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The Impact of Musculoskeletal Pain on the Quality of Life of Farmers in the Volta Region of Ghana

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Abstract

The incidence of musculoskeletal (MSK) pain among farmers in Ghana is high. In the Volta Region, where the proposed research was conducted, MSK pain is among the top three most reported cases at the Ho Teaching Hospital. While the number of cases is known and treated at the hospital, the root causes are not. The proposed study investigated the effects of MSK pain on the quality of life (QoL) of farmers in the Region, to determine whether the age and sex of farmers in the Volta Region have any relationship with QoL, and to determine whether their knowledge about MSD and QoL was adequate to inform on its management. A total of 212 farmers were selected for the study without any particular order. Cross-sectional surveys were conducted to obtain the demographic and socioeconomic status of the participants. Both qualitative and quantitative statistical methods were used to determine the impact of MSK pain on QoL, the relationship between age/sex and QoL and if the farmers in the Volta Region think they have enough knowledge about their MSDs and are confident in managing them. The study found that the QoL among the farmers was very low. The farmers' QoL was below the average grouped quality of life and about 26.5% can be said to be clearly above the average grouped quality of life. MSK pains have had a huge toll on the quality of life of Volta Region farmers affecting about 73.5% of the respondent farmers.

Keywords: *DALY, HRQoL, NMQ, MSK-HQ, MSK, Musculoskeletal pain, Quality of Life, Farmers in Ghana.*

Introduction

Persons with MSDs suffer varying degrees of distress, disability, loss of mobility, institutionalization and high mortality. Some of the symptoms in turn impair their health-related quality of life (HRQoL) as a result of the inflicted distress and cost [1]. Health-related quality of life is generally defined as a subjective evaluation of the effect of disease and treatment across a person's physical, psychological, social and somatic areas of functioning and well-being. These assessments effectively serve as predictors of the impact of a disorder, physical decline or eminent death and to some extent guide the magnitude of interventions for affected persons [2].

In Ghana, the agricultural sector is not as advanced in terms of technology and innovation

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compared to other sectors, resulting in a significant number of small-scale or backyard farmers who lack access to modern tools and equipment [3]. Due to this limitation, farmers are compelled to exert vigorous physical effort to achieve their desired results [4], which increases the risk of developing Work-Related Musculoskeletal Disorders (WRMSDs) within the farming community.

The cost of treatment lost productivity, and disability can have a significant impact on the financial well-being of farmers and their families [5]. In addition, the lack of access to modern tools and equipment in the agricultural sector means that farmers are often forced to rely on traditional methods that require more physical effort. This can lead to an increase in the risk of developing musculoskeletal pain and further exacerbate the economic burden on farmers [6].

The agricultural sector is a significant contributor to Ghana's economy, with over half of the population engaged in farming activities [7]. Unfortunately, farmers in Ghana are often exposed to a range of musculoskeletal disorders due to the nature of their work, which can have a significant impact on their quality of life. While previous research has explored the prevalence and risk factors associated with musculoskeletal pain among farmers in Ghana, there is a need for further investigation into the impact of this pain on their quality of life [3].

Understanding the impact of musculoskeletal pain on the quality of life of farmers in Ghana is critical for developing effective interventions to improve their health outcomes [8]. By exploring the physical, psychological, and social effects of musculoskeletal pain, researchers can identify areas where interventions can be targeted to improve the quality of life of farmers in Ghana [9]. This research can inform policies and programs aimed at improving the health and well-being of farmers in Ghana and other countries with similar agricultural sectors.

The study of quality of life among farmers in the Volta Region of Ghana is significant for several reasons. Firstly, it can provide insights into the physical, psychological, and social effects of musculoskeletal pain on farmers in the Volta Region of Ghana. By understanding the impact of musculoskeletal pain on farmers' quality of life, researchers can identify areas where interventions can be targeted to improve their health outcomes.

Secondly, a study of the quality of life among farmers in the Volta Region of Ghana can inform policies and programs aimed at improving the health and well-being of farmers.

Thirdly, a study of the quality of life among farmers in The Volta Region of Ghana can contribute to the broader literature on musculoskeletal pain and its impact on vulnerable populations. While there is a growing body of research on musculoskeletal pain among farmers in low- and middle-income countries, there is still a need for further investigation into the impact of this pain on their quality of life. By contributing to this literature, the study can inform future research and interventions aimed at improving the health outcomes of vulnerable populations.

Finally, a study of the quality of life among farmers in The Volta Region of Ghana can raise awareness about the importance of addressing musculoskeletal pain among this population. Musculoskeletal pain is often overlooked as a health issue, particularly among vulnerable populations such as farmers in low- and middle-income countries [10]. By highlighting the impact of musculoskeletal pain on farmers' quality of life, the study can raise awareness about the need for interventions to address this issue.

Justification of the study is that the Ho Teaching Hospital (HTH), located in the Volta Region and serving as the primary referral hospital, has reported that Musculoskeletal (MSK) pain is among the top three cases reported from 2015 to 2020. In most of the years under review, MSK pain is reported as the most common or second most common case. The other two most frequently reported cases are malaria and anemia. Information from the

unpublished hospital records in 2015, MSK pain accounted for 12.76% (10,961) of reported cases in 2015, while it was 11.84% (10,648) in 2016, 10.29% (10,526) in 2017, 11.05% (12,790) in 2018, 12.52% (15,451) in 2019, and 10.67% (8,956) in 2020. Moreover, the majority of new cases of MSK pain reported at HTH are farmers across all the years under review. These findings are based on unpublished information available at the hospital.

The main objective of the study is aimed at determining the impact of MSK pain on the quality of life (QoL) of farmers in the Volta Region of Ghana. The below are specific objectives of the study:

1. To determine the impact of MSK pain on QoL among farmers in the Volta Region.
2. To determine whether the age and sex have any relationship with their QoL of farmers in the Volta Region.
3. To determine whether farmers in the Volta Region know their MSD and are confident in managing them to improve their QoL.

