

Determinants of Rural Children's Knowledge of Hazards Associated with Farming in Oyo State, Nigeria

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KEYWORDS Hazards; rural children; farming; knowledge

ABSTRACT Children in rural areas of Nigeria are known to be active participants in farming. This has been described as a socialization process. This study investigated the knowledge of rural children about hazards associated with farming and the determinants of their levels of knowledge. The safety gears available for their use on the farm were identified. Data were collected from four hundred and fifty eight (458) children aged between six and eighteen years. A multistage sampling procedure was employed to cover the four geopolitical zones in the state. Predominantly rural Local Government Areas (LGAs) were sampled. Pre-tested interview schedules were used to collect data on respondents personal and socio economic characteristics. The data were exposed to statistical analyses such as frequency distribution and correlation analyses. Results from the study showed that majority of rural children are aware of cut from tools, insect bites and eye irritation from dusts and are rated as having moderate knowledge of hazards associated with farming (KHAF). Among the variables that significantly correlate with scores in KHAF at 0.05 level of significance are purpose of farming ($r=0.49$), farm size ($r=0.44$), sale of labour ($r=0.37$), schooling status ($r=0.36$) and ownership of personal farm ($r=0.33$) among others. Emphasis on educational programme was suggested as essential to promoting the use of safety devices among rural children.

INTRODUCTION

In most regions of the developing world especially in sub-Saharan Africa, millions of rural dwellers work as farmers, farm workers and natural resource exploiters. The agricultural sector therefore dominates the economies of most of the rural areas of the countries. In Nigeria, this situation informed the direction of some rural development activities towards agriculture and natural resource sectors by the various governments. Another reason was that majority of the population who resides in rural areas are involved in farming. Despite the fact that the discovery of crude oil in Nigeria changed the economic base of the country from agricultural products to oil, there was no substantial change in the dominant role of agriculture in rural economy. However, a considerable size of rural dwellers abandoned agriculture in search of wage labour in urban centers. This was the situation until 1986 when Structural Adjustment Programme (SAP) was introduced in Nigeria. The aftermath of SAP include down sizing and closure of some companies. Some migrants in the urban centers where these companies were located lost their jobs. Significant proportions returned to the rural areas and are engaged in farming. It has been estimated that about 69.4% of Nigerian people reside in the rural areas while the primary

occupation remains farming and farm related activities (Abumere et al., 2002).

In the typical rural setting described above, children are also known to be involved in farming and the related activities (Ekong, 1988; Jibowo, 1992; Obinne et al., 2002). Consequently, Farinde (1999) advanced that children are naturally endowed to take over farm responsibilities from the adult men and women who are the present farmers. With this futuristic role of taking-over farm responsibilities, for continuity which nature had given the rural children, there is the need to know rural children within the farm situation. Although authors did not agree on the best description accorded the participation of children in farming. Some clarified it as child labour as did Olawale and Solola (1999) while others opined that it is a socialization process as in the case of Torimiro and Lawal (1999). While the disagreement in definition is out of scope of this study, the fact that children participates in farming is the major thrust.

Agriculture in which the participation of rural children was established by Idu et al (2001), Obinne et al (2001) and Obasi et al (2001) has been described as one of the most hazardous sectors in many countries. The International Labour Organization (ILO) estimated 170,000 casualties among agricultural workers each year, a high number of the world's 1.3 billion agricultural

workers suffer serious injuries or occupational diseases (ILO, 1996). While occupational mortality rates in other dangerous occupations such as mining and construction are declining, through the 1990s, those of agriculture have continued to rise both in the industrialized and developing countries. The increased risk of occupational diseases and injuries was attributed to carelessness in the use of pesticides and machines in recent years. According to ILO (2000), workers in developing countries are especially at risk due to inadequate education, training and safety systems. The causes of accidents therefore are physical, mechanical, ergonomic, chemical and biological hazards. Evidence as in data from developing countries showed that there had been an increase in the accident rate especially among migrants and daily workers as well as women and children whose volume of work are constantly rising (ILO, 2000). A study on farm accidents among children and adolescents carried out in the United States revealed that children who worked in agriculture suffered more than 23,000 injuries and 3000 fatalities every year (Cordes and Rea, 1991). The commonly reported accidents included injuries from large animals, insect stings, cuts, burns and falls (Schulman et al., 1997). The case in a typical study carried out in Nigeria showed that cuts from sharp objects, insects bites and injuries from animals are the common accidents known among children on the farms (Farinde et al., 1999).

