

Rheumatic disease in a Philippine village II: a WHO-ILAR-APLAR COPCORD study, phases II and III

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Summary. Many difficulties were encountered in a population survey of rheumatic complaints in a remote village area in the Philippines affecting the reliability of estimates of population prevalence. In phase I, a simple questionnaire identified 269 adults out of 950 who had rheumatic symptoms. In Phase II, 234 or 87% of positive respondents were requestioned using a more detailed pro forma. There were 196 with peripheral joint pain, 67 with neck pain and 137 with back pain. One third attributed their symptoms to work and 127 subjects had to stop work because of their complaints. Disability, including an inability to carry loads, affected nearly 1.8% of the population. Questions designed to detect rheumatoid arthritis and gout were not satisfactorily answered. Of those with complaints, 82% indicated that they still required help for their symptoms. In phase III, 166 subjects were medically examined. Osteoarthritis of the knee was found in 25 and 17 had Heberden's nodes. There were 16 with epicondylitis; 16 had rotator cuff pain and 35 had levator scapulae insertion pain. Three of these and three others had neck or shoulder swellings related to carrying loads on poles. Definite rheumatoid arthritis was diagnosed in two subjects and gout in five. No case of ankylosing spondylitis was identified. Thus, rheumatic complaints were common in this rural community and were frequently severe enough to cause disability and loss of time from work. Health worker education is required on how to handle these problems.

Key words: Rheumatism – Phillipine – COPCORD – Epidemiology – WHO

Introduction

The World Health Organisation (WHO) Community Oriented Program for the Control of the Rheumatic Diseases (COPCORD) was initiated in 1980 at the instigation of the International League against Rheumatism (ILAR). Such control programs would have to be tai-

lored to the needs of individual countries [1] and the program was to fit into the community oriented primary health care worker (PHW) system advocated by WHO. Before education and intervention appropriate to local circumstances could be planned and evaluated, information of the frequency of rheumatic problems in rural areas of the less developed countries was needed. A staged approach was used as this had provided a maximum of information at minimum cost in Quemoy [2].

A rural district of south Luzon where the University of the Philippines administer a community oriented health program was selected. In phase I the population was questioned by volunteer PHW [3]. Those reporting rheumatic symptoms were given a more detailed questionnaire at phase II by the district midwife, to select individuals with rheumatic problems for medical examination at phase III.

Methods

Questionnaires used by the district midwife were based on previous population studies [4]. The medical authors (RW, LM, KM and RC) made a number of visits to the site to advise the midwife and to conduct the phase III examinations. Due to illness of the midwife and civil disturbances, 3 years elapsed between the first and third phases. In phase I, 131 of 482 adult males and 138 of 468 adult females were diagnosed with limb or spinal rheumatic disability. By phase II, only 107 of 131 males and 127 of 138 females came forward for re-questioning. Consequently, the population numbers were reduced to 458 and 457 respectively. In phase III, only 76 males and 90 females presented for medical examination so that the population numbers were again corrected for missing participants to 427 males and 419 females. The latter figures were used for calculating prevalence.

Height, weight, knee width at the femoral condyles, usual loads and the distance these were carried were recorded only for those examined by the physicians. X rays and laboratory tests were not carried out. The American Rheumatism Association (ARA) knee osteoarthritis (OA) algorithm [5] for clinical features only was compared with the clinical diagnosis of knee OA.

Table 1. The age and sex structure of the adult population responding at phases I, II and III

Age	Male				Female				Total			
	Tot	I	II	III	Tot	I	II	III	Tot	I	II	III
-24	182	11	5	2	162	21	20	5	344	32	25	7
-34	130	29	23	11	115	29	29	19	245	58	52	30
-44	58	26	22	18	63	19	16	14	121	45	38	32
-54	51	16	12	11	51	22	20	18	102	38	32	29
-64	32	21	20	15	41	24	22	21	73	45	42	36
-74	21	21	19	16	27	16	14	9	48	37	33	25
75+	8	7	6	3	9	7	6	4	17	14	12	7
	482	131	107	76	468	138	127	90	950	269	234	166
Corrected population		482	458	427		482	457	419		950	915	846

