

## **Cognitive Behaviour Therapy for Chronic Pain Management in Southeast and East Asia: A Scoping Review**

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Psychological therapy for chronic pain is scattered, especially in Asia. Cognitive Behaviour Therapy (CBT) is a promising treatment for chronic pain in the Western population but its efficacy in Asia is unknown. We conducted a scoping review to summarise how CBT has been delivered in adults with chronic pain in East and Southeast Asian region. Searches were carried out in three databases, SCOPUS, PubMed, and Web of Science (WOS). Articles that use English language from the year 2015-2023 were identified. Titles and abstracts were screened and reviewed, and the data extracted were analysed. Eleven studies met our inclusion criteria and were included in the final review. There are a mixed number of studies that use group or individual CBT. The most used CBT techniques are psychoeducation, relaxation, cognitive restructuring, and relapse prevention. Results found promising evidence of CBT in chronic pain management in the region. According to studies, CBT is rapidly being utilised to treat chronic pain in the East and Southeast Asian region, expanding beyond multimodal pain care. CBT clearly performs well as a stand-alone intervention strategy. The most effective CBT protocol is difficult to pinpoint, but it is crucial to remember that there are various types of chronic pain and psychological issues, so there is no "one size fits all" technique.

*Keywords:* chronic pain, CBT, Southeast and East Asia

Chronic pain is a significant and widespread health problem that affects around 18% of the population in developing countries including Brazil, China, India, South Africa, Libya, Nepal, Iran, and the Philippines (Sá et al., 2019). In the US alone, it has affected an estimated 20.4% of the population (Dahlhamer et al., 2018). The study reported higher prevalence among women, those with low socioeconomic status (SES), military veterans, and those living in suburban areas. A recent analysis combining cross-sectional surveys from countries in Europe, America, Australia, and Asia found that a significant number of chronic pain sufferers have poor physical and psychological functioning, and quality of life (QoL) (Hagen, Madhavan & Bell, 2020).

Patients with multicultural backgrounds posed challenges to the implementation of the biopsychosocial model of chronic pain (Patel et al., 2009). Even recently, the Chinese population still disregards the importance of seeking treatment as they perceive chronic pain as not harmful (Yongjun et al., 2020). Meanwhile, those who seek treatment in many Asian countries showed inadequate relief despite obtaining regular pain treatment (Cheung et al. 2019). Additionally, the findings revealed that nearly one-fifth (approximately 20%) of the patients experiencing moderate-to-severe pain did not receive any form of analgesic treatment.

Researchers have developed various psychosocial intervention strategies to deal with chronic pain, beginning with the

operant conditioning technique (Fordyce, Fowled & DeLateur, 1968), and then incorporating relaxation techniques (Tung, DeGood & Tenicela, 1979). Cognitive behaviour therapy was slowly incorporated with other methods in the early 90s (Altmaier, Lehmann, Russell, Weinstein, & Kao, 1992; Basler, Jakle & Kroner-Herwig, 1997) with promising results.

CBT was the most used psychological intervention to manage chronic pain in the 1990s and 2000s (Eccleston, Morley & Williams, 2013; Williams et al., 2020) with a small to moderate effect on psychological functioning, pain severity, and quality of life. The evidence of psychological management in Asian countries was not known until a systematic review was conducted by Yang et al. (2015). In the review, the earliest studies in Asia incorporating CBT for chronic pain began around 2002 by Lau, Leung, and Wong, followed by Man et al. (2007). In contrast to the Western studies (Eccleston et al., 2013; Williams et al., 2020), many studies in Asia incorporated multidisciplinary studies as compared to stand-alone techniques such as CBT and Acceptance and Commitment Therapy (ACT). This is a reflection of the reality in the current healthcare setting, whereby the biomedical model is still heavily used due to the lack of clinical psychologists available in Asian countries (Chaudakshetrin et al., 2020) although the multidisciplinary pain clinics have been around since the 1990s.

Building on the insights from the previous review (Yang et al., 2015), our current interest lies in uncovering more recent

studies that have applied specifically Cognitive Behavioral Therapy (CBT) in chronic pain management within several Asian countries. Despite the challenges of the lack of manpower to provide efficient multidisciplinary intervention for chronic pain in this region (Chaudakshetrin et al., 2020), it is worth identifying and learning from the current work utilizing psychological management for chronic pain patients. Furthermore, it would be illuminating to explore any evolving trends in the CBT protocols employed over time. Subsequently, we are keen to delve into the implications and findings arising from the application of CBT in chronic pain management within these diverse cultural contexts. This exploration promises to address the existing research gap and provide valuable insights into the effectiveness of CBT in addressing chronic pain among multicultural populations, ultimately guiding us toward more effective pain management strategies.

## **Method**

This review was conducted using five steps in the Arksey and O'Malley (2005) framework: (a) identification of the research question, (b) identification of relevant studies, (c) study selection, (d) charting the data, and (e) collating, summarising and reporting the results. Figure 1 provides the steps of the scoping review methodology. This review also undertakes the PRISMA Extension for Scoping Reviews (PRISMA-ScR) checklist (Tricco et al., 2018).

