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## ORIGINAL ARTICLE

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# Prevalence of Chronic Pain, Impact on Daily Life, and Treatment Practices in India

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### ■ Abstract

**Objective:** Chronic pain is of concern to health professionals, patients, society, and negatively impacts quality of life (QoL). The present epidemiologic study identified point prevalence of chronic pain in India, impact on individual's QoL, unveiling current pain treatment practices, and levels of satisfaction with treatment.

**Methods:** This epidemiological telephonic survey consisted of two questionnaires: screening questionnaire that assessed

prevalence of pain, its frequency during the past week, intensity during last episode, sites of pain, and main causes, and in-depth questionnaire that evaluated demography, frequency, duration, and intensity of pain; impact of pain on QoL; respondent's perception regarding the attitude of their family, friends, and doctors toward their pain.

**Results:** A total of 5004 respondents were included from eight cities across India. The overall point prevalence of chronic pain was 13%, and the mean intensity of pain on NRS scale was 6.93. Respondents with chronic moderate and chronic severe pain were 37% and 63%, respectively. Pain in knees (32%), legs (28%), and joints (22%) was most prevalent. Respondents with chronic pain were no longer able to exercise, sleep, maintain relationships with friends and family, and maintain an independent lifestyle. About 32% of patients lost  $\geq 4$  hours of work in the past 3 months. Majority (68%) of respondents were treated for pain with over the counter (OTC) drugs, and most were taking NSAIDs (95%).

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**Conclusion:** A significant population of India suffers from chronic pain, and their QoL is affected leading to disability. A proportion of respondents receiving pain treatment were taking nonprescription medications with a majority of respondents on NSAIDs. A very few were consulting pain management specialists. ■

**Key Words:** epidemiological study, urban and suburban Population, point prevalence, chronic pain, impact on daily life, analgesic usage

## INTRODUCTION

Pain is one of the most common reasons for visit to a general physician. Pain may result from several reasons such as an underlying disease, a chronic health condition, or sometimes due to unknown reasons. Chronic pain, often described as a long standing pain that persists past the normal time of healing or occurs along with a chronic health condition, has multidimensional implications in etiology, assessment, and treatment.<sup>1</sup> A survey conducted by the World Health Organization (WHO) in 15 centers across Asia, Africa, Europe, and United States of America demonstrated the prevalence of chronic pain in 5 % to 33% of the population.<sup>2</sup>

A recent study by Vieira et al. reported that women were more likely to experience pain as compared with men. Apart from differences in gender, presence of degenerative diseases, few psychological factors, and genetic factors may influence the prevalence of chronic pain among patients.<sup>3</sup> Economic status has also been reported to be associated with pain. A pain prevalence study conducted in Singapore demonstrated a significant increase in pain among population with lower monthly income.<sup>4</sup>

Chronic pain negatively influences quality of life (QoL) of the patients specifically with respect to psychological and environmental aspects.<sup>5-7</sup> Effective pain management results in improved QoL and reduces disability. Optimal treatment of patients experiencing chronic pain can be achieved by assessing pain characteristics such as location, intensity, quality, duration, effect on QoL, and clearly defining the goal of therapy.<sup>8</sup> The International Association for the Study of Pain (IASP) survey revealed that lack of education, inadequate government policies, fear of opioid addiction, high cost of analgesics, and poor patient compliance are major barriers for optimal pain management in developing countries.<sup>1</sup>

Although several other countries have undertaken pain surveys to investigate the epidemiology of

pain,<sup>6,9,10</sup> there is no evidence of such studies in India. The present epidemiological study of chronic pain aimed to identify the point prevalence of pain, indicators of pain including its duration, intensity, its impact on QoL, and treatment patterns. This study was undertaken using a questionnaire based telephonic survey to identify the point prevalence of chronic pain in India and its impact on QoL. This survey also attempts to identify the treatment patterns of pain population across India.

## METHODS

The present study was an epidemiological telephonic cross-sectional survey for the evaluation of point prevalence of chronic pain in eight cities and their suburbs across India. The study was a follow-up to the discussion of Pain Study Group and was supported by Wockhardt Limited. The study was approved by an Independent Ethics Committee.

### Selection of Respondents

A randomly selected respondent suffering from chronic pain, that is, pain or discomfort, that persisted continuously or intermittently for 3 months or more in the 6 months before the interview was considered eligible for the study. Further, the respondent must have experienced pain during the last week, experienced pain at least twice a week, and rated the intensity of pain between 5 and 10 on the numeric rating scale (NRS) (0: no pain at all; 1 to 3: mild pain; 4 to 6: moderate pain; and 7 to 10: severe pain; 10: worst pain imaginable). Pain lasting for less than 30 days was considered acute; episodic pain occurring in waves or patterns was considered intermittent, and continuous pain was defined as pain that lasted 12 or more hours each day.<sup>11</sup> In case the respondent was experiencing more than two types of pain, the one which was more chronic was considered.

### Data Collection

Bharat Sanchar Nigam Limited (BSNL) landline directory and mobile number database were used for screening respondents for the study. Computer generated number was used to select the randomization number. The page selection was carried out by totaling random number and interval (calculated as total number of pages in the directory/total sample). The first telephone number from the selected page was chosen for interview. Consecutive numbers were selected until a successful

interview was obtained. Similar procedure was adapted for selection of mobile numbers from mobile number database after respondents were initially filtered as per age group. The telephonic survey was conducted by team of 20 skilled telephone interviewers from eMpulse, a market research and data analytics organization (<http://empulseglobal.com>).

