

Collaborative Efforts May Improve Chronic Non-Cancer Pain Management in Asia: Findings from a Ten-Country Regional Survey

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Abstract

Background: The objective of the ACHEON survey was to investigate current practices in chronic non-cancer pain (CNCP) management in Asia, with a focus on opioid use.

Methods: A questionnaire-based survey conducted in 10 Asian countries/regions was answered by 695 physicians managing pain (median experience: 15 years) and 1,305 patients experiencing CNCP within the preceding 3 months.

Results: Overall, 89.3% of patients reported experiencing moderate-to-severe pain (median pain duration of 24 months). Continuing pain management education of ≤10 hours was reported by 71.1% of the physicians. While approximately 80% of physicians reported quantifying pain in practice, 65.0% of patients reported that no scale was used for their pain assessment. A significant proportion of physicians (78%) perceived discordance between their patients' actual pain level and their own evaluation. Opioids were considered necessary for CNCP management by 63.6% of physicians. However, while non-opioid oral medication was prescribed to 66.8% of patients, only 4.4% of patients were prescribed opioids. CNCP was reported to affect activities of daily living for 80.8% of patients. Physician-perceived barriers to optimal therapy included patients' reluctance to use opioids owing to fear of adverse effects (65.0%) and addiction (64.9%), while physicians' reluctance to prescribe opioids (63.7%) was partially attributable to inadequate pain assessment (60.9%) and excessive regulation of opioids (57.3%).

Conclusion: While the majority of patients surveyed reported moderate-to-severe CNCP, opioid use was suboptimal. Physician and patient education to address stigmas associated with opioid use may improve pain management practices in these countries.

Keywords: ACHEON; Chronic pain; Non-cancer pain; Pain management; Quality of life; Opioids

Introduction

Globally, chronic pain is a leading cause of long-term disability with an estimated one in five adults experiencing moderate-to-severe pain [1]. According to consensus guidelines, chronic pain remains under-diagnosed and under-treated even in many advanced nations [1]. Data on chronic pain in Asia are particularly scarce, although local studies from Singapore and Hong Kong have reported an estimated prevalence of 8.7% and 10.8%, respectively [2,3]. Chronic pain arising from non-malignant sources referred to as chronic non-cancer pain (CNCP), most commonly manifests in the form of musculoskeletal pain, headache, neck/lower back pain, osteoarthritis, neuropathy and fibromyalgia [4]. The overall treatment goal for CNCP is not only the control of pain, but also the restoration of each patient's physical and emotional functioning to improve quality of life (QoL). Due to the diverse etiological factors that cause CNCP, management of the condition is often complex and may include either focused therapy or a comprehensive integration of various therapeutic strategies. Clinical trials for opioid use in CNCP have yielded controversial outcomes. In some studies of patients who have been well-characterized with CNCP, greater consideration of opioid use has been recommended [5-7]. However, other comprehensive studies have found that the evidence is insufficient to determine the effectiveness of long-term opioid therapy for improving chronic pain and function (Chou, Turner, et al. *Ann*

Intern Med 17; 162(4): 276-86)). Clinical guidelines advocate opioid use only when the benefits outweigh the perceived risks [8-10]. Although opioids have been reported as effective in reducing pain scores in short-term trials involving osteoarthritis and neuropathic pain, a high rate of discontinuation owing to adverse effects has been observed in some of these trials [11-13]. A number of policy makers are consequently emphasizing the importance of clinical expertise, proper medical education and caution when prescribing opioids [8]. Several issues have been documented that appear to complicate pain management practices in Asia including cultural beliefs, a lack of awareness, tight regulations, and accessibility problems which are partially influenced by regional history, especially in China [14].” Although the clear identification

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of these issues is challenging, such efforts are critical for improving standards of patient care. With this aim, the ACHEON Working Group comprising 16 international experts sought to investigate the attitudes and perceptions of physicians and patients towards pain management across 10 Asian countries and regions.

