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PREVALENCE AND PATTERN OF SYMPTOMATIC OSTEOARTHRITIS AMONG LOCAL FARMERS OF PANYAM PLATEAU CENTRAL, NIGERIA

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ABSTRACT

Aim: To determine the prevalence and pattern of it affectation of OA in local farmers. **Background:** Osteoarthritis (OA) is a chronic joint disease causing physical disability to low productivity. The farmers completely depends on farming as means of life and so any hindrance such as OA should not be condoned. Common risk factors of OA include increasing age, obesity, previous joint injury, over use of the joint or weak thigh muscles and genetics. Osteoarthritis symptoms usually develop gradually; at first there may be soreness or stiffness. The pain and stiffness of more severe osteoarthritis may make it difficult to walk, climb stairs or perform other daily tasks. Depending on which joint is affect. **Materials and Method:** A cross sectional prospective study of 132 (81 intervensives and 51 control) Panyam rural farmers with age range between 40-90 years. After exclusive criteria, biodemographic data and arthrometric parameters pressure were taken. **Results:** The prevalence of OA among the rural farmers was 61.4%. The peak age group of OA 51-60years (29.5%). The prevalence of OA in males (14.8%) and in females (85.2%). The cervical (neck) 37% was the joint most affected. **Conclusion:** This study revealed a very high prevalence of osteoarthritis among these farmers probably due to their occupation, heavy consumption of locally brewed alcohol and age. The pain of osteoarthritis has drastically reduced their work output and this can hamper harvest. As an intervention study, comprehensive health education was given and drugs such as allupurinol and moduretics were provided to the PHC. There are many clinical factors that contribute to the risks and progression of osteoarthritis including obesity, trauma, age and female sex. This study helps in combating this menace.

KEYWORDS

OA	-	Osteoarthritis
BMI	-	Body Mass Index
SBP	-	Systolic Blood Pressure
DBP	-	Diastolic Blood Pressure

INTRODUCTION

Osteoarthritis (OA) is a chronic joint disease causing physical disability, affecting 60-70% of the population older than 60years. The worldwide prevalence estimate for symptomatic OA is 9.6% among men and 18% among women worldwide.[1] Although OA occurs all over the world, the pattern and prevalence of the disease varies among population.[2]

Osteoarthritis (OA) is one of the most common forms of arthritis. It is a chronic condition in which the material that cushions the joints, called cartilage, breaks down. This causes the bones to rub against each other, causing stiffness, pain and loss of joint movement. The cause is not fully understood.[3]

Common risk factors include increasing age, obesity, previous joint injury, overuse of the joint, weak thigh muscles, and genetics.[4]

Osteoarthritis symptoms usually develop gradually, as first, there may be soreness or stiffness that seems more like a nuisance than a medical concern.

Osteoarthritis or OA may also affect the neck, small finger joints, the base of the numb, ankle and big toe. The pain may be moderate and come and go without affecting the ability to perform daily tasks.[5]

People age differently, as there are enormous difference among individuals. Bortz[4] classified those between 65 and 75 years as young old; the old as between 75 and 85 years, and the oldest old as 85 years and above. A United Nations[6] report indicated that by 2025, people aged 60

years and above in the developing world will have increased from 400 million to approximately 849 million representing 70% of all older people world wide.

It is said to be two or three times as common in women as in men, with the average age of onset being 40 years and above, although it can occur in children, as stated by some scholars.[7]

Primary osteoarthritis of the hip is common in Caucasians but it is very rare in black Africans[9,10] and in Hong Kong Chinese.[8] Such differences in the prevalence of the disease have been attributed to genetic and environmental factors in the form of occupational stresses and individual episodes of trauma.[11]

Osteoarthritis of knee is common among black South Africans.[12]

MATERIALS AND METHODS
Research Design and Setting
This is a cross sectional interventional study of 132 farmers of Panyam District of Mangu Plateau State. The study population age range was between 40-80 years age. Most of them were farmers few were retired civil servant. Both males and females were recruited into study. The intervention group are 81 and control group was 51.

Sample and Sampling Method
This study was carried at Panyam Primary Health Care.

Permission was obtained from district where he mobilized his subjects to come to the PHC with overnight fast for the study. A brief health education was given.

Individual consent was obtained from all recruited individuals. Ethical clearance was obtained from research and ethical committee of Jos University Teaching Hospital. Anti-diabetic and anti-hypertensive drugs was provided.

Data Collection and Analysis
The authors recorded their bio data and took Arthrometer measurement weight was measured using a portable weighing scale while a meter rule used in measurement of height. Both were taken in a standing position with shoes, and heavy clothing removed. The body mass index (BMI) was calculated using the formula. Weight (kg), divided by a square of the height (m). BMI was categorized using the WHO definitions: BMI $\geq$ 30kg/m^2 was defined as obesity while participants with BMI of 25.0 and 29.9 were considered overweight. Underweightindividuals were those with BMI< 18.5 while normal weight individuals were those with BMI between 18.5 and 24.9. obesity was further sub-classified into Class I (30-34.9kg/m^2), Class II (35-39.9kg/m^2) and Class III (> 40kg/m^2).

