

Occupational Safety Needs of Farm Children in South West Nigeria

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Abstract: The study examined the exposure of children to hazards in their agricultural involvement in the southwest of Nigeria. Using a multistage sampling technique, the study selected children (5-14 years old) from 540 farming households from fifty percent of the states in the south west. Frequency tables, means, percentages and bar chart were used to present the findings of the study while the chi-square and Pearson product moment of correlation were used to test the study hypothesis. Study findings reveal that majority of the children were males 76.2% between the ages of 10 and 14 years old 86.9% with double parentage 87.3% enrolled in formal educational institutions 98.7%. Hazards mostly faced by children were insect stings 68.7%, punctures on the feet 67.6%, wounds on the leg 66.1% and hands 55.4%. Children's gender was significantly related with level of hazards encountered ($X^2 = 89.08$, $p < 0.05$). At $p < 0.05$, age of children $r = 0.325$ position among fathers' children $r = 0.202$, position among mothers' children $r = 0.190$ and educational level of the children $r = 0.261$ were all significantly and positively correlated to level of hazards faced by children. It was thus recommended that information on treatment of wounds, need for anti tetanus injections in community health centers and use of hard soled shoes by children be disseminated by extension to farm families.

Key words: Agriculture, children, hazards, insect stings, punctures, wounds

INTRODUCTION

Children are involved in agricultural activities throughout the world. According to the ILO's Bureau of Statistics^[1], the developing countries alone, harbour at least 120 million children between the ages of 5 and 14 who are fully at work, and more than twice as many (or about 250 million) if those for whom work is a secondary activity are included. Of these, 61% are found in Asia, 32% in Africa, and 7% in Latin America. Although Asia has the largest number of child workers, Africa has the highest incidence at around 40 % of children between 5 and 14 years old. Occupational and safety experts have however classified agriculture as one of the most dangerous occupations in which children are engaged^[2]. The facts include exposure to harsh weather conditions, outside the comfort of their homes for long hours, engaging in work too tedious for their young bodies, using implements meant for adults as well as encountering various hazards from cuts by working tools, accidents from motorised equipment and exposure to toxic agricultural chemicals some of which are highly toxic and potentially carcinogenic.

The need to assess the level of hazards faced by children in Nigeria cannot be underestimated as majority of the population live in the rural areas engaged in

agriculture as their major income generating activities in which children assist. A study in Ghana also revealed majority of children involved in agriculture are involved with their guardians on family holdings^[1]. Thus there may be gross underestimations of the population of children involved in agriculture in the developing countries vis a vis their exposure to occupational hazards. According to the National Institute for Occupational Safety and Health,^[3] hazards to children do not only have immediate consequences on the well being of the children but long range detrimental effects in their body due to accumulation/long period of exposure and destruction of potential developmental opportunities. More so, according to the executive director of UNICEF, there is no single measurement of development that predicts the future of a nation, as reliably well as the well-being of a nation's youngest citizens as they are the future and leaders of tomorrow.

The study therefore examined the levels of exposure of farm children to various hazards in order to create awareness on the safety needs of children involved in agriculture. The study however accepts that the findings of the study may be limited to familial agricultural involvement of children, as different conditions may exist on commercial farms and where children hire themselves out.

The general objective of the study was to determine the level of exposure of children to hazards on the farm in the south west of Nigeria.

The study specifically

- Examined the personal characteristics of the children and
- Identified the various hazards encountered by the children involved in agriculture
- Examined the working conditions of children involved in agriculture

Hypothesis of the study: One hypothesis stated in the null form was tested in the study at the 0.05 level of significance. There is no significant relationship between the personal characteristics of the children and their level of exposure to hazards.

MATERIALS AND METHODS

Sampling technique/sample size: The study was carried out in the south west of Nigeria using a multi stage sampling technique to sample 540 children aged 5-14 years. Fifty percent of the six south west states (Ogun, Osun, and Ondo) were selected. In each state, three local government areas in the ratio 1:2 for urban and rural were chosen giving three urban LGA's and six rural LGA's. This is based on the fact that about 64% of the Nigerian population lives in the rural areas. The local government areas hosting the state capitals were chosen to represent the urban areas. 50% of the political wards in each LGA were then selected making 45 wards and a community was selected from each ward. A structured interview schedule was used to obtain primary data from 12 children in each community.

Analytical techniques: Descriptive statistics such as frequency tables, means, percentages and bar chart were used to present the findings of the study while the chi square, Pearson product moment correlation and analysis of variance were used to test the study hypothesis.

