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RESEARCH ARTICLE

Pain Self-Management Strategies of Chronic Back Pain Sufferers in Thailand: A Qualitative Study (A Doctoral Project)

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Abstract:

Background:

Chronic low back pain is among the most common chronic musculoskeletal disorders worldwide. It is prevalent in Thailand, affecting up to 30% of the general population, with much higher rates among manual labourers. Pain self-management, including education, exercise, medication and other components, is an effective strategy for reducing pain intensity and disability rates for chronic low back pain sufferers.

Objective:

To investigate pain self-management strategies among chronic lower back pain sufferers in Thailand.

Methods:

The study design was a qualitative interview-based technique. The study setting was an orthopaedic outpatient department at a university hospital in Northern Thailand. Participants (n = 19) were selected based on recruitment criteria, and data was collected using demographic forms and in-depth interviews. Thematic analysis was used for qualitative analysis, with Wilcoxon signed-rank test used to assess changes in pain levels.

Results:

Participants used a combination of pain self-management modalities, including exercise, modified food consumption, increased rest, herbal treatments, hot and cold compression, Thai massage, and acupuncture, along with psychological and spiritual coping tools like meditation and making merit. Ability to use these interventions was dependent on medical support from practitioners as well as social and other support. A small, but significant, mean difference in pain was also observed.

Conclusion:

Findings point to the possibility that there are significant cultural differences in pain self-management modalities and their effectiveness.

Keywords: Pain self-management, Self-management, Self-management strategy, Chronic back pain, Low back pain, Qualitative research.

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1. INTRODUCTION

Chronic lower back pain (CLBP) is the chronic experience of low back pain (LBP), which may be defined as “pain and discomfort below the costal margin and above the inferior gluteal folds, with or without referred leg pain” [1]. While LBP may be acute, CLBP is diagnosed as lasting seven to 12 weeks,

or long-term intermittent recurrence [1]. CLBP can result from intervertebral disc degeneration, internal disc rupture, disc displacement, and a variety of other conditions [2]. These conditions can be caused by individual genetics and physiology, posture, heavy physical work or activities such as weightlifting, and lifestyle and psychological factors [1].

LBP is one of the most frequently reported musculoskeletal problems on the global scale. Hoy, *et al.*'s [3] systematic review of global studies (1980-2009) estimated that 23.2% of adults experienced LBP on a monthly basis, with the highest occurrence being for women and people aged 40 to 80 years.

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Although LBP may be relatively easily managed, CLBP can be much more difficult to manage, and as a result is a leading cause of disability in many countries [2]. Furthermore, the prevalence of LBP is expected to increase as the global population ages [3]. Thus, both LBP and CLBP need to be considered as serious public health concerns, even though they are frequently dismissed as minor health issues.

As in other countries, LBP and CLBP is a significant public health problem. One cohort study, which included 42,785 participants (2009 and 2013 waves) determined that 30% of the cohort reported CLBP [4]. This compares to 36.8% who reported no back pain, 21.7% who reported reverting back pain, and 15.3% who reported a single incident. CLBP sufferers were more likely to report limitations on everyday activities like climbing stairs (22.1%), walking 100 meters (26.8%), bending or stooping (62%) and dressing oneself (24.2%). Another study investigated causes of CLBP among Thai patients, finding that incorrect lifting and heavy lifting, along with incorrect posture and positioning, were among the most frequent causes of LBP [5].

Charoenchai, *et al.* [5] showed that income was a relevant predictor of CLBP, other studies have shown that LBP incidents and CLBP are common across different sectors of Thai society. In a study of migrant fruit farm workers, CLBP was one of the most frequently reported musculoskeletal disorders, reported by 41.3% of workers (including 38.9% of men and 44.7% of women) [6]. A survey of rice farmers found that lifetime prevalence of LBP was 77%, with one-year prevalence of 56% and point prevalence of 49% [7]. Prevalence was found to be similar across the adult lifespan, although women (61%) were at somewhat more risk than men (51%) for the one-year prevalence [7]. White-collar workers are also at risk. For example, one study of university workers showed that 83% of participants reported LBP over the course of a year (8). A second study, which examined dental health workers, found that point prevalence of LBP was 31.5%, with men (50%) being somewhat more likely to report this symptom than women (25.5%) [9]. Thus, even though CLBP may be more common among blue-collar and agricultural workers in Thailand, it can be considered to be a society-wide health problem.