Conceptual Framework

Musculoskeletal Disorders (MSDs) have significant repercussions, including missed workdays, financial loss due to medical expenses, and reduced work productivity due to discomfort during work [11]. [12] estimate that the costs associated with MSDs range from 13 to 54 billion US dollars annually. While several studies have investigated MSDs in other professions, it is crucial to examine their impact on farmers since this group is also highly affected [11]. Previous studies have mainly focused on workloads, stress, and work conditions as predictors of MSDs [13]. This study is essential as it concentrates solely on MSDs and aims to address the health and safety concerns of one of Ghana's largest groups of workers.

Research Questions

Specifically, the study seeks to answer the following research questions:

1. What is the impact of MSK pain on QoL among farmers in the Volta Region?
2. What is the relationship between age, sex, educational level and QoL of farmers in the Volta region?
3. Do farmers know about MSD and are confident in managing them to improve their QoL?

Musculoskeletal pain refers to discomfort or pain that affects the muscles, bones, ligaments, tendons and other supporting structures of the body. It can manifest in various areas of the musculoskeletal system, leading to a wide range of symptoms such as aching, stiffness, tenderness, and limited range of motion [14]. Common causes of musculoskeletal pain include injuries, overuse, repetitive strain, inflammation, and certain medical conditions like arthritis and fibromyalgia [15].

Globally, MSDs account for 33% of all work-related occupational illnesses, thus the largest single cause of work-related health conditions [16]. The affected parts include tendons, muscles, ligaments, discs, nerves, and blood vessels [17]. An awkward work posture and hard physical labour may raise the incidence of MSK diseases, according to earlier studies. An improper work posture is a common contributor to NP and LBP, in particular [18].

The agricultural sector is a significant contributor to Ghana's economy, with over half of the population engaged in farming activities [3]. Unfortunately, farmers in Ghana are often exposed to a range of musculoskeletal disorders due to the nature of their work, which can have a significant impact on their quality of life.

Quality of Life Assessment of People Living with WRMSDs

The ability to measure and assess the quality of life concerning an impact of a disorder has in effect become very instrumental in assessing the magnitude of interventions or point-of-care actions required by an individual suffering from these disorders and as well as create an

opportunity to measure the effectiveness of such interventions on the individual [19].

The main objective of this study is to address the existing gap in WRMSD (Work-Related Musculoskeletal Disorders) research in Ghana, specifically focusing on farmers in the Volta Region. The study will explore the impact of these disorders on the quality of life (QoL) of farmers in the Volta Region of Ghana.

Materials and Methods

Study Area

The research was conducted at Ho Teaching Hospital, situated in the Volta Region of Ghana. This region was selected for its suitability in representing the farming population of Ghana and for its convenience for the researcher. The Volta Region encompassed diverse areas, including urban, peri-urban, and rural regions, making it an ideal choice due to its large farmer population. At the time of the study, Ho Teaching Hospital served as a referral center for the entire Volta Region. Geographically, the region represented the Southeastern part of Ghana and covered an extensive area of 9,504 square kilometers, approximately constituting 4% of Ghana's total land area. Moreover, the region was estimated to have a population of 1,649,523 individuals [20].

Research and Design

The study employed a cross-sectional survey with a descriptive study approach. This approach was chosen due to its cost-effectiveness, the ability to conduct it within a relatively short timeframe, and its capability to collect data on a personal level, thereby allowing control over potential confounding factors. The aim was not to manipulate conditions for cause-and-effect outcomes but rather to answer the research questions of the study [21].

Study Population

As per the 2021 Ghana Population and Housing Census [20], the Volta Region's occupation is primarily agriculture. The distribution of agricultural households by district and the types of agricultural activities they undertake are as follows: out of the total 291,224 agricultural households, 271,071 (93.1%) are involved in crop farming, 1,850 (0.6%) in tree growing, 11,270 (3.87%) in livestock rearing, and 557 (0.2%) in fish farming. Notably, fish farming is the least widespread farming activity in the region.

Table 2 presents the annual reported cases of various health issues, including musculoskeletal pain, malaria, and anemia. Among these cases, farmers constitute the majority of the newly reported cases of musculoskeletal pain at the HTH (Ho Teaching Hospital).

Table 1. The Annual Proportion of Hospital Cases Reported as Musculoskeletal Pain Between 2015-2020

Year	Percentage of Reported Cases (N)
2015	12.76% (10,961)
2016	11.84% (10,648)
2017	10.29% (10,526)
2018	11.05% (12,790)
2019	12.52% (15,451)
2020	10.67% (8,956)

Sample Size Calculation

Based on unpublished information, in the year 2020, Ho Teaching Hospital diagnosed 7,524 new cases of MSK (Musculoskeletal) pain, with 1,432 patients returning for review. Assuming this trend remained consistent in 2022, the expected total number of patients at the hospital would be 8,956. Considering that approximately 60% of the region's population are farmers [7], it

is estimated that there were about 5,374 farmers affected by MSD. Using a sample size calculator [22] yields a sample size of 200 participants for a 95% confidence interval and a margin of error of 6.80%.

The sample size was estimated using the following formula:

$$x = Z(^{c}/_{100})^{2} r(100-r)$$

$$n = {}^{Nx}/_{((N-1)E^{2}+x)}$$

$$E = \text{Sqrt}[{}^{(N-n)x}/_{n(N-1)}]$$

Where N is the population size, r is the fraction of responses of interest, and Z(c/100) is the critical value for the confidence level c.

Study Subject Selection

Prospective farmers who visited the hospital with MSK pain were approached at the orthopedic and pain management clinics. The recruitment for the study involved approaching individual farmers at the point of service or after service to establish initial contact and seek their possible consent to participate. Subsequent meetings were then arranged with the selected farmers at their convenience for data collection. This approach ensured that patients presenting bodily pains for other ailments unrelated to MSDs were excluded from the study. Convenience sampling was used from the beginning of recruitment until the desired sample size was achieved. For those who agreed to participate written informed consent was obtained before the questionnaires were administered. Relevant information such as their community of residence, age, and sex were collected to evaluate farmers from urban, peri-urban, and rural areas, and to determine if any particular group was more impacted than others.