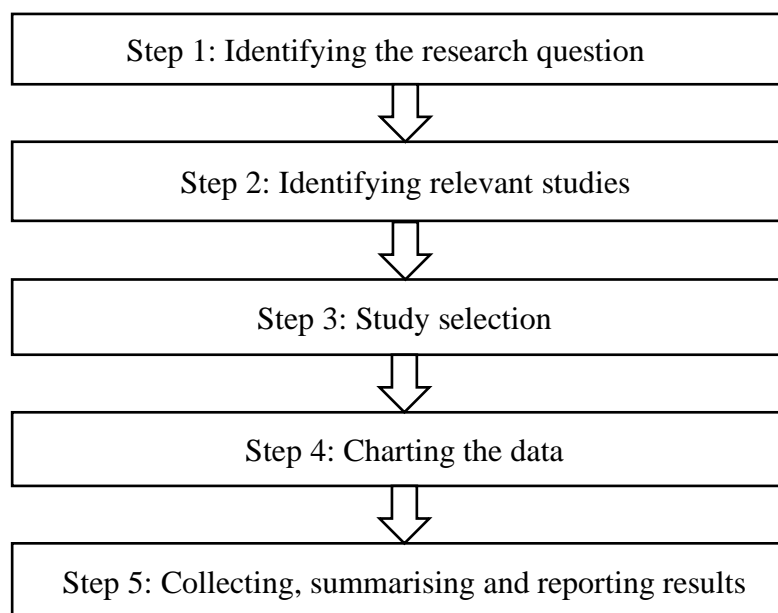


Figure 1 Steps of Arksey and O'Malley's scoping review methodology

### Step 1: Identifying the research question

The first step in identifying the research question is to review the psychosocial management of chronic pain. Practice guidelines for chronic pain management by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine from 2010 were reviewed along with the National Institute for Health and Care Excellence (NICE) in 2021. Both guidelines include CBT as one of the psychological interventions for chronic pain taking into account the effectiveness from past studies. The primary aim of our scoping review is to address the existing research gap regarding the utilization of CBT as a psychological approach to managing chronic pain in the Asian region. In light of this, we are keen to explore the following inquiries: (1) What are the protocols and methodology used for CBT for chronic pain in the region? (2) What are the most used components for CBT

with chronic pain in the region? and, (3) What can we learn from the findings?

### Step 2: identifying relevant studies

Electronic literature searches on psychological interventions for chronic pain management are done through SCOPUS, PubMed, and Web of Science (WOS) databases. These databases were searched for English-language articles published between 2015 to 2023. Table 1 provided the keywords that guided the search which were generated following the Joanna Briggs Institute (2017) methodology of population, concept, and context criteria (PCC): Chronic pain patients aged over 18 years old, undergoing CBT, and those with a diagnosis of chronic pain. We exclude terminal pain as it often involves different treatment approaches, prognosis, and considerations compared to chronic pain. We also look into the list of references to identify other relevant papers.

*Table 1*

Summary of keywords based on the PCC criteria

Criteria	Keyword	List of expanded keywords generated
Population	Adults	Adults
Concept	Intervention	cbt OR "cognitive behavior*" OR "cognitive behaviour*"
Context	Chronic pain	Chronic pain OR recurrent pain OR persistent pain OR functional pain OR headache OR abdominal pain OR musculoskeletal pain OR back pain

**Step 3: selecting appropriate articles for the scoping review**

Data extraction and synthesis were conducted by the authors. Firstly, based on the title and abstract, articles that are not an intervention study, that is protocol, trial, or follow-up from a previous study, or articles that do not include a sample of chronic pain adults were excluded from the synthesis. Full-text papers were then screened to further identify relevant

studies. Full-text papers were then screened using the inclusion and exclusion criteria (Table 2) to ensure relevant papers were selected. Both authors came to a conclusion on the selected papers, and studies that did not fall in the inclusion criteria were excluded. A PRISMA Flowchart provides an illustration of the study screening and selection process, as seen in Figure 2.

