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Occupational Wellness and its Determinants among Cocoa Farmers in South-West Nigeria

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Abstract

Occupational wellness is essential for cocoa farmers' health and productivity since a significant proportion of their time is spent at work. It is a measure of individual wellbeing, focusing on the psychosocial status as it relates to individuals' profession. This study assessed occupational wellness and its determinants among cocoa farmers in the South-West region of Nigeria. A descriptive cross-sectional study design was used to study 244 cocoa farmers in Ekiti and Osun States. Also, the local government areas were purposively selected as being well known for cocoa production. A semi-structured interviewer-administered questionnaire was used to obtain data on sociodemographic characteristics and occupational wellness. Occupational wellness was scored based on their response to eight sets of questions with a 4-point Likert scale response. Association between the farmers' characteristics and occupational wellness was assessed using Mann Whitney U and Kruskal Wallis tests. Determinants of occupational wellness were assessed using quantile regression. The median occupational wellness score was 25.0 (IQR = 24.0 – 29.0). People of low educational status had higher occupational wellness scores, $p < 0.001$. Significant associations were also observed between other characteristics like sex, religion, marital status, geographical location, farm ownership, and occupational wellness. Farm ownership was also a significant determinant of occupational wellness. The occupational wellness status is due to a complex mix of occupational factors, sociodemographic factors, and geographic factors. Health promotion will be key in maintaining a balance of the mix to enhance the general wellbeing and productivity of the farmers.

Keywords: *Occupational Wellness, Farmers, Cocoa.*

Introduction

Occupational wellness is a measure of individual wellbeing, with a focus on the psychosocial status, as it relates to individuals' profession [1, 2]. Occupational wellness has been defined by various authors mostly based on dimensions of the concept. Occupational wellness is defined as a state of having the ability to achieve a balance between work and leisure time, addressing workplace stress, and having healthy relationships with co-workers [3]. A workman is adjudged to be occupationally well if he or she can find an equilibrium between his values, purpose, and career [4].

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The relationship between occupational wellness vis-à-vis absence of or low psychosocial hazard on the productivity and physical health of workmen has long been established, thus making it a concept that deserves attention in occupational health [5, 6]. It has also been identified as a determinant of job satisfaction [7]. Few studies that have been conducted to assess the determinants of occupational wellness showed gender as a significant factor. Females were observed to have a higher occupational wellness status compared to males [8, 9]. The effect of occupational wellness intervention was also observed to be higher among females compared to males [8]. The levels of education of workmen have also been identified as an important determinant of occupational wellness. A low level of education was observed to predispose workers to psychosocial stress and, consequently, poor occupational wellness [10].

Farming in Nigeria, including cocoa farming, is mostly practiced in the informal sector of the economy where occupational health services are not well structured [11]. Therefore, monitoring of hazards associated with this profession is limited to self-reporting like the general population [11]. Most previous studies among farmers in Nigeria focused on other classes of hazards, especially chemical and biological hazards [12-15]. There has been a dearth of publications on the psychosocial hazard related to the profession, which culminates in occupational wellness status. This study, therefore, aimed to assess occupational wellness, a proxy measure of the risk of psychosocial hazard [16], and its determinants among cocoa farmers in the South-West region of Nigeria.

Methods

Study Area

This study was conducted in selected local government areas where cocoa farming was very common in Ekiti and Osun States. The states are known as agrarian states because a significant proportion of adults in the states are involved in either subsistent or cash crop farming or both. The states lie in the tropical rainforest characterized by heavy rainfall which favours cocoa production. The region is also characterized by high humidity, which favours the proliferation of pests that may affect cocoa production. Being a cash crop that generates revenue to the state, there are support structures from the government to support productivity and welfare of the farmers like access to soft loans from the Bank of Agriculture, government-supported cooperative societies, and establishment of the Agricultural Development Programme that usually supports farmers with farm inputs. Being a workgroup in the informal sector of the economy, there is no structured occupational health service for the people in this profession. Hence, the effects of hazards associated with the profession, especially the psychological effects, are not usually well documented.