Inclusion and Exclusion Criteria

The inclusion criteria were;

1. Male and female individuals who are professional farmers and have given their consent to participate.
2. Participants must be at least 18 years old.
3. Patients presenting with MSK pain at the orthopedic department of HTH.

And the exclusion criteria were;

1. Children and individuals below 18 years of age.
2. Patients experiencing bodily pains due to other ailments, such as malaria and typhoid fever, were excluded from the study.

Construction of Research Instruments

To assess the general effects of WRMSDs (Work-Related Musculoskeletal Disorders), two research instruments were employed in this study based on the NMQ (Nordic Musculoskeletal Questionnaire) and the MSK-HQ (Musculoskeletal Health Questionnaire) [23, 24]. Both the NMQ and MSK-HQ were utilized as either self-administered questionnaires or used in interviews during the study. The questionnaire also included demographic and farming conditions sections. These tools have been used in previous studies conducted in Ghana and worldwide.

Scoring of the MSK-HQ and Other Questionnaires

The MSK-HQ consists of questions with response options accompanied by associated numbers. The respondents' chosen responses were matched to the corresponding number to score the MSK-HQ. The scores range from 0 to 56, with a higher score indicating better MSK-HQ health status. The total of all the scores gives the overall result of the MSK-HQ. The NMQ was scored similarly, while the farming conditions questionnaire underwent qualitative analysis [25, 26].

Data Collection Techniques

The study recruited farmers visiting Ho Teaching Hospital seeking medical attention for musculoskeletal pains. Out of these, 212 farmers were randomly selected to participate in the study. Farmers with MSD symptoms were identified, and through random number selection, they were contacted for consent to

participate in the study, and questionnaires were administered accordingly.

The researcher received training from an orthopedic specialist, who in turn trained the field team on how to administer the structured MSK questionnaires. Data were collected by administering the questionnaires to respondents who met the study criteria and were willing to participate. Pre-testing of the demographic and farming conditions questionnaire was conducted on about 5-10% of farmers in a different location to make necessary modifications before full administration.

The researcher and the research assistant administered the questionnaires, providing clarification on any queries raised by the respondents. For those who faced language barriers, the research team assisted in administering the questionnaires in the local language or English. An impartial witness was used where needed. Self-administration was also provided for respondents who were comfortable responding without assistance. Due to the volume of the questionnaire, follow-up visits were scheduled on subsequent days to ensure both convenience and comfort for respondents and the researcher.

Data Analysis

Data Organization and Cleaning: Before conducting the analysis, the data needed to be organized and cleaned. This involved checking for missing data, and outliers, recoding variables where necessary, and ensuring data consistency [27] The collected data were recorded in an MS Excel spreadsheet for data cleaning and editing. After the cleaning process, the data was exported to IBM SPSS Version 25 for further analysis and reporting.

Descriptive Analysis: To identify the significant variables in the dataset, descriptive analysis was the first step. Metrics like means, medians, standard deviations, frequencies, and percentages were computed [28]. This descriptive analysis provided a quick overview of the sample's characteristics, helping to understand the demographics, quality of life variables, and frequency of MSK pain among farmers. Descriptive statistics were generated for all variables, including socio-demographic variables and prevailing MSDs.

Bivariate Analysis: Bivariate analysis was employed to examine relationships between the variables of interest. Correlations between variables were explored, using methods like correlation coefficients (e.g., Pearson's correlation) [29]. For example, the study investigated connections between MSK pain and work-related characteristics, or the relationship between pain severity and quality of life measures. Data Interpretation: The data analysis findings were interpreted in the context of the study's goals and hypotheses. Statistical significance, effect sizes, and relationship patterns were analyzed to identify key conclusions and trends revealed by the analysis [30]. Reporting: The study's findings were presented clearly and concisely using appropriate tables, charts, and graphs. Dissemination of the studies' findings: The study's results were shared with Ho Teaching Hospital and the Volta Regional Office of the Ministry of Agriculture. They were encouraged to further disseminate the findings to the national office and farmer associations in the Volta Region. This ensured that the valuable research insights reached relevant stakeholders and contributed to evidence-based decision-making in the agricultural sector.

Ethical Considerations

The study was conducted following strictly the principles outlined in the Declaration of Helsinki, which was adopted by the 18th World Medical Association Assembly in 1964, along with its subsequent amendments. Additionally, the study adhered to the principles of Good Clinical Practice and complied with international and national laws and regulations applicable in Ghana, including directives related to ethics committee submission and personal data protection. To ensure ethical approval, all

relevant study documents, such as the study protocol and informed consent form, were submitted to the independent ethics committee (IEC) of the Ho Teaching Hospital for review and approval. The study received approval (HTH-REC (15) FC_2022) from the Ho Ethical Review Committee, and the researcher followed all procedures outlined in the approved study proposal.

Before enrollment, the researcher and the study team provided detailed explanations to each potential participant about the study's nature, objectives, procedures involved, potential risks and benefits, and any discomfort it might cause them. Participants were informed that they could only take part in the study if they were 18 years or older and were enrolled only after providing their explicit permission. If they chose to participate, they were required to answer the study questions and sign/thumbprint the consent form provided to them. The participants received a copy of the completed consent form for their records.

It was emphasized to participants that their involvement in the study was entirely voluntary, and they had the right to withdraw their consent at any time without affecting their subsequent medical treatment or relationship with their treating physician. For the participants who were unable to read, an impartial witness was present throughout the informed consent discussion. The impartial witness signed the consent form to confirm that consent was obtained after providing oral information to the participant. After enrollment, participants retained the option to withdraw from the study whenever they wished, without facing any consequences. If written informed consent was not obtained, the participant was not enrolled in the study. Age-related information provided by participants was used solely by the researcher or the study team and only for study purposes.

Participants were informed that their involvement in the study might or might not result in direct medical benefits. However, they were made aware that the study's findings would contribute to a better understanding of MSK pain in the country and provide essential information to protect individuals at risk of MSK pain, potentially benefiting the community in the future.