There are a wide range of potential treatments available for CLBP, although the effectiveness of these treatments varies. Among the best-supported of these treatments are pharmacological treatments including nonsteroidal anti-inflammatory drugs (NSAIDs) [10,11] opioid analgesics [12] and muscle relaxants [13]. However, some pharmacological treatments are frequently used but may not be effective, like anti-depressants (14) or may have short-term effects only, like steroidal injections [15]. Non-pharmacological treatments including mild to moderate exercise, including physiotherapy and strengthening exercises [16,17], cognitive behavioral therapy (CBT) [18], and many other non-invasive treatments. In addition to these non-invasive treatments, there are surgical treatments such as lumbar fusion and decompression, which may be used in severe cases of CLBP [19]. However, comparison of surgical treatments against pharmacological, behavioral and other treatments has shown that it does not

result in a statistically significant reduction in pain [20,21]. Furthermore, post-surgical rehabilitation can be difficult for patients, who may not experience improvements and whose pain levels and functional capabilities may decrease following surgery [19]. Therefore, surgical interventions should be considered as a last resort, rather than a first line of CLBP treatment and/or management.

Pain self-management (PSM) refers to the active participation of persistent pain sufferers in the management of their pain response [22]. The antecedents identified in the definition introduced by Stewart, *et al.* [22] include self-awareness of the need to participate, willingness and capability, and support from others. The process of PSM includes personal development (learning the skills and knowledge required to manage pain), response to symptoms and control of symptoms. Potential outcomes include physical and psychological health improvements, improved social function and quality of life, and full engagement with the pain management process [22]. A meta-analysis of patient outcomes showed that PSM programs moderately reduced pain intensity for participants [23]. This study also demonstrated that PSM may somewhat reduce disability rates, although this effect is smaller than the effect on pain intensity [23]. Several other systematic reviews have shown that PSM activities can improve outcomes for CLBP sufferers. One of these reviews examined studies on self-management of back pain reported up to 2011 [24]. Authors identified 2,325 different papers, which hinged on a total of 13 different trials. Their quantitative meta-analysis showed that there was a moderate improvement of pain and disability associated with the use of self-management practices. In the short-term, an average reduction of 3.2 points in pain (on a scale of 0 to 100), along with 2.3 points reduction in disability, was observed. In the long term, a reduction of 4.8 points in pain and 2.1 points in disability was also observed [24]. Another study included CLBP as one of the conditions in their review of studies on chronic disease self-management (along with many other diseases such as arthritis and others) [25]. Although taken together the findings showed that the effect of self-management on the disease itself was relatively small, the authors did show that effects of PSM on CLBP were moderate and significant according to several studies [25]. Taken together, these studies show that PSM can assist CLBP patients in reducing pain and improving quality of life by lessening chances of disability. Furthermore, Nolte and Osborne [25] also showed that self-management was associated with better knowledge about the patients' condition. Thus, PSM can be a key tool to address some of the negative outcomes of CLBP, including pain and disability.

There are a variety of tools and modalities available for self-management of CLBP. Among the most basic PSM strategies, which may be implemented even by patients with little knowledge of their CLBP condition, include medication (including over-the-counter and prescription medication) and application of heat to the affected area [26]. Regular physical activity, ranging from everyday activity such as walking and functional training to activities like tai chi and yoga to strength training, has also been identified as a PSM strategy [26, 27], although only progressive strength training has sufficient evidence for its effectiveness [27]. Thai patients may have

some PSM strategies that may not be widely available to CLBP sufferers in other regions. One of these strategies is Thai massage, which is an active massage modality [28] Thai massage has been estimated to be as effective as Swedish massage in relieving LBP. Technology-assisted psychological interventions, which use mobile phone apps or similar devices to teach techniques like self-assessment, cognitive behavioural therapy (CBT) and similar strategies, are also increasingly popular and have been shown to be effective [29]. However, these authors did caution that it is as yet too early to determine whether these technology-assisted tools are as effective as in-person psychological interventions.

Self-management interventions (SMIs), or individual or group educational sessions about the treatment of chronic pain, are an essential part of PSM, as it provides the information patients need to understand, self-assess and take steps to treat their pain [30]. These interventions are customized to the specific problems and capabilities of the patients involved, and thus are intended to help patients address their specific sources of pain. However, it is important to note that not all patients will be willing or able to undertake an SMI, and they may not finish the program. One study of a PSM educational program for chronic pain sufferers in the United Kingdom, for example, reported a 71% uptake of the program to those whom it was offered to [31]. Of those, 82% completed the program, leading to a total completion rate of 58.3%. Thus, PSM strategies may not be fully implemented over time.

