

East African Medical Journal Vol. 79 No. 2 February 2002

JOINT HYPERMOBILITY SYNDROME AMONG UNDERGRADUATE STUDENTS

B.C. Didia, MBBS, Senior Lecturer, Department of Anatomy, D.V.B. Dapper, Med. Sc. (Physiology), MBBS, Lecturer, Department of Human Physiology and S.B. Boboye, BSc. Anatomy, Graduate Assistant, Department of Anatomy, College of Health Sciences, University of Port Harcourt, P.M.B. 5323, Port Harcourt, Nigeria

Request for reprints to: Dr. B.C. Didia, Department of Anatomy, College of Health Sciences, University of Port Harcourt, P.M.B. 5323, Port Harcourt, Nigeria.

**JOINT HYPERMOBILITY SYNDROME AMONG UNDERGRADUATE STUDENTS**

B.C. DIDIA, D.V.B. DAPPER and S.B. BOBOYE

**ABSTRACT**

**Objective:** To assess the prevalence of joint hypermobility syndrome among undergraduate students of the University of Port Harcourt, Nigeria using the Beighton's criteria.

**Design:** Cross-sectional prospective study of 550 randomly selected undergraduate students.

**Setting:** Departments of Anatomy and Human Physiology, College of Health Sciences, University of Port Harcourt, Nigeria.

**Main outcome measures:** The overall prevalence, and the male/female prevalence of joint hypermobility syndrome.

**Results:** Five hundred and fifty subjects (250 males and 300 females) were assessed. Seventy one (12.91%) subjects consisting of 20 (8.0%) males and 51 (17.0%) females, had features of joint hypermobility syndrome, suggesting a higher female prevalence. Knee joint, back and wrist joint pains, in descending order were found to be the commonest type of joint complaints.

**Conclusion:** The study indicates that joint hypermobility syndrome is not rare in Nigerians and suggests that it should attract the attention of Nigerian medical practitioners.

**INTRODUCTION**

A hypermobile joint is one whose range of movement is beyond the 95th percentile for the general population, while a hypermobile person is one with unusually large range of motion in many or all joints. The normal range of movement of any joint is determined by its anatomy, but it also varies according to the relative laxity of the surrounding soft tissues(1,2). About ten per cent of the Caucasian population have been reported to have joint hypermobility syndrome(3), an inherited disorder of collagen synthesis(4) but without features of other inherited connective tissue disorders like Marfan's or Ehlers Danlo's syndromes(3). Such individuals have recurrent sprains dislocations and arthralgia(2).

Adelewo(5) assessed knee pain in a population of young Nigerians with hypermobility syndrome and reported that it occurs in both sexes, usually towards puberty but with a high prevalence in females. Females become more mobile than their age-matched males and joints mobility decreases with age(5).

Larsson *et al*(6) investigated 606 industrial workers with back pain disorder and concluded that hypermobility of the spine is an asset if the work done requires change of body posture but a liability for those in a standing or sitting assignment. Qvindesland, *et al*(7) examined the prevalence of articular hypermobility and its relationship to musculo-skeletal symptoms in Icelandic 12-year olds and reported that there was no correlation between hypermobility and musculoskeletal symptoms, despite slight trends for hypermobile subjects to be less active in sports and to

suffer more joint pains. On the other hand, Bulbena *et al*(4) in 1993 investigated the correlation between joint hypermobility syndrome, anxiety and phobic disorders and noted that panic disorder, agoraphobia and simple phobia, but not generalised anxiety disorder, dysthymic disorder or major depression were highly associated with joint hypermobility syndrome. Furthermore, joint hypermobility syndrome has been associated with several non-articular abnormalities, prominent of which include varicose veins, piles and uterine prolapse in females, which raises serious doubts about the presumed benignity of the syndrome(8).

The present work was prompted by our observation that some University of Port Harcourt students robustly exhibit some movements or posture which are signs of the joint hypermobility syndrome, to the astonishment of their colleagues. Literature review has revealed only one reported study on Nigerians(5), thus necessitating the present study.

**MATERIALS AND METHODS**

A total of 550 subjects (300 females and 250 males), presumably healthy students of University of Port Harcourt, Nigerians of different ethnic groups were used in this study. They were between ages 17 and 30 years and were randomly selected. Each subject gave an informed consent.

The procedures involved were carefully and clearly explained to the participants. We supervised each subject to ensure full compliance with the adopted method of Beighton's Criteria for the diagnosis of hypermobility syndrome(7). The subjects were asked to perform specific actions and any pain in the course of performance of the action(s) was noted and the age

of the individual recorded. The subjects were grouped into five age groups for ease of statistical analysis.