Results

Socio-demographic Characteristics of Study Participants

The mean age of the participants was 53.8 (± 11.9) years and ranged between 20 to 82 years. The majority (36.3%) were above the age of 60, while the lowest percentage (4.2%) fell within the 20 to 29 years age group, suggesting that participants were predominantly older and likely had extensive work experience. In terms of gender, 51.9% were male, and 48.1% were female, indicating a nearly equal representation of both genders.

Table 2. Socio-demographic Characteristics of Study Participants

Characteristics		**Frequency**	**Percent**
Age group	20-29	9	4.2
	30-39	18	8.5
	40-49	45	21.2
	50-59	63	29.7
	60+	77	36.3
Gender	Male	110	51.9
	Female	102	48.1
Household position	Head	131	61.8
	Family member	60	28.3
	Wife	20	9.4

	Child	1	0.5
Ownership of house	own home	144	67.9
	Rent	44	20.8
	living with somebody	13	6.1
	Family House	10	4.7
	Caretaker	1	0.5
No of dependents	<5	162	76.4
	5-9	47	22.2
	10-14	2	0.9
	15+	1	0.5
Total		212	100.0

Impact of MSK Pain on QoL Among Farmers in the Volta Region

The 0-56 MSK-HQ scale for quality of life was re-grouped into lower (0-14), middle (15-42) and upper (43-56) quartiles, with lower quartiles representing the worst quality of life and upper quartile best quality of life among the participants (Figure 1).

The lower quartile, representing the worst quality of life was 19.3% (n=41) of the participants and the upper quartile representing the best quality of life was 2.8% (==6). The majority of 165 (77.8%) of the participants fell in the middle quartile between the worst and best quality of life.

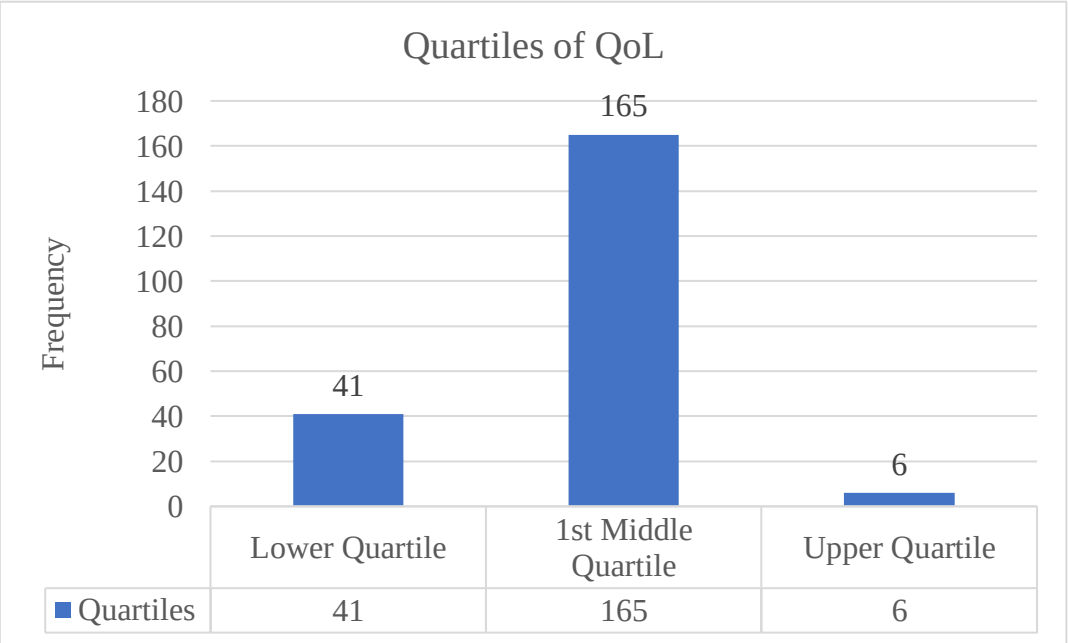

Figure 1. Distribution of QoL

The distribution of quality of life by age group was done by taking a cross-count of participants' age and measurements of their quality of life and the corresponding percentages as shown in Table 3.

There were 41 (19.3%) in the lower quartile (0-14) with a majority age group of 40-49 and 60+ represented by 13 (6.1%) and 11 (5.2%) of the participants. This group experienced the worst quality of life as a result of MSK disease.

Total of 6 (2.8%) that fell within the upper limit class (43-56) with at most 2 (0.9%) for the age groups. This group experienced the best quality of life even with the presence of MSK diseases.

Between the lower and upper quartiles lies the middle quartile, which suggests quality of life is between worse (lower quartile) and better (upper quartile). A common feature of the middle quartiles includes being a majority of 77.8%, containing the mean score (22.9), as stated in Table 3 for quality of life and the higher-aged participants. This group experienced a mild quality of life from the MSK diseases compared to the participants in the lower and upper quartiles.

Table 3. Distribution of Age Group by QoL

Age group	**QoL_ QTR**			**Total**
	Lower Quartile	**Middle Quartile**	**Upper Quartile**	
20-29	3 (1.4%)	7 (3.3%)	0 (0.0%)	10 (10.4%)
30-39	4 (1.9%)	13 (6.1%	2 (0.9%)	19 (9.0%)
40-49	15 (7.1%)	29 (13.7%)	1 (0.5%)	45 (21.2%)
50-59	5 (2.4%)	55 (25.9%)	1 (0.5%)	61 (28.8%)
60+	14 (6.6%)	61 (28.8%)	2 (0.9%)	77 (36.3%)
Total	41 (19.3%)	165 (77.8%)	6 (2.8%)	212 (100.0%)

The descriptive statistics for QoL show a mean QoL of 22.9 with ±9.94, a best QoL of 54 and a worst QoL of 2, out of the 56 as the best QoL. The descriptions imply that participants had QoL challenges that needed intervention

The overall extent MSDs bothered the participants is shown in Figure 2. The Figure showed that 14.6%, 55.7%, 16.0%, 10.8% and 2.8% of the participants rated the bother from MSDs as extremely, very much, moderately, slightly and not at all respectively. This shows that MSDs bothered participants very well.