Table 2. Affirmative answers given by those reporting rheumatic symptom in phase II by age and % of the corrected population

Age	15-44		45+		Total	
	n=690	[%]	n=225	[%]	n=915	[%]
Pain in elbows, wrists, hand, knees, ankles or feet?	84	12.2	112	49.8	196	21.4
Injury before joint pains?	59	8.6	80	35.6	139	15.2
Pain in the past two weeks?	47	6.8	86	38.2	133	14.5
Pain in the last six weeks?	52	7.5	88	39.1	140	15.3
Swelling more than six weeks?	41	5.9	79	35.1	120	13.1
Three or more joints affected?	48	7.0	82	36.4	130	14.2
Recurrence of pain?	48	7.0	81	36.0	129	14.1

Results

Rheumatic symptoms in children up to 14 years of age

Only 11 of 725 children had rheumatic symptoms detected by the phase I questionnaire. Five of these complained of pain in the shoulder-girdle or trunk area and one with onycho-gryposis had reached 15 years when examined in phase III but she was not included in the adult analysis.

Phase II: Rheumatic symptoms in adults. There were 269 adults with rheumatic pain in phase I of whom 234 responded to the phase II questionnaire (Table 1). As there were no significant differences, the sexes were combined for subsequent analyses. Of the 234, 31 no longer had joint or spinal pain, 7 reported spinal pain only and 196 had joint pain with or without spinal pain. Of the latter, 133 had had joint pain in the previous 2 weeks. The symptoms were attributed to work by 82, to car accidents by 23 and by 2, to exercise while 8 attributed their symptoms to a combination of these. Joint problems were sufficient to cause 127 to stop work at some time.

In a series of questions: "Can you walk, stand, carry things, hold things or dress yourself?", the commonest single response was inability to carry things in 22 cases, increasing to 64 for one or more disabilities. The questions appeared to have been misunderstood by some, as there were 16 who reported having all the disabilities, yet 9 of these apparently continued working and no explanation of disability was found at phase III. One or more

Table 3. Numbers with spinal pain in the phase II population

Age	15-44	44+	Total
	n=690	n=225	n=915
Did you have pain in neck?	26	41	67
Pain in the upper neck?	17	38	55
Pain in the lower neck?	17	21	38
Upper and lower neck pain?	11	20	31
Cannot bend neck forward	7	10	17
Cannot bend neck sideways	5	1	16
Cannot rotate neck	6	19	16
Neck movement causes pain	21	30	51
Did you have pain in the back?	65	72	137
Pain in lower back	43	60	103
Pain also in hips and legs	33	44	78
Pain in middle of back	34	54	88
Back pain due to accident	24	39	63
Pain in previous 2 weeks	37	57	94
Cannot bend forward	13	11	24
Cannot bend sideways	8	10	18
Cannot rotate back	10	11	21

disability occurred in 1.8% of the population and this increased to 3.6% if stopping work was included.

Questions designed to meet the ARA criteria for detection of rheumatoid arthritis resulted in 48 of the 15-44 year age group and 82 of those aged over 44 years in reporting pain, swelling and recurrence of pain (Table 2).

Table 4. Numbers seeking health care and the response to care by age with positive response percent of the corrected population

Age	15-44		45+		Total	
	n=690	[%]	n=225	[%]	n=915	[%]
Seen by a doctor?	33	4.8	66	29.3	99	10.8
Seen by a midwife?	61	8.8	86	38.2	147	16.1
Seen by a herbalist?	56	8.1	78	34.7	134	14.6
Did their help solve problem?	72	10.4	98	43.6	170	18.6
If not was it reduced?	71	10.3	92	40.9	163	17.8
Recurred on treatment?	45	6.5	69	30.7	114	12.5
Recurred when medication finished	47	6.8	75	33.3	122	13.3
Do you still need help?	81	11.7	110	48.9	191	20.9