Methods

Survey design

Physicians and patients were recruited from 10 countries and regions in Asia including China, Hong Kong, Indonesia, the Republic of Korea, Malaysia, the Philippines, Singapore, Taiwan, Thailand and Vietnam. The selected participants were surveyed anonymously over a period of 4 months from September to December 2013. This questionnaire-based study did not involve any form of clinical intervention, and therefore ethical approval was not deemed necessary. The survey was conducted in accordance with guidelines stipulated by the European Society for Opinion and Market Research (ESOMAR) [15]. Key ESOMAR criteria that were met to ensure ethical survey conduct included conformation to all national and international laws, maintenance of physician and patient confidentiality, voluntary cooperation by all respondents following provision of adequate information regarding the project, assurance that the data would not be used for any other purposes, as well as an objective study design and transparent reporting of project activities. The lists of hospitals used in each country/region for survey recruitment can be viewed as Supplementary File 1. All patients and physicians were remunerated for their participation in the survey.

Objectives of the survey

The primary objective of ACHEON was to investigate current practices in CNCP management from the perspective of both physicians and patients. The study assessed physicians' attitudes toward pain management and their prescribing habits, particularly with regards to opioids, while patients were asked about their current pain levels, type of pain, attitude towards pain and treatment satisfaction levels. The effect of pain on overall patient QoL was evaluated by determining its impact on activities of daily living, sleeping patterns, concentration and focus, reliance on others, work, and employment status.

Selection of physicians

Physicians were eligible for the study if they were managing CNCP in a professional setting, were involved in the direct care of patients with CNCP, and were willing to participate in all aspects of the study. Names were randomly selected from official databases provided by physician organizations, national registries, official societies or other organizations as deemed appropriate by the Steering Committee. The primary treatment types for the selected physicians included pharmacological agents, interventional treatment, surgical techniques, and/or alternative/holistic treatment. Physicians who were employed by or affiliated with a pharmaceutical company were excluded from the survey. There was significant variability between the countries/regions in terms of the most common specialities involved in the survey, but overall, the top 3 specialties were (in order) General Practitioner, Orthopaedist/Orthopaedic Surgery and Pain/ANE (Supplementary File 2).

Selection of patients

Patients aged ≥ 18 years (>20 years for Korean and Taiwanese patients) with a documented history of CNCP in the preceding 3 months were recruited through patients' associations, doctor referrals, hospital intercepts, online sources, patient referrals, door-to-door recruitment and phone book recruitment. Those willing and able to participate in

all aspects of the survey were included. Patients who were employees or related to employees of healthcare, pharmaceutical, advertising or market research companies, or those involved in any other studies investigating pain treatments were excluded. Patients were contacted via patient-patient or doctor referral, hospital intercepts, phone book or door-to-door recruitment, online panel, and via patient associations. The percentage of patients contacted via each method for each corresponding country/region has been listed in Supplementary File 3.

Questionnaires

The questionnaires for the physician and patient surveys were developed by a Steering Committee of 16 specialists managing pain across the participating countries. The questions for physicians addressed demographic parameters (including age, sex, years in practice, specialization and types of on-going training), clinical practice concerning the screening and assessment of pain, and clinical practice concerning the management of pain. The questions for patients included demographic data (including age, sex, numerical 11 point box [BS-11] pain scores, duration of pain and type/location of pain), screening and assessment of pain, perception of doctors' attitude towards pain, treatment, and the effect of pain on activities of daily living including work and employment status. The questionnaire was subsequently translated into the local languages of the participating countries – Traditional Chinese (Hong Kong, Taiwan), simplified Chinese (China, Malaysia and Singapore), Korean, Bahasa Malaysian, Tagalog (Philippines), Thai, Vietnamese, and Bahasa Indonesian.

Survey method

Informed consent was obtained from all physicians included in the study, following initial contact via telephone or a face-to-face meeting in which a description of the research was provided. Subsequently, telephone or face-to-face interviews were scheduled. For patients, informed consent was obtained in the patient disclosure section of the questionnaire which was administered either as a web-based link or on paper.