Study Design and Population

This study was conducted using a descriptive cross-section study design. Both sexes were involved in the study. However, the profession is dominated by males. Participants in the study were cocoa farmers actively involved in farm activities, especially the spraying of chemicals. Labourers working in cocoa plantations on contract bases were included in the study, provided they have been on the job for more than a year. Cocoa farmers that have retired from farming or those that have given out their farms on the lease were excluded from the study.

Sample Size and Sampling Technique

A sample size of 166 was calculated using a formula for comparing two proportions because this study is a subsection of a bigger survey that assessed the health effects of occupational hazards among farmers with commercial motorcyclists as the comparison group. The sample size was calculated based on the proportions of farmers that used protective clothing, 66.3% [17], and the proportion of

commercial motorcyclists using at least one personal protective equipment, 77.6% [18]. However, to ensure the robustness' of the study, a total of 213 Cocoa Farmers completed the study.

Ekiti and Osun States were purposively selected as being states well known to be the major producers of cocoa in the country. The local government areas selected, which include Ekiti Southwest, Oye, Ife Central, and Ife East, were also purposively selected, being local government areas actively involved in cocoa farming. It is not all the local government areas in the selected states have the soil texture that supports cocoa farming. All willing and eligible cocoa farmers present at each farm settlement visited were enrolled.

Data Collection

Data were collected using a semi-structured interviewer-administered questionnaire. The data were collected between October and November 2021 by trained research assistants with a minimum of a diploma in a health-related field. The questionnaire assessed the sociodemographic characteristics of the respondents, and a section contained a set of questions that assessed the occupational wellness of the farmers. The questionnaire also contained questions that assessed the level of knowledge and perception of occupational hazards associated with cocoa farming. The knowledge and perception were assessed based on the scores of respondents relative to the maximum attainable score. Those that scored at least the median of maximum attainable scores were classified as having good knowledge and perception. The details of variables for assessing the knowledge and perception were, however not discussed in this manuscript. Occupational wellness was scored based on their response to eight sets of questions with a 4-point Likert scale response. The strongly disagree response attracted 1 point, while the strongly agree response attracted 4 points. The occupational wellness score was derived from the summation of scores for each question.

Data Analysis

Data were analyzed using SPSS version 26 for Windows (IBM SPSS Inc., Chicago USA). Categorical variables like responses to questions that assessed occupational wellness were summarized using frequencies and percentages. Continuous variables were summarized using median and interquartile range due to the skewness of the data. The relationship between the respondents' characteristics that are numerical and occupational wellness score was assessed using Spearman Correlation. Associations between categorical variables and occupational wellness scores were assessed using Mann-Whitney U Test and Kruskal Wallis Test. Determinants of occupational wellness were assessed using quantile regression. A p-value of less than 0.05 was considered to be statistically significant.

Ethical Consideration

Ethical approvals were obtained from the Research and Ethics Units of Ife East Local Government Area and Ekiti South-West Local Government Area. Informed consent was sought from each respondent after an adequate explanation of the objectives of the study. Confidentiality and data security were assured. Participation was made voluntary as each participant was at liberty to opt-out at any point in the study.

Results

The median age of the respondents was 48 (IQR = 40.0 – 55.0) years. The majority of the cocoa farmers were male, 178 (83.6%) and Christian, 180 (84.5%). Only one respondent practiced traditional religion. More than 9 out of 10 respondents were married: 156 (73.2%) and 52 (24.4%) in monogamous and polygamous settings, respectively. Five respondents (2.3%) were single. The secondary level of education was the most commonly attained level of education by the farmers, 97 (45.5%) followed

by the proportion of respondents with a primary level of education, 67 (31.5%). Thirty-seven (17.4%) of the farmers had tertiary levels of education, while 12 (5.6%) had no formal education. More than half of the farmers, 124 (58.2%) lived in their own house, while 67 (31.5%) lived in a rented apartment. Most of the farmers, 152 (71.4%) own the cocoa farm where they work. This form of ownership was followed by ownership by lease, 27 (12.7%), and joint ownership, 26 (12.2%).