*Table 2*

Inclusion and exclusion criteria using the PCC criteria

PCC Criteria	Inclusion Criteria	Exclusion Criteria
Population (Adults)	<ul style="list-style-type: none"> <li>Participants must be adults of at least 18 years of age</li> </ul>	<ul style="list-style-type: none"> <li>Pediatric population or mean age that falls under the age of 18</li> </ul>
Concept (CBT)	<ul style="list-style-type: none"> <li>CBT-focused intervention and can include various methodologies (single or two arms, individual or group, face-to-face or teletherapy)</li> </ul>	<ul style="list-style-type: none"> <li>Psychological intervention other than CBT, including third-wave therapy</li> <li>Intervention that only involves parents of pediatric patients</li> </ul>
Context (Chronic pain)	<ul style="list-style-type: none"> <li>Participants must have a chronic pain condition of at least 3-month duration</li> </ul>	<ul style="list-style-type: none"> <li>Participants with terminal illness (chronic cancer pain) or conditions that they can recover from</li> </ul>

Other

- Articles published in the English language

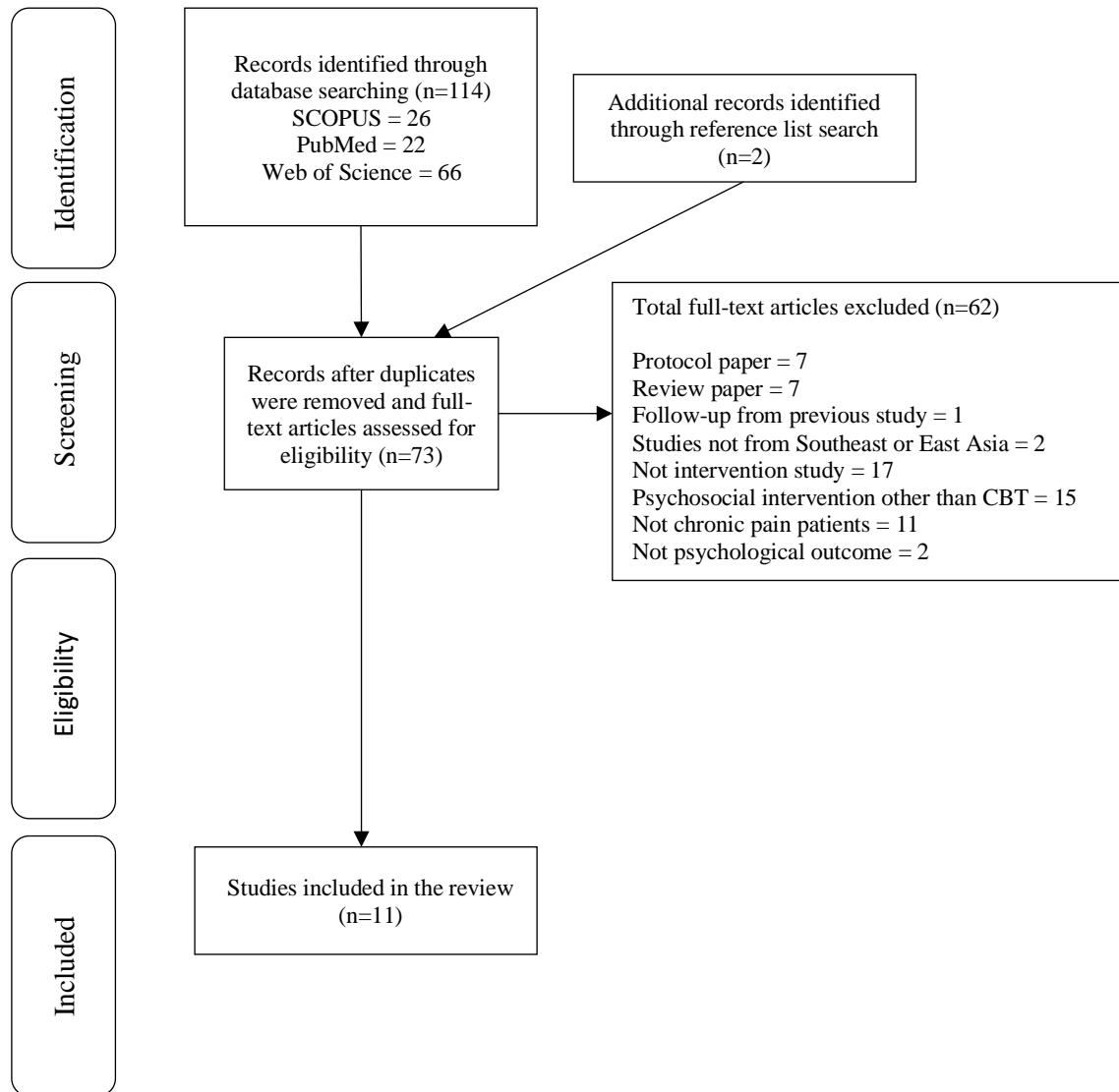


Figure 2 PRISMA flowchart for the selection of studies

**Step 4: charting the data**

Step 4 involves the extraction of data from the full-text papers. Firstly, the authors determine the variables that were generated according to the research questions. Table 3 summarizes the list of variables. Next, we used the descriptive-

analytical method to arrange the findings in the form of a table. Final articles were reviewed and an Excel spreadsheet was divided to summarise the data including the title, year, country of study, sample size, types of chronic pain, aims, outcome measure, and findings.