Methodology adopted for the collection of data consisted of different stages including the finalization of population coverage and sample size, format research questionnaire, databases to be used for the survey, methods of sampling and respondent selection, pilot survey, data collection, and the quality check (QC) of data collected. Of the completed interviews, a total of 20% were quality checked which involved the eMpulse analyst calling back the respondent to ensure the completion of interview as per protocol. The completed questionnaires were subjected for random QC after they were submitted. Interviewer wise QC was performed, and questionnaires with any issues and problems were subjected to rework and scrutiny. The first 1000 questionnaires during interim analysis underwent 100% QC process; however, a total of 40% were quality checked for final analysis.

Data processing was carried out to evaluate the following parameters: (1) identification of significant factors, (2) pain characteristics, (3) impact of pain, and (4) treatment for chronic pain. The collected data were then analyzed to identify significant factors, viz.

- Point prevalence of pain.
- Intensity of pain.
- Main sites of pain.
- Impact of pain on daily activities and job.
- Loss of work.
- Main treatments.
- Physician consultation.

### Study Questionnaires

Two questionnaires were used in the study: a screening questionnaire and an in-depth questionnaire (detailed pain questionnaire). The detailed pain questionnaire was adapted from pain in Europe study with permission from Breivik et al.<sup>6</sup> (Appendix S1).

### Screening Questionnaire

The screening questionnaire was used as a screening interview for the selection of eligible respondents. It

included a total of 12 questions and the telephonic survey lasted for approximately 5 to 10 minutes. The screening questionnaire assessed the prevalence of pain, frequency of pain during the past week, intensity of pain during the last episode, sites of pain, and the main causes of pain.

### In-Depth Questionnaire

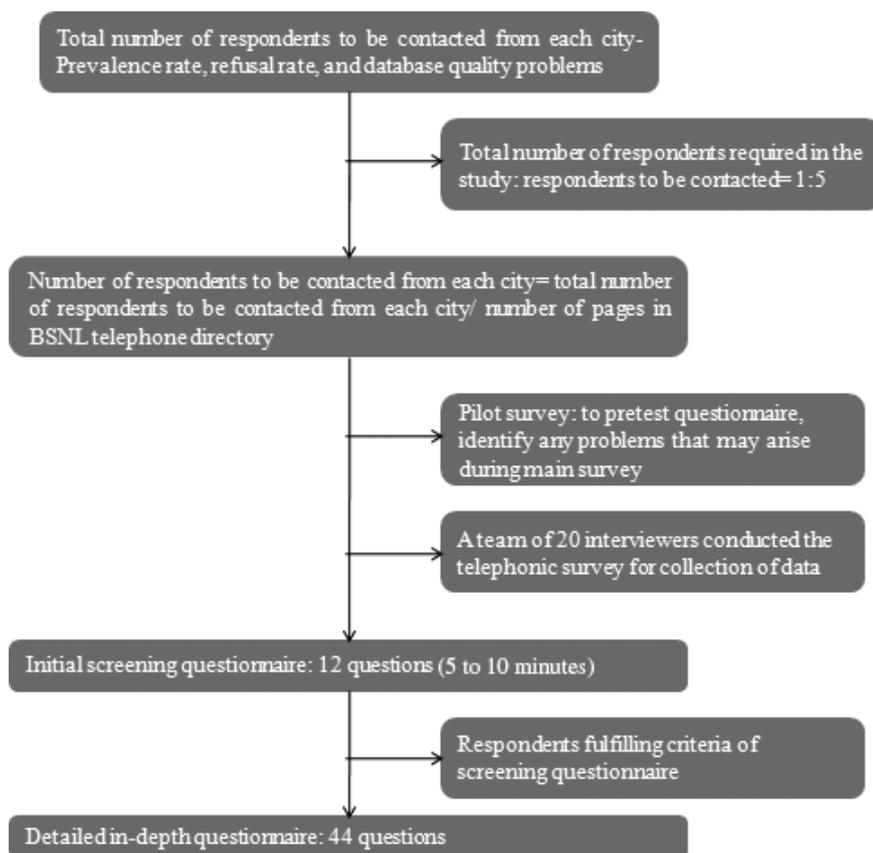
Respondents who fulfilled the criteria of screening questionnaire and willing to participate in the in-depth survey were interviewed using the detailed pain questionnaire which contained 44 questions. In-depth questionnaire mainly evaluated the (1) demographic details; (2) frequency of pain; (3) duration and intensity of pain; (4) impact of pain on the QoL; (5) perception of the attitude of their family, friends, and doctors towards their pain; and (6) interaction with doctors. The complete screening procedure of subjects has been illustrated in Figure 1.

The questionnaires were translated to Hindi, Marathi, Bengali, Telugu, Tamil, and Gujarati languages based on the respondents language proficiency. The respondents who answered the questions of in-depth questionnaire were offered a small amount of money in appreciation for their time. A verbal informed consent was obtained from the respondents for participation in the present study.

### Statistical Analysis

A total of 5000 respondents were planned to be included in the present study. The sample size estimation was carried out by considering population-wise and age-wise data of 2001 census and the preliminary data of 2011 census. Considering a refusal rate of 1:20 and a screening dropout rate of 50%, 8750 subjects were planned to be telephonically interviewed to achieve the planned sample size of 5000 respondents. The sample size was calculated by assuming a prevalence rate of 50% with a confidence of 95% and a precision of 1.5%. A unique data entry form was created for the collection of data from respondents. Data were then transferred to SPSS (SPSS, Armonk, NY, U.S.A.) after labeling, and data merging was carried out in SAS software (SAS Institute Inc., Cary, NC, U.S.A.). MS Access was used as the back end software. Analysis and reporting were completed as per the requirements.

