PREVALENCE OF RHEUMATIC DISEASES IN URBAN BIKANER POPULATION OF WESTERN RAJASTHAN : A WHO-ILAR COPCORD STUDY

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SUMMARY

- Bikaner District is situated in North-Western Rajasthan.

- The area selection was randomized and guided by senior co-workers (HST) and a doctor.

- Team divided into 4 areas (Lalgarh, Kailash Puri, Karni Nagar and Purani Ginnani).

- The census state 1 survey was completed in 2008. Over 12 week period where by all the 3 phases were carried out concurrently, total population surveyed was 5000.

- The COPCORD medical team included one rheumatologist, one MBBS Doctor, 2 rheumatology research associates.

- The questionnaires were served in Hindi language through personal interviews by the CHWs.

- In Phase 1 questionnaire, the respondent recorded general demographic data, past and current RMSD, and other medical problems.

- The Phase 2 questionnaire contained queries regarding community concepts, socioeconomic effects, health assessment (HAQ) in terms of functional impairment, medical resources and therapies used.

- The HAQ used was modified to cater to the Indian customs of daily living (e.g. squatting and sitting cross legged) and livelihood (e.g. cycling and bullock carts for transportation).

- The total HAQ score (maximum 24) was averaged for eight activities; arbitrarily classified into mild (0-0.9), moderate (1-1.9) and severe (2-3).

- Respondents with past or current RMSD completed Phase 2 questionnaire before the final rheumatology evaluation. Each patient was classified with a provisional diagnosis by rheumatologist following the clinical evaluation; investigations were ordered when indicated.

- Facilities for ESR, hemogram was set up in the area. Other relevant investigations (e.g. rheumatoid factor (RF) was carried out in centre for rheumatic diseases (CRD), S.P. Medical College, Bikaner all serum samples were stored at -80°C, even after testing.

- FOLLOW UP: The survey patients were systematically re-evaluated during the initial 12 week post survey period. The diagnosis was finalized, sometimes after reviewing the lab results.

- During the late follow up program, the COPCORD medical team continued to visit the village every 3-4 weeks.

- Treatment was begun and closely monitored.

DISEASE CLASSIFICATION AND DATABASE

- Patients of RA were classified as per the American Rheumatism Association/College of rheumatology (ACR)'s 1987 criteria.

- Standard textbook criteria were applied for the clinical diagnosis of ankylosing spondylitis (AS), gout, soft tissue rheumatism (STR), juvenile chronic arthritis (JCA), rheumatic fever arthritis (RhFA), osteoarthritis (OA), Spondylosis, connective tissue disorders (CTD) e.g. SLE.

In case of chronic non inflammatory knee pain the diagnosis of OA was based on presence of either of the following features – significant crepitus, restricted range of movement, varus deformity, palpable medical joint line tenderness, palpable osteophytes, skiagrams were referred to when available. Patients with diffuse STR were also classified as per the ACR criteria for fibromyalgia.

Patients with only focal enthesitis e.g. tendoachillitis, ankle tenosynovitis, etc. were classified as regional forms of STR, RMSD in a large number of patients could not be classified into a better known diagnostic entity and these were then broadly labeled as "unclassifiable" with a subcategory indicating the anatomy of the affected region.

- Though the survey database has been continuously reviewed, the number of patients (identified during the survey) remained constant. Our study diagnosis/disease classification format ensured comparability with other COPCORD studies.

BASIC URBAN DEMOGRAPHICS

- A total of 5000 subjects were surveyed, (49.02% were females and 50.88% were males).

- The age distribution of the Bikaner surveyed subjects in this study is compared to the 2001 Indian census population (Table 1 & Fig 1).