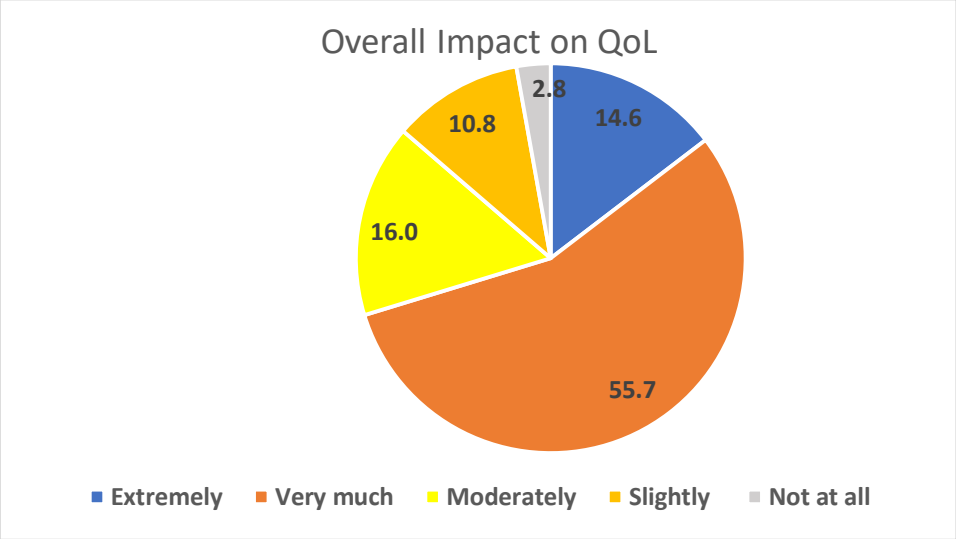

Figure 2. A Plot Showing the Distribution of Participants' Perceived Impact on QoL

The interference from MSDs on the routine daily work of the participants is shown in Figure 3, with a majority of 11.8%, 39.6%, 34.9%, 9.9% and 3.8% participants rated the interference as extremely, severely, moderately, slightly and not at all. This indicates that interference from MSDs on routine daily or work was severe and moderate.

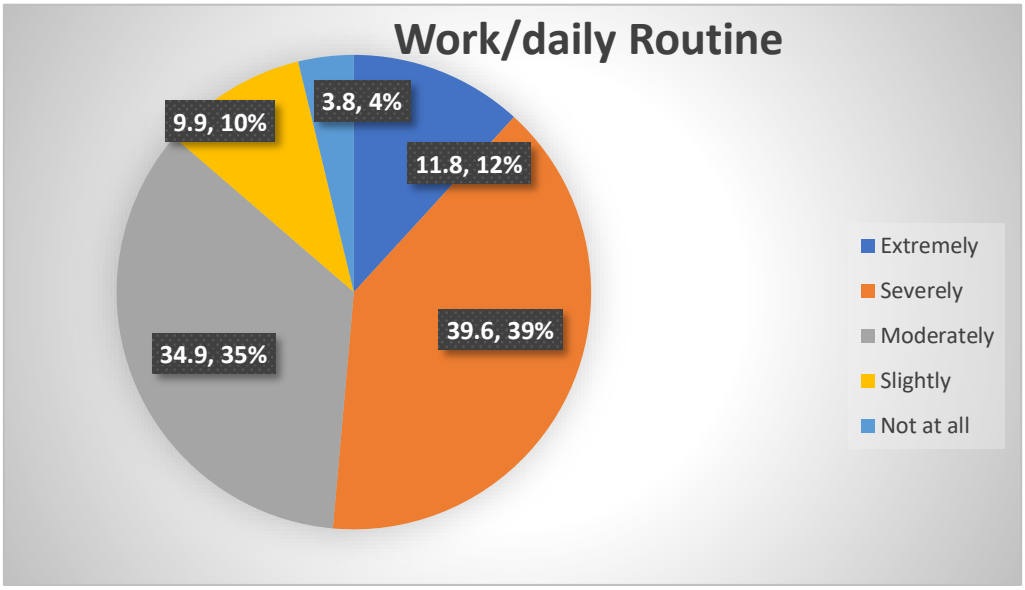

Figure 3. Impact on Work/Daily Routine Activity

Participants described the level of anxiousness or mood due to MSDs as shown in Figure 4, as extreme, severe, moderate, slightly and not at all by 20.0%, 53.8%, 14.2% 8.5% and 3.3% of participants respectively. This indicates that the anxiousness or mood of participants from the MSDs was severe and extreme.