## RESULTS

The age distribution of the sampled subjects and hypermobile subjects are as shown in Table 1. Seventy one subjects (20 males and 51 females) out of the 550 subjects who participated in the study scored five or higher points, using the Beighton's criteria, making them hypermobile persons. This gave an overall prevalence of 12.91%. The prevalence for males was 8.0% and 17.0% for females. Chi-squared analysis did not show any relationship between sex, age and the prevalence of joint hypermobility syndrome ( $p > 0.05$ ).

**Table 1**

*Distribution of hypermobile subjects*

Age range (years)	Males	Hypermobile male subjects	Females	Hypermobile female subjects
17-19	58	9	72	20
20-22	52	5	68	12
23-25	55	4	60	9
26-28	50	1	55	7
29-30	35	1	45	3
Total	250	20 (8%)	300	51 (17%)

Amongst subjects who were hypermobile, knee pain proved to be the commonest complaint. Fifteen of the subjects had continuous knee pains, while 20 had intermittent knee pains, 30 subjects had bilateral while 50 subjects had unilateral knee pains. Back pain was the next common type of complaint, while the least common were wrist and metacarpo-phalangeal joint pains.

Forward flexion of the trunk with the knee fully extended so that the palm rests easily on the floor was the most commonly performed activity amongst hypermobile subjects in both sexes. Dorsiflexion of the little fingers beyond 90° was the least commonly performed activity.

## DISCUSSION

As in most prospective studies, this study was done over a period of two years. This is because of the difficulty in convincing people to participate as well as the long time it takes to question and physically examine each individual. Superstition is still part of Nigerians and it was difficult to convince people who are not enlightened to participate. This influenced our choice of the university community for the study. Regrettably, however, this resulted in the non-inclusion of subjects below 17 years of age.

From the results obtained (Table 1) female subjects showed a higher degree of joint mobility than the males in our population. This is in agreement with the study of Adelewo(6), who showed that in young children, joint hypermobility syndrome is equally observed in both sexes but that towards puberty it pre-dominates in females than males. Quindesland *et al*(7) have also noted an unusually marked sex difference in joint hypermobility in females compared to males, reporting a prevalence of 40.5% in females and 12.9% in males. Other studies have confirmed the high female prevalence(8). Our results does confirm that a sex difference in joint hypermobility also exists among the population of Nigerians investigated.

Our results reveal that common complains of joint hypermobility subjects are knee, back and wrist joint pains etc in that order. Knee pains have been reported to be accompanied by effusions into the joint(1), while back pain sometimes called "the nemesis of medicine and the albatross of industry" are ubiquitous and have stubbornly defied diagnosis and treatment(6). The diagnosis of these pain is commonly submerged in rheumatology, clinical orthopaedics and internal medicine. This is probably because joint hypermobility syndrome though common has attracted attention and interest only recently(9). In our opinion, it is yet to attract the required attention in Nigeria. Our findings suggest that Nigerian medical practitioners should pay attention to this important and perhaps common medical syndrome. In treating knee and back pains, joint hypermobility syndrome ought to be borne in mind.

## REFERENCES

1. Nef W. and Gerber N.J. Hypermobility Syndrome, When, too much activity causes pain. *Schweiz. Med. Wochenschr.* 1998; **128**:302 - 310.
2. Narcisi P., Richards A.J., Fergeson S.O. and Pope F.M. A family with Ehlers - Danlos Syndrome type III/articular hypermobility syndrome has a glycine 537 to serine substitution in type III collagen. *Hum. Mol. Genet.* 1994; **3**:1617 - 20.
3. Nuki, G. Diseases of connective tissues, Joint and Bones. In: Davidson's Principles and Practice of Medicine Macleod J. (Ed) Four tenth Edition Churchill Livingstone Great Britain 1986, pp 551 - 590.
4. Bulbena, A., Duro J.C., Porta M., Martin - Santos R., Mako A., Molina, L., Vallescar R. and Vallejo, J. Anxiety Disorders in the joint hypermobility syndrome: *Psychiat. Res.* 1993; **46**:59 - 68.
5. Adelowo O.O. Knee pains in young Nigerian women with Hypermobility syndrome. *Nig. Med. Pract.* 1998; **35**:74 - 75.
6. Larsson, L.G., Mudholkar G.S., Baum J. and Srivastava, D.K. Benefits and liabilities of hypermobility in the back pain disorders of industrial workers. *J. Intern. Med.* 1995; **238**:461 - 467.
7. Qvindesland, A. and Jonsson, H., Articulate hypermobility in Icelandic 12 year - olds. *Rheumatology.* 1999; **38**:1014 - 1016.
8. El-Shahaly H.A. and el-Sherif A.K. Is the benign joint hypermobility syndrome benign? *Clin. Rheumat.* 1993; **12**:283-284.
9. Russek, L.N. Examination and treatment of a patient with hypermobility syndrome. *Phys. Ther.* 2000; **8**:386 - 398.