

Rheumatic Disease in Han Chinese. What Have We Learned from 19 Years of Epidemiological Study?



In this issue of *The Journal* Sheng-Ming Dai and colleagues¹ report a survey of rheumatic disease in an urban sample of 6584 adults in Shanghai city, using the World Health Organization (WHO) Community Oriented Program on Rheumatic Disease (COPCORD) protocol. Only those with symptoms in the last 7 days or for more than 7 days in the past were medically examined. All subjects aged 15 years or over in the target area were interviewed.

Four studies using the COPCORD protocol have now been done on Han Chinese living in China¹⁻³, and one was on Chinese who had migrated to Malaysia one to 2 centuries before⁴. Only those with rheumatic symptoms were medically examined in the COPCORD studies, while in the WHO-ILAR study⁵, a few subjects with clinical evidence of rheumatic disease but no symptoms would have been included, as all respondents were medically examined. Since the COPCORD questionnaire was based on the WHO-ILAR questionnaire, comparisons can be made. Three studies focusing on arthritis used different questionnaires. Lau, *et al*⁶ studied Han Chinese in Hong Kong. Two studies of Taiwanese, who are mainly of Han origin, were on Kinmen Island⁷ and in northern Taiwan⁸. The rural sample⁸ was of the ethnically different Haka people, so they were not included in this review.

As there was variation in methods, comparisons between ethnically similar populations living in different environments are unlikely to be valid unless the differences in prevalence are substantial. The first 6 columns of Table 1 shows age/sex prevalences standardized to the total population studied in the ILAR study except for the Dai study¹, which was standardized to the general population of China, and the Hong Kong study, which was not standardized.

The mean prevalence of rheumatoid arthritis (RA) in the 10 samples is 0.43%, which is lower than in 25 studies in Caucasians at 0.73%⁹. The mean prevalence for Chinese urban studies was 0.59% and rural 0.19%. This difference is not great, but is consonant with the marked predominance in urban blacks in South Africa¹⁰, 0.9% compared with zero

prevalence in rural blacks in South Africa¹¹ and in Nigeria¹². In Beijing, 62% of RA cases were DR4-positive compared with 21% in controls¹³.

The urban prevalence of ankylosing spondylitis (AS) was marginally lower at 0.22% than the rural prevalence, 0.29%. HLA-B2704 is the commonest subtype in B27-positive AS cases in Beijing¹⁴.

Systemic lupus erythematosus was found in only 5 cases in a total of 23,249 screened clinically in all the mainland samples studied. The numbers are small, but at 21.5 per 100,000 the population prevalence is similar to that found in Caucasians and Japanese⁹, but not as high as anticipated from hospital cases¹⁵, which would have been concentrated from a very large population in North China.

Gout is much more dependent on diet and environment than the other rheumatic diseases. In the Dai study¹, gout was more prevalent at 0.22% than in the previous study² in urban Shanghai (0.15%), but higher than in urban Shantou at 0.15% and lower than in urban Han Taiwanese at 0.67%.

Low back (lumbar) pain (LBP) in the Dai study was relatively low at 5.6% after age standardization to the whole population of China. Only those with pain in the last week or lasting more than a week were included, so a lower prevalence would be expected than if "pain-ever" had been used as in the other studies.

A gradient with latitude in knee pain (KP) from 30% down to 5.7% and LBP from 35% to 8.8% from Beijing in the North to Chinese in rural Malaysia near the equator suggests an effect of climate on pain³. The limited data on knee radiographic changes of osteoarthritis (OA) suggest a similar trend with latitude. In a separate study in rural Beijing¹⁶, 25% of those with KP and 25% of those with no KP suggests that other factors contribute to the prevalence of KP. In South China, where the prevalence of KP is lower, the proportion of those with KP who have OA change on radiography is higher, at 55%³. Overall, the prevalence of both KP and LBP is about one-third higher in the rural than in the urban samples.

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Table 1. A. Prevalence (%) of all rheumatic pain (All), by the site of pain in 5 studies of Han Chinese and the ILAR or COPCORD protocol or other questionnaires that were used. These rates were age/sex adjusted to the total sample population in Reference 5 (#), except for the Dai study¹, where standardization was to the general Chinese population (+), and the Hong Kong study⁶, where rates were not standardized.

	Beijing ⁵ Rural ILAR	Shanghai 1 ² Urban COPCORD	Shanghai 2 ¹ Urban COPCORD	Shantou 1 ⁵ Rural ILAR	Shantou 2 ³ Urban COPCORD	Malaysia ⁴ Rural COPCORD	Taiwan ⁸ Urban Other	Taiwan ⁸ Suburban Other	Kinmen Island ⁷ Rural Other	Hong Kong ⁶ Urban Other
Latitude	40	32	32	23	23	5	25	25	24	23
Number	4192	2010	6584	5058	2040	474	3000	3000	5629	1988
Pain sites, %	#	#	+	#	#	#				
All @	33	24.3	13.3	7.6	23.5	12.7	26.3	26.3	—	—
Lumbar	35	15.8	5.6	13	10.2	8.8	—	—	—	—
Knee	30	11	7.0	2.6	6.5	5.7	—	—	—	—
Shoulder	5	4.8	4.7	2	4.9	2.2	—	—	—	—
Neck	5	3.5	2.4	2	4.1	3.1	—	—	—	—
Elbow	4	0.5	1.3	1.4	2.4	1.5	—	—	—	—
Dorsal	1.5	—	—	2	0.5	2.6	—	—	—	—
Arthritis diagnosis, %										
RA	0.3	0.82	0.47	0.17	0.2	0.0	0.93	0.78	0.3	0.35
AS	0.26	—	0.11	0.26	0.2	0.1	0.4	0.19	0.2	—
OA knee	26*	—	4.1	—	4.1	—	—	—	—	—
Gout	0	0.82	0.22	0	0.15	—	0.67	0.67	—	—

* Rate is from Reference 16.

Future studies are needed to elucidate the leads suggested by these data. The possible association with climate implies study of secondary effects of temperature. For instance, the main source of carbohydrate is wheat in the north and rice in the south. There is only one crop a year in the north and 3 in the south, so that farm labor would be greater in the south; thus heavier work in the south would not explain the differences in back and knee pain. At present we can only speculate on these questions.

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