Table 5. Phase III. Clinicians examination diagnoses and prevalence % of population (Men 427; women 419)

Clinical diagnosis	Sex	n	[%]
Trapezius pain	m	18	4.2
	f	17	4.1
Rotator cuff pain	m	8	1.9
	f	8	1.9
Pole swellings (see text)	m	6	1.4
	f	0	
Tennis elbow	m	9	2.1
	f	7	1.7
Heberden's nodes	m	7	1.6
	f	10	2.4
Knee OA	m	12	2.8
	f	13	3.1
Gout	m	2	0.5
	f	3	0.7
Definite RA	m	1	0.2
	f	1	0.2

Table 6. Phase III. Any joint abnormality found on examination by age and percentage of the corrected population. There were no joint abnormalities in those less than 35 years

Site	Age	35-40	65+	Total	[%]
DIP joints		1	17	18	2.2
PIP joints		0	10	10	1.2
2nd to 4th CMC joints		1	12	13	1.6
Wrist joints		0	5	5	0.6
Elbow joints		9	14	23	2.8
Shoulder joints		8	20	28	3.4
Knee joint		8	50	58	7.0
Hip joint		1	1	2	0.2
Ankle joints		2	2	4	0.5
Subtalar joints		0	2	2	0.2
1st MTP joints		0	4	4	0.5

The four screening questions for gout were not answered satisfactorily. While 54 reported pain in the big toe, 72 said that the pain disappeared within 2 weeks. There were 13 who reported swelling as well as pain or redness of the big toe together with pain who had not admitted to big toe pain in the first gout question. Of the 21 who answered "yes" to all four screening questions, 4 had clinical gout (0.4% population prevalence).

None of the questions for morning stiffness were satisfactorily translated. Only question 16 referred to stiffness, by asking whether it was easy to move the joints when getting up in the morning, with 7.5% of those aged less than 45 years and 25.8% of those aged 45 years and over responding positively. In the other questions, the English word, stiffness, had become pain when translated into the local language.

There were 67 subjects with neck pain and 137 with back pain (Table 3). Neck, dorsal and lumbar pain increased significantly with age but there was no significant sex difference. Spinal pain was attributed to injury in 63 subjects and 78 of those with lumbar pain complained of pain in the buttock or leg. Treatment response (Table 4) was limited and symptoms recurred in most cases and 82% still stated that they needed help.

Phase III: Medical examination. By the time of the phase III examination, 9 subjects had moved out of the area, 7 had died, 6 refused examination, 31 had no symptoms in phase II and 15 were not accounted for leaving 166 adults for medical examination.

Women with symptoms undertook lighter work, more repetitive work and more had work than men, who, more often than women, considered their work to be heavy. All subjects between 25 and 54 years were literate. Over half the men and only a few younger women admitted to taking alcohol. The women carried half the loads carried by men but over similar distances. Pressure on the joint cartilage estimated from weight and knee measurements was not associated with a clinical diagnosis OA of the knee.

The more frequent diagnoses are shown in Table 5. In addition there was one case each with the following diagnoses: carpal tunnel syndrome, biceps tendonitis, trochanteric enthesitis, Achilles tendonitis and leprosy with Charcot's joints in the toes. An elderly woman with Heberden's nodes had similar changes in the toes confirmed by X ray.

The frequency of any joint abnormality is shown in Table 6. The knee was most often affected followed by the shoulder and finger joints. Knee OA and Heberden's nodes were the most frequent sites of OA. The ARA algorithm for knee OA causing clinical features only [9] detected only 3 of the 25 clinically diagnosed cases. If knee joint pain was replaced by knee pain and/or knee

tenderness in this algorithm, 8 cases would be included (32% sensitivity).

Only two definite cases of RA were identified but without laboratory or X ray data; the ARA criteria for RA could not be applied. No cases of ankylosing spondylitis or sero-negative polyarthritis were diagnosed.