RESULTS AND DISCUSSION

Personal characteristics of children

Gender of child: Majority of the children interviewed as shown on Table 1 are males 76.3%. This is in line with other studies that reveal that males are more involved by parents in agricultural activities than the female gender. Ghana is however an exception among African countries studied with more females engaged than males in agriculture. Kabebwe,^[4] also recorded more male involvement on tobacco plantations in the Dominican

Table 1: Personal characteristics of children involved in agriculture

Variable		N = 540	
A	Sex	F	(%)
	Male	412	76.2
	Female	128	23.7
B	Age (Years)		
	5-9	71	13.1
	10-14	469	86.9
C	Position Father's Children		
	1-5	473	87.6
	6-10	53	9.8
	11-15	11	2.0
	> 15	3	0.6
D	Position Among Mother's Children		1-5
	503	93.1	
	6-10	37	6.9
E	Educational Level of Child		
	Non formal	7	1.3
	Primary 1-3	82	15.2
	Primary 4-6	105	19.4
	JSS 1- 3	219	40.6
	SSS 1-3	127	23.5
F	Parental Status of Children		
	Double parentage	471	87.3
	Single parentage	69	12.7

Republic. Laogun *et al.*, however recorded 43% female involvement in Ondo state. This is however due to the sample of over 15 year olds with the modal age category for the study as 11-15 years 65%. Therefore, with the lower ages, male children are more involved than the females in agricultural activities.

Age of child: Majority of those interviewed were between the ages of 10-14 years 86.9% followed by those in the 5-9 years category 13.1% as the study discovered that most of the children involved in agricultural activities were older children. The mean age of children involved in agriculture in the southwest is 12 years.

Position of children in household: Most of the children interviewed were in the first fifth position among their fathers' children 87.6% and within the same position among their mothers' children 93.1%. The study finding is in consonance with Makinde, who discovered majority of children 81.3% involved in agriculture, between the first five children of their father. This supports the age factor meaning the older the children; the more responsibilities will be placed on them which includes lending assistance on the farm.

Level of education: Table 1 reveals that majority were between junior secondary class 1 to 3 (40.6%) which fits well into the age of the children. This is followed by those in the senior secondary school 23.5% primary 4-6 19.4%, primary 1-3 (15.2%) and no-formal education (1.3%). A 98.7% enrolment of children in educational institution is revealed by the study. This is much higher than estimated net enrollment figures for low-income

Table 2: Hazards encountered by children involved in agriculture

N = 540		
	F	(%)
A Stepping on sharp objects		
Never	175	32.4
≤ 5 times	196	36.3
Between 6 to 10 times	42	7.8
Between 11 to 20 times	42	7.8
Almost every time	85	15.7
B Wounds on leg		
Never	183	33.9
≤ 5 times	201	37.2
Between 6 to 10 times	57	10.6
Between 11 to 20 times	52	9.6
Almost every time	47	8.7
C Wounds on hand		
Never	241	44.6
≤ 5 times	172	31.9
Between 6 to 10 times	73	13.5
Between 11 to 20 times	30	5.6
Almost every time	24	4.4
Table 2 continues		
D Insect Sting		
Never	169	31.3
≤ 5 times	105	19.4
Between 6 to 10 times	55	10.2
Between 11 to 20 times	52	9.6
Almost every time	159	29.4
E Reptile Bite		
Never	483	89.4
≤ 5 times	49	9.1
6 to 10 times	3	0.6
Between 11 to 20 times	5	0.9
F Chemical Burns		
Never	486	90.0
≤ 5 times	33	6.1
6 to 10 times	4	0.7
Between 11 to 20 times	11	2.0
Almost every time	6	1.1
G Skin Irritations	F	%
Never	327	60.6
≤ 5 times	50	9.3
6 to 10 times	34	6.3
Between 11 to 20 times	67	12.4
Almost every time	62	11.4
H Part of Body Lost		
Never	526	97.4
≤ 5 times	14	2.6
I Sprains		
Never	482	89.3
≤ 5 times	45	8.3
6 to 10 times	7	1.3
Between 11 to 20 times	6	1.1
J Total Hazards Index		
0-11 (low)	468	86.7
12-23 (moderate)	72	13.3
24-36 (high)	-	-

countries 50% and greater than 85% in higher income countries as reported by ILO. It can be implied that formal education is highly valued in the study area as agricultural involvement does not hinder formal educational enrollment.

Parental status of children: Majority of the children has double parentage 87.3% i.e., the child resides with both

father and mother of the house. Those with single parents are few 12.7%. Single parenthood has been discovered to have strong correlations with child involvement in labour ILO. Thus this factor may likely moderate the children's involvement.