Table 1 : Survey Population (Phase 1) and patients Identified (phase 2) : age-sex distribution (percent)

Age group (yrs)	Survey Population N=(5000)			Patients identified (n=356)		
	Male (n=2548)	Female (n=2452)	Total	Male (n=102)	Female (n=254)	Total (n=356)
1-14	0.08	0.02	0.10	0	0	0
15-24	10.2	9.1	19.3	1.40	1.40	2.80
25-34	10.5	11.2	21.7	2.20	7.30	9.60
35-44	12.0	12.7	24.7	3.70	17.10	20.80
45-54	9.5	7.7	17.2	6.20	17.70	23.90
55-64	4.6	4.5	9.1	5.90	15.20	21.10
>64	4.0	3.9	7.9	9.30	12.60	21.90

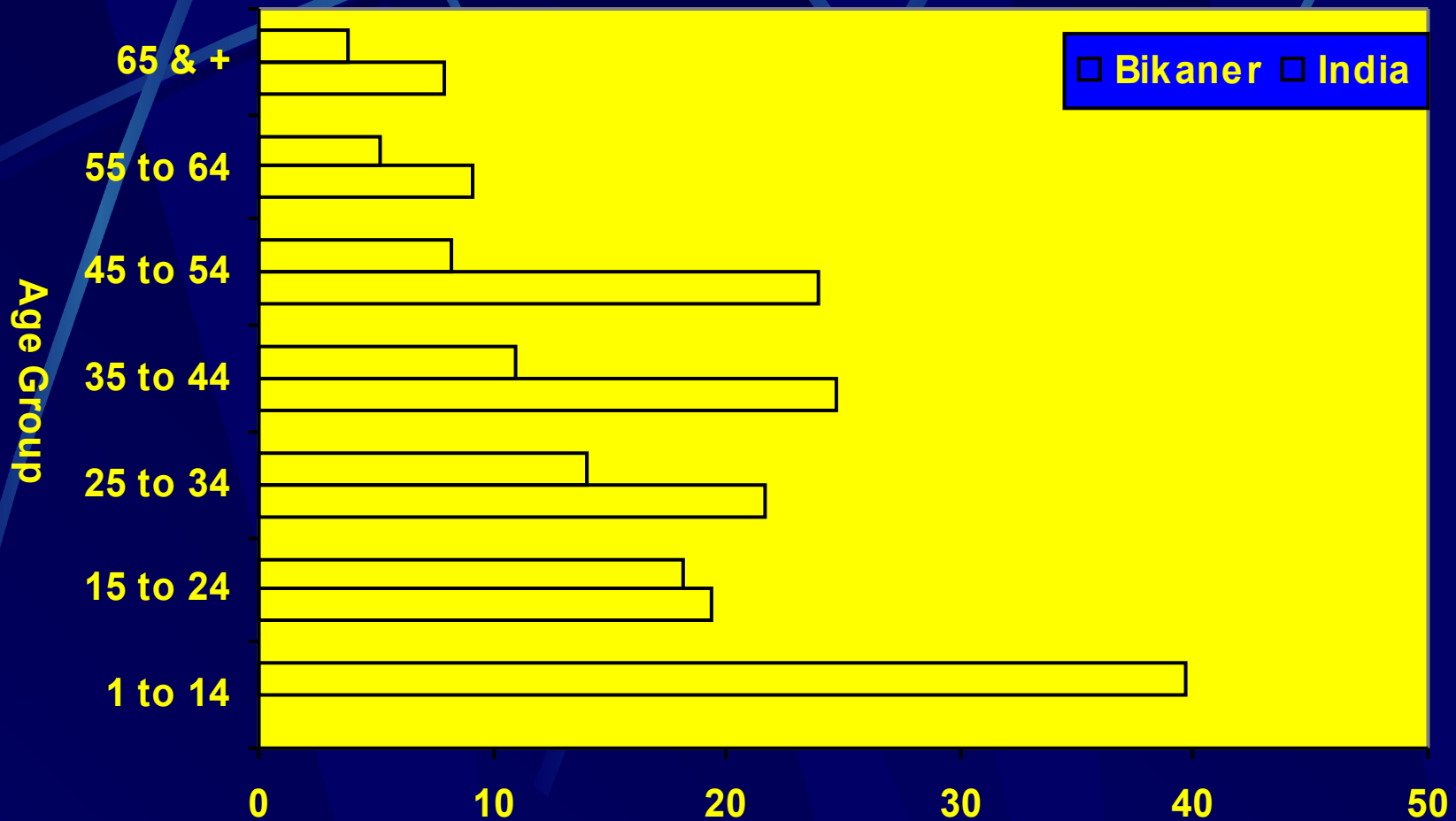**Comparison of identified population to the Indian population (2001 census) : age group distribution**