After examination, spinal pain could not be classified more precisely than non specific neck pain, dorsal pain or lumbar pain. Three men and one woman gave a history suggesting nerve root compression. Of those with dorsal pain, 80% had lumbar pain but only 37% of those with neck pain had lumbar pain. Spinal pain was not associated with trapezius, shoulder or elbow pain. A man of 66 years and a woman of 59 years had scoliosis. Six men and three women were classed as having spondylosis and three, spondylosis of the neck.

Of 35 with pain in the upper trapezius muscle area, 10 men and 8 women had tender points at the levator scapulae insertion with a history suggestive of muscle strain from weight bearing. This group included three of six men who had diffuse thickening of the skin and subcutaneous tissue over the C7 and D1 vertebral spines and upper trapezius areas. This was seen only in men using narrow poles to carry loads over long distances. One aged 33 years had trapezius and joint pains and a second aged 55 years had back and upper dorsal pain with previous rotator cuff and epicondylitis pain. A third aged 30 years had pain in relation to a single lump over the left trapezius area and neck. The other three had no relevant symptoms.

Discussion

This study was an exercise in determining the frequency of rheumatic complaints in a rural population of a developing country using limited professional and financial resources. Two major problems prevented a reliable estimate of population prevalence. The first was the long delay between starting and completing the study with losses to follow up resulting from recovery, transfer from the district, refusal of examination or death. These were greatest for the under 35 and over 64 years age groups. Using the phase II questionnaire for the initial screening with better trained PHW, as was done in Indonesia [6], and doing the examinations immediately after initial screening would be preferable. The second problem was the interpretation of the questions. Some were not explicit and were misinterpreted. Of the questions tested for relevance to morning stiffness only the first "Is it easy to move your joints . . . when you wake up in the morning?" was the nearest to describing stiffness, a word which could not be translated directly. The other questions translated to mean pain only. The time for joints "to loosen in the morning" was sometimes recorded when the other questions were negative. To some questions more admitted a problem than would be expected. Examples were the 15 alleged to have five disabilities or the 73 who apparently had pain and joint swelling for more than 6 weeks affecting more than three joints and with succeeding attacks though only 2 were classed by the rheumatol-

ogists as having RA. Though such anomalous responses could be explained, any analysis of positive and negative responses may be unreliable. In further studies the questionnaire should be translated into the local dialect and then translated back into English to ensure that the meaning is not lost, and then field tested.

There was poor correlation between the joint problems recorded by the midwife and the medical examination which separated joint and soft tissue rheumatism. The mannekin recording sheet for the midwife did not provide for this so that this data has not been included in the analysis. Some with signs but no symptoms would not be detected by the midwife so these differences could be expected. Altering the mannekin to show soft tissue sites as well as joint sites would decrease this error in future studies.

As in the Tokelauans [4], clinically diagnosed OA was the most frequent joint problem and the knees and distal finger joints were the most common sites. The ARA tree algorithm [5] for clinical signs which has been developed for clinic populations, did not show sufficient sensitivity for population studies. As squatting was a necessary daily living activity knee pain would result in much greater handicap than in the west and may be a causative factor in knee OA as suggested by a post mortem study in Japan [7].

Only two men complained of hip pain which may not have been due to OA, a rare condition in Hong Kong Chinese [8] and Africans except those in the Msleni area [9]. Only two men and three women were clinically diagnosed as having gout so that the prevalence of this condition also appears to be low. The rate was much higher in Philipinos [10] and in Tokelauans migrating to Western communities [11].

Drugs currently used in developed countries were not readily available in view of cost but, as in Indonesia [12], prednisone or phenylbutazone was cheap though often disguised in so-called herbal remedies. Hyper-corticism was severe in the worst of the two cases of rheumatoid arthritis.

Spinal pain appeared to occur as frequently in this Philippine village where squatting was normal, as in the Tokelauans [4] who sit on the ground. This finding cast doubt on Farhni's suggestion that squatting protected villagers in India who were said not to have back pain [13]. The ready availability of compensation for workers with back pain has been suggested as an explanation of the high rate of back pain in Holland [14] but no compensation was available in our study village. Also Tokelauans migrating to New Zealand where compensation is easily available do not report more back pain.