*Table 3*

Summary of variables

Research questions	Variables
1. Which countries in East and Southeast Asia adopted CBT for patients with chronic pain?	<ul style="list-style-type: none"> <li>• Country of study</li> </ul>
2. What are the protocols and the methodology used?	<ul style="list-style-type: none"> <li>• Sample size</li> <li>• Types of chronic pain</li> <li>• Outcome measure</li> </ul>
3. What are the most used components for CBT with chronic pain?	<ul style="list-style-type: none"> <li>• Components of CBT</li> </ul>
4. What can we learn from the findings?	<ul style="list-style-type: none"> <li>• Findings and key takeaways</li> </ul>

**Step 5: summarising, analysing and reporting the results**

This stage included data analysis, reporting, and interpreting the findings. The results are reported within the context of research questions. It will be divided into the following themes: (1) Study design; (2) CBT content; and (3) Findings and key takeaways. The results will be further discussed in the discussion section within the context of current trends and the future.

11 studies were included. Table 4 illustrates the summary of findings.

**Study characteristics**

In the following section, we delve into the specifics of the reviewed studies, which encompassed a diverse range of geographical locations and chronic pain conditions. Among the studies conducted, five were conducted in Japan (Hosogoshi et al., 2020; Motoya et al., 2017; Taguchi et al., 2021; Yoshino et al., 2015; Yoshino et al., 2019), three studies took place in Korea (Lim et al., 2018; Song et al., 2017; Song et al., 2020), while one study was carried out in China (Wang et al., 2020), Malaysia (Foo et al., 2020) and Thailand (Viravan et al., 2021) respectively. These studies encompassed a wide spectrum of chronic pain conditions, spanning from individual chronic pain to cases with multiple comorbidities. Specific diagnoses included osteoarthritis (Foo et al., 2020;

**Results**

As shown in Figure 2, we have identified a total of 114 papers from four online databases and two papers from reference list search. After removing duplicates and papers that are not available in full text, 73 papers were reviewed using the inclusion and exclusion criteria. There were 62 full-text articles excluded from the review and

Viravan et al., 2021), cancer-related pain (Taguchi et al., 2021), fibromyalgia (Lim et al., 2018; Song et al., 2017; Taguchi et al., 2021; Viravan et al., 2021), cerebral palsy (Taguchi et al., 2021), systemic lupus erythematosus (SLE) (Taguchi et al., 2021), visceral pain (Lim et al., 2018), neuropathic pain (Lim et al., 2018), back pain (Lim et al., 2018; Motoya et al., 2017; Song et al., 2017), chronic headache (Lim et al., 2018; Song et al., 2017), Complex Regional Pain Syndrome (CRPS) (Lim et al., 2018; Song et al., 2017), chronic insomnia with restless leg syndrome (RLS) (Song et al., 2020), chronic prostatitis (Wang et al., 2020), and somatoform disorder (Yoshino et al., 2015; Yoshino et al., 2019). However, it's important to note that one article did not explicitly specify the type of chronic pain (Hosogoshi et al., 2020).

The total number of participants in both intervention and control groups in the 11 studies is  $N=648$ . Only four studies have two arms, intervention and control group (Foo et al., 2020; Song et al., 2020; Yoshino et al., 2015; Wang et al., 2020) while other studies only use a single arm, without control group (Lim et al., 2018; Taguchi et al., 2021; Song et al., 2017; Virawan et al., 2020; Yoshino et al., 2015; Yoshino et al., 2019). One out of the eleven studies uses a Randomized Controlled Trial (RCT) (Song et al., 2020) and the majority of the studies were pilot studies (Foo et al., 2020; Hosogoshi et al., 2020; Motoya et al., 2017; Taguchi et al., 2021; Viravan et al., 2021; Yoshino et al., 2015).

### **Design and methodology**

This section focuses exclusively on the CBT (Cognitive Behavioral Therapy) intervention, addressing our research question about its widely adopted components and protocols with an emphasis on the methodology as well as the CBT content. Group CBT is deemed popular in many research (Foo et al., 2020; Lim et al., 2018; Motoya et al., 2017;

Viravan et al., 2021; Song et al., 2017; Yoshino et al., 2015; Yoshino et al., 2020) as compared to CBT conducted individually (Hosogoshi et al., 2020; Song et al., 2020). Meanwhile, no information indicated whether the participants in Taguchi et al. (2021) and Wang et al. (2020) went through the CBT in groups or individually. One study specifically uses a tailored CBT technique for insomnia (CBTI) that targets sleep among restless leg syndrome (RLS) patients.

The session duration spanned from as short as thirty minutes (Hosogoshi et al., 2020) to as long as 7 hours (Viravan et al., 2021). Many studies typically chose to have sessions occurring around 8-12 times (Hosogoshi et al. 2020; Lim et al., 2018; Song et al., 2018; Virawan et al., 2020; Yoshino et al., 2015; Yoshino et al., 2019), which aligns with the standard frequency for CBT sessions. The highest number of CBT sessions conducted was up to 16 sessions (Taguchi et al., 2021), while a few studies opted for brief CBT interventions, usually consisting of around three to five sessions in total (Foo et al., 2020; Motoya et al., 2017; Song et al., 2020).