Analysis was carried out based on top breaks such as gender, age, and city. Weighted average was calculated, and frequency, description, pattern, level, cause of pain,



**Figure 1.** Screening procedure of respondents included in the study.

employment status, and emotional status were summarized using count and percentages. Intensity of pain, sites of pain, impact of pain on daily activities, and pain relieving medications received by the respondents were presented graphically.

## RESULTS

### Subjects

For every two complete interviews, the analyst made 60 calls of which two were half complete, nine respondents refused, 40 had no pain, two did not have chronic pain, two were under aged, and the pain intensity was of mild severity in three. Of all the calls made for interview, 9.2% of the calls were unattended as the interviewee refused to provide information or pain had developed recently and was not chronic, or the pain had healed. Thus, the interview was conducted in 90.8% of the remaining calls. Thus, for every two completed interviews, initial refusal rate was 83%, and screen failure rate was 64%. The total number of respondents answering the questions with data available for each

question was not the same as the total number who were interviewed with in-depth questionnaire. This was because some respondents did not answer some questions, did not know the answer, or the question was not applicable to them. Therefore, the percentages reflect the percentage of respondents answering that particular question and not the total number of respondents interviewed in-depth.

A total of 5004 respondents were interviewed for the in-depth questionnaire in the present study from eight cities across India (Ahmedabad: 338, Bangalore: 815, Chennai: 410, Delhi: 1337, Goa: 140, Hyderabad: 367, Kolkata: 440, and Mumbai: 1157, Table 1). Selection of study centers was carried out based on: census data (more robust for sample size estimation in urban and suburban regions as compared with rural regions), educational status (mostly similar among the urban and suburban regions as compared with the rural regions), and logistical convenience (easier to contact respondents of urban and suburban regions telephonically which was not possible with respondents of the rural regions). Half of the sample size (50.4%) belonged to the age group of 30 to 44 years followed

**Table 1. City-wise Data of Planned Sample Size vs. Actual Sample Size**

City	Proposed sample size	Actual sample size
Ahmedabad	340	338
Bangalore	815	815
Chennai	410	410
Delhi	1,337	1,337
Goa	140	140
Hyderabad	358	367
Kolkata	444	440
Mumbai	1,156	1,157
Total	5,000	5,004

by 45 to 59 years (29.5%) and > 60 years (20.1%). The male and female gender distribution was almost equivalent (52% male and 48% female). Number of graduates was greater in the urban areas (31%) as compared with the suburban areas (27%). In addition, illiteracy was more in the suburban (14%) areas as compared with the urban areas (9%). Overall, a higher number of respondents were employed full-time (47%) as compared with unemployed (43%). Most of the male respondents (77%) were full-time employees, and most female respondents (78%) were not employed.

#### Point Prevalence of Chronic Pain

The overall point prevalence of chronic pain was 13% in the eight cities across India. Highest prevalence of chronic pain was observed in Chennai (22%) followed by Kolkata (21%) and the lowest in Ahmedabad (6%) (Figure 2).

#### Intensity of Pain

The overall mean intensity of pain across India was 6.93 (NRS scale: 0 to 10). The intensity of pain was higher among women (7.05) as compared with men (6.82). Intensity of pain was higher among respondents who were above the age of 60 years (7.16) as compared with other age groups (50 to 59 years: 7.01; 40 to 49 years: 6.9; and 30 to 39 years: 6.79) (Figure 3).

The proportion of respondents with chronic moderate and chronic severe pain was 37% and 63%, respectively. Respondents above the age of 60 years (30%) experienced severe pain (NRS > 7.0) to a greater extent as compared with respondents between the age group of 30 to 44 years (23%). More female respondents (31%) experienced severe pain as compared with male respondents (22%). Severe pain was more frequent among the older age groups (45 to 59 years and above 60 years: 30% each) as compared with the younger age groups (30 to 44 years: 23%).

#### Duration of Chronic Pain

Most respondents suffered from chronic pain for more than 3 years (32%) as compared with respondents who suffered from chronic pain for 2 to 3 years (12%), 1 to 2 years (18%), and less than 6 months (20%).

Most of the respondents experienced intermittent pain (69%) and few experienced constant pain (31%). Pain was intermittent in male respondents (71%) to a greater extent as compared with female respondents