Data analysis

A numeric rating scale (NRS) from 0 to 10 was used to evaluate physicians' attitudes and clinical practice patterns including screening, assessment, and optimization of CNCP management with a focus on opioid analgesics. The responses were evaluated using the following categories: NRS score >5 (high), representing adequacy or agreement, NRS score = 5, considered neutral and NRS score <5 (low), indicating inadequacy or disagreement. Subsequently, these categorized scores were calculated as a percentage of all respondents. Median (interquartile range [IQR]) scores were calculated for descriptive data, where applicable. The questionnaire for patients included statements with "yes" or "no" responses or a 5 point Likert rating scale from "agree completely" to "disagree completely". Statistics were analyzed using SPSS Version 16.0 (SPSS Software, Chicago, IL, USA)

Results

Characteristics of physicians and patients

The demographic characteristics of the 695 physicians and 1,305 patients that completed the CNCP survey are presented in Table 1a and 1b, respectively. Physicians included in the survey had been involved in professional practice for a mean duration of 15 years. Orthopedists and general physicians comprised 49.3% of the sample, while 17.3% of those included were pain management specialists or anesthesiologists (Table 2). For physicians, the response rate ranged from 6.8% in Hong

1a: Demographic characteristics of physician respondents managing CNCP (n=695)	
Parameters	Median (IQR)
Age, years	44 (12)
Gender	n (%)
Female	182 (26.2)
Male	513 (73.8)
Country/region	n (%)
Republic of Korea	125 (17.9)
China	100 (14.4)
Malaysia	70 (10.1)
Indonesia	70 (10.1)
Thailand	70 (10.1)
Hong Kong	60 (8.6)
Singapore	50 (7.2)
Philippines	50 (7.2)
Taiwan	50 (7.2)
Vietnam	50 (7.2)
Years in clinical practice	n (%)
1-5	58 (8.4)
6-10	154 (22.2)
11-15	168 (24.2)
16-20	159 (22.8)
>21	156 (22.4)
IQR, interquartile range; CNCP, chronic non-cancer pain	
1b: Demographic characteristics of patients completing the survey (n=1,305)	
Parameters	Median (IQR)
Age, years	48 (18)
Gender	n (%)
Female	794 (60.8)
Male	511 (39.2)
Country/region	n (%)
China	250 (19.2)
Republic of Korea	250 (19.2)
Philippines	125 (9.6)
Singapore	102 (7.8)
Malaysia	102 (7.8)
Vietnam	101 (7.7)
Hong Kong	100 (7.7)
Indonesia	100 (7.7)
Thailand	100 (7.7)
Taiwan	75 (5.6)
BS-11 pain score	n (%)
Severe (7-10)	586 (44.9)
Moderate (4-6)	579 (44.4)
Mild (0-3)	140 (10.7)
	Median (IQR)
BS-11 pain score	6.0 (2.0)
Duration of pain	n (%)
More than 1 year	817 (62.6)
<6 months to 1 year	205 (15.7)
3-6 months	283 (21.7)
	Median (IQR)
Months of pain experienced	24 (39)
BS-11; Numerical 11 point box; IQR, interquartile range; CNCP, chronic non-cancer pain	

Table 1: Demographic characteristics of the survey participants

Kong to 54.7% in Indonesia, while for patients, it ranged from 5.2% in Hong Kong to 69% in the Philippines. For multi-country surveys of this size, it remains challenging to control for response rates between countries, due to factors such as cultural differences and the diverse nature of physician-patient relationships.

Patients included in the survey reported experiencing CNCP for a median duration of 24 months (IQR=39 months). Notably, 78.3% (n=1,022) of patients had pain lasting more than 6 months. Furthermore, 89.3% (n=1,165/1,305) of patients were experiencing moderate-to severe pain with a median score of 6 (IQR=2) on the BS-11 pain scale (Table 1b). The most common locations of pain reported were the head/neck and feet/knees/legs, while arthritis and poor posture were identified as the primary causes of pain (Figures 1a and 1b).

