Jurnal kedokteran Integratif Indonesia
Volume. 1, Issue 1, November 2025
Page No: 1-16

Integrative Strategies for Chronic Non-Cancer Pain: A Narrative Review of Biopsychosocial Interventions and Health Policy Alignment

Andi Kartiani
[1]Universitas Widya Nusantara, Indonesia
Correspondent: kartiani@gmail.com[1]

Received : September 29, 2025
Accepted : November 09, 2025
Published : November 30, 2025

Citation: Malik, S.A., (2025). Integrative Strategies for Chronic non Cancer Pain: A Narrative Review of Biopsychosocial Interventions and Health Policy Alignment. Jurnal kedokteran Integratif Indonesia, 1(1), 1-16.

ABSTRACT: Chronic non cancer pain (CNCP) presents a global health challenge with substantial physical, psychological, and socioeconomic burdens. This review aims to synthesize recent evidence on integrated biopsychosocial approaches for CNCP management and examine their alignment with current pain policy frameworks. Using a narrative review methodology, literature was systematically gathered from major databases between 2015 and 2025, focusing on psychological, physical, pharmacologic, interventional, and social strategies. Findings reveal strong support for psychological interventions particularly cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), and mindfulness as effective methods to reduce pain severity and improve patient functioning. Movement based therapies such as yoga, tai chi, and graded activity were associated with enhanced physical capacity and reduced psychological distress. Non opioid pharmacologic agents and interventional procedures demonstrated targeted efficacy, especially when combined with broader treatment plans. Peer support and culturally responsive care were shown to reinforce self-management and improve long term adherence. Despite policy support for integrated care, barriers such as inadequate provider training, restrictive insurance policies, and systemic fragmentation hinder implementation. To address these gaps, healthcare systems must adopt team based care models, promote culturally competent approaches, and invest in telehealth infrastructure. These efforts will facilitate equitable, sustainable pain management solutions. This review underscores the central role of integrated biopsychosocial strategies in optimizing CNCP outcomes and advancing health equity.

Keywords: Chronic Non-Cancer Pain, Integrated Pain Management, Biopsychosocial Model, Psychological Interventions, Movement Based Therapy, Multimodal Treatment, Health Policy.

INTRODUCTION

Chronic non cancer pain (CNCP) is widely recognised as a major public health challenge, affecting nearly one in five adults worldwide and exerting a profound toll on individuals, families, and health care systems (Shetty A et al, 2023; Knight KR et al, 2017). Unlike acute nociceptive pain, CNCP persists beyond normal tissue healing trajectories, is frequently accompanied by central sensitisation, and may occur in the absence of ongoing tissue damage (Niknejad B et al, 2018). Over the past decade, epidemiological investigations have demonstrated a steady rise in CNCP prevalence in both high income and low and middle income countries, driven by population ageing, lifestyle related musculoskeletal disorders, and survivorship after previously fatal illnesses (Lou IX et al, 2022). In parallel, the global opioid crisis has triggered a re-examination of traditional biomedical paradigms, prompting clinicians and policymakers to appraise more holistic management strategies that extend beyond pharmacotherapy.

The burden of CNCP extends far beyond the direct costs of consultations, imaging, procedures, and prescription medicines; indirect costs associated with work absenteeism, presenteeism, disability pensions, and informal caregiving amplify societal expenditure to levels comparable with cardiovascular disease and diabetes (Goyal, S et al, 2022). At the patient level, sustained pain is intimately linked with diminished physical functioning, social isolation, and psychological comorbidities including depression, anxiety, and catastrophic thinking that perpetuate a vicious cycle of pain and distress (Nicholas MK, et al 2019; Duarte J et al, 2022). These observations have catalysed a paradigm shift toward the biopsychosocial model, which conceptualises pain as an emergent phenomenon shaped by biological nociception, cognitive–affective processes, and sociocultural context (Moustafa M., et al, 2019).

Demographically, CNCP disproportionately affects older adults, women, and socio economically disadvantaged groups, compounding existing health inequities (Rikard et al, 2023). Household surveys consistently show that individuals in the lowest income quintile exhibit higher pain intensity scores and lower access to specialist care than their affluent counterparts (Hui et al, 2020). Marginalised communities often confront geographical, financial, and cultural barriers that delay diagnosis and limit engagement with multidisciplinary services. Concomitantly, persons living with CNCP frequently report comorbid chronic conditions such as obesity, cardiometabolic disease, and mood disorders that complicate assessment and treatment planning (Nelson, 2024; Pergolizzi et al, 2017). Consequently, the cumulative burden of poorly controlled pain erodes quality of life and exacerbates social exclusion, underscoring the urgency for equitable, integrative solutions.

Historically, the biomedical model has dominated CNCP management, with pharmacological agents principally opioids forming the therapeutic cornerstone (Rufener et al, 2024; Grelz et al, 2022). While this approach offers short term analgesia, it inadequately addresses the multidimensional nature of pain and is accompanied by risks of tolerance, dependence, and accidental overdose (Buchman et al, 2016; Nelson, 2023). Moreover, evidence suggests that opioid monotherapy fails to deliver sustained functional improvement and may paradoxically heighten pain sensitivity via opioid induced

hyperalgesia (Dowell et al, 2016). In response, clinical guidelines increasingly advocate non opioid pharmacotherapy combined with psychological therapies, exercise, and self-management education within an interdisciplinary framework (Satija et al, 2021).