### Point Prevalence of Chronic Pain in Each Region

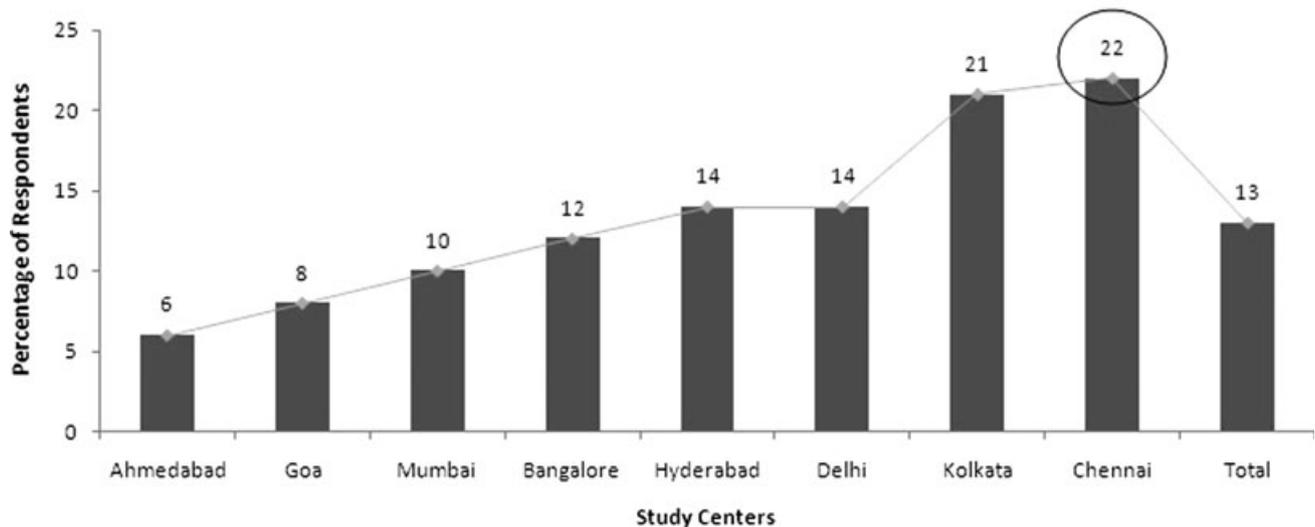


Figure 2. Point prevalence of chronic pain in each region across India.

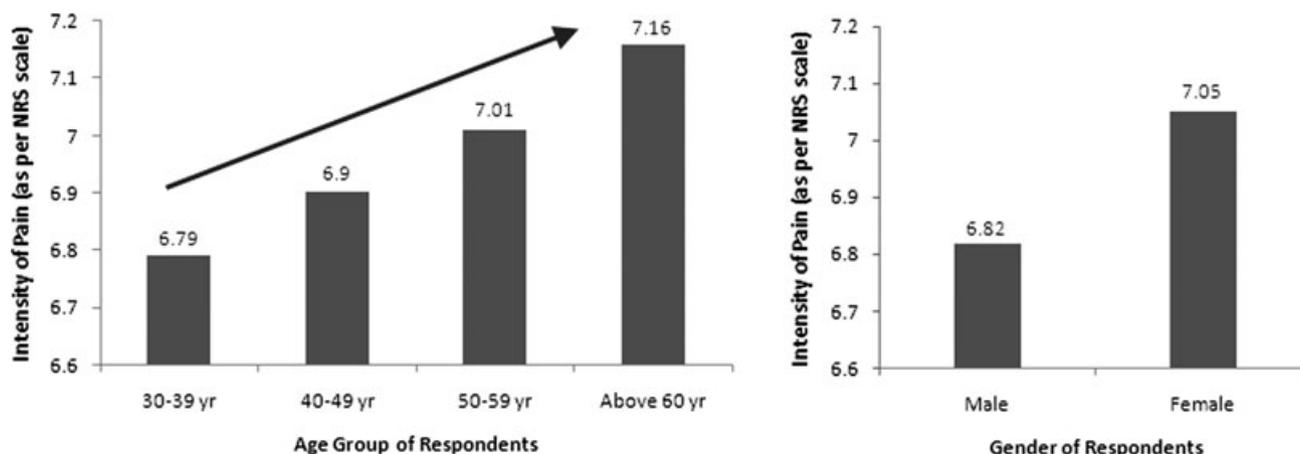


Figure 3. Intensity of pain in different age groups and genders across India.

(66%). More female respondents (34%) suffered from constant pain as compared with male respondents (28%).

### Main Sites of Pain

Knees (32%), legs (28%), and joints (22%) were the most prevalent sites of pain among all respondents across India. Fewer respondents reported backache, nonspecified backache (18%), headache (18%), or low backache (17%).

The women were more affected with pain at these sites (knee: 39%; leg: 30%; and joints: 27%) as compared with men (knee: 27%; leg: 25%; and joints: 18%). However, nonspecified backache was reported by men (22%) to a greater extent as compared with women (15%) (Figure 4).

A higher prevalence of pain in knee, leg, and joints was reported in older age group. Respondents above the

age of 60 years (knee: 52%; leg: 32%; joints: 33%) experienced more pain as compared with respondents of 45 to 59 years (knee: 42%; leg: 29%; joints: 25%) and 30 to 44 years (knee: 19%; leg: 25%; joints: 16%) age groups. However, more respondents of 30 to 44 years (24%) age group reported headache as compared with the 45 to 59 years (15%) and above 60 years (10%) age groups.

### Causes of Pain

Most of the respondents mentioned that joints (23%) and headache/migraine (15%) were the main causes of pain. More female respondents (25%) experienced joint pains than male respondents (21%). Older respondents (above 60 years: 30%) experienced joint pain to a greater extent as compared with the younger respondents (45 to 59 years: 24%; 30 to 44 years: 20%). Younger respondents (30 to 44 years: 20%; 45 to