In summary, evidence abounds in literature on the fact that rural children participate in farming as established by Jibowo (1992), Adewale et al. (1998), Ogunwale (1997), Farinde et al. (1998) and Ekong (1988). Also, facts on children's vulnerability to occupational hazards were reported by Farinde et al. (1999), Cordes and Rea (1999) and Pholchund (1999) though without specific investigation into their knowledge and safety devices available for their uses. Therefore, the need to have empirical evidence on rural children's level of Knowledge of Hazards Associated with Farming (KHAF) and the associated variables was identified. This study therefore set to address this gap in literature.

Justification for the Study

Emerging facts revealed that children are prone to farm related hazards. In order to reduce the risk of associated dangers, there is a need to

ensure adequate training in farm accident prevention. This is necessary in order to break the resultant economic cycle of disease. Economic cycle of disease as explained by National Board of Occupational Safety and Health (1982) is that in which disease and accidents on farm results in low working capacity which in turn leads to low yield and low income. This results in malnutrition, poor training, poor housing and back to diseases and accidents. The only way to break such cycle would be to ensure good training in occupational health and safety. There is no doubt that education can go a long way in promoting a safe farming among rural dwellers especially the children. Effective safety education is however possible only with a better understanding of the existing level of knowledge and safety practices.

Objectives of the Study

The general objective of this study is to assess rural children's knowledge of hazards associated with farming and their related variables in the study area. The specific objectives of this study are to:

- (i) describe rural children's personal and related characteristics ;
- (ii) assess rural children's levels of knowledge of hazards associated with farming ;
- (iii) identify the available safety gears ever used by children in the study area; and
- (iv) discuss the correlation between the knowledge of hazards associated with farming and the various personal and related characteristics described.

The hypothesis tested was in the null form and stated that: there was no significant relationship between knowledge of hazards associated with farming activities and rural children's personal and socio-economic characteristics.

METHODOLOGY

The study area is Oyo State Nigeria. The four administrative zones of the state which is basically geo-political was covered by the study. Twenty percent of the thirty-three Local Government Area (LGAs) in the state was purposively sampled such that it allows for good dispersion by avoiding adjoining LGAs and selecting predominantly rural LGAs. The criteria used included population size, available infrastructural facilities and proportion of the

population who are farmers as in Awujoola (2000). Two rural communities having between two and three villages or settlements were randomly selected per LGA from a list using random table. Twenty-five percent of the households in the sampled communities were randomly selected for the study. In each of the selected households the eldest child aged between six and eighteen years were interviewed. A total of four hundred and fifty-eight (458) children were interviewed.

Interview schedule was used to collect relevant data from selected rural children. The instrument sought information on respondents personal and socio-economic variables. Validity was ensured with the use of specialists while test-retest method at an interval of two weeks was used to assess the reliability of the instrument. Spearman's rank-order correlation(r) value of 0.86 obtained was adjudged good.

The variables were measured with direct questions while some others were derived. Attitude was measured with responses to fifteen statements on a five point Likert scale. Seven were positive while the rest were negative. Total attitude score was computed for each respondent and used to categorise them as having favourable, indifference and unfavourable attitude. The respondents knowledge of hazards or dangers associated with farming was measured by assigning one score to each of the common hazards listed and mentioned by respondents and zero for the ones not known. The total scores per respondent was recorded accordingly for correlation analysis used in testing the hypothesis. The mean score and standard deviation for the population studied was used to categorise the respondents as having high, moderate or low score in knowledge of hazards associated with farming as did Farinde et al. (1999). Descriptive statistics such as frequency distribution and histograms was used to present information on the population studied.

RESULTS AND DISCUSSIONS

Data on personal and socio-economic characteristics of rural children presented in table 1 show that more than half of the respondents were in the age class interval of 16-18 years. The mean age was 15.88 years and a standard deviation of 2.34. About 64% were male while the remaining 36% were female. In addition, 70.96% were living with their parents. This means that majority have

their parents always by them and could learn from them in a socialization process. About 24% were out of school, 68.12% were in school and others occasionally in-out-of school. Obviously, schooling was popular in the study area.

Only 58.95% of the respondents were rated high on cosmopoliteness scores, 32.97% had medium level while the remaining 8.08% had low scores. This shows that majority of rural children in the study area have been opportuned to visit urban centers one time or the other.