The aneroid sphygmomanometer was used in measurement of blood pressure. Blood pressure was measured in the right after at least 15 min of rest and while participants were sitting down. Hypertension was noted if systolic, blood pressure 90mmHg or upon self-report of a medical diagnosis of hypertension or current treatment for hypertension with prescription medication.

Intervention
Antiflammatory drug NSAID like ibruprofen and Allupurinol was provided for affected patients.

Statistical Analysis
Data was collected, edited manually and presented in a descriptive format using frequency count and simple percentage. The Chi-square test was used to determine the relationship between gender, age and BP in osteoarthritis (OA).

Data generated from the study were entered into SPSS Software for statistical analysis including chi-square test and odd (ORS) computations as appropriate. Statistical significance was set as p<0.05.

RESULT
From the 132 farmers that turned up for the study, 81 formed the intervensive group and 51 were the control group with mean age of 62.7 years.

The prevalence of symptomatic osteoarthritis was found to be 61.4% with female predominance of 52.3% and 9.1% for males.

From table I, the intervention group were eighty one (n=81) and the control group were fifty one (n=51) with 69 females and 12 males.

The number of males was less probably because they were busy in their farms.

The control were 40 (78.4%) for females and 11 (21.6%) for males.

From table II, the mean age for the interventional group was 62.7 years and 63.6 years for control. This was statistically not significant with P-Value at 0.672.

The general prevalence of OA among Panyam farmers was found to be 61.4%. It is higher in females than males with 52.3% and 9.1% respectively.

The joint affected most are the neck or cervical (37%) and the knee. This could be that most of the produce are carried on the head where there are no motorable road or means of transport.

The systolic blood pressure (SBP) in the intervention was less than the control group as well as diastolic blood pressure (DBP) with significant p-value.

Table I: Showing sex distribution.

STUDY GROUP			
Gender	Intervention (F)	Control (F)	P-Value
Female	69 (85.2%)	40 (78.4%)	0.319
Male	12 (14.8%)	11 (21.6%)	
Total	81 (100%)	51 (100%)	

Table 2

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Neck	30 (37%)
Ankle	15 (18.5%)
Knee	20 (24%)
Hip	16 (19.8%)
Total	81 (100%)

Table II: Showing mean age of distribution and metabolic features.

Intervention (n=81)   **Control (n=51)**

	Mean ± SD	Mean ± SD	T=Test	P-Value
AGE	62.70±11.97	63.63±12.52	-0.424	0.672
SBP	123.88±17.32	128.04±22.54	-1.125	0.236
DBP	82.75±5.73	85.10±8.57	-1.88	0.062
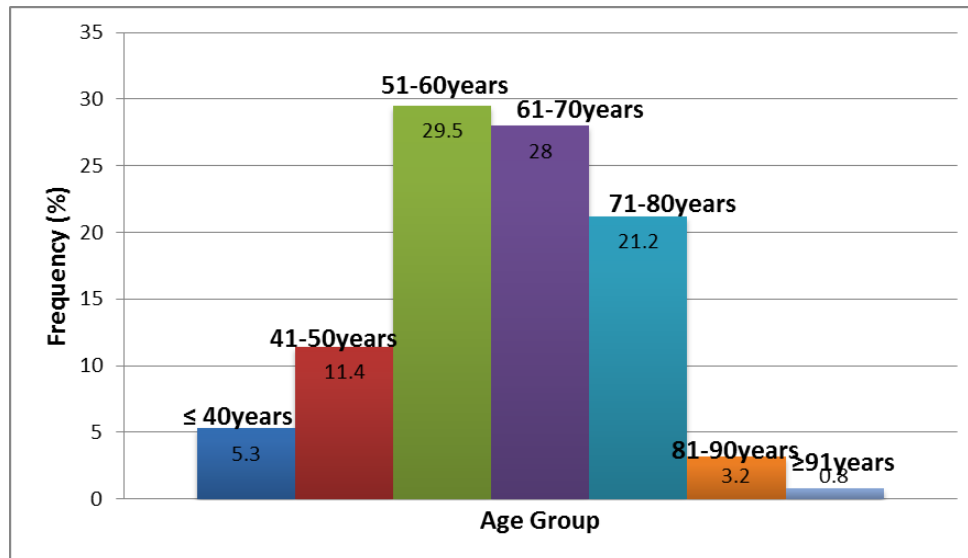
DISCUSSION

One of the most debilitating health challenges of farmers, particularly in Panyam was found to be OA. There are many clinical factors that contribute to the risk and progression of OAthrough a etiology still uncertain. These include obesity, joint misalignment, trauma, age and female sex. This study was set out to determine the pain prevalence and pain severity of OA among Panyam farmers.[15-17]

The challenge may be due to repeated use of knee and hip joint during manual farming. The prevalence of OA in Panyam farmers was found to be 61.4%.

The study was done among middle age and the aged and was found that women were the most affected. It was noted that it is more common in the aged.