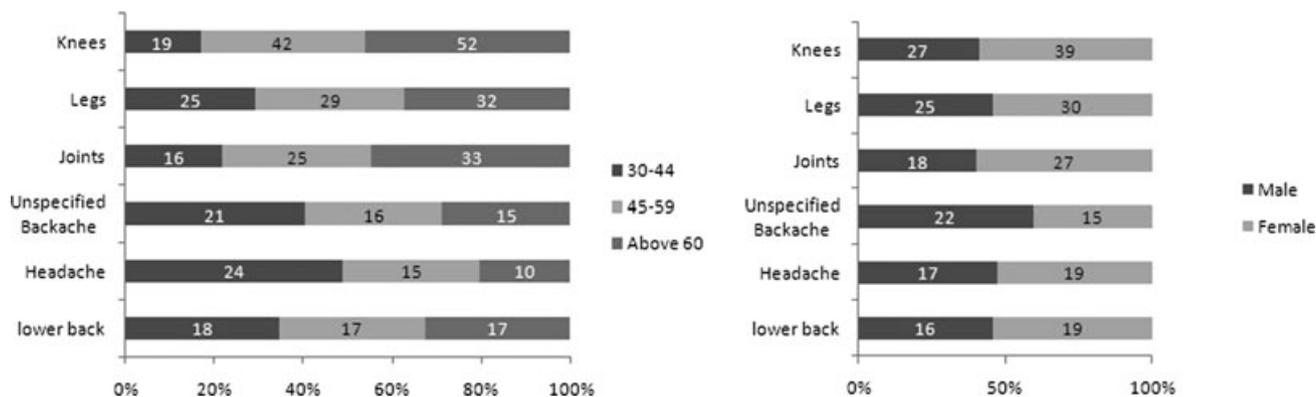


Figure 4. Sites of pain across different age groups and genders in India.

59 years: 12%) were more likely to experience pain due to migraine/headache as compared with the older respondents (above 60 years: 9%).

More female respondents (13%) mentioned arthritis as a cause of pain than male respondents (8%). Arthritis was the cause of pain among respondents above 60 years and 45 to 59 years age group to the same extent (14%) as compared with respondents of the 30 to 44 years age group (7%).

The second major cause of backache was spine problem among respondents (10%). Male respondents (11%) were more likely to experience backache due to spine problem as compared with female respondents (9%). Spinal problem was a major cause of pain among more number of younger respondents (30 to 44 years: 11%) as compared with the older respondents (45 to 59 years: 9%; above 60 years: 8%).

### Impact of Pain on Daily Activities and Job

The pain survey also revealed the effect of pain on the QoL parameters of the respondents across India. To

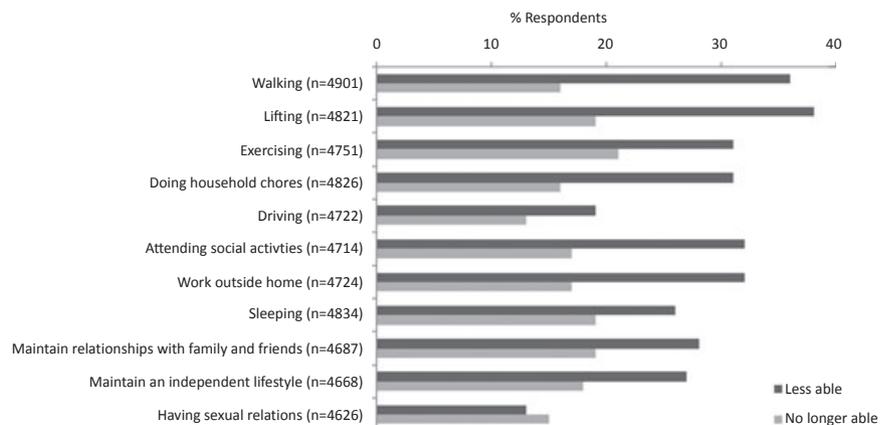
assess the impact of chronic pain on QoL, the interviewers read out a list of activities and asked the respondents to rate their ability to do the activities on a three point scale (1 - just as able, 2 - less able, and 3 - no longer able). Pain affected the daily activities of respondents as they were just as able to walk (44%), lift (33%), exercise (26%), do household chores (35%), drive (18%), attend social activities (32%), work outside home (32%), sleep (46%), maintain relationship with friends and family (40%), maintain an independent lifestyle (36%), and have sexual relations (20%) due to pain (Table 2).

Although most respondents refused to mention the impact of chronic pain on their ability to drive (50%), considerable percentage of respondents were either no longer able to drive (13%) or were less able to drive (19%). Most respondents were no longer able to exercise (21%), and a higher percentage were less able to exercise (31%) due to chronic pain (Figure 5). Majority of the respondents (53%) had restricted daily activities due to pain. Elderly respondents (54% above the age of 60 years) faced more difficulty than the

**Table 2. Impact of Chronic Pain on Quality of Life of the Respondent**

Quality of life parameter	Ahmedabad	Bangalore	Chennai	Delhi	Goa	Hyderabad	Kolkata	Mumbai	Total
Walking	2.03	2.62	1.96	1.82	3.96	2.22	1.85	1.57	2.00
Lifting	2.54	4.11	2.55	2.17	6.61	2.26	1.87	1.84	2.53
Exercising	3.70	4.29	4.01	2.66	6.56	5.39	2.37	3.64	3.56
Doing household chores	3.14	3.81	3.10	2.11	6.83	2.32	2.24	3.76	3.04
Driving	5.39	6.35	4.80	5.51	6.71	6.55	3.45	5.79	5.47
Attending social activities	3.26	5.22	4.16	2.45	8.19	4.24	2.39	1.74	3.18
Working outside the home	3.10	5.19	3.19	2.09	7.48	2.50	1.95	2.76	3.01
Sleeping	2.38	2.81	2.29	2.22	4.70	3.92	2.59	1.27	2.37
Maintaining relationships with friends and family	2.80	4.54	3.03	2.24	7.87	2.78	2.92	1.31	2.74
Maintaining an independent lifestyle	3.17	5.36	3.36	2.46	8.21	4.24	3.29	1.27	3.11
Having sexual relations	5.63	7.11	4.26	6.12	9.00	6.60	6.08	3.83	5.60

Weighted average =  $\sum x \cdot f(x)/f(x)$ ; x: rating, f(x): frequency of rating; 1: just as able; 2: less able; 3: no longer able; and 9: do not know/refused.