It was also observed that shorter duration of sessions resulted in fewer components being used, whereas more components were incorporated with a higher frequency of sessions. On the other hand, it is also worth noting that one study only incorporated only three CBT-related components (psychoeducation, cognitive restructuring, self-monitoring) in addition to providing medication guidance and family emotional intervention (Wang et al., 2020).

**Table 4**  
**Summary of findings**

Author	Country	Design	Intervention Group	Control Group	Chronic Pain	Major Findings	Key takeaway
Foo et al. (2020)	Malaysia	Pilot RCT (parallel-group unblinded)	n=136 (Three bi-weekly, two-and-a-half-hour group CBT and The Knee book)	n=136 (TAU and The Knee Book)	Knee osteoarthritis	<ul style="list-style-type: none"> <li>• Significant improvement in pain severity for the intervention group, but no change in the control group. In the follow-up, the improvements were minor.</li> <li>• CBT reduced depression, anxiety, and pain catastrophizing but did not reduce stress, fear-avoidance beliefs, or pain self-efficacy.</li> </ul>	<ul style="list-style-type: none"> <li>• Due to a shortage of psychologists, this study included nurses who were educated by clinical psychologists. This calls for more research into using CBT training in chronic pain management to compensate for a lack of staff.</li> </ul>
Hosogoshi et al. (2020)	Japan	Pilot study (Open-labeled before-after trial)	n=15 (Eight weekly 30-40 session)	-	Not mentioned	<ul style="list-style-type: none"> <li>• There was a considerable improvement in quality of life before and after intervention.</li> <li>• There was only a minor improvement in pain severity and no improvement in follow-up.</li> <li>• Significant improvement in mental and role quality of life, disability, pain catastrophizing, self-efficacy, and depression symptoms. In the follow-up, the improvements were maintained.</li> </ul>	<ul style="list-style-type: none"> <li>• Patients with lower QoL improve faster, implying a higher treatment success for those with less impairment.</li> <li>• CBT-CP is a low-risk, safe intervention.</li> </ul>
Lim et al. (2018)	Korea	Not explicitly stated	n=89 (Eight twice weekly group CBT)	-	CPRS, fibromyalgia, visceral pain, neuropathic pain, back pain, chronic headache	<ul style="list-style-type: none"> <li>• Female patients showed higher levels of empathy than did male patients, both before and after CBT.</li> <li>• Significant relationships between affective pain and empathy for others' personal distress in all patients</li> </ul>	<ul style="list-style-type: none"> <li>• Female patients have better empathy thus may lead to improved progress.</li> </ul>
Motoya et al. (2017)	Japan	Pilot study	n=7 (Five sessions 90-minute bi-weekly group CBT)	-	Chronic back pain patients	<ul style="list-style-type: none"> <li>• Improvements were seen in pain severity and frequency, and pain disability but not significant, and scores were mostly maintained in the long run.</li> <li>• Significant improvement in pain catastrophizing but mixed</li> </ul>	<ul style="list-style-type: none"> <li>• The program might be beneficial among chronic pain patients with poor treatment outcomes.</li> <li>• Increasing the number of sessions incorporating more in-depth cognitive restructuring and exposure may lead to more significant improvement.</li> </ul>



						<p>results were seen at the follow-up.</p> <ul style="list-style-type: none"> <li>• The CBT program provides little change on ADL.</li> </ul>	<ul style="list-style-type: none"> <li>• Better improvement seen for patient with lesser period of chronic pain without any psychiatric comorbidity.</li> </ul>
Natee et al. (2020)	Thailand	Pilot study	n=38 Twice-weekly 7 hours group CBT)	-	Comorbidity between fibromyalgia, central pain syndrome, chronic pelvic pain, osteoarthritis, obesity, pelvic endometriosis	<ul style="list-style-type: none"> <li>• Improvements in depression, anxiety, stress, health utility, overall health status, and disability were observed, with inconsistent results in maintenance.</li> <li>• Participants opted to continue stretching activities, relaxation techniques, and mind control techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• This is the first study that uses CBT for patients with chronic pain in Thailand.</li> <li>• Participants found that desensitization aggravates pain, and did not do exercises at home because of limited time.</li> </ul>
Song et al. (2017)	Korea	Not explicitly stated	n=26 (Eight twice weekly group CBT)	-	CPRS, fibromyalgia, back pain, and headache	<ul style="list-style-type: none"> <li>• CBT improved empathy in patients with chronic pain and increases pain severity.</li> <li>• No significant improvements in depression, anxiety, and quality of life.</li> </ul>	<ul style="list-style-type: none"> <li>• Mindfulness was highlighted as a way to promote pain awareness, hence enhancing pain severity.</li> <li>• The amount of pain and sadness among all patients was severe.</li> </ul>
Song et al. (2020)	Korea	RCT	n=12 (Four weekly 60-min individual CBTI)	n=13 non-CBTI group (one sleep hygiene information and TAU)	Chronic insomnia with RLS	<ul style="list-style-type: none"> <li>• Significant improvements for insomnia-related symptoms, and anxiety and depression in the CBTI group as compared to the non-CBTI group. However, CBTI is not effective for RLS.</li> <li>• The effect of CBTI was maintained for insomnia but was not maintained for anxiety and depression.</li> </ul>	<ul style="list-style-type: none"> <li>• Cognitive and relaxation therapy may be more beneficial for anxiety and stress compared to depression.</li> </ul>
Taguchi et al. (2021)	Japan	Pilot study (Open-labeled prospective single-arm trial)	n=16 (16 weekly 50-minute individual CBT)	-	Cancer, fibromyalgia, cerebral palsy, and	<ul style="list-style-type: none"> <li>• There was no significant variance in pain intensity.</li> <li>• There has been a significant improvement in catastrophic thinking, daily life functioning, depression, and anxiety.</li> </ul>	<ul style="list-style-type: none"> <li>• Pain acceptance is suggested to be examined because it has been demonstrated to be important in psychological development following CBT.</li> <li>• Improvement in CBT techniques for chronic pain is needed.</li> </ul>