The evidence on PSM suggests that it is one of the most commonly used, and potentially the most effective, strategies for CLBP pain management. Furthermore, the modalities of PSM may be different for Thai CLBP sufferers compared to the Western populations typically investigated. There has not been any substantive research into PSM strategies that Thai patients use for back pain. As a result, there is limited evidence on the PSM strategies of Thai CLBP sufferers, the source of these strategies, and how effective they are at controlling pain. Considering the breadth of causes and the frequency of experience of CLBP in Thailand, this constitutes a significant research gap. Thus, this exploratory research study was conducted to fill this research gap. This study aimed to investigate how people with chronic lower back pain (CLBP) in Thailand manage their pain and the effectiveness of these management strategies.

2. MATERIALS AND METHODS

2.1. Research Design

This research used a qualitative research design based on in-depth interviews to investigate how patients self-managed their CLBP. Qualitative research was selected for the study because it allowed for a more comprehensive investigation of complex management strategies derived by individuals [32], which depended on various factors like network support, knowledge and other resources as well as the specific causes of CLBP. Qualitative research also enabled the researcher to have a better understanding of not just the management strategies, but the emotional impact of CLBP and the concerns it raised.

2.2. Study Setting and Participants

The study was conducted at the orthopaedic outpatient department (OPD) of a university hospital in Northern Thailand. The hospital, which serves as a training and research centre, draws patients from nearby provinces. The recruitment process drew from the patient population of those who were being treated in the department for back pain.

A total of 19 patients were recruited for the study. Inclusion criteria for the study were: 1) physician-diagnosed CLBP; 2) no history of neurological or cognitive impairments; 3) 20 years or older; 4) willing to participate; and 5) able to communicate fluently in Thai. Patients with severe pain (defined as a score of 7-10 on the Visual Analogue Scale (VAS)) were excluded.

2.3. Data Collection and Analysis

Data Collection. Demographic data was collected using a patient demographic form. This data collection form included gender, age, education, occupation, income, healthcare insurance coverage, duration of pain, the severity of pain (10 cm line Visual analog scale) and the number of family members.

The majority of data was collected using an in-depth semi-structured interview, selected for its combination of flexibility and structure [33]. Interviews were conducted either at the OPD or at a pre-arranged location, depending on participant preference. The interviews were digitally recorded, and typically lasted between 60 and 90 minutes. The interview guide included questions such as:

- “What have you done to control CLBP by yourself?”
- “How do you perform your (modalities e.g. exercise, sleep position, rest)?”
- “Why do you choose those kinds of activities?”
- “How successful were these activities?”
- “What kind of support did you have?”

Following collection of data, it was transcribed for analysis. Following review of the transcripts, participants were contacted for follow-up interviews if necessary.

After follow-up interviews, the qualitative analysis was conducted using the thematic analysis process of Braun and Clark [34]. This six-step process, including familiarization, generation of initial codes, identification of themes, review of themes, definition and naming of themes, and preparation of final data, was conducted across all 19 interviews. The qualitative analysis was conducted using NVivo, a qualitative analysis software tool that enables thematic coding and analysis. This analysis procedure resulted in a total of 46 different codes, which were then associated into four themes (experience of CLBP, knowledge of PSM, PSM modalities in use and effectiveness of PSM modalities.) While qualitative rigor cannot be assessed directly, in this study it is based in the consistency and credibility of findings compared to existing studies [35].

In addition, the data related to pain scale before and after the PSM intervention from in-depth interviews was analysed in SPSS. The Wilcoxon signed-rank test was calculated to

determine whether there was a significant mean difference in the scores. A significance of $p < .05$ was used to indicate a quantitative change in pain after the PSM intervention.

2.4. Ethical Considerations

This study was approved by the Institutional Review Board of the Chiang Mai University (Approval no. 031/2017). All participants were informed about the objectives, the research process, the methods to be used, the digital recording, the right to leave from the study at any time without any effects on their treatment or the hospital’s services, and pseudonyms were used in all research reports to assure anonymity. Then, verbal and written consent relating to voluntary participation was acquired from the people with CLBP agreeing to participate in the research.