Over weight is one of the strongest and best-established risk factors of OA. Literature suggests that, although both show association in studies, the relationship between obesity and hip OA is weaker than with knee OA (odds ratio (OR)2.81;95% confidence interval (eI): 1.32-5.96).[18-20]

Individuals with osteoarthritis are at greater risk of physical inactivity and the use of analgesic medication, such as NSAIDs, that increases the risk of cardiovascular disease. This may further explain the associations between these two studies have also suggested significant associations between OA and cardiovascular risk factors, such as hypertension and cholesterol levels between BP and OA is inconsistent.[21]

The incidence and prevalence of symptomatic OA considerably increase with age the association between

age and the risk of OA is likely multifactorial, due to numerous individual factors; these include oxidative damage, thinning of cartilage, muscle weakening and a reduction in proprioception. The basic cellular mechanisms that maintain tissue homeostasis decline with aging, leading to an inadequate response to stress or joint injury and resultant joint tissue destruction and loss.[21-23]

One of the more important findings from such studies has been the fact that OA is not necessarily a progressive disorder. After a period of time during which the OA process (attempted containment of abnormal forces and repair of damage) is active, and the anatomy of the joint changes, the condition then stabilizes in most cases, although it can reactivate years later.

We have known for years that many people in the community have radiographic evidence of severe OA but have no symptoms. There is confusion to us who believe that the disease cause damage should have symptom.[24]

REFERENCES

1. Aderonke Omobonike Akinpelu, Temitope Olugbenga Alonge, Babatunde A yo Adekanla, Adesola Christiana Odole, Prevalence and Pattern of Symptomatic Knee Osteoarthritis in Nigeria: A Community Base Study. The Internet Journal of Allied Health Sciences and Practice.
2. Mody G and Woolf A. A report on the global burden musculoskeletal disorders. Business briefing of European pharmacotherapy Association. 2003.
3. http://www.touchbriefings.com/pdf/26/ept031 p moody&woolf Ir.pdf 28/12/2006. 4.30pm
4. Ogunlade SO, Alonge TO, Omololu AB, Adekolujo as. Clinical spectrum of large joint osteoarthritis in Ibadan, Nigeria. European Journal of Scientific Research, 2005; 11: 116-122.
5. Bortz,'. 199. re onding to the special needs of the elderl ". In Delaune, S.C. and P.K Ladner (eds) Fundamentals of ursing. Delmar Publishers, Albany. pp. 575-590.
6. Meyer, J.A. 2001. The Princeton Review: Cracking the NCLEX-RN. Princeton Review Publishing L.L.C New York, 167-177.
7. Oloruntoba, D.O and Adeloye, A (2009). Tubercluosis of the Spine. In: A. Adeloye, 0.0 Adekunle and O.A. Awojobi (eds). Davey's.
8. Companion to surgery in Africa. Acecool Medical Publishers, 3rd ed. Eruwa, Nigeria, 213-219.
9. Help Age International 2002. Survey of Attitudes Towards Older People and Aging in Ghana. Retrieved from www.helpage.org 24/02/06.
10. Behzad Heidari, MD Author information Article notes Copyright and License information Disclaimer This article has been cited by other articles in PMC. Knee osteoarthritis prevalence, risk factors, pathogenesis and features: Part I Caspian J Intern Med., 2011 Spring; 2(2): 205–212. PMCID: PMC3766936 PMID: 24024017
11. Paul Dieppe Developments in Osteoarthritis, Rheumatology, 2011; (50): 245-247, https://doi.org/10.1093/rheumatology.
12. Grazio S, Balen D. Obesity: Risk factor and predictors of osteoarthritis. Lijec Vjesn, 2009; 131: 22–6. [PubMed] [Google Scholar]
13. Altman RD. Early management of osteoarthritis. Am J Manag Care, 2010; 16(Suppl Management): S41–7. [PubMed] [Google Scholar]
14. Bliddal H, Christensen R. The treatment and prevention of knee osteoarthritis: a tool for clinical decision-making. Expert Opin Pharmacother, 2009; 10: 1793–804. [PubMed] [Google Scholar]
15. Hayami T. Osteoarthritis of the knee joint as a cause of musculoskeletal ambulation disability symptom complex (MADS) Clin Calcium, 2008; 18: 1574–80. [PubMed] [Google Scholar]
16. Altman RD. Criteria for the classification of osterthritis. J. Rheumatol, 1990; 27(suppl): 10-12.
17. Cleaner P. Hochberg M. Osteoarthritis Lancet, 1997; 350: 503-8.
18. MacFarlane PS, Reid R, Callander R. Pathology illustrated 5th Ed. London: Churchil Livingstone, 2000.
19. Felson DT, Zhang Y, Hamman MT, et al The incidence and natural history of knew osteoarthritis in the elderly: the Framingham Osteoarthrits Study. Arthrits Rheuml, 1995?; 38: 1500-5.
20. Oliveria SA, Felson DT, Read JI et al. Incidence of symptomatic hand, hip and knee osteoarthritis among patients in a health maintenance organization. Arthritis Rheum, 1995; 38: 1134-41.
21. Rai Y-C, Rymer WZ, Chang RW, et. Al Effect of age and Osteoarthrits on knee proprioception Arthritis Rheum, 1997; 40: 2260-5.