Table 1 shows the frequency distribution of responses to questions for occupational wellbeing assessment. Most of the farmers, 202 (94.8%) were satisfied with their job, and more than 9 out of 10 196 (92.0%) farmers felt that their earnings from the job met their daily needs. About one-third of the respondents, 70 (32.8%), did not feel the occupational group (societies) in which they belong care about the welfare of their members. Almost all respondents found achievements from their work as the source of motivation, 208 (97.6%) while 5 (2.4%) farmers did not derive motivation from any achievement derived from their farming work. The median occupational wellness score was 25.0 (IQR = 24.0 – 29.0).

Table 1. Occupational Wellness Assessment

Variables	**Strongly disagree**	**Disagree**	**Agree**	**Strongly Agree**
	n (%)	**n (%)**	**n (%)**	**n (%)**
I am quite satisfied with my job.	1(0.5)	10 (4.7)	97 (45.5)	105 (49.3)
My job earnings meet my daily needs	2 (0.9)	15 (7.0)	108 (50.7)	88 (41.3)
I attach lots of value to my work.	0 (0.0)	5 (2.4)	110 (51.6)	98 (46.0)
My work achievement often acts as a source of motivation.	0 (0.0)	5 (2.3)	105 (49.3)	103 (48.4)
My workplace is very conducive.	3 (1.4)	28 (13.1)	101 (47.4)	81 (38.0)
My job provides ample scope for career growth.	0 (0.0)	28 (13.1)	110 (51.6)	75 (35.2)
I used to maintain a balance between work and home life	2 (0.9)	5 (2.4)	102 (47.9)	104 (48.8)
My occupational union does care a lot about its members.	19 (8.9)	51 (23.9)	102 (47.9)	41 (19.2)
My work offers challenges to advance my skills.	2 (0.9)	33 (15.5)	132 (62.0)	46 (21.6)

There was a statistically significant but weak correlation between perception of occupational hazards related to cocoa farming and occupational wellness score ($R = 0.154$, $p = 0.024$). Negative correlations were observed between occupational wellness scores and variables like the total number of people per household, weight, and score from the assessment of knowledge of farmers on occupational hazards and preventive measures. The correlations were, however not statistically significant. Details are shown in Table 2.

Table 2. Correlation Between Occupational Wellness Score and Farmers' Characteristics

Variables	Correlation Coefficient	p-value
Age	0.061	0.374
Total number of people per household	-0.081	0.237
Weight	-0.117	0.087
Height	0.116	0.092
Number of years in cocoa farming	0.027	0.699
Perception of related occupational hazard	0.154	0.024
Knowledge of occupational hazards and preventive measures	-0.119	0.084

There was a significant association between the levels of education of respondents and occupational wellness, $p < 0.001$. The highest occupational wellness score was observed among the farmers with no formal education, 28.0 (IQR = 24.7 – 29.8), while the least score was observed among farmers with a secondary level of education, 24.0 (IQR = 23.0 – 27.0). The occupational wellness score was significantly higher among females, 28.0, compared to the occupational wellness score among males, 25.0, $p = 0.007$. There was also a significant association between marital status and occupational wellness, $p = 0.006$. Farmers that were divorced had the highest occupational wellness scores, 32.0 (IQR = 31.0 – 32.0); the least score was among the single respondents, 23.0 (IQR = 20.0 – 26.0). People that owned cocoa farms through joint ownership were observed to have higher occupational wellness scores compared to other forms of ownership, 28.0 (IQR = 24.8 – 30.0), $p = 0.001$. This was followed by ownership by lease, 26.0 (IQR = 24.0 – 28.0) and personally-owned farm, 25.0 (IQR = 24.0 – 29.0). Details are shown in Table 3.