3. RESULTS

3.1. Demographic Profile

There were 19 participants in the study, including 10 female and 9 male participants. While ages ranged from 20 to 81 years, 10 participants were 60 years or older. It was most common for participants to hold a bachelor degree, and most held or were retired from private or government employee positions. 9 of the participants lived with a partner, while the others had two or more family members.

3.2. Experience of CLBP

Out of 19 participants, 15 had experienced recurring or constant LBP for a duration of at least one year. Nine participants had experienced CLBP for at least six years, while two had more than twenty years of CLBP. Fourteen participants experienced moderate back pain (4 to 6 on the Numeric Visual Analog Scale), with the remaining five experiencing mild back pain (1 to 3).

3.3. Knowledge of PSM

Most of the participants had limited initial knowledge of PSM, although some participants who had long-term CLBP had more knowledge and experience than others. The

orthopaedic clinic and other medical contact points did not offer a formal PSM intervention, although they did offer some educational pamphlets. Thus, participants did have to seek out information on their own.

The participants did all consult medical professionals, for example orthopaedic physicians and clinical specialists. They also consulted complementary and alternative treatment professionals (for example herbalists or acupressurists/ acupuncturists), friends and relatives and other sufferers of CLBP, social media and other online sources, and spiritual and psychological sources including therapists and particularly religious professionals such as monks. Priorities for modality selection included that information was reliable, that they felt it was safe to try, and that it was convenient.

3.4. PSM Modalities in Use

This research differentiated between conventional care (including oral medication, back braces and devices, topical treatments like liniments and sprays, and physical therapy) and complementary and alternative care (exercise, sleep hygiene, compression, and other techniques). While two of the participants only used complementary and alternative care, primarily because their pain was mild enough that no conventional care was recommended or offered by their doctors, the remainder used a combination of conventional treatments and complementary and alternative care.

After these criteria were applied, participants chose to try and continue to use a variety of different modalities. Table 1 summarizes the frequency of various treatments identified by the participants.

The summary shows that there are several common modalities of PSM (excluding the healthcare professional-monitored conventional treatments). The most frequent single modality was exercise. Sleep hygiene changes, including changing positions, getting more rest, and making use of devices like back support pillows and changing the mattress, were also among the frequent modalities, although these were not necessarily used by the same patient. The use of hot compression and/or cold compression as a pain relief practice

Table 1. Summary of pain management modalities in use by Thai CLBP patients.

Conventional Care		Complementary and Alternative Care	
Treatment	Reporting	Treatment	Reporting
Oral medication	17	Exercise	16
Back brace	9	Sleep hygiene (position)	14
Physical therapy	6	Hot/cold compression	9
Topical treatment	6	Sleep hygiene (more rest)	8
Injection	5	Massage	6
-	-	Herbs	5
-	-	Back support pillow	4
-	-	Diet	4
-	-	Meditation and making merit	4
-	-	Mattress change	3
-	-	Acupressure	2

Table 2. Changes in Pain (Pre- and Post-PSM Intervention).

Descriptive Statistics			
	N	Mean	Std. Deviation
PrePain	19	4.47	1.124
PostPain	19	3.37	1.165
Valid N (listwise)	19		

The Wilcoxon signed-rank test						
		N	Mean Rank	Sum Rank	Z	Sig. (2 tailed)
PrePain- PostPain	Negative Ranks	0 ^a	0.00	0.00	-4.185	.000*
	Positive Ranks	19 ^b	10.00	190.00		
	Ties	0 ^c				
	Total	19				

a. PrePain < PostPain b. PrePain > PostPain c. PrePain = PostPain *p < .05

was also relatively common, with just under half of participants reporting this change. These practices address the specific causes of pain, such as posture and sleeping position, or provide immediate pain relief.

Other changes, including the use of specific herbs, Thai massage, changing diet, and using acupressure, are less direct changes that are intended to address the root causes of pain. For example, one participant reported changing her diet because she was overweight, and she felt this caused her to have poor posture. Another patient reported that Thai massage and acupressure, which he undertook weekly, reduced pain and improved his posture. About a quarter of participants introduced herbal treatments, although the justification for these herbal treatments varied widely. For example, one participant applied herbal compresses in combination with steam as a direct treatment method. Others took herbal preparations or teas for long-term treatment.