Wang et al. (2020)	China	Not explicitly stated	n=42*	n=42 TAU	Chronic prostatitis	<ul style="list-style-type: none"> <li>• When compared to before the intervention, self-reported anxiety and depression ratings were not substantially different.</li> <li>• In comparison to the TAU group, the intervention group improved significantly in depression and anxiety levels after CBT intervention.</li> </ul>	<ul style="list-style-type: none"> <li>• Psychoeducation is effective in improving patients' comprehension of physical symptoms and their psychological implications.</li> </ul>
Yoshino et al. (2015)	Japan	Pilot study (within-group design)	n=34 (12 weekly 90-minutes group CBT)	n=32 (TAU)	Somatoform disorder	<ul style="list-style-type: none"> <li>• Pain severity, pain catastrophizing, despair, and anxiety all improved significantly.</li> <li>• At 12 months, the reduction in pain catastrophizing was sustained.</li> </ul>	<ul style="list-style-type: none"> <li>• Alexithymia may have an impact on treatment outcome.</li> <li>• More research on CBT for somatoform symptoms is needed.</li> </ul>
Yoshino et al. (2019)	Japan	Pilot study	n=58 (12 weekly 90-minutes group CBT)	-	Persistent somatoform pain disorder	<ul style="list-style-type: none"> <li>• Significant improvement in anxiety, depression, pain intensity, and pain catastrophizing.</li> <li>• Improvements are positively correlated with negative emotional intensity.</li> </ul>	<ul style="list-style-type: none"> <li>• As patients with persistent somatoform pain disease may internalise their concerns, emotional expression may contribute to symptom alleviation.</li> </ul>

\*design of the intervention group was not specified in the paper

(Note: ADL=Activities of daily living; CBT=Cognitive Behaviour Therapy; CBTI=Cognitive Behaviour Therapy for Insomnia; CBT-CP=Cognitive Behaviour Therapy for Chronic Pain; CPRS=Complex Regional Pain Syndrome; RCT=Randomized controlled trial; RLS=restless leg syndrome; QOL= quality of life; SLE=systemic lupus erythematosus; TAU=treatment as usual; VAS=Visual Analogue Scale)



## **CBT Component**

### ***Behavioural component***

Numerous studies included relaxation and mindfulness in their CBT protocols. The techniques range from progressive muscle relaxation (Hosogoshi et al., 2020; Motoya et al., 2017; Song et al., 2017; Taguchi et al., 2020; Yoshino et al., 2015), abdominal breathing (Taguchi et al., Yoshino et al., 2019), mindfulness meditation (Song et al., 2017), to other breathing exercises (Hosogoshi et al., 2020; Yoshino et al., 2015). Additionally, many mindfulness practices were developed by researchers to address particular medical conditions, such as chronic insomnia (Song et al., 2020) and knee pain (Foo et al., 2020).

In some studies, relaxation techniques were used only once (Foo et al., 2020; Hosogoshi et al., 2020; Song et al., 2020; Taguchi et al., 2020; Yoshino et al., 2018) whereas in other studies, relaxation techniques were used repeatedly over the course of two to three sessions (Lim et al., 2018; Song et al., 2017; Yoshino et al., 2015). All eight sessions in Viravan et al. (2021) included relaxation exercises, albeit the precise methodology was not specified.

Relapse prevention strategies were included in numerous studies (Foo et al., 2020; Hosogoshi et al., 2020; Lim et al., 2018; Song et al., 2017; Taguchi et al., 2021; Yoshino et al., 2015; Yoshino et al., 2019) in addition to relaxation and mindfulness. A relapse prevention plan is usually placed before the termination session and the content was mainly on summarizing the sessions and dealing with relapse.