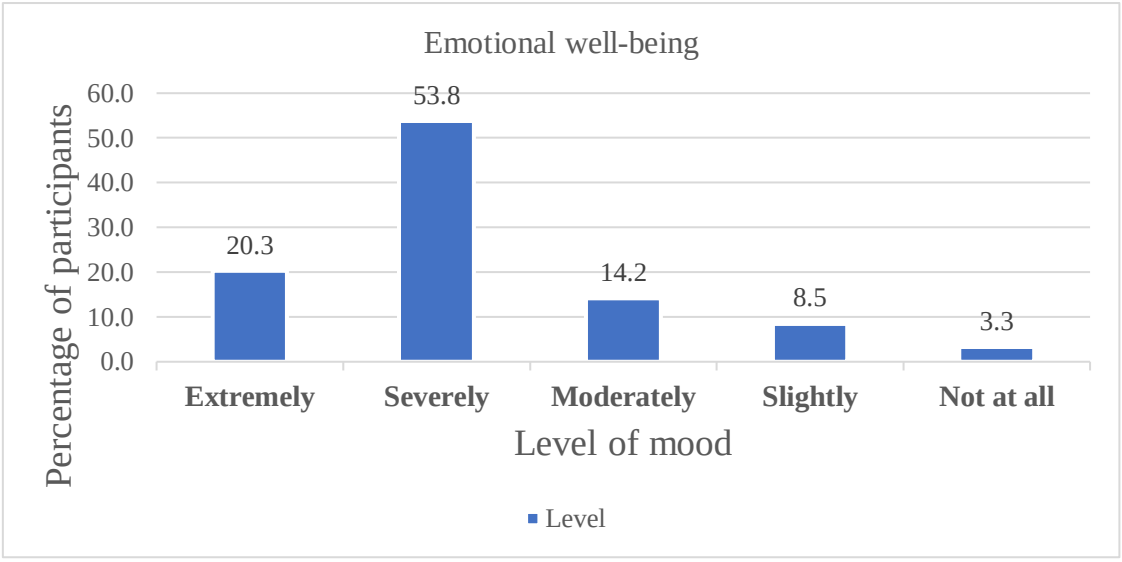

Figure 4. Impact on Emotional Well-being

The extent of interference with participants' social activities and hobbies among participants is shown in Figure 5. The results showed that 11.3%, 31.6%, 34.0%, 13.7% and 9.9% of participants respectively had the impact extremely, severely, moderately, slightly and not at all. This indicates that the impact of MSDs on participants' social activities and hobbies was moderate.

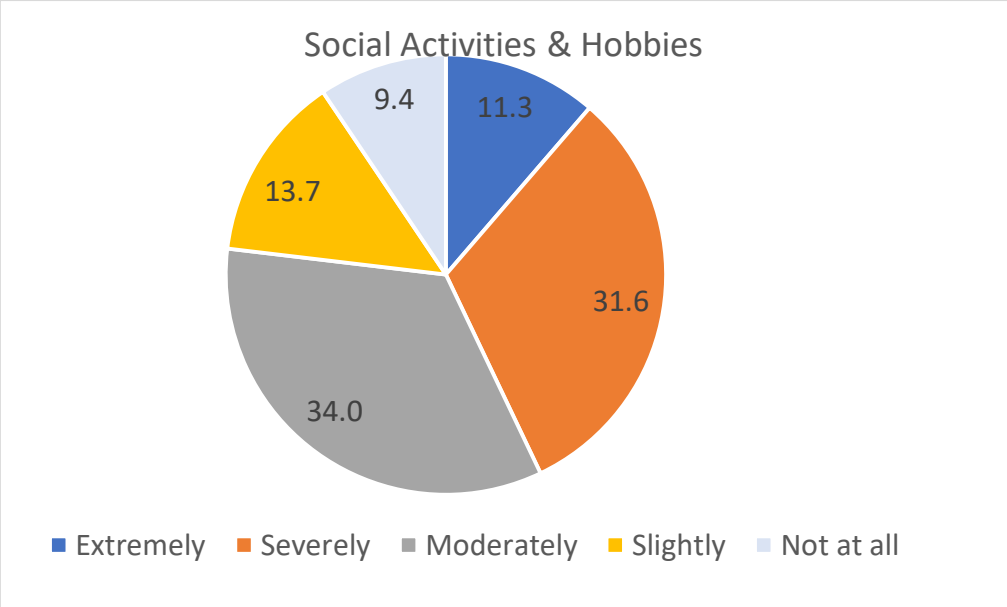

Figure 5.. Impact on Social Activities & Hobbies

The level of discomfort experienced by the MSK at body locations in their daily lives was assessed using a 3-point Likert, slightly uncomfortable (1), moderately uncomfortable (2), and highly uncomfortable (3). The discomfort is high with an increase in the code.

Descriptive statistics, with the numerical code, is used to describe the level of discomfort from the body locations (Table 4).

Table 4. Descriptive Statistics for the Level of Discomfort due to MSK

Variable	Observation	Mean	Std. Dev.	Min	Max
Neck	69	2.00	0.64	1	3
Right shoulder	52	1.98	0.76	1	3
Left Shoulder	45	2.07	0.70	1	3
Upper back	116	1.72	0.60	1	3
Lower back	178	1.96	0.47	1	3
Right Upper arm	57	2.00	0.59	1	3
Left Upper arm	40	1.48	0.62	1	3
Right fore-arm	48	1.96	0.59	1	3
Left fore-arm	34	2.13	0.61	1	3
Right wrist	34	1.97	0.66	1	3
Left wrist	34	1.91	0.77	1	3
Hip/buttocks	82	1.60	0.59	1	3
Right thigh	78	1.81	0.64	1	3
Left thigh	69	1.80	0.62	1	3
Right knee	93	1.74	0.61	1	3
Left knee	89	1.70	0.58	1	3
Right Lower leg	44	1.77	0.74	1	3
Left Lower leg	44	1.87	0.73	1	3
Right foot	23	1.68	0.75	1	3
Left foot	23	1.94	0.73	1	3
-	-	1.85	0.65	1.00	3.00

The level of interference experienced from the MSK at body locations was assessed using a 3-point Likert, not at all (0), slightly interfered (1), and substantially interfered (2). The interference increases with an increase in the code. Descriptive statistics, with the numerical code, is used to describe the level of interference from MSK at body locations (Table 5).

Table 5. Descriptive Statistics for Interference from MSK

Variable	Observation	Mean	SD.	Min	Max
Neck	69	0.84	0.56	0	2
Right shoulder	52	0.87	0.71	0	2
Left Shoulder	45	0.89	0.65	0	2
Upper back pain	116	0.61	0.54	0	2
Lower back pain	178	0.95	0.52	0	2
Right Upper arm	57	0.81	0.57	0	2
Left Upper arm	40	0.40	0.53	0	2
Right forearm	48	0.79	0.59	0	2
Left forearm	34	0.85	0.67	0	2
Right wrist	34	0.97	0.71	0	2
Left wrist	34	0.91	0.71	0	2
Hip/buttocks	82	0.49	0.53	0	2
Right thigh	78	0.69	0.57	0	2
Left thigh	69	0.71	0.55	0	2
Right knee	93	0.59	0.54	0	2
Left knee	89	0.61	0.52	0	2
Right Lower leg	44	0.66	0.63	0	2
Left Lower leg	44	0.75	0.59	0	2
Right foot	23	0.64	0.79	0	2
Left foot	23	0.70	0.66	0	2
-	-	0.74	0.61	0.00	2.00

Type of Relation Between Quality of Life and Pain, Ache and Discomfort

A correlation was used to find the relationship and type of relation between quality of life and pain, ache and discomfort, and the discomfort and interferences from the pain and ache (Table 6). Findings show that the relationship between; total QoL and pain, ache and discomfort was positive and moderate ($r = 0.348$, $p = 0.000$), the relationship between; total QoL discomfort was positive and moderate ($r = 0.394$, $p = 0.000$), relationship between; total QoL and pain, ache and discomfort was positive and moderate ($r = 0.423$, $p = 0.000$). These relationships imply that the QoL of the participants was affected by pains, aches and discomfort suffered from the farming activities.