Information on the farming characteristic of the respondents show that 55.24% own personal farms of which 50.24% had farms which size was less than the average for the population studied. On the farms, 87.32% cultivates more than one type of crop. On livestock, 52.62% do not own livestock while others do. Majority (76.04%) of

Table 1: Frequency distribution of respondents according to categories in selected variables

<i>Variables</i>	<i>Frequency</i>	<i>Percentages</i>
<i>Age in Years</i>		
6-9	16	3.49
10-12	49	10.70
13-15	133	29.04
16-18	260	56.77
<i>Position in the Family</i>		
First Born	40	8.73
In between	278	60.7
Last born	46	10.04
Relative	94	20.53
<i>Mode of Living</i>		
With Parents	325	70.96
With Relatives	94	20.52
With Friends	20	4.37
All alone	19	4.15
<i>Schooling Status</i>		
In school	312	68.12
Out of School	108	23.58
Occasionally in out of school	38	8.30
<i>Cosmopoliteness</i>		
High level	270	58.95
Medium level	151	32.97
Low level	37	8.08
<i>Attitude towards Farming</i>		
Favourable (4.39-5.00)	83	18.12
Indifference(3.56-4.38)	310	67.69
Unfavourable(3.55-1.00)	65	14.19
<i>Sale of Labour on Farm</i>		
Sell labour	244	55.28
Does not sell labour	214	46.72
<i>Income From Farming</i>		
<2,500	81	17.69
2,501-5,000	70	15.28
5,001-7,500	24	5.24
7,501-10,500	40	8.73
10,501-12,500	18	3.93
12,501+	21	4.59

the livestock owners had less than twenty livestock. Out of the respondents, 63.39% had their farm products for sale, 58.27% for consumption and 22.83% had theirs for philanthropy. About 58% had six to ten years of farming experience while 35.04% had less than six years of experience in farming. The mean income of the respondents from their personal farm was eight thousand three hundred and forth-eight naira ninety eight kobo (N8,348.98). Only 8.27% indicated that they earned above twelve thousand five hundred naira in a year from their personal farm.

On the knowledge of dangers or hazards associated with farming, the data presented in table 2 show that cut and injury from tools was identified most frequently as mentioned by the respondents. Insect bite, and eye irritation from dust were rated second. Gunshot accident, sun burn and chemical poisoning were rated among the least mentioned dangers associated with farming. In a further analysis, each of the respondents were studied to rate them based on the number of dangers known and mentioned by them in relation to the knowledge of hazards exhibited by the population studied. The data presented in figure 1 show that 67.47% had a moderate or average knowledge of hazards associated with farming while 20.08% had a high level of knowledge of hazards and dangers

Table 2: The dangers associated with farming and the available safety gears mentioned by the respondents.

	<i>Freq.</i>	<i>%</i>	<i>Rank</i>
<i>Dangers Associated with Farming</i>			
Cut/injury from tools	398	86.90	1
Cut/injury from machines	100	21.83	7
Injury from animal traps	199	43.45	6
Chemical poisoning	65	14.19	9
Gunshot accident	35	7.64	10
Eye irritation from dust	300	65.50	3
Snake bite	208	45.41	4
Insect bite	350	76.42	2
Animal bite	79	17.25	8
Injury from stump/root/thorn	207	45.20	5
Others (sunburn)	16	3.49	11
<i>Safety Wears Available for Use</i>			
Foot wear/Rain-boot	312	85.12	1
Hand gloves	97	21.18	5
Nose mask	40	8.73	7
Eye goggles	79	17.25	6
Ear muff	8	1.75	9
Overall/Top dress	164	35.81	2
Hat	152	33.62	3
Rain coat	122	26.64	4
Helmet	19	4.15	8

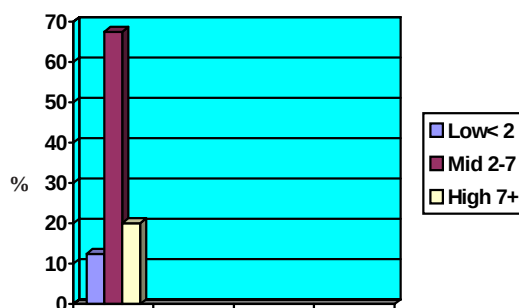


Fig. 1. Frequency distribution of respondents by level of knowledge

associated with farming. The presentation shows the prevalence of same trend in the zones and the state as a whole in which majority of the rural children studied had moderate (average) knowledge of hazards associated with farming. The same trend was reported among the adult farmers in the studies of Maroni et al. (1999) and CTA (2001) in which most small scale farmers in the developing world had less awareness and education on the dangers associated with farming. The level and trends identified among the adult farmers and noted among children indicated that children in the study area mostly learn from their parents and may not overtake them or change the trend without any concerted efforts directed at them.