One third of physicians report inadequate medical school training on opioid use

A significant percentage of physicians (71.1%, n=494) reported receiving ≤10 hours of continuing medical education (CME) training on CNCP management in the past year (Figure 2). A total of 31.5% (n=219) of physicians described their medical school training on opioid use as inadequate.

Disparities exist between physician and patient-reported screening and assessment of CNCP

The majority of physicians diagnosed CNCP by assessing medical/surgical histories, as well as conducting physical examinations that included neurological and musculoskeletal evaluation. Pain was reportedly routinely characterized and/or quantified by 89.1% (n=619; median [IQR], 8 [2]) and 79.6% (n=553; median [IQR], 8 [3]) of physicians, respectively. Quantitative tools such as visual analogue

Area of expertise	Number of physicians (%)
Orthopedists	173 (24.8)
General practitioners	170 (24.5)
Pain specialists/anesthesiologists	120 (17.3)
Rheumatologists	107 (15.4)
Geriatricians/neurologists/endocrinologists	95 (13.7)
Internal medicine	20 (2.9)
Rehabilitative specialists	10 (1.4)

Table 2: Distribution of physicians by area of expertise (n=695).

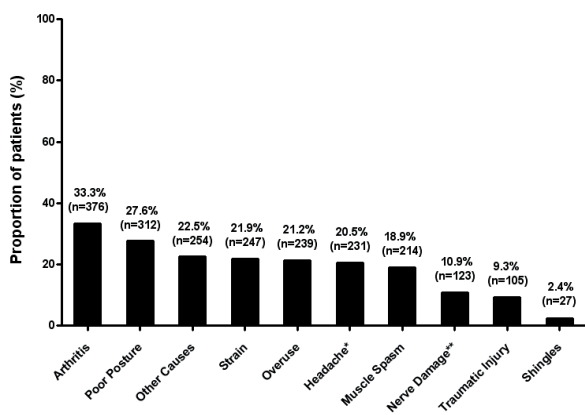


Figure 1a: Most common locations of pain reported by patients (n=1,305). Respondents were able to select more than 1 response.

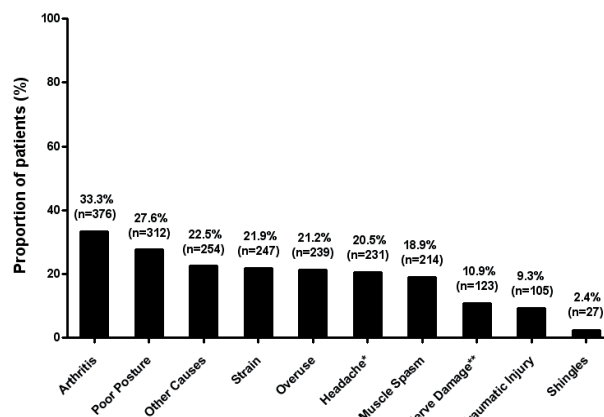


Figure 1b: Causes of pain reported by patients (n=1,129; patients were consulted on the probable source of their pain by their physicians). *Headache refers to migraine, tension and cluster headaches. **Neuropathy (e.g., diabetic neuropathy). Respondents were able to select more than 1 response.