Fig. 1 : Comparison of study subjects to the Indian population (2001 census) : Age group distribution)

RESULTS

- The age-sex distribution of the population and the identified patients from Bikaner is shown in table 1. Males dominate (51%) (sex ratio = 0.9:1).

- The population was multiracial (72% Hindus, 25% Muslims, 3% others). 40% were labourers, 38% were govt. employed and rest were unemployed.

- Almost 80% of the women were in the age group 21-54 years worked both in home and field.

Table 2 : Distribution of study subjects according to their positivity and sex

Positivity	Sex				Total	
	Male		Female			
	No.	%	No.	%	No.	%
Negative	2445	48.9	2199	44.00	4644	92.9
Positive	102	2.04	254	5.06	356	7.1
Total	2548	51.0	2452	49.0	5000	100

PATIENTS PHASE 2 DATA

- A total of 356(7.1%) patients were identified of them 2.1% were males and 5.1% were females, all of them were adults.

- Both males and females suffered maximum with pain at the knee (females 4.48% males 1.76%) followed by pain at hand wrist with female dominance (2.68% Vs 1.14%).
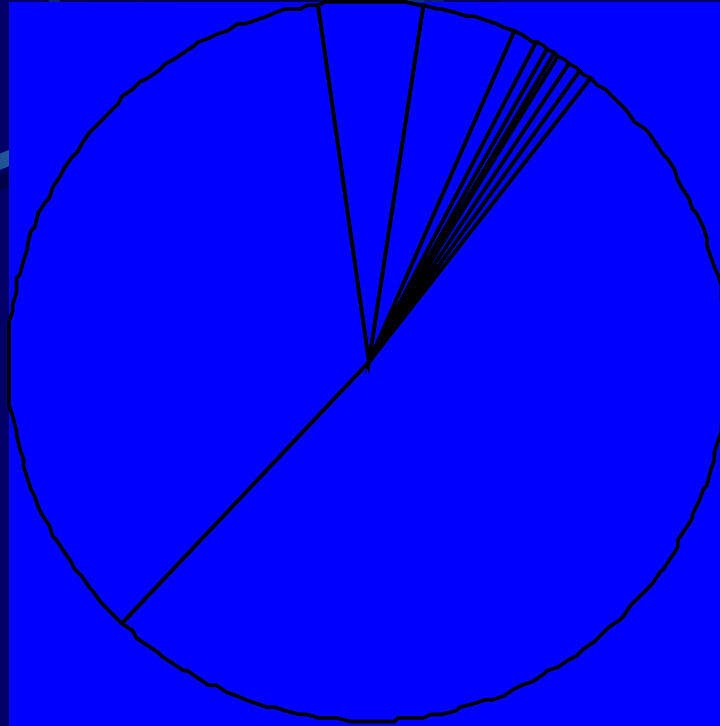
Table 3 : Prevalence of rheumatic complaints by "site" in Bikaner urban and selected rural Asina-Pacific COPCORD surveys (percent)