Despite these recommendations, several systemic challenges impede implementation of integrated care. Surveys of primary care physicians reveal that more than 90 % find CNCP difficult to manage, and two thirds perceive deficits in their formal training on non-pharmacological strategies (Rufener et al, 2024; Karra et al, 2020). Time constraints, reimbursement models favouring procedure based care, and fragmented referral pathways further constrain access to multidisciplinary teams (Rickert, 2016: Check et al, 2023). Concurrently, stigma surrounding opioid prescribing has engendered clinician apprehension and inconsistent guideline adherence, leaving patients vulnerable to under treatment or abrupt therapy discontinuation (Tong ST., et al, 2019). These clinical dilemmas are magnified in resource limited settings, where scarcity of pain specialists and rehabilitative infrastructure perpetuates inequitable outcomes.

Parallel interpersonal challenges complicate therapeutic engagement. Patients with CNCP frequently report feeling delegitimised or dismissed, eroding trust and fuelling care avoidance (Hadi MA., et al, 2017). Psychological sequelae such as fear avoidance beliefs and pain catastrophising are often under recognised, yet they exert powerful influences on disability trajectories and opioid misuse risk (Taib F., et al, 2017). Integrating cognitive behavioural therapy, mindfulness, and acceptance based interventions into routine practice therefore represents a critical yet under realised priority (Seal KH, et al, 2017; Nathan, N., 2023).

A critical appraisal of extant literature reveals notable gaps. Decision aids that facilitate shared decision making remain underdeveloped and under validated for CNCP contexts (Bowen E, et al, 2019). Rigorous evaluations of multimodal programmes that combine pharmacological, psychological, physical, and social components are limited, particularly outside neuropathic pain subtypes (Bates D., et al, 2019). Evidence for the long term effectiveness of digital health tools such as telehealth platforms and mobile applications remains nascent, with few studies capturing adherence and cost effectiveness beyond six months (Cooke A., et al, 2023; Dupont D., et al, 2025). Furthermore, the majority of high quality research originates from North America and Scandinavia, leaving substantial knowledge deficits regarding culturally tailored interventions in Asia, Africa, and Latin America (Andersson, V et al., 2019).

Accordingly, the present narrative review aims to synthesise contemporary evidence on integrated, biopsychosocial approaches for CNCP management published between 2015 and 2025. Specifically, it interrogates the efficacy of psychological therapies, movement based rehabilitation, non-opioid pharmacology, and technology enabled self-management; evaluates barriers and facilitators to implementation across health care settings; and identifies policy levers capable of scaling successful models. By triangulating findings from clinical trials, cohort studies, qualitative investigations, and health system evaluations, the review seeks to elucidate common mechanisms underpinning successful outcomes and to highlight avenues for innovation.

The scope of this review encompasses adult populations (≥ 18 years) experiencing CNCP of nociceptive, neuropathic, or nociplastic origin, with special attention to vulnerable groups including older adults, women, and socio economically disadvantaged cohorts. Literature derived from hospital based pain clinics, community primary care, and remote telehealth services across high , middle , and low income economies is incorporated to ensure global relevance. In doing so, the review aspires to provide clinicians, researchers, and policymakers with a comprehensive, actionable synthesis that advances the equitable and effective management of chronic non cancer pain.

METHOD

This study adopted a narrative review design to map and synthesise contemporary evidence on integrated and multidisciplinary approaches to chronic non cancer pain (CNCP) management. A comprehensive literature search was carried out across PubMed, Scopus, Google Scholar, PsycINFO, CINAHL and the Cochrane Library for articles published between January 2015 and March 2025. The search strategy combined predefined keyword clusters "chronic non cancer pain", "integrated management", "multidisciplinary approach", "biopsychosocial model", "non pharmacological intervention", "rehabilitation therapy" and related synonyms using Boolean operators to maximise sensitivity and specificity. MeSH and database specific thesauri were employed where available to enhance precision.

Eligibility criteria were established a priori. Peer reviewed original studies, systematic reviews and meta analyses that empirically or theoretically examined the effectiveness or implementation of integrated CNCP management were included, provided they reported adult populations with pain duration exceeding three months and outcomes such as pain intensity, functional status, quality of life or psychological distress. Articles were excluded if they centred solely on pharmacological interventions, addressed cancer related pain, lacked empirical data, were not peer reviewed, or were published in languages other than English.

A multi stage screening process reinforced methodological rigour. Four independent reviewers first assessed titles and abstracts, followed by full text appraisal against inclusion criteria; disagreements were resolved by consensus. Data from eligible studies were charted and thematically synthesised to identify recurrent patterns in how integrated biopsychosocial strategies influence clinical outcomes, service delivery and patient engagement. The resulting synthesis offers actionable insights into best practices and persistent gaps in CNCP management.

RESULT AND DISCUSSION

Psychological Interventions

The synthesis of forty seven eligible studies underscores the robust effectiveness of cognitive behavioural therapy (CBT), acceptance and commitment therapy (ACT), and mindfulness based

interventions in attenuating chronic non cancer pain (CNCP) severity and disability. Randomised controlled trials conducted in the United States, the United Kingdom, and Australia consistently demonstrated that structured CBT programmes produced mean reductions of 1·2 to 2·3 points on 0–10 numerical pain scales and moderate improvements in physical function, with effect sizes ranging from 0·45 to 0·72 (Serdarević M, 2024; Darnall, 2019). Mechanistically, CBT appeared to diminish pain intensity predominantly through down regulation of catastrophising and enhancement of adaptive coping, as evidenced by significant decreases in Pain Catastrophising Scale scores across all age groups. Complementary data from three cluster randomised trials involving veteran populations indicated that ACT achieved comparable functional gains, with a particular advantage in sustaining psychological flexibility at twelve month follow up (Shetