RHEUMATOLOGY

Editorial

The COPCORD world of musculoskeletal pain and arthritis

Deeply rooted in the community

Musculoskeletal (MSK) pain and arthritis are universal problems but pain is difficult to measure. In 1981 the ILAR and the World Health Organization (WHO) together launched the WHO ILAR Community Oriented Programme for Control of Rheumatic Diseases (COPCORD) to fill the gap in the lack of data about MSK pain and arthritis in developing countries. COPCORD is a low-cost, low-infrastructure programme based on regional resources. Using a fairly uniform approach and validated methods, the COPCORD stage I survey (three phases) was completed in Australia, Bangladesh, Brazil, Chili, China, Cuba, Egypt, Guatemala, India, Indonesia, Iran, Kuwait, Lebanon, Malaysia, Mexico, Pakistan, Peru, Philippines, Thailand, Tunisia and Vietnam [1–6]. Details about the survey methods, countrywise results and publications are available on COPCORD's website [7].

A representative convenient population sample (>1500) was recommended for each country. The emphasis was on a non-migrant population and areas with reasonably fair access to infrastructure and logistical support. Although not essential, several surveys used a randomized technique (Table 1). The population was screened (phase 1) in a house-to-house cross-sectional survey to identify respondents with current (past 7 days) or past pain, or both, and tenderness, swelling or stiffness in bones, muscles and joints, or all three. Pain and other relevant information were recorded in phase 2 and pain sites often shown on a human mannequin. Standard rheumatology examination was recorded in phase 3. A fast-track model [3] was introduced by Bhigwan (India), which essentially completed all three phases in parallel and reduced the survey period and cost: 7000 villagers were surveyed (>80% response) in about 5 weeks. Limited COPCORD stages II (risk factors, incidence cases and health education) and III (improved health care through preventive and control strategy) were completed by few countries [1].

Although COPCORD survey questionnaires (CPD-Q) were customized for regional use, the core questions were mostly unchanged. Local translations and adaptations were validated *a priori* in pilot studies (using controls). Recently [6] the CPD-Q was reported to be a robust case detection tool (rheumatic diseases) to identify early rheumatology referral cases and thereby reduce the burden on specialist services [8].

The point prevalence rates of MSK pain or symptoms in adults are shown in Fig. 1. Very few COPCORD surveys included children (<16 years of age). The India survey established that MSK pain was the most common self-reported illness and that almost two-thirds of cases were likely to suffer from non-specific MSK pains, arthralgias (NSA), soft tissue rheumatism (STR) or all three, one-third with degenerative arthritis (OA) and less than one-tenth of cases suffered from inflammatory arthritis [3]. The back and knees were found to be the most frequent pain sites (Table 1). Bhigwan (India) also introduced the use of a modified validated HAQ in COPCORD and demonstrated that 14% of NSA and 11% of STR cases also suffered from a moderately severe ($\geqslant$1.2 out of a maximum score of 3) HAQ disability score compared with 37% of RA and 23% of OA cases [9].

Several surveys have highlighted the burden and neglect of NSA and STR both by the community and the medical profession. COPCORD India speculated about a causal link between NSA/STR and lifestyle (e.g. prolonged squatting leading to pain in the lower limb joint) and occupational misuse [3]. Forty-three per cent of patients with chronic pain in the upper limbs in COPCORD Mexico remained unclassifiable [4, 6], while 20% of Indian cases and 55% of Chinese cases (Shangai) did not seek any professional medical care [1]. From a community perspective, these aches and pains are part and parcel of rheumatism. Rheumatologists usually deal with only more serious MSK disorders such as RA and lupus and have little time for mundane aches within the community. However, rheumatologists are trained and expected to manage pain effectively. Therefore, based on the COPCORD experience, it seems prudent for rheumatologists to address this subject and provide better evaluation algorithms and referral guidelines even for non-serious MSK disorders. Interactions would be required with general practitioners and other stakeholders for interdisciplinary strategies.