Table 3. Association Between Occupational Wellness Score and Farmers' Characteristics

Variables	Median (IQR)	p-value
Level of education		
No formal education	28.0 (24.7 – 29.8)	H = 22.006
Primary	27.0 (24.0 – 30.0)	
Secondary	24.0 (23.0 – 27.0)	p < 0.001
Tertiary	26.0 (24.0 – 28.0)	
Sex		
Male	25.0 (24.0 – 28.0)	U = 2226.5
Female	28.0 (24.0 – 30.0)	p = 0.007
Religion		
Christianity	25.0 (24.0 – 28.0)	U = 8.084
Islam	28.0 (24.0 – 30.0)	p = 0.018
Marital status		
Single	23.0 (20.0 – 26.0)	H = 10.201
Married	25.0 (24.0 – 29.0)	p = 0.006
Separated/Divorced	32.0 (31.0 – 32.0)	
Location		
Ekiti	24.0 (23.0 – 27.0)	U = 8107.0

Osun	28.0 (24.0 – 30.0)	p < 0.001
House Ownership		
Personal own house	25.0 (24.0 – 29.0)	H = 2.269
Joint Ownership	26.0 (24.0 – 28.0)	
Rented from private owners	25.0 (24.0 – 28.0)	p = 0.519
Others	24.0 (20.0 – 25.8)	
Farm ownership		
Personal own farm	25.0 (24.0 – 29.0)	H = 18.958
Ownership by lease	26.0 (24.0 – 28.0)	p = 0.001
Joint ownership	28.0 (24.8 – 30.0)	
Labourers	23.0 (20.0 – 25.0)	
Others	21.0 (20.0 – 21.5)	

Table 4 showed the quantile regression of the associations between the respondents' characteristics and occupational wellness scores. Farmers that had secondary level of education had occupational wellness scores less than farmers with tertiary level of education (B = -2.091, 95% CI = -3.379 to -0.803, P = 0,002). Cocoa farmers that are divorced/separated were more likely to perform better than those that were single by 5 units (B =5.182, 95% CI = 0.260 to 10.104, p = 0.039). Cocoa farmers that are married were also more likely to perform better in the occupational wellness score by 1.3 units; this was, however, not statistically significant, p = 0.403. The occupational wellness score of cocoa farmers in Ekiti State was poorer than their contemporaries in Osun State, (β = -2.000, 95% CI = -3.150 to -0.850, p = 0.001). Types of farm ownership were also a significant determinant of occupational wellness. Farmers that own cocoa farms by lease were likely to have lower occupational wellness compared to farmers who own their farms (β = -5.182, 95% CI = -8.855 to -1.509, p = 0.006), while those that were into joint ownership were more likely to have better occupational wellness performance by about 2 units (β = 1.773, 95% CI = 0.316 to 3.185, p = 0.014. Although those that work as laborers in cocoa farms or own farms by other means (e.g., being a caretaker for relatives living outside the study area) had lower occupational wellness performance, the unit differences were not significant.

Table 4. Quantile Logistic Regression of Association Between Farmers' Characteristics and Occupational Wellness Score

Variables	**B**	**p-value**	**95% CI**
Perception	0.091	0.059	-0.004 to 0.185
Level of education			
No formal education	1.227	0.263	-0.927 to 3.382
Primary	-0.045	0.950	-1.472 to 1.381
Secondary	-2.091	0.002	-3.379 to -0.803
Tertiary	Ref	-	-
Sex			
Female	0.227	0.738	-1.112 to 1.567
Male	Ref		
Religion			
Christianity	-0.227	0.727	-1.508 to 1.053

Islam	Ref		
Marital status			
Married	1.318	0.403	-1.786 to 4.422
Separated/Divorced	5.182	0.039	0.260 to 10.104
Single	Ref	-	-
Location			
Ekiti State	-2.000	0.001	-3.150 to -0.850
Osun State	Ref		
Farm ownership			
Joint ownership	1.773	0.014	0.361 to 3.185
Labourers	-2.909	0.068	-6.031 to 0.213
Ownership by lease	-5.182	0.006	-8.855 to -1.509
Other forms of ownership	-1.091	0.122	-2.476 to 0.294
Personal own farm	Ref	-	-

Discussion

The majority of the respondents were male. This could be due to the profession being culturally adjudged to be a male profession. Also being a perennial plant, with inheritance as a common means of ownership, cocoa plantations are usually inherited by male members of the family. The majority of the respondents own their farm and the average period of being in cocoa farming was 18 years. The majority of the respondents, therefore, have enough years of experience in the profession, with responses that represent their perceived occupational wellness over the years through the different stages of development of cocoa plantations.