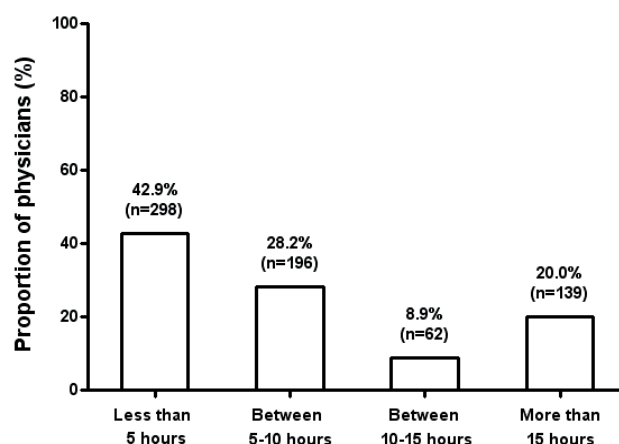
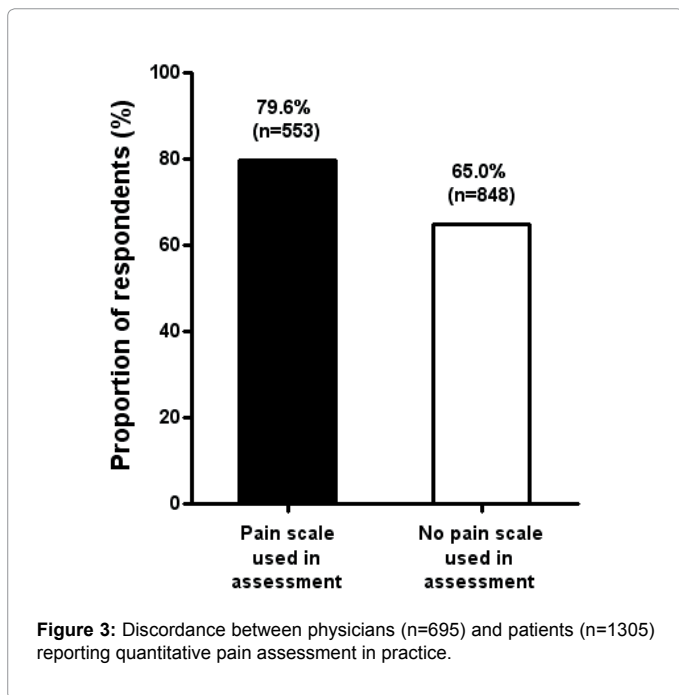


Figure 2: Hours of continuing medical education (focused on pain) received over the prior 12 months (n=695).

scales, BS-11 or the FACES pain rating scale were used by 77% (n=535) of physicians. However, 65% (n=848) of patients reported that no scale was used by their physicians for pain quantification (Figure 3). The inadequate assessment of pain by physicians and/or nurses was also recognised as a barrier to optimal pain management by 60.9% (n=423) of the physicians themselves. Overall, 77.6% (n=1,012) of patients had never been referred to a pain specialist or pain clinic. Pain specialists were responsible for managing pain in only 8.6% (n=112) of patients. Possible reasons identified by the physicians for not referring their patients to a pain clinic included the likelihood of pain specialists recommending undesirable interventional procedures for pain treatment (41.9%, n=291), difficulty in arranging appointments with pain specialists (36.7%, n=255) and a lack of pain clinics in their region (35.1%, n=244).

Evidence for suboptimal use of opioids in CNCP management

Opioid treatment was deemed necessary for the treatment of CNCP by 63.6% (n=442) of physicians, and 79.4% (n=552) agreed that no single opioid was optimal for all patients. Among the 1,305 patients assessed, 1,093 were receiving treatment for pain at the time of the survey. Of



those who could recall their specific form of pharmacotherapy, 66.8% (n=730) were prescribed non-opioid analgesics or non-steroidal anti-inflammatory drugs; however, opioid prescriptions were received by only 4.4% (n=48) of these patients (Table 3a). A list of side effects occurring with the use of pain medications is presented in Table 3b.

Barriers to optimization of therapy remain

A reluctance by patients to take opioid therapies due to fear of adverse effects (65.0%, n=452) and fear of addiction (64.9%, n=451) were identified as key barriers, while 63.7% (n=443) of physicians admitted their own reluctance to prescribe opioids was a barrier. A total of 57.3% (n=398) of physicians pointed out that excessive regulations on opioid drugs hindered the optimization of treatment. Table 4 summarizes these findings.

Pain significantly impacts QoL and activities of daily living

The majority of physicians (90.4%, n=628/695) and patients receiving treatment (78.9%, n=862/1093) answered that the impact of pain on QoL was routinely evaluated. However, 77.4% (n=538) of physicians noted discordance between the patients' pain assessment and their own assessment. Pain affected the activities of daily living in 80.8% (n=1,054) of patients, including disruption of sleeping patterns (80%, n=843), and concentration and focus (79.4%, n=837). Overall, less than half of the patients surveyed (47.6%, n=502) reported having a relatively good QoL (Table 5). A total of 803 (61.5%) patients who responded were employed at the time of the survey. Of these, 503 (62.6%) stated that their performance at work was disrupted due to their chronic pain. Only 62.5% (n=683) of patients claimed to be satisfied with their current pain treatment.