The respondents were asked to mention the safety gears available to them for use on the farm. Their responses were presented in table 2. Foot wears or rain-boot was the most frequently mentioned safety gear available for respondents use as in the case of 68.12% respondents. Other safety gears mentioned as mostly available for use were overall dress (35.81%) and hat or cap (33.62%). From the foregoing the devices used for safety by respondents were foot wear/rain boot, top dress, hat, rain coat and hand gloves though, less mention were made of helmet, ear muff, eye goggles and nose mask. On a general note, despite the importance of safety devices, the use was not very popular among rural children. Therefore, there is a need to encourage the use of safety gears among children who are future farmers in order to reduce and break the economic cycle of disease and accident. Though, there is lack of adequate record of accidents and diseases resulting from non-use of safety gears by farmers, there is evidence that majority of the children in the rural areas have one time or the other been involved in farm related hazards and

accidents as established by Farinde et al. (1999).

The result of correlation analysis carried out to describe the relationship between the respondents knowledge and their selected personal and socio-economic characteristics showed that at 0.05 level of significance, participation in farming ($r=0.3154$), literacy level ($r=0.2616$) mode of living ($r=0.2094$), schooling status ($r=0.3572$) ownership of personal farm ($r=0.3269$), ownership of livestock ($r=0.4512$), purposes of production on farm ($r=0.4938$), farm size ($r=0.4412$), years of farming experience ($r=0.3234$) access to media ($r=0.2181$), cosmopolitaness ($r=0.3038$) sale of labour ($r=0.3657$), future job aspiration ($r=0.1686$), availability of safety gears ($r=0.4730$), and duration of labour on farm ($r=0.3942$) had positive relationship with knowledge of hazards or dangers associated with farming. The other variables, which significantly correlate but negatively, is position in the family birth-order ($r=-0.2338$).

Basically, this translates to mean that in the design of programme on safety gear utilization among rural children, their level of participation

in farming, present occupation, ownership of personal farm and livestock, farm size, years of farming experience and sale of labour should be considered and given prominence in the programmes. In addition, since access to media correlate positively with the rural children's level of knowledge of hazards, it is important to stress that media be used in creating awareness of dangers associated with farming and the available safety devices for use during farm operations.

CONCLUSIONS AND RECOMMENDATIONS

This study revealed that majority of rural children had moderate or low level of knowledge of hazards associated with farming. They do not use safety gears in most cases and are therefore constantly exposed to dangers. Though records on the extent of loss in terms of time, resources committed to treatment in case of accidents and even life remains scanty in documents, it is evident that children are vulnerable. The variables that correlate positively with the knowledge of dangers among rural children are crucial to any intervention programme on occupational health and hazards prevention among rural farming children.

The emerging facts from this study culminated in the recommendation that children should be educated on the dangers associated with farming and ways to prevent same. This should include the benefits derivable from prevention of dangers or hazards associated with farming. The need to get children socialized into some prevailing occupations such as farming remains essential and acceptable to parents especially in the campaign for sustainable household food security. While the participation of children in farming could not be prevented, it is important to ensure safety while on farm. The need to involve parents who are also important in any safety programme cannot be over emphasized.

Since most children attend formal schools, which also participate in their socialization, safety and occupational health education should be included in the curriculum of educational institutions where agriculture is taught as a subject right from primary level. In addition electronic and printed media should be encouraged to participate in creating awareness among the public on the immediate and remote benefits of safety and occupational health on the farm. Agricultural extension agents should make

Table 3: Result of correlation analysis showing linear relationship between rural children's personal and the socio-economic characteristics and their knowledge of hazards associated with farming.

Variables	Corrélation coefficient (r)	Coefficient of determination (r ²)
Participation in farming	0.3154 **	0.0994
Age	0.0834	0.007
Position in the family birth order	-0.2338**	0.0547
Mode of living	0.2094**	0.0439
Literacy level	0.2616**	0.0684
Educational level	0.0694	0.0048
Schooling status	0.3572**	0.1276
Ownership of personal farm	0.3269**	0.1068
Ownership of livestock	0.4512**	0.0036
Purpose of production on the farm	0.4938**	0.2438
Farm size	0.4412**	0.1947
Years of farming expenses	0.3234**	0.1046
Access to media	0.2181**	0.0476
Cosmopolitaness	0.3038**	0.0923
Sale of labour	0.3657**	0.1337
Income from farming	0.005	0.00003
Attitude towards farming	0.0872	0.0008
Future job aspiration	0.1686*	0.0284
Availability of safety gears	0.4730**	0.2237
Duration of labour on farm in Hours	0.3942**	0.1554

it a point to stress the importance of safety on farm.

Legislations could be put in place against non-use of safety gears on farms and strategies for its enforcement be mapped out such that farmers and their children could appreciate the gains of safety and occupational health.

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