Two specific spiritual PSM strategies were used, including meditation and making merit. (Making merit is a Thai Buddhist practice of contribution to spiritual and religious communities, ranging from financial donations to volunteer service, as a spiritual remedy or means of contemplation.) These practices were used by the participants who had active spiritual lives, who had also communicated with monks or other spiritual practitioners about their treatment. Thus, although it was not the most frequent modality, it does represent a significant potential modality that may be used by many.

3.5. Effectiveness of PSM Modalities

The participants reported widely varying rates of effectiveness for the PSM modalities they tried. Exercise was among the most effective modality, with compresses, changes in sleep hygiene (position and more rest), and changes to diet also being considered effective. Meditation and making merit were viewed as positive supports to mental health, although the participants did not view these practices as having a physical effect. However, the effectiveness of the modalities varied a lot by how much support participants felt they had from their social networks (including friends, family and religious practitioners) and their professional support networks (including doctors and complementary and alternative care

practitioners). Furthermore, because the patients were all on different conventional care regimens, these also interacted with the overall effectiveness of the PSM practices. Ultimately, there was no single experience of effectiveness, and the overall effectiveness of PSM was highly variable from patient to patient.

3.6 Changes in Pain

Changes in pain were assessed using the pain scale prior to the PSM intervention (PrePain) and the pain scale after the PSM intervention (PostPain) retrieving from in-depth interview. The mean pain score for the pre-intervention period (M= 4.47, SD = 1.124) was slightly higher than the post-intervention period (M = 3.37, SD = 1.165). The Wilcoxon signed-rank test outcome confirms that this is a significant mean difference (p = .000). Therefore, there was a significant, though in absolute terms small, reduction in the pain levels of participants following the intervention (Table 2).

4. DISCUSSION

One of the key issues for discussion here is that the participants were not offered a formal educational intervention for PSM. Instead, they sought out their own sources of information, which could be highly variable. This is a potentially critical problem for the ability of patients to use PSM because one of the requirements for PSM is not just the willingness to participate, but also access to resources for learning and personal development about the practice [22]. For patients with little knowledge about PSM, the modalities they choose may be limited to only the most basic pain relief strategies, like use of over-the-counter medication and application of heated compresses [26]. On the other hand, patients that have access to formal PSM interventions, which provide customised knowledge about modalities that could be effective, typically have higher levels of PSM implementation [30] [though not all participants may choose to be involved [31].] The implication of this is that in order to be fully effective at PSM, Thai CLBP patients should be offered the opportunity to participate in a PSM intervention that provides education and reliable information about strategies. It should

be noted that providing patient information and education is one of the clinical best practices guidelines for non-surgical treatment of low back pain, and is considered essential for patient success [36]. Thus, this actually is a significant gap in the clinical practice, and is something that while it is not currently addressed in the clinical practice guidelines should be included. This has been addressed with the clinic site and is in the process of being remedied.

Another key finding was that PSM interventions may be particularly useful for older patients, who were particularly concerned about the potential safety of various treatments, especially those like herbal treatments that did not have a lot of information or exercise, which they feared could exacerbate their pain. This is one area where nursing practitioners could play a critical care role, since they could identify the specific circumstances and complex set of patient needs. The literature did not strongly support the importance of PSM for older patients, but there are some indications that it may be more appropriate for them. For example, studies on SMIs have shown that patients enrolled in these interventions, and who complete them, do tend to be older [30,31]. At the same time, it is possible that interventions like guided exercise therapy [16,17], CBT [18] and pharmacological treatments like NSAIDs, opioid analgesics, and muscle relaxants [10–13] could be used effectively for older patients as well. While most patients in this study were using at least some oral medication, re-assessment of oral medications could be investigated to determine if they can be improved. However, surgical interventions are not recommended, especially for older patients, due to their relatively poor effectiveness and long and difficult recovery [19–21]. Overall, these findings as well as previous studies call for a more comprehensive assessment of the needs of older adults with CLBP, including both treatments and as noted above, educational and informational support methods that will reach them most effectively.

Another key finding of this research is that Thai CLBP patients do have some different PSM modalities to Western patients. One of these modalities, Thai massage, has been discussed in the literature previously and been shown to be as effective as Swedish massage at pain reduction [28]. However, other PSM modalities, especially the use of Thai medicine and herbal treatments such as herbal compresses, do not have as much evidence for their effectiveness. In contrast, technology assisted psychology interventions were not used, even though they are increasingly popular [29]. This could be because either they were not introduced by medical professionals (the educational gap discussed above) or because the sample was relatively older and did not make use of such tools regularly. These differences are potentially crucial to the outcomes of treatments, but they may not be.