Table 6. Correlations

Variable	Analytical Tool	Total QoL
Pain Ache & Discomfort	Pearson Correlation	.348**
	Sig. (2-tailed)	0
	N	212
Discomfort with life	Pearson Correlation	.394**
	Sig. (2-tailed)	0
	N	212
Interference with life	Pearson Correlation	.423**
	Sig. (2-tailed)	0
	N	212
**. Correlation is significant at the 0.01 level (2-tailed).		

Level of Understanding of Current MSDs and Management

The level of understanding of current MSDs and treatment among participants as shown in Figure 6, where completely, very well, moderate, slightly and not at all were the rating by 10.4%, 32.1%, 20.8%, 28.8%, and 8.0% of the participants respectively. This indicates that participants understand current MSDs and their treatment very well and slightly (Figure 6).

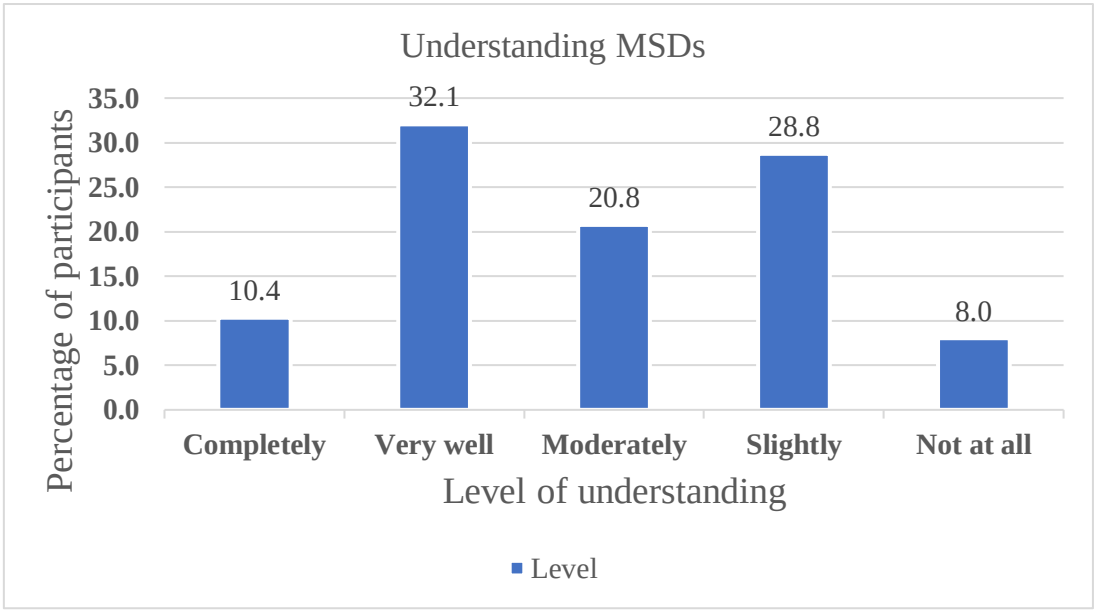

Figure 6. Understanding of Current MSD & Treatment

The level of confidence among participants to manage MSDs was extreme, very, moderate, slightly and not at all by 33.0%, 25.0%, 37.3%, and 4.7% of participants respectively (Figure 7).

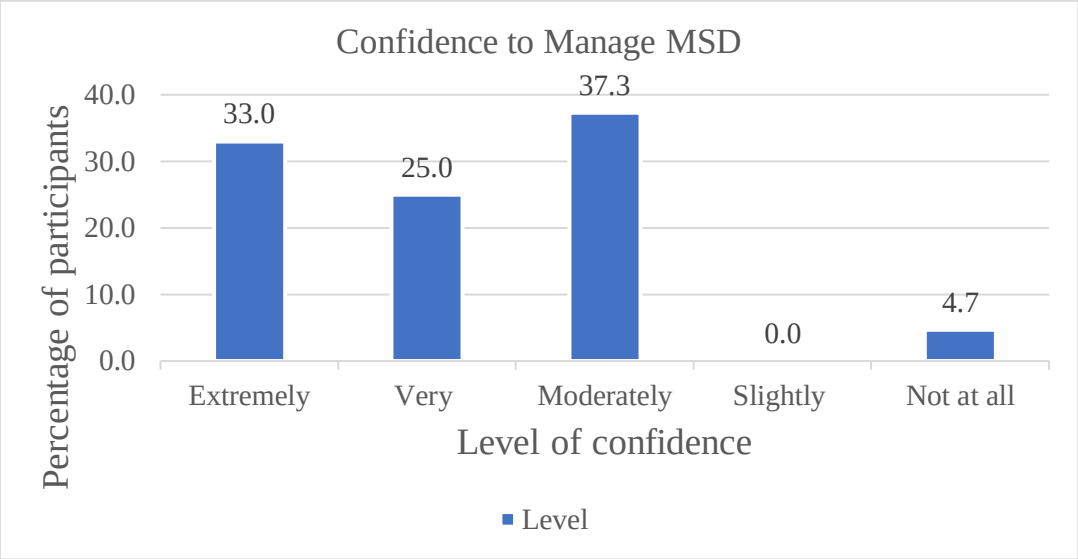

Figure 7. Confidence in Managing MSD

Discussion

Demographic Information

According to the Ghana Population and Housing Census data [20], females slightly outnumbered males in Ghana by 0.4 million, with them comprising 50.7% of the population and males 49.3%. However, in the current study, the gender ratio was 48.1% females and 51.9% males. Other studies [31, 32, 33, 34], also observed similar gender representation in the agriculture industry, particularly in farming.