Discussion

The ACHEON survey recruited a total of 695 physicians and 1,305 patients from 10 Asian countries and regions to determine perceptions toward CNCP management in routine clinical practice. 89.3% of patients surveyed reported suffering from moderate-to-severe pain lasting for a median duration of 24 months. The negative impact of this

3a: Medications prescribed to patients for pain relief (n=1093)	
Type of medication*	Number of patients (%)
Non-opioids	
Analgesics and NSAIDs	730 (66.8)
Muscle relaxants	265 (24.3)
Sedative/sleeping pills	128 (11.7)
Antidepressants	64 (5.9)
Anticonvulsants	36 (3.3)
Opioids	
Traditional Chinese medicine	99 (9.1)
Herbal medicine	66 (6.0)
Others	54 (4.9)
None of the above	94 (8.6)
*Patients were able to select more than one response NSAID, non-steroidal anti-inflammatory drugs	
3b: Adverse events experienced due to current pain medication (n=1093)	
Adverse event*	n (%) of patients
Sleepiness/Drowsiness	241 (22.1)
Tiredness	175 (16.0)
Dizziness/giddiness	154 (14.1)
Nausea/ Vomiting	124 (11.3)
Constipation	92 (8.4)
Anxiety (worry)/ depression	69 (6.3)
Swelling (mostly of the feet or other extremities)	63 (5.8)
Itchiness in skin	62 (5.7)
Abdominal pain	55 (5.0)
Tremor	46 (4.2)
Diarrhea (loose bowel movements)	36 (3.3)
Difficulty in passing urine	25 (2.3)
None	505 (46.2)
*Patients were able to select more than 1 response	

Table 3: Treatment options prescribed for pain relief and adverse events experienced by patients (n=1093).

Potential barrier	Number of physicians (%) (NRS >5)	Median (IQR)
Patient's aversion to take opioids due to fear of adverse effects	452 (65.0)	7.0 (3.0)
Patient's aversion to take opioids due to fear of addiction	451 (64.9)	6.0 (3.0)
Physicians reluctance to prescribe opioids	443 (63.7)	6.0 (3.0)
Inadequate assessment of pain by physicians and/or nurses	423 (60.9)	6.0 (3.0)
Limitations of non-opioid analgesics	401 (57.7)	6.0 (4.0)
Excessive regulations of opioid drugs	398 (57.3)	6.0 (3.0)
Lack of pain or palliative medicine services	353 (50.8)	6.0 (4.0)
Patient's reluctance to report pain	327 (47.1)	5.0 (5.0)
Patient's inability to pay for interventional analgesics/pharmacological treatment/opioid analgesics	308 (44.3)	5.0 (4.0)

Table 4: Potential barriers to optimizing CNCP management from the perspective of the physicians interviewed (n=695).

pain on activities of daily living was apparent in the majority of patient respondent, yet only 62.5% of patients indicated satisfaction with

Effects of CNCP on quality of life	Number of patients in agreement (%)
CNCP affects patient's activities for daily living	1,054 (80.8%)
Details of daily life affected (n=1,054)	
Pain affects activities of daily living	908 (86.2)
Pain affects sleeping patterns	843 (80.0)
Pain affects concentration and focus	837 (79.4)
Overall quality of life is good	502 (47.6)
Pain causes over-reliance on other people	488 (46.3)
CNCP, chronic non-cancer pain	

Table 5: Effects of CNCP on patients' quality of life (n=1,305).