The majority of the farmers were satisfied with their job and felt the earnings from cocoa farming met their daily needs. This could be because most of the farmers that participated in the study have their plantations already in the production stage. None of the farmers had their farms in the nursery stage. Most of the farmers also engaged in other food crop farming in relatively lower farm sizes. This serves as a source of food supply for the family and income throughout the year, outside the cocoa harvesting period. This is similar to findings from a similar study conducted among Ghanaian Cocoa Farmers, where the majority were satisfied with their job conditions and earnings [19]. The respondents in this study were, however migrants. Hence, the cause of migration to the study area may have contributed to the higher rate of satisfaction experienced in the study. A much less frequency of farmers that were satisfied with their job was observed in a similar study conducted among cocoa farmers in Peru [20].

Most of the farmers also felt that their occupational unions care a lot about them. This could be due to the existence of most of the unions as cooperative societies which offer low-interest loans and supply of farm input at subsidized rates. The workers union/cooperative societies also serve as a source of funding for healthcare, especially in Nigeria, where health insurance is still at the lowest ebb in terms of coverage, especially for workers in the informal sector of the economy [21].

There was no correlation between the age of participants and occupational wellness. This could be as a result of most farmers being in a relatively close age range; the majority of the farmers were within the range of 15 years because participants were limited to those who were still active in all farm works, especially spraying of chemicals. This is contrary to findings from literature where age was a significant factor affecting occupational wellness [22]. The level of education was a significant determinant of perceived

occupational wellness. A negative relationship was observed between the levels of education and perceived occupational wellness; farmers with lower levels of education had a higher perception of occupational wellness relative to those with a higher level of education. This could have been due to the feeling of being underemployed by the more educated farmers, as the farming occupation is not popular among educated Nigerians.

The significant difference in the perceived occupational wellness of cocoa farmers in Ekiti and Osun States could be due to variation in their geographical locations and the socio-cultural environment of the two study areas. Also being different states, the components of the wellness score may vary. Most farmers recruited in Osun State lived in the farm settlements. Hence, they may enjoy more cooperation of fellow cocoa farmers and enhanced dedication to farming activities relative to fellow cocoa farmers that mostly live in the town, with some having other occupations like trading.

Marital status was also a significant determinant of occupational wellness. Farmers that were separated/divorced were more likely to have higher occupational wellness scores compared to single cocoa farmers. The less demand for a balance between work and home life may have given room for farmers to channel more of their energies and attention to their work environment. Ownership of the cocoa farm is associated with occupational wellness. Owning a farm either personally or via joint ownership had a positive relationship with occupational wellness, while other forms of ownership like being a labourer in the farm and ownership by lease had negative relationships with occupational wellness. This could be due to a sense of fulfillment associated with being an owner of a farm and not working under anybody's authority. The finding is similar to the observation in a study conducted among migrant Ghanaian Cocoa Farmers where farm ownership was a significant factor affecting occupational wellness [19].

Conclusion

Majority of the farmers had high perceived occupational wellness. The occupational wellness status is due to a complex mix of occupational factors, sociodemographic factors, and geographic factors. Farmers spend a significant proportion of their time on farms like other workmen. Hence there is a need to maintain the balance of factors that have effects on occupational wellness through health promotion, a key factor that enhances productivity and general wellbeing of the farmers. Further studies are required to assess the relationship between perceived occupational wellness and exposure to occupational hazards.

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Declaration of competing interest

The authors declare that there is no conflicting interest that could have appeared to influence this study.

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