This study showed that it is essential to have a resource person to co-ordinate all activities and to ensure the collaboration of government, local and university authorities and to supervise language problems. To avoid ambiguity about who should be included in the sample, a map or aerial photograph of the houses in the selected area would allow each to be numbered and would indicate the PHW responsible for each house. A unique number should be given to each member of each household from the first visit, whether available for questioning or not, to enable the response rate to be estimated.

Due to the shortcomings described, prevalence rates cannot safely be extrapolated to the whole population but, we established that a substantial number of villagers do have rheumatic problems of sufficient degree to interfere with daily living and work capacity. Most with symptoms had a persisting need for help. OA most often affected the knees, also spinal pain and soft tissue pain were common. Inflammatory arthritis, rheumatic fever and rheumatic complaints in children were not specifically sought and so were of unknown significance in health control in this area.

The many difficulties encountered in this pilot study have facilitated the planning of COPCORD surveys in Indonesia, Australia and Malaysia. Difficulty in access and delays due to civil disturbances will occur in much of the developing world and there may be logistical problems in areas not served by a university sponsored primary health care program. Avoiding such problems by choosing easily accessible and sheltered sites may not give a guide to problems in the whole population.

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References

1. Wigley RD, Manahan L, Caragay R, Muirden KD, Valkenburg HA, Allander E, Prior IAM (1983) Observations of rheumatic disease in Polynesia and the Philippines. *J Rheumatol Spec Rep* 10: 37–39
2. Beasley RP, Bennett PH (1983) Low prevalence of rheumatoid arthritis in Chinese. *J Rheumatol Spec Rep* 10: 11–15
3. Manahan L, Caragay R, Muirden KD, Allander E, Valkenburg HA, Wigley RD (1985) Rheumatic pain in a Philippine village. A WHO-ILAR COPCORD study. *Rheumatol Int* 5: 149–153
4. Wigley RD, Prior IAM, Salmond C, Stanley D, Pinfold B (1987) Rheumatic complaints in Tokelau. II. A comparison of migrants in New Zealand and non-migrants. The Tokelau migrant study. *Rheumatol Int* 7: 61–65
5. Altman RD (1987) Criteria for the classification of osteoarthritis of the knee and hip. *Scand J Rheum [Suppl]* 65: 31–39
6. Darmawan J (1988) Rheumatic conditions in the Northern part of central Java. An epidemiological survey. Doctorate thesis, Erasmus University of Rotterdam, The Netherlands
7. Morimoto I (1982) Attrition lesions of articular cartilage in Japanese knee joint due to formal sitting and squatting postures. *J Anthropol Soc Nippon [Suppl]* 90: 163–176
8. Hoaglund FT, Yau ACMC, Wong WL (1973) Osteoarthritis of the hip and other joints in southern Chinese in Hong Kong. *J Bone Joint Surg [Am]* 55: 546–557
9. Solomon L, McLaren PM, Irwig L, Gear J, Schnitzler CM, Gear A, Mann D (1986) Distinct types of hip disease in Msleni joint disease. *S Afr Med J* 69: 15–17
10. Healey LA, Caner JEZ, Decker JL (1966) Ethnic variations in uric acid. I: Filipino hyperuricaemia in a controlled environment. *Arthritis Rheum* 9: 288–294
11. Prior IAM, Welby TJ, Øestbye T, Salmond CE, Stokes YM (1987) Migration and gout. The Tokelau Island migrant study. *Br Med J* 295: 457–460
12. Darmawan J, Wigley RD, Valkenburg HA, Muirden KD (1984) Disturbing findings in Indonesia. *SEAPAL Bull* 4: 6–7
13. Fahrni WH (1975) Conservative treatment of lumbar disc degeneration. *Orthop Clin North Am* 6: 93–102
14. Valkenburg HS, Haanen HCA (1982) The epidemiology of back pain. In: White AA, Gordon SL (eds) *Idiopathic back pain*. Mosby, St Louis, pp 9–22