Table 1 provides a summary of the selected COPCORD surveys that shows approximate national prevalence [1–7]. Comparisons between surveys may be confounded by methodological differences, but the data present an overall picture of the spectrum and burden between countries. Mexico, with an intriguing ethnic mix, showed a high RA prevalence and may well be the RA capital of the world [4]. A high rural prevalence of RA (ACR 1987 criteria), and particularly in young women [10], was reported from Bhigwan. Undifferentiated inflammatory arthritis, PsA and infective arthritis were uncommon. Several surveys in China and Latin America identified lupus and other

TABLE 1 Some important features and point prevalence rates (%) in selected WHO ILAR COPCORD adult population surveys

Country	Year	Sample size	Type	Design	MSK pain	RA	OA	OA knee	STR	AS	Gout	SSA	Back pain	Knee pain	Remarks
Brazil	2004	3038	U	RN	30.9	0.46	4.14	NP	NS	NS	NS	NS	NP	NP	Classified as per ACR; FM 2.50%; SLE 0.09%
China Beijing	1987	4192	R	C, S	40.3	0.34*	NS	NS	NS	0.26	NS	0.26	35	29	Adjusted to pooled population with China Shantou (below) *1958 ARA criteria for RA, else clinical; SLE 0.07%
China Shantaou	1987	5057	R	C, S	11.6	0.32*	NS	NS	NS	0.26	0.15	0.26	11.5	3.3	Adjusted to pooled population with China Beijing (above) *1958 ARA criteria for RA, else clinical
China Shanghai	2003	6584	U	RN, S	13.3	0.28	NP	4.1	3.4	0.11	0.22	0.11	5.6	7	Adjusted to China national population
Cuba	2009	3155	U	RN	43.9	1.24	20.4	NP	6.4	0.1	0.38	0.19	11.6	11.7	Adjusted to national population; ACR criteria, rest clinical; SLE 0.06%; FM 0.22%
Egypt	2004	5120	R	C	16.2	0.29	8.5	NP	6.6	0.09	NP	0.15	4.9	9.1	Except RA, rest clinical diagnosis; FM 1.3%; CTD 0.15%
Guatemala San Juan	2012	4000	R	C	14.45	0.85	3.95	NP	2.13	ND	0.025	NP	0.48	5.6	Both the regions were surveyed simultaneously over 8 months; ACR criteria, rest clinical; 1 case SLE; 4 cases CTD-U; 2 cases SS
Guatemala City	2012	4000	U	C	9.3	0.53	1.65	NP	1	ND	ND	NP	0.5	5.6	
Iran	2008	10291	U	RN, S	41.9	0.33	16.6	15.3	4.6	0.12	0.13	0.23	21.7	25.2	Adjusted to national population; all diagnosis clinical including RA
India Bhigwan	2001	4092	R	C, S	19.5	0.54	6.25	4.42	3.77	0.1	0.13	0.3	12.6	13.7	Adjusted to India Census population 2001; except RA, rest clinical diagnosis; Bhigwan IA-U 0.76%; Pune IA-U 0.32%
India Pune	2009	8145	U	C, S	11.5	0.19	4.01	3.41	1.2	0.07	0.06	0.27	4.6	6	
Kuwait	2004	7670	U	RN, S	26.8	—	—	—	—	—	—	—	11.5	15.6	6% MSK pain was trauma related; age- and sex-adjusted pain rates published
Lebanon	2012	3530	R	RN, S	32.9	1	4	3	5.8	0.1	0.01	0.3	13.6	14.2	Adjusted to national population; ACR criteria when applicable; FM 1%
Mexico	2011	19213	U	RN, S	25.5	1.49	10.24	NP	3.8	0.15	0.35	NP	5.8	NP	Adjusted to national population; ACR criteria when applicable; rheumatic regional pain syndrome in lieu of STR; FM 0.68%; SLE 0.06%; Scl 0.02%
Philippines	1997	3065	U	RN	16.3	0.17	4.1	NP	3.8	NP	0.13	0.03	2.1	NP	ACR criteria when applicable; FM 0.2

Selection of surveys based on sample size, COPCORD design, randomization and standardization technique and regional representation. Year pertains to publication of survey report. If not shown as S in design, the data were not standardized. RA classified as per ACR 1987 criteria except for China Beijing, China Shantou, Iran (see remarks). Due to low response rate for rheumatology evaluation (11.6% respondents) in Kuwait, the disease prevalence rates are not shown. SSA: seronegative spondyloarthritis; U: undifferentiated; IA: inflammatory arthritis; Scl: scleroderma; U: urban; R: rural; RN: randomized sample; C: convenience sample; S: standardized/adjusted age and sex; NS: not studied; NP: not published.