Hazards encountered by children involved in agricultural activities

Stepping on sharp objects: Only 32.4% did not step on sharp objects in their participation in agriculture, majority 67.6% did, which was also in varying degrees. Most of them who did 36.3% experienced it, not more than 5 times within the period investigated, which was followed by those who encountered it almost every time they participated 15.7% and then those between 6 to 10 times and 11-20 times (7.8% respectively) Table 2. The average percentage for the study area is close to that of Kabebew's study 69% who lumped cuts/wounds and punctures together^[4].

Wounds on Leg: Majority 66.1% experienced this hazard at one time or the other. Among those that encountered this hazard, 37.2% did so not more than 5 times, followed by between 6-10 times 10.6% and between 11-20 times 9.6%.

Wounds on hand: A little above half of the population 55.4%, experienced wounds on their hand. The highest percentage is for those who have wounds not more than five times 31.9% followed by between 6-10 times 13.5%, between 11-20 times 5.6% and every time 4.4%.

Insect sting: Majority 68.7% did experience insect stings and mostly every time they are involved 29.4%. Those who experience it not more than 5 times followed 19.4% and between 6-10 times 10.2%.

Reptile bite: Majority of the children 89.4% did not experience reptile attacks like snake's bite. Of the few who experienced it, it was not more than 5 times 9.1% followed by between 11-20 times 0.9%.

Chemical burns: Majority of the children 90% did not experience chemical burns while the larger percentage of those who did, experienced it not more than 5 times 6.1% followed by between 11-20 times 2.0% and every time 1.1%.

Skin irritations: Majority of the children 60.6% did not experience skin irritation. Those who experienced it between 11-20 times have the highest frequency 12.4%, followed by every time then below 5 times 9.3%.

Table 3: Working conditions of children involved in agriculture

		N = 540	
Variable		f	%
A Heavy sunshine	Never	134	24.8
	Not more than 5 times	68	12.6
	Between 6 to 10 times	61	11.3
	Between 11-20 times	105	19.4
	Every time	172	31.9
B Rainfall	Never	188	34.8
	≤ 5 times	187	34.6
	6 to 10 times	57	10.6
	Between 11-20 times	84	15.6
	Every time	24	4.4
C Cold Weather	Never	197	36.5
	≤ 5 times	141	26.1
	6 to 10 times	70	13.0
	Between 11-20 times	74	13.7
	Every time	58	10.7
D Not Properly Clothed	Never	397	73.5
	≤ 5 times	43	8.0
	6 to 10 times	12	2.2
	Between 11-20 times	24	4.4
	Every time	64	11.9

Part of body lost: Majority of the children 97.4% did not experience the loss of any of their body parts due to their involvement in agricultural operations.

Sprains: Majority of the children 89.3% did not experience any form of sprains. Majority of those who experienced it did so not more than 5 times 8.3% followed by between 6-10 times 1.3% and between 11 to 20 times 1.1%. Kabebwe,^[4] also reveal a 6% occurrence of sprain among children working in the agricultural sector, which is lower than that of this study.

Total hazards faced: The hazard with the highest frequency of occurrence as shown on Fig. 1 is insect sting 68.7% followed by stepping on sharp objects 67.6%, wound on the leg 66.1%, wound on the hand 55.4% and skin irritations 39.4%. The hazard least encountered was loss of body parts 2.6% followed by chemical burns 10%, reptile attack 10.6% and sprains 10.7%. Overall, majority of the children 86.7% faced hazards at a low level and the remaining moderately 13.3%. None of them encountered a high exposure to hazards associated with agricultural activities.

Working conditions of children in agriculture

Heavy sunshine: Table 3 reveals majority of the children 75.2% work under heavy sunshine at varying degrees with those doing so every time 31.9% being the highest followed by between 11-20 times 19.4%, not more than 5 times 12.6% and between 6-10 time 11.3%.