Pain Location	Present Study			Bhigwan (India) (n=4092)	Indonesia (n=4683)	China (n=4213)	Australia (n=1437)
	Male (n=2547)	Female (n=2453)	Total (n=5000)				
Pain any site	2.1	5.1	7.1	17.9	24	NA	NA
Neck	0.02	0.1	0.12	6.5	5.0	4.6	17.0
Shoulder	0.08	0.38	0.46	7.4	11.0	4.6	10.0
Elbow	0.12	0.24	0.36	5.9	10.0	4.0	6.3
Hand/Wrist	1.14	2.68	3.82	7.3	NA	NA	NA
Knee	1.76	4.48	6.24	12.7	12.2	27.0	15.0
Ankle/Feet	0.92	2.36	3.28	8.0	NA	NA	NA
Calf	0.00	0.08	0.08	6.5	NA	NA	NA
Thigh	0.00	0.08	0.08	NA	NA	NA	NA
Hip	0.00	0.08	0.08	NA	NA	NA	NA
Sole	0.00	0.08	0.08	NA	NA	NA	NA
Upper Back	0.00	0.00	0.00	7.9	5.3	1.5	6.2
Lower Back	0.00	0.00	0.00	11.9	15.1	28.0	22.0

Table 4 : Rheumatic disease in Bikaner urban, comparable rural Asia-Pacific COPCORD and the Delhi Survey : Point Prevalence estimate

Disease	Present Study	Prev	95% CI	Bhigwan (india)	Delhi (India)	Indonesia	China	Australia
TNG	1	0.02	-	-	-	-	-	-
PA	1	0.02	-	-	-	-	-	-
OA	221	4.42	1.3-2.9	5.8	1.89	5.1	-	8.2
RA	69	1.38	2.1-5.3	0.51	0.75	0.2	0.3	0.7
STR	10	0.20	-	5.5	2.07	15.0	-	5.8
UNC	26	0.52	-	-	-	-	-	-
PTA	4	0.08	-	-	-	-	-	-
OASP	1	0.02	-	-	-	-	-	-
CL Spondylosis	6	0.12	-	-	-	-	-	-
C Spondylosis	5	0.10	-	-	-	-	-	-
L Spondylosis	10	0.20	-	-	-	-	-	-
LB	2	0.04	-	-	-	-	-	-

TNG – Trigeminal Neuralgia; PA – Prosthetic Arthritis; OA – Osteoarthritis; RA – Rheumatoid Arthritis; STR – Soft Tissue Rheumatism, UNC – Unclassified; PTA – Post Traumatic Arthritis; OASP – Osteoarthritis with spondylosis; LB – Low Back Pain; CI – Confidence Interval

The distribution of RMSD is shown in figure 2 & 3 (OA dominated with 62.1% followed by RA – 19.4%, 7.3% could not be classified into any category because of variable sympto-matology and lack of laboratory support). The prevalence is compared to selected COPCORD studies and a non-COP-Cord Indian study in table 3).