**Figure 5.** Impact of chronic pain on daily activities of respondents across India.

younger age group (30 to 44 years: 51%). The daily activities of both genders were equally affected (53% each) due to pain. However, more men (44%) could perform daily chores without pain as compared with women (42%).

### Loss of Work

A total of 32% of the respondents had lost more than four hours of work in the past 3 months due to pain; however, many respondents (37%) refused to divulge the number of hours lost from work due to pain. A higher percentage of female respondents (41%) refused to reveal the loss of work hours as compared with male respondents (36%) however both suffered equally (32% each).

Most of the respondents mentioned that their current employment status and hours of work were not affected due to pain (61%). However; 34% reported that employment status and hours of work were affected. A larger proportion of younger respondents (36%) were affected than elderly (31%). More male respondents (39%) felt that their current employment status was compromised due to pain as compared with female respondents (29%).

Higher percentage of respondents belonging to the younger age group (30 to 44 years: 78%; and 45 to 59 years: 64%) mentioned that their pain was controlled within 6 months as compared with elderly respondents (above 60 years: 63%). The pain was controlled within 6 months among male respondents (76%) as compared with female respondents (66%).

### Main Treatments

A total of 30% respondents did not receive any treatment for chronic pain as compared with 68% of the respondents who received treatment for their chronic pain. The survey revealed that more elderly (30 to 44 years: 64%; 45 to 59 years: 71%; and above 60 years: 74%) received treatment. More female respondents (72%) were receiving treatment for pain as compared with male respondents (64%). A total of 40% respondents suggested that their pain was not bad enough or they managed to live with the pain, suggesting tolerance to chronic pain.

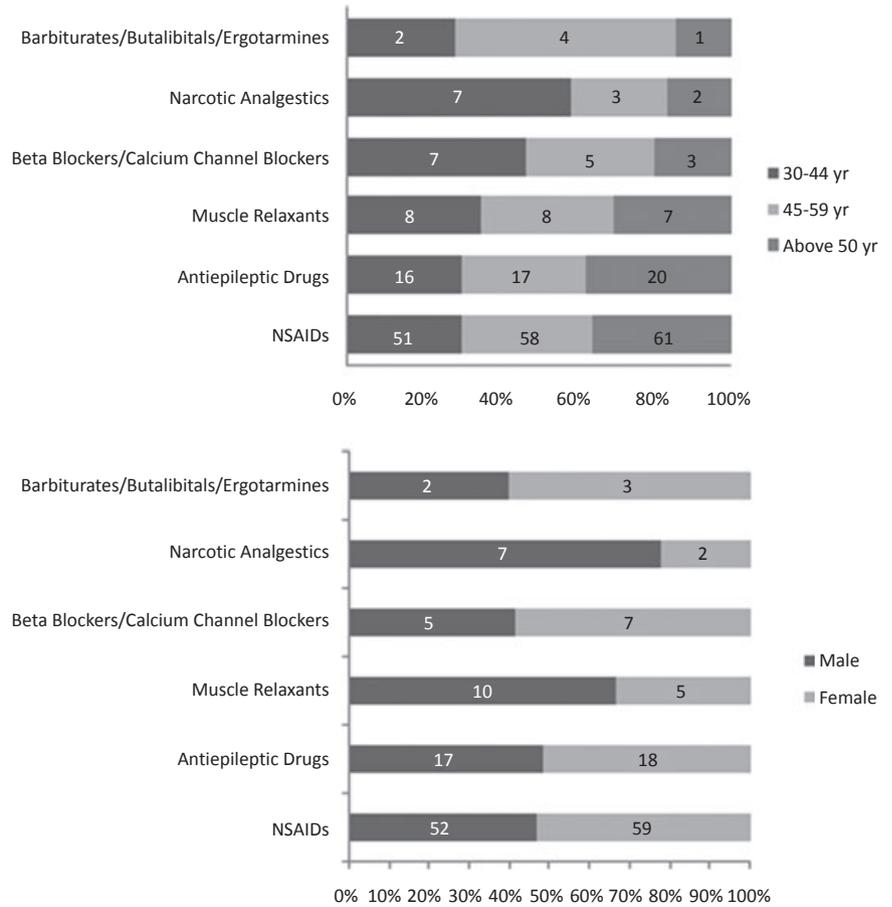
A higher percentage of respondents were receiving a prescription medication for pain (56%) vs. nonprescription pain medicine (42%). The tendency to take a prescription medication showed an increase with age

(30 to 44 years: 51%; 45 to 59 years: 59%; and above 60 years: 63%). More females (62%) were receiving a prescription medication as compared with males (50%). Overall, more respondents switched from one prescription medication to another on their doctor's recommendation (40%), and some required a stronger analgesic (24%). Most respondents were on NSAIDs for their pain (55%), and others were prescribed anti-epileptic drugs (17%), muscle relaxants (8%), beta-blockers/calcium channel blockers (6%), or narcotic analgesics (5%) for their pain (Figure 6). Use of NSAIDs increased with age (30 to 44 years: 51%; 45 to 59 years: 58%; and above 60 years: 61%). NSAIDs were preferred analgesics, and more females (59%) received NSAIDs. NSAIDs are prescribed medications for chronic pain in urban or semiurban areas and across age groups or gender wise.