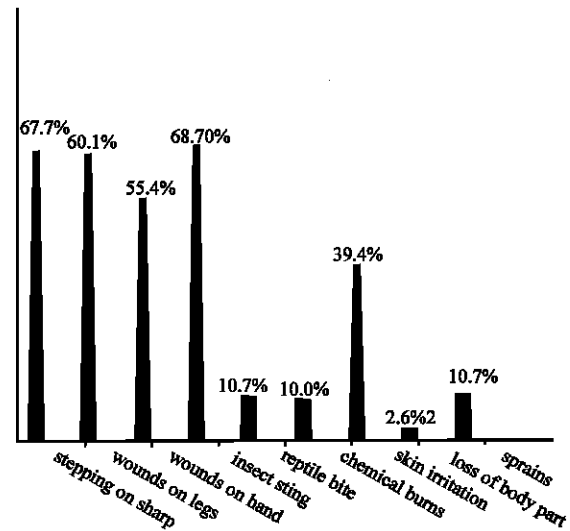


Fig 1: Hazards faced by children involved in agricultural in South west Nigeria

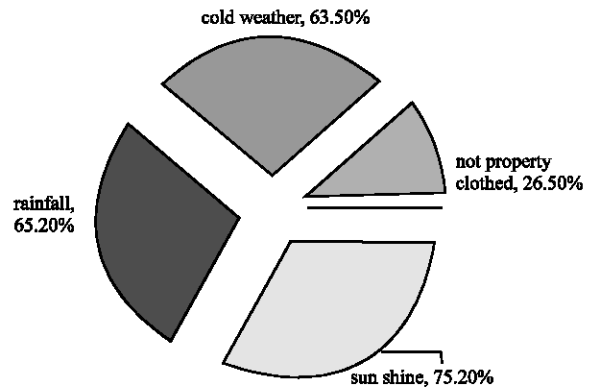


Fig 2: Working conditions of children involved in agricultural in South west Nigeria

Rainfall: Majority of the children 65.2% work during rainfall at varying degrees; with most of them doing so for not more than 5 times 34.6%, followed by between 11-20 times 15.6%, between 6-10 times 10.6%.

Cold weather: Majority of the children 63.5% work in cold weather with many doing so not more than 5 times 26.1% followed by between 11-20 times 13.7%, between 6-10 times 13% and every time 10.7%.

Not properly clothed: The data reveals that majority of the children 73.5% do not work under this condition. Among those who do, it was mostly every time 11.9%. This was followed by those who do so for not more than 5 times (8%) and finally those who do so between 6-10 times 2.2%.

Table 4: Chi square analysis between children personal characteristics and level of hazards faced

Children personal characteristics	Calculated X^2 value	p- value	df	decision
Gender	89.08	0.00	4	Reject H_0

Table 5: Results of correlations between children personal characteristics and level of hazards faced

Children personal characteristics	R value
Age of child	0.325*
Position among fathers children	0.202*
Position among mothers children	0.190*
Educational level	0.261*

*Significant at 0.05 level

Figure 2 further shows work under sunshine as the most common condition of work. This is followed by work under rainfall, work in cold weather and finally when not properly clothed.

Hypotheses testing: Table 4 reveals a significant relationship between the gender of the children and the level of hazards faced with a p - value of 0.00. This implies that whether a child is a male or female has something to do with the level of hazards to be encountered. This is in line with findings that discovered that males encounter more hazards than females^[1].

The correlation analysis done for variables at the interval level revealed all the selected personal characteristics of the children were significantly and positively correlated to the level of hazards faced Table 5. Age of the child however has the highest positive correlation value ($r = 0.325$) which implies it has a greater influence on the level of hazards faced. This can be alluded to the fact that older children are more involved in agricultural activities thus exposing them to greater level of hazards. Therefore the older the children the more hazards they face. Educational level of the child follows with an r value of 0.261. This is in line with the age of the child and it means education of children is at risk as their possible exposure to this hazards increase with higher educational attainment. The position of children among their fathers children as well as among their mothers children also reveal significant positive relationships signifying that the elderly they are the more exposed to hazards which is as a result of their more involvement.

CONCLUSION

The study identified insect stings, punctures on the feet and wounds respectively as the common hazards faced by children involved in agriculture in the south west of Nigeria. The fact that chemical burns or skin irritations are not regular occurrences may be as a result of low use of agrochemicals by farmers in the study area. The study findings thus imply that tetanus may also be a common occurrence and a cause for concern for community health officers. It is thus recommended that both indigenous and orthodox ways of treating wounds be disseminated to farm families. Health centers should also be stocked with anti tetanus injections as well as encourage children to take the tetanus injection as at when due. Children should also be encouraged to wear protective clothing to reduce the incidence of insect bites. Further more, parents should be encouraged to purchase hard tyre soled shoes or sandals or children rain boots as farm wears for their children. Farm families should be encouraged to take foods that contain vitamin c and k which assist in blood clotting. These actions will reduce or totally eliminate hindrances to children's education as wounds and punctures could cause absenteeism, lateness or reduced efficiency of the child both academically and domestically or death in serious cases of bleeding.

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