CONCLUSION

This research showed that in order to successfully implement PSM, Thai patients involved in the study needed a significant amount of knowledge about PSM strategies and the causes of pain. Once the patients had this information, they frequently tried multiple PSM modalities, among which the most common were: exercise of different types; modifying food consumption; increased sleeping or rest; herbal

treatments; hot compression; cold compression; Thai massage; and acupressure. The patients also used meditation and making merit as spiritual and psychological coping tools. However, not all patients tried or were successful with the same strategies. Factors like pain severity and support systems influenced which of these processes could be successful, as did religious belief and social support. Thus, no one PSM process was suitable for all patients. Another problem that was encountered was that there was limited knowledge and information available to patients on PSM. For example, patients were sometimes offered written documentation, but were not always offered PSM intervention sessions or personalized training on the practice of PSM. This means that some patients faced significant barriers in using PSM to its full potential.

In conclusion, this research showed that Thai CLBP patients used a combination of PSM modalities that are familiar from the Western literature (such as exercise and compression) and those that are not typically found in Western literature (such as Thai massage, herbal treatments, acupressure and meditation). This difference in PSM strategies points to the psychological nature of PSM and its effectiveness, demonstrating that cultural and spiritual context as well as physical intervention is a potentially important part of PSM education and treatment.

This study was limited in that it was a qualitative and exploratory study. Thus, the findings from these patients cannot necessarily be generalised, since the experience of a limited number of patients from one clinic is not necessarily representative of the breadth of CLBP PSM in Thailand. However, the research could be used as the basis for further inquiry into this question, for example by conducting a survey or more extensive interview based research. This could provide more extensive information about how PSM may be characterised in Thai or other Asian contexts and what cultural differences may influence the choice of PSM strategies and their effectiveness. Since CLBP is a global problem, this should be an area of global inquiry.

IMPLICATIONS FOR RESEARCH, POLICY AND PRACTICE

Implications for Research

The main implication for academic research on PSM for CLBP is that pain management practices are culturally contingent, and may vary from place to place even within a broader national culture. Therefore, there is a need to expand the literature on PSM practices away from its current Western orientation and investigate PSM modalities in different cultures to understand the full range of possible modalities.

Implications for Policy

There is a need to develop additional educational material both for nursing education and for patient education as it relates to PSM for CLBP. This type of educational and information support is recommended as a clinical best practice for self-management of lower back pain, and can make a significant difference in patient outcomes, especially if it includes psychological support and other treatments [36]. Furthermore, this study showed that it is inadequately provided

to patients at the clinic site.

This material, which should be developed by a multidisciplinary team of educators, practitioners, policy makers and others, should address the multiple modalities of PSM, the required supports (for example educational support and materials and the development of social support), and how patients can choose modalities that suit their particular circumstances. It should also include information on further support available, e.g. nurse practitioners and specialists who can be consulted, specialists in areas such as massage and exercise therapy, and other resources that patients may need to use PSM effectively. This type of educational material could significantly improve the implementation of PSM for Thai sufferers of CLBP, as well as their long-term success.

Implications for Practice

Thai nursing practitioners, as well as other health professionals involved in the treatment of CLBP, need to be aware both of the PSM modalities that are effective for back pain and which modalities their patients may try (whether these are local or otherwise). This awareness should encompass the range of treatments, including prescription and non-prescription pharmacological treatments, herbal and complementary therapies, physical therapies and exercise, massage, improvement in rest, and many other practices. It should also include the spiritual context of well-being, and awareness of practices like making merit which may have spiritual and emotional significance for patients, even if they do not have a clinical effect. There is not yet comprehensive evidence on the effectiveness of some treatments that may be used, so nursing practitioners do need to be aware, for example, that recommendation of local herbal treatments may not be fully supported. Nursing practitioners also need to be aware of the importance of knowledge, education and social support for their patients, as these are key factors in the choice of PSM modalities. By investigating their patients' situation and existing knowledge of PSM, nursing practitioners can help to identify knowledge and support gaps that need to be addressed. To support nursing practitioners in this goal, improved clinical practice guidelines as suggested above would be an important knowledge support.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Institutional Review Board of the Chiang Mai University, Thailand (Approval no. 031/2017).

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study are available from corresponding author [P.R.] upon reasonable request.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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