The Impact of MSK Pain on Quality of Life Among Farmers in the Volta Region

The current study, also, indicates that MSDs have a significant impact on people's productivity including quality of life when the NMQ and MSK-HQ, certified devices, were utilised in the current investigation to examine the effects of several MSDs on quality of life among farmers in the Volta Region.

The findings indicate that the quality of life among farmers was generally very low, as can be seen in Table 13. 73.5% of the farmers' quality of life was below the average grouped quality of life, just about 26.5% per cent can be said to lie above the average grouped quality of life. Unsurprisingly just 2 respondents, constituting about 1% of the participants, were within the best quality of life. This is evidence that MSK pains have had a huge toll on the quality of life of Volta Region farmers, thus about 73.5 per cent of farmers. While the last two best quality of life of the farmers could garner just about 5.3% of the participants, the least two class contains about 40.6% of the participants, this indicates how negatively skewed the distribution of the farmers were on the quality-of-life scale.

The results obtained from the self-reported questionnaires the participants responded to suggest that the MSDs have had a significant impact on the quality of life of the participants. Thus about 97.2% stated that the MSDs have had an impact on their quality of life ranging from: extremely (14.6%) to slightly (10.8%), it was just about 2.8% of the participants who said the MDS had no impact on their life at all. Again, when the farmers were asked about the impact of MSDs on their daily routine, the overwhelming majority (96.2%) of the farmers reported various degrees of negative impacts on their daily routine.

Finally, participants were asked to tell the impact of MSDs on their social life, and the

response was affirmative with various degree of impact, ranging from slight impact to extreme impact, about 90.6% responded that their MSDs has harmed their quality of life. A question on emotional well-being also returned a similar result, about 90.6% of negative impact.

Comparing the current study to a study conducted among teachers in Chile [35], it was observed that a large number of teachers (88.9%) reported pain in some parts of the body, with 71.2% of them experiencing limitations in their daily activities. Obesity was also a problem, with 39% of teachers presenting body fat obesity, and the highest rate being seen in rural women. The neck and shoulders were the body area with the highest prevalence of MSDs (68.6%). In urban teachers, there were significant differences between those with over six pain regions (>p75) and those with six or fewer pain regions (≤p75) on six quality of life (QoL) scales, as well as on physical health components (PCSs) and mental health (MCS). However, no such differences were seen in rural teachers. The association between teachers with >p75 MSD and low QoL perception was significant in both PCS and MCS. Additionally, the regression model showed a significant association between rural areas and low PCS perception.

Relationship between Age, Sex and Educational level, and QoL of farmers in the Volta Region

Among all participants in the worst quality of life group, 40% were within the 60+ age group, again out of 156 farmers whose quality of life was below the average quality of life, 60 (38.5%) were within the 60+ age group, indicating clearly that the quality of life is inversely related to the age of the farmers. Conversely, the best age groups with the best quality of life were between 40-49 years, with 1(0.5%) participant each within the best quality of life for age groups 40-49 and 60+. The 2 farmers with the best quality of life were outliers, and it is most likely there may be other confounding factors that may have placed them in that class of quality of life. The possible confounding factors could not be established.

Comparing the study to a literature review by [36] it was observed that available research consistently shows that female patients with atrial fibrillation (AF) have poorer quality of life (QoL) than male patients with AF. However, it is not clear whether this is due to gender differences in the general population or to AF itself. Additionally, it is unclear whether the difference in QoL is large enough to be clinically significant.

Knowledge of MSD and Confidence in Managing Them to Improve QoL

The results of the study show that participants had a variety of levels of understanding of current MSDs and treatment. According to Figure 4.7, 10.4% of participants understood current MSDs and treatment completely, 32.1% understood very well, 20.8% understood moderately, 28.8% understood slightly, and 8.0% did not understand at all. This indicates that participants had a range of understanding of MSDs and treatment, with some participants having a very good understanding than others. This means that health workers attending to patients need to educate them more on their situation. Knowing one's MSD help in the good management of it. The results also show that participants had a variety of levels of confidence in their ability to manage MSDs. According to Figure 4.8, 33.0% of participants were extremely confident in their ability to manage MSDs, 25.0% were very confident, 37.3% were moderately confident, 4.7% were slightly confident, and 4.7% were not confident at all. This indicates that participants had a range of confidence in their ability to manage MSDs, with some participants being very confident and others being less confident [37]. This shows that participants could manage their MSDs moderately and extremely.

A study found that there was a significant inverse relationship between receiving training on ergonomic principles and work-related injuries and problems. This means that workers who receive training on how to use their bodies safely at work are less likely to be injured. The inverse correlation was statistically significant, with a p-value of less than 0.01.

Conclusion

In conclusion, musculoskeletal pain has a significant impact on the quality of life of farmers in Ghana. The physical demands of farming work, coupled with limited access to modern tools and equipment, increase the risk of developing musculoskeletal disorders. The economic burden of musculoskeletal pain on farmers is significant, and effective management requires a comprehensive approach that addresses the underlying cause of the pain, as well as the individual's physical and psychological well-being.

The quality of life of Ghanaian farmers has been significantly impacted by MSK ailments, with 73.5% of them living below the national average. A skewed distribution is indicated by the fact that 40.6% of the participants are in the lowest two classes.

The government must develop policies and initiate programs to ensure guaranteed prices of farm products throughout the year, this will improve the financial status of individual farmers and they will be able to meet certain necessities in life, and this will consequently have a positive impact on the Quality of Life of a Ghanaian farmer.

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Conflict of Interest Declaration

The Authors declare that there is no conflict of interest.

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