TNG 0.28% PA 0.28% LB 0.56%
STR 2.80% OASP 0.28% OA 62.08%
RA 19.38% CL Spondolysis 1.68% UNC 7.3%
PTA 1.12% L Spondilosis 2.81% C Spondilosis 1.40%
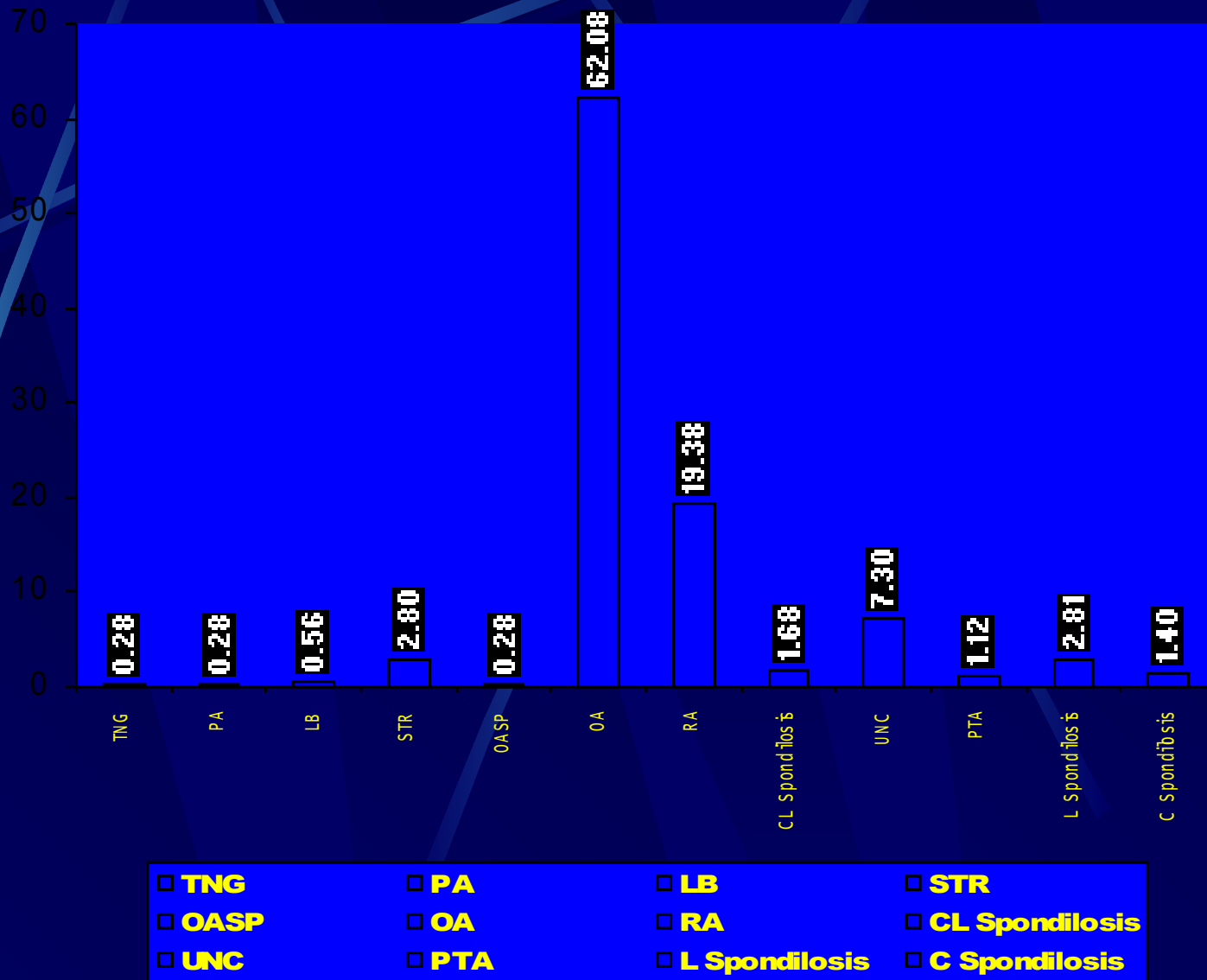
Fig 2 : Distribution of RMSD

Fig. 3

Osteoarthritis

- The prevalence (Table 4) includes all forms of OA-knee, spinal and primary generalized.

- Chronic knee pains, were observed in 312 patients (M:F : 8.71).

- Total prevalence is 4.42%.

Rheumatoid Arthritis

- Clinical RA was diagnosed in 69(1.38%) patients (61 M and 28 F) according to ACR criteria.

- 36 (52.17%) patients were seropositive for rheumatoid factor ($\geq$80IU/ml).

- The prevalence of RA was 1.38%.

Unclassified

- Third major group total 26 patients with prevalence of 7.3% (95% CI 0.3-9.3) with all efforts they could not be classified into any category despite of extensive follow up and lab investigations.

- No patient was diagnosed with skeletal tuberculosis or gout or other connective tissue disorders despite of thorough investigation and clinical surveys.

Spondylosis

- This group constituted 4th largest distribution with prevalence 0.24% (95% CI 0.8-7.0) with M:F 2.4:1.

- All subjects identified with clinical features, X-ray and negative ESR.

Post Traumatic Arthritis

- Four subjects with prevalence of 0.08% (95% CI 0-3.2), all of them were male with definite history of trauma and X-ray suggestive of ankylosis and erosion.

Others

- Ten subjects identified with soft tissue rheumatism with prev. of 0.2%. One female with trigeminal neuralgia and one male with prosthetic arthritis were identified, One female was diagnosed as osteoarthritis with spondylosis.

THANKS