite	96 (12.0%)	704
Falling from trees	50 (6.3%)	750
Injuries from falling branches	40 (5.0%)	760
Sun burn	34 (4.3%)	766
Haematuria	30 (3.8%)	770
Groin swelling	18 (2.3%)	782
Abdominal swelling	16 (2.0%)	784

3.4 Treatment Options for Curing Diseases

Back pains and lacerations, which constitutes the majority of diseases experienced by the female farmers were treated using self-medications and carried out at homes. The low percentages of the respondents using health facilities for treatments of these diseases could be attributed to the findings of Adesiji *et al* (2012). Snake bites and insect stings were mostly treated by consulting traditional healers. The majority of the respondents with fractures problems consulted hospital for treatments, despite most of the respondents were illiterate. Fifty-one percent of fractures went to the hospital for medication, while forty-two percent resulted to traditional medications by visiting traditional bone setters and only seven per cent depended on home medications. The

home medications were using clothes for stabilization and also took some over the counter medications such as analgesics. The treatments options are presented in Table 3.

Table 3: Treatment Options Sought for the Common Ailments Encountered by the Female Farmers in North-Eastern Nigeria.

	Traditional medication (%)	Home treatment (%)	Hospital care (%)	Others (%)
Back pain	(23.4%)	(38.0%)	(15.7%)	(22.9%)
Sun burn	(12.5%)	(50.0%)	-	(37.5%)
Laceration	(11.5%)	(53.0%)	(27.6%)	(7.9%)
Snake bite	(60.9%)	(10.9%)	(6.0%)	(22.2%)
Insect sting	(52.0%)	(18.1%)	(23.1%)	(6.8%)
Fractures	(41.8%)	(7.1%)	(51.1%)	-

Table 4 shows that 650 (81.3%) respondents used fertilizer on their farms and applied it themselves. Of the total respondents, 306 (38.3%) used herbicides, 214 (26.8%) used pesticides and 56 (7.0%) used insecticides. Though not recorded in this study, respondents claimed that this was because most of them had small farmlands, and did not need this chemical, that is herbicides, pesticides, and insecticides. Their food production, they said was mainly for family consumption, although some still traded farm produce. Despite this, fertilizer was still widely used.

Table 4: Farm Chemicals used by Female Farmers in North-Eastern Nigeria

Chemical	Frequency		Percentage %
	Yes	No	
Fertilizer	650	150	81.3
Herbicides	306	494	38.3
Pesticides	214	586	26.8
Insecticides	56	744	7.0

3.5 Protective Measures Taken by Female Farmers

The study identified six parts of the body requiring some measures of protections. These were: hands, head, face, eyes, feet and the skin and the protective devices were hand gloves, hat, face mask, goggles, boots and protective clothes, respectively. It was found that female farmers were not using any protective measures when using animals drawn, hoes, and cutlasses for cultivations and slashing bushes. Majority of respondents, 84.4 percent, that used fertilizers on their farms, apply it with bare hands, while only 15.6 percent used hand gloves as the only protective measures, see Table 5.

Female farmers applying herbicides, pesticides, and insecticides, were minority and account for 9.8, 13.1 and 21.4 percent respectively of the respondents. Despite small percentages of respondents that use chemicals on their farms only a few of them used protective measures during their applications. Sprayers were used to apply the chemicals and the types were backpacks. Hats, goggles, and protective clothes were not used by the female farmers. Face masks were more recognized by the female farmers as protective measures more than others. Table 5 presents the percentages distribution of respondents of the usage of protective measures.

Table 5: Protective Measures used by the Female Farmers in North-Eastern Nigeria.

Protective Measures Used (Percentages, %)							
Farm Implements/ Chemicals	Hand gloves	Hat	Face mask	Goggles	Boots	Protective clothes	
animal drawn	0.0	0.0	0.0	0.0	0.0	0.0	
hoes	0.0	0.0	0.0	0.0	0.0	0.0	
cutlass	0.0	0.0	0.0	0.0	0.0	0.0	
fertilizer	15.6	0.0	0.0	0.0	0.0	0.0	
herbicides	3.3	0.0	9.0	0.0	0.0	0.0	
pesticides	5.7	0.0	10.3	0.0	1.5	0.0	
insecticides	5.0	0.0	18.0	0.0	0.0	0.0	

Farmers attributed low usages of protective measures to the smallness of farmland size and hence little amount of fertilizers, herbicides, pesticides, and insecticides were in use. Similarly, Cole, (2006) found that farmers at Carchi, Ecuador made minimal use of protective clothing during pesticide preparation and application, and many failed to shower off pesticide residues or change their clothes immediately after application. Also, it found that about 80 percent of women did not understand the color coding on pesticide labels indicating toxicity, despite a near 90 per cent literacy rate and substantial industrial education on safety. This is in contrast to findings of this study, where the majority of respondents (75.0%) had no western education, and even those that have can barely read and/or write. In addition, respondents were poorly educated on the proper way of protecting themselves while using these chemicals as only 7.5 per cent learned this from health workers and 0.6 per cent from the media, which are the most reliable sources of this information.

A greater percentage of respondents learned how to apply the chemicals from relatives (63.3%), and friends (26.5%). This probably explains why a majority of respondents did not know the proper way of protecting themselves from the harmful effects of these chemicals.

4. Conclusion

Farming activities among rural women farmers in Northeastern Nigeria was found to be their means of livelihood. Some of the common health problems experienced by them were back

pains, sunburns, lacerations, snakebite, insect sting, injuries from falling from trees and falling off of branches. Three major prevalent occupational hazards present by them were back pains, lacerations, and sunburns. Treatments of these diseases were usually carried out at home. Traditional medication was the commonest option sought for snake bites and insect sting. But, fractures from injuries were taken to hospital for treatment. Women farmers in Northeastern Nigeria hardly used any form of protective measures in the farm activities; mechanical operations and chemicals applications.

Therefore, this study recommends that tractors and farm equipment should be made available by the appropriate authority at affordable prices for land cultivations and post-harvest handling respectively. There is a need for extension workers to educate the female farmers on the essence of using protective measures against all occupational hazards in the farm operations.

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