Other commonly used techniques include activity pacing (Hosogoshi et al., 2020; Motoya et al., 2017; Natee et al., 2021; Taguchi et al., 2021), behavioural activation (Yoshino et al., 2015; Yoshino et al., 2019), self-monitoring (Lim et al., 2018; Song et al., 2017; Yoshino et al.,

2015; Yoshino et al., 2019), and assertive training (Lim et al., 2018; Song et al., 2017; Yoshino et al., 2015; Yoshino et al., 2019) were also conducted. Sleep hygiene and visual imagery was the least popular method used with only two studies targetting sleep hygiene (Foo et al., 2020; Viravan et al., 2021) and only one study targetting visual imagery (Taguchi et al., 2021).

### ***Cognitive component***

Cognitive components played a crucial role in all 11 studies, though their integration varied across these investigations. Some studies, such as Hosogoshi et al. (2020), Lim et al. (2018), Motoya et al. (2017), Song et al. (2017), Yoshino et al. (2015), and Yoshino et al. (2019), meticulously structured their interventions. These studies encompassed the entire process, from identifying thoughts to challenging their beliefs, as well as monitoring their thoughts. Notably, Yoshino et al. (2019) underscored the importance of thought identification to raise awareness of pain-related thoughts among participants.

In contrast, Viravan et al. (2021) followed a different approach, where thought management skills were practiced in each session together with other behavioral techniques. In Cognitive Behavioral Therapy for Insomnia (CBTI), the cognitive component took a back seat compared to the behavioral aspects (Song et al., 2020). Meanwhile, Foo et al. (2020) employed an educational-based cognitive technique to impart knowledge about negative thoughts related to knee pain. However, their approach did not delve deeply into the practical application of the cognitive component. In Taguchi et al.'s (2020) study, they conducted an extensive 16-session intervention, dedicating two sessions to cognitive restructuring strategies. The initial sessions focused on introducing and encouraging patients to

understand the relationship between chronic pain theory, the CBT model, and the vicious cycle of pain. While Wang et al. (2020) didn't specify the number of sessions dedicated to cognitive components, their intervention involved identifying thoughts and encouraging cognitive restructuring.

The 11 studies shared a common inclusion of cognitive components in their interventions, but they employed diverse approaches, reflecting differing strategies for incorporating cognitive techniques within the broader framework of pain management.

### ***Psychoeducation***

The psychoeducation method was utilized in the majority of the studies (Foo et al., 2020; Hosogoshi et al., 2020; Motoya et al., 2017; Song et al., 2020; Taguchi et al., 2021; Viravan et al., 2021; Wang et al., 2020; Yoshino et al., 2015; Yoshino et al. with the component being placed in the initial sessions. In some studies, the main emphasis in psychoeducation is on the biopsychosocial mechanism of pain and the theoretical mechanism of pain, which uses the gate control theory of pain (Yoshino et al., 2015; Yoshino et al., 2019; Taguchi et al., 2020). Foo et al. (2020) take a different tack in psychoeducation, emphasizing how behaviour (behavioural activation) and cognitive (changing thinking related to the pain) processes can be used to control pain. Another study (Hosogoshi et al., 2020) concentrated only on the CBT approach and did not go into detail regarding pain education. The other three studies (Motoya et al., 2017; Natee et al., 2021; Wang et al., 2020) are solely concerned with delivering information on the pain (causes, symptoms, and therapy), with no psychological aspects of pain being addressed.

### **Findings and key takeaways**

In general, CBT for chronic pain in these studies provides mixed findings. In terms of pain severity, significant improvement in a study by Foo et al. (2020) while it was not significant for several other studies (Hosogoshi et al., 2020; Motoya et al., 2017; Taguchi et al., 2021). Meanwhile, findings by Song et al. (2017) revealed an increase in pain severity following the intervention. There are also mixed findings on the improvements in depression and anxiety. Significant improvements from the baseline and after the intervention were seen in several studies (Foo et al., 2020; Hosogoshi et al., 2020; Song et al., 2020; Taguchi et al., 2021; Yoshino et al., 2015; Yoshino et al., 2019) whereas small findings found less significant results (Song et al., 2017; Wang et al., 2020). They also share similarities in terms of adopting the following CBT components: psychoeducation, relaxation, cognitive restructuring (except for Foo et al., 2020), and relapse prevention. Song et al. (2020), Yoshino et al. (2015), and Yoshino et al. (2019) added self-monitoring and assertive training to their protocol and it yielded promising results.

Most studies that showed a major improvement in mood had longer sessions, in terms of hours (40 minutes to two and a half hours) and frequency of sessions (eight to 16 sessions). Additionally, studies that included patients with fewer disabilities and shorter duration of chronic pain diagnosis showed more improvement (Hosogoshi et al., 2020; Motoya et al., 2017).