Most respondents (81%) stated that their current pain medication was somewhat effective (males: 85%, females: 79%). Age did not show any relevance with the effectiveness of the prescription pain medication. Thirty-five percent respondents found that their current pain medication was not effective and the other 42% refused to divulge if their current pain medication was adequate to control their pain. A higher percentage of older respondents (> 60 years: 42%) mentioned that their pain medication did not control pain as compared with respondents of the younger age group (30 to 44 years: 32%).

Many respondents did not receive adequate pain control (56%), and this trend enhanced with age (30 to 44 years: 53%; 45 to 59 years: 59%; and above 60 years: 60%). Most respondents (47%) refused to reveal the number of pain medications they had been taking and 27% were on one analgesic.

About 18% of males and 17% of the females had taken at least one nonprescription analgesic in the past 3 months. Overall, majority had taken nonprescription NSAIDs (95%) at the time of the survey for chronic pain management. Similar results were seen gender wise, across age groups and urban and semiurban areas. Nonprescription and other oral pain medications were somewhat effective in alleviating pain among the respondents (48%). Other alternative methods included ointments (36%), herbal supplements (11%), massage (29%), exercise (27%), and change in diet/special foods (11%). Respondents heard about alternative methods to control pain from their friends, family, or co-workers (55%); from their doctor's office (52%); through television (30%); from pharmacist (20%); or from



**Figure 6.** Pain relieving medications used by respondents across India.

magazines/newspapers (16%). These methods were successful in 64% respondents. More males (26%) found alternative methods successful as compared with females (19%).

### Physician Consultation

Overall, 37% respondents never consulted any doctor in the last 3 months, 24% respondents had a consultation once, and 19% respondents consulted the doctor twice. More males (41%) than females (32%) did not visit doctors in the past 3 months. A total of 47% respondents visited one doctor, 20% respondents visited two doctors, and 12% respondents did not reveal this information. A greater percentage of elderly respondents (above 60 years: 24%) had visited two doctors for pain as compared with respondents of the younger age group (30 to 44 years: 18%; 45 to 59 years: 21%).

Respondents considered visiting more than one doctor, because the primary doctor was a general practitioner (40%); primary doctor referred to another doctor (30%); respondents were not satisfied with the treat-

ment being received (30%); a friend/relative recommended another doctor (18%); or former doctor was unable to control pain (16%). Respondents visited a general practitioner/family practitioner (51%), orthopedist/orthopedic surgeon (18%), or refused to mention (15%). Most of the respondents (89%) had not visited a pain management specialist.

### DISCUSSION

There is no published literature available on prevalence of chronic pain in India. The present study is the first pain prevalence study that included a total of 5,004 respondents across eight different cities in India. This questionnaire survey found that the overall point prevalence of chronic pain across all study centers in India was 13% and the overall mean intensity of pain was rated at 6.93 on NRS scale. Respondents from different age groups, educational background, gender, and employment status from urban and suburban backgrounds were included in the study.

A pain prevalence study was conducted to determine the prevalence of chronic pain in Hong Kong revealed severe chronic pain in 31.9% respondents with headache, back pain, and joint pains being the most common site of pain.<sup>12</sup> Yeo and Tay<sup>4</sup> demonstrated chronic pain in 8.7% of the respondents who completed the questionnaire with higher prevalence of chronic pain among the females (10.9%). The present study demonstrated a prevalence of chronic pain in 13% respondents across India.

In a large STOPNEP (Study of the Prevalence of Neuropathic Pain) epidemiological study which enrolled more than 20,000 French respondents, pain was prevalent among 31.7% of the respondents. Of these, 6.9% of the total study population experienced pain of neuropathic characteristics.<sup>13</sup>

The intensity of pain was more severe among women as compared with men similar to observations made in other studies.<sup>6,14 to 16</sup> A study conducted by Smith et al. for evaluating the impact of chronic pain showed greater proportion of women (15.8%) suffering from “significant chronic pain” as compared with men (12.3%).<sup>7</sup> In another study, Vieira et al.<sup>17</sup> demonstrated a higher prevalence of chronic pain among women (49.4%) as compared with men (22.5%). The present study demonstrated the presence of chronic pain among the respondents from less than 6 months to more than 3 years; however, higher proportion of respondents suffered from chronic pain for more than 3 years. Vieira et al. demonstrated the presence of chronic pain between 6 months and 4 years.<sup>17</sup> Harker et al.<sup>16</sup> in their review reported higher duration of chronic pain in Sweden (9 years) and Denmark (8.3 years).

The prevalence of knee pain was highest among the respondents across all study centers (32%) and occurred more frequently with increasing age. In a recent systematic review, Fejer and Ruhe<sup>18</sup> has reported that elderly were more likely to experience knee pain 3% to 8% more than the younger age group. Breivik et al.<sup>6</sup> demonstrated highest prevalence of nonspecified backache (24%) among the respondents. Vieira et al.<sup>17</sup> evaluated pain determinants and reported a higher prevalence of headache (40.5%) in women and lower backache in men (39.5%).