Fɪɢ. 1 Global COPCORD survey sites showing point prevalence of current and/or past MSK pain.
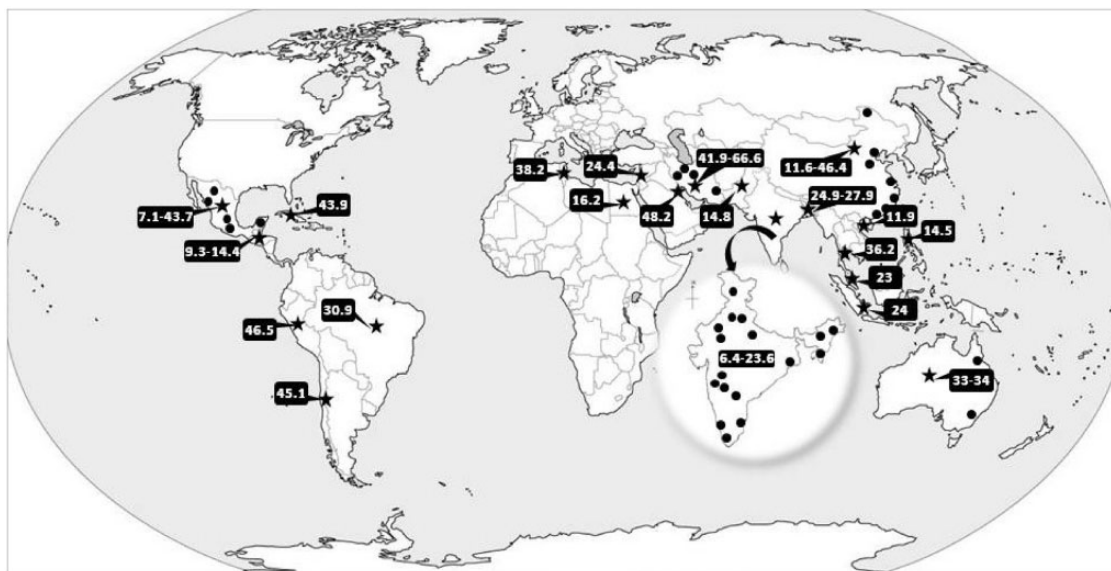
A star symbol represents survey sites showing point prevalence of current and/or past MSK pain. Multiple sites within countries are marked as filled circles and point prevalence is given as a range. The number of survey sites within each country is as follows: Australia (2), Brazil (1), Bangladesh (3), China (7), Cuba (1), Chile (1), Egypt (1), Guatemala (2), India (17), Indonesia (2), Iran (4), Kuwait (1), Lebanon (1), Malaysia (1), Mexico (5), Pakistan (1), Philippines (1), Peru (1), Thailand (1), Tunisia (1), Vietnam (1) [1–6].

collagen vascular disorders. Despite extensive STR, few surveys reported a prevalence of fibromyalgia (ACR classified) >1%. Countries such as China and India are overpopulated and even a relatively small prevalence statistic translates into a large population suffering from the disease.

Several COPCORD surveys published risk factor associations derived from controlled cross-sectional analysis. India demonstrated a consistently significant ($P < 0.05$) association between oral tobacco use and MSK pain [11] in three survey sites (urban and rural); oral tobacco is used traditionally in several Indian communities and needs further validation. However, the large amount of COPCORD data will need careful standardization and evaluation by a uniform standardized protocol. Several risk factors are potentially modifiable and preventable.

The COPCORD design and methods were often limited by stringent budgets, which necessitated feasible deviations in the core protocol. Standardized (age–sex) prevalence was reported by some surveys (Table 1). Investigators used clinical discretion to classify non-specific MSK pain, NSA and STR. Confirmatory investigations were often missing.

COPCORD has global merit; raw data from India and Indonesia were used in the WHO estimate of global burden of MSK disease [10]. COPCORD data were used to launch a national programme to control gout in Indonesia [1]. COPCORD data about the spectrum and prevalence of MSK should be used to teach community

medicine. Africa needs to be explored (surveys) and more COPCORD stages II and III are required. And COPCORD may be suitable to update MSK epidemiology in North America and Europe. We need to measure MSK pain globally, which has a major impact on quality of life, and COPCORD may well serve that purpose.

COPCORD is about community medicine and a way to advertise rheumatology in developing countries. With COPCORD, we can understand the community as we provide and monitor our services. This is what I have learned in the past 17 years of working in COPCORD Bhigwan [12].

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