their treatment. Although the majority of physicians were generally knowledgeable about CNCP management and opioid use, significant gaps were evident in clinical practice. Opioid use was confirmed in 4.4% of patients, regardless of pain severity. In comparison to usage rates in the EU and North America, this is relatively low, and may be indicative of a reluctance to prescribe opioid therapy. However, the possibility remains that these opioid usage rates may have been underestimated owing to some patients being unaware of their medication type. Aversion to opioid use by patients due to fears of adverse effects and addiction was identified as a primary barrier. These observations are in line with previous studies that have highlighted the stigmas associated with opioid use [8,13,16-18]. It has been established that barriers to optimizing pain management are generally higher for Asian patients when compared to their Western counterparts, which further exacerbates the challenges of alleviating CNCP in Asia [19]. Over half of the physicians noted that excessive regulations on opioids were obstacles to their prescription. Strict regulations are known to influence physicians into modifying their prescribing patterns and resorting to therapies with fewer regulatory barriers, as well as lower doses and/or lower prescription durations [20]. Drug misuse and adverse effects are undoubtedly major concerns for opioid therapy; however, careful patient selection, adherence to recommended prescription guidelines and competent monitoring are effective tools that can mitigate these associated risks [21]. Ongoing medical training is essential for physicians to accurately prescribe safe and effective opioid therapy. In this survey, 31.5% of physicians felt that their medical school training was inadequate, with the majority reporting ≤ 10 hours of CME focused on CNCP pain management. It has been reported that early education on pain management improves patient-focused care while increasing preparedness for pain management [22]. A greater provision of these programs represents a key measure that is likely to improve the quality of CNCP management in Asia. The accurate identification of pain using a thorough pain assessment protocol is essential for patients to receive optimal opioid therapy [21,23]. However, discordance between physician- and patient-reported pain assessment protocols was observed in this survey. The majority of physicians reported routinely quantifying pain, but 65% of patients claimed that no scale had been used for their assessment. A reflection of this observation was noted in the physicians' survey as well, recognizing the inadequate assessment of pain as a barrier to optimal treatment by 60.9% of physicians, with 77.4% suspecting differences between their professional assessment and the actual levels of pain experienced by their patients. Although the physician-patient relationships could not be completely matched in this survey, these findings are indicative of a significant deficiency in clinical practice that warrants further evaluation. .

Our findings suggest that many physicians are hesitant to refer patients to specialized pain clinics. Although primary care physicians may be considered adept at managing co-morbidities, the intervention of pain management specialists may provide a more accurate diagnosis of pain and therefore more effective therapeutic outcomes. In a robust healthcare system, pain specialist clinics are an integral component of multidisciplinary pain management programmes, and are more effective at assessing individual patient needs [24,25]. Evidence-based research from the Pain Association of Singapore Task Force echoes the importance of these multidisciplinary teams for the effective administration of opioid therapy [26,27]. Earlier reports suggest that approximately 90% of patients visiting pain management clinics are prescribed narcotics; however, the rate of opioid prescriptions by primary care physicians is evidently much lower [28]. Primary care physicians may not have easy access to opioids due to unavailability and local regulations, and may lack the necessary education and training for safe opioid administration. Hence, understanding current practices is necessary to promote a more widespread adoption of effective treatment systems. However, there are also real and very serious risks associated with long-term opioid therapy, such as death. In parts of North America, this problem has exacerbated to such an extent that it has been referred to as an epidemic. There clearly therefore needs to be a very cautious and balanced approach to opioid prescription, in which benefits and risks are carefully understood. We note several limitations to our findings due to the subjective nature of this questionnaire-based survey. It was not practical to ensure uniformity of recruitment methods across the individual countries, and all patients who reported CNCP within the previous 3 months and were willing to participate were eligible for inclusion. Furthermore, it remains likely that some patient groups were not identified and therefore omitted from the analysis. However, to the best of our knowledge, our findings represent the first significant survey to provide broad insight on current CNCP management practices in Asia. Our survey demonstrates that a significant number of patients are living with CNCP of moderate-to-severe intensity that significantly impacts their QoL. A greater prioritization of evidence-based outcomes in pain management through collaborative efforts between physicians, patients, regulatory bodies and the pharmaceutical industry is needed for more effective patient care.

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