The most important aspect of the present study was to determine the impact of pain on the respondent's QoL. Pain adversely affected almost all QoL parameters. The greatest impact of chronic pain was observed on QoL parameters such as sleep, ability to exercise, walk, do household chores, and attend social activities.<sup>4,6,19</sup>

Previous studies have shown lesser employment rate among patients with severe chronic pain (23.9%) as compared with those who did not have severe chronic pain (81.2%),<sup>7</sup> and it impacted more men (17.6%) than women (14.6%).<sup>20</sup> This study indicated that deteriorated QoL led to almost 32% respondents losing more than four hours of work in the past 3 months due to chronic pain. Similar results were reported in a review by Harker et al.<sup>16</sup> where in respondents of Denmark lost 9.4 days of work in 6 months due to chronic pain. Treatment choice was found to be equally divided between prescription and nonprescription medications. NSAIDs use was most prevalent across Indian regions. A similar result was reported by Breivik et al.<sup>6</sup> where in 91% Finish respondents were taking NSAIDs.

One of four respondents of the present study found that their pain medications were not adequate in controlling pain and three of four suggested that their current prescription medications were only somewhat effective. These results suggest the need for an alternate option for managing chronic pain. A survey conducted in Denmark revealed that 45.9% of the respondents seeking medical help were not satisfied with the pain treatment.<sup>16</sup> Wang et al.<sup>21</sup> included respondents with chronic post-thoracotomy pain, and only three of 209 respondents who visited their physician were satisfied with pain treatment.

Few respondents did not take analgesics and could manage on their own and/or used ointments, massages, exercise, herbal supplements, or change in diet as also reported by Breivik et al.<sup>6</sup> Sixty-four percent respondents found alternative treatments were somewhat effective. Other studies have demonstrated the use of physical therapy, acupuncture, massage,<sup>16</sup> combination of medications with massage, and acupuncture for pain relief.<sup>20</sup> Exercise has been the most common method for pain relief, besides massage or diet changes. Breivik et al. reported massage (30%), physical therapy (21%), and acupuncture (13%) to be the most common nondrug treatments used for pain and relaxation therapy and counseling to be the least used nondrug treatment options for pain relief.<sup>6</sup> Bekkering et al.<sup>14</sup> showed that patients with moderate to severe chronic pain tried exercise, heat treatment, herbal supplements, or relaxation for pain relief.

According to a review conducted by IASP to identify the pain education issues in developing countries, a huge difference between the measures required to relieve pain and the measures actually being implemented to achieve pain relief was observed. This treatment gap is believed

to exist due to lack of awareness among the healthcare professionals and limited availability of facilities. Considering this gap, IASP started a training initiative which focused on educating the healthcare professionals on pain management and conducting a clinical training on pain management.<sup>1</sup>

The present study showed that most respondents received NSAIDs for the treatment for chronic pain. Other studies also reported that NSAIDs were the most used class of medication for chronic pain.<sup>14,16</sup> According to the National Health Services (NHS), NSAIDs are prescribed for short-term pain relief. However, NSAIDs may be unsafe and not appropriate for use among elderly and in patients who are on antiplatelet therapy or for long-term use. In a consensus statement, Adebaja<sup>22</sup> mentioned that the use of NSAIDs may lead to gastrointestinal, liver, and cardio to renal toxicities. More studies are needed to evaluate the NSAID induced complications in Indian patients to ensure appropriate usage of NSAIDs.

Although NSAIDs are more popular analgesics, opioids/topical analgesics/anticonvulsants/antidepressants/anxiolytics are other classes of analgesics which are prescribed for moderate to severe chronic pain and are used for palliative care. Careful evaluation by clinicians is required to ensure adequate and safe use of opioids. Low-dose opioids are considered safe as compared with higher dose intake of opioids. Long-term use of opioids must be considered after the DIRE (diagnosis, intractability, reliability with four parameters, and efficacy) scoring system is employed for determining whether opioid therapy is required for treatment for chronic pain.<sup>23</sup> Highest use of weak opioids (codeine) has been observed in United Kingdom (39%), and use of strong opioids (transdermal fentanyl) is more frequent in Spain (17%).<sup>24</sup>

Being an epidemiological telephonic survey, we understand the inherent limitations and biases, that is, the oldest, the sickest, those living in low socio-economic strata without access to telephones or mobiles could not be reached. In addition, the present study focused on the urban and suburban areas, while data from rural areas could not be obtained where a significant population resides due to logistical constraints. Prevalence of chronic pain may be higher in this group, and this might have led to underestimation of chronic pain prevalence from the present study. Women being more willing to respond to telephonic interviews than men may have shown a higher prevalence of chronic pain as compared with men.

## CONCLUSION

The present study showed that a significant population is suffering from chronic pain leading to impaired overall QoL. Most patients obtained NSAIDs from pharmacy and continued to take the medication without consulting their physician. The proportion of respondents receiving treatment from pain management specialist for their pain was significantly low. Patients using NSAIDs without realizing the harmful effects have faced several health issues due to their indiscriminate use. As India has a few pain management consultants, most of the respondents consulted general physician or orthopedic surgeons for their pain management. The present study can be used for designing individualized patient care and improved understanding of treatment goals in patients with chronic pain. The study also points to the need for proper treatment recommendations for patients of chronic pain. As a continuation to this study, a separate study to evaluate the adverse impact of NSAIDs and possible gastrointestinal, renal, and cardiovascular complications is ongoing.

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## SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

**Appendix S1** Data collection format.

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