A more intensive CBT approach may be more beneficial, as also mentioned by Motoya et al. (2017). The studies were a mixture of group and individual CBT, thus implying that both methods revealed similar results. In terms of the components, one study (Wang et al., 2020) reported that psychoeducation was

beneficial in general, whereas another study (Motoya et al., 2017) found that cognitive restructuring and relaxation were beneficial to reduce anxiety rather than depression. A study that takes into account the qualitative findings from the participants yielded important findings. According to Virawan et al. (2021), the participants have the tendency to continue managing their pain at home if the techniques are brief and easy to follow (Natee et al., 2021).

### Discussion

The main aim of this scoping review is to gather evidence on the use of CBT for chronic pain in East and Southeast Asia. Studies with a relative focus on CBT were conducted mostly in the East Asian region, namely Japan and Korea instead of the Southeast Asian region where only each study from Malaysia and Thailand, respectively, were included. To our knowledge, Virawan et al. (2021) were the first in Thailand to report the findings from a group CBT intervention conducted among chronic pain patients in Thailand, despite the small sample. Thailand is slightly behind its counterparts, Indonesia and Malaysia, who conducted their studies on the psychological management of chronic pain a decade ago, through Lubis et al. (2013) and Cardosa et al. (2012) respectively.

In terms of the findings, the authors concluded that mindfulness may lead to higher awareness of pain, therefore resulting in poor improvement of pain severity (Song et al., 2017; Taguchi et al., 2021). The findings are not relatively new as the awareness that pain can mediate the relationship between pain severity, functioning, and quality of life was discussed in the previous literature (Akerblom et al., 2015). In contrast, a study found that alterations in pain intensity are not exclusively linked to acceptance as a singular factor, but may

also involve other elements such as age and gender (Probst et al., 2019).

As stated previously, studies with lesser complexities in illness and with shorter duration of chronic pain (Hosogoshi et al., 2020; Motoya et al., 2017) showing promising results are concordant with a study that showed how a prolonged duration of chronic pain contributes to the complexities of managing pain intensity effectively (Majedi et al., 2020). In addition, age and gender may also influence one's pain relief expectations, given the extended course of illness, and the heightened vulnerability to medication side effects from the underlying health condition (Majedi et al. 2020).

Comparing the previous systematic review and the current review in this region, only three studies by Yang et al. (2015) opted for a stand-alone CBT approach in addressing chronic pain, whereas the majority of interventions embraced a multidisciplinary strategy. From our current study, there has been a noticeable shift in focus from assessing the effectiveness of multidisciplinary interventions to examining the impact of single psychological interventions. This change in direction is likely due to the challenge of determining the most effective treatment approach within the context of multidisciplinary interventions, which explains the shift in the prevailing trend.

Moreover, it is also worth noting that many countries in the region have yet to transition from a comprehensive biopsychosocial approach to addressing chronic pain in primary care settings, as highlighted by Chaudakshetrin et al. (2020). Therefore, it is evident that a substantial amount of ongoing work and dedication is required to emphasize the significance of psychological interventions in combating chronic pain effectively.

### Limitations and future directions

Only articles in the English language were included for the authors' convenience. Thus, there could be a potential that some studies were not included due to the language barrier. Other than that, this scoping review has identified the huge gap in psychological intervention for chronic pain management in the Asian region. However, what is not known here are the core issues that hinder the lack of studies done on psychological intervention for chronic pain management. Systematic reviews can be done to obtain the answers with the comparison to the Western countries.

This review focuses on the components of CBT protocols and the methodology without putting a focus on the intervention providers, and the specific protocol used. It is recommended to also include the aforementioned themes to better understand the delivery method in a holistic manner. A lack of emphasis on the fidelity of the studies, which includes the intervention provider and the background may help to provide more information into the efficacy of the intervention.

It is evident in the scoping review that the researchers commonly employ techniques like relaxation and mindfulness, psychoeducation, and cognitive restructuring. These techniques align with a list recommended by experts in a Delphi study, which also includes activity pacing, goal setting, and graded exposure as a part of the recommendations (Sharpe et al., 2019). Moving forward, it is essential to conduct a comprehensive investigation, such as a systematic review accompanied by a meta-analysis, in order to determine the most effective approaches.

### Conclusion

Generally, there are a limited number of studies in this region that use CBT in their

standard care routine of chronic pain management. In terms of the design, different studies adopted different methodologies with various protocols. The participants consist of different arrays of chronic pain. Although the findings do not specifically portray what led to the effectiveness, however, there were many important key findings that will help in determining a proper protocol for certain types of chronic pain. Although the progress in terms of research in CBT in the Asian region is rather slow, we can witness the evolvement in terms of having more studies that use standalone CBT instead of incorporating several other techniques. This helps to better understand the effectiveness of CBT, in order for it to be included in the guidelines for chronic pain management in Asia. In conclusion, the CBT protocol for chronic pain management is not a "one size fits all" and would definitely require careful consideration. However, we can conclude that CBT has a low risk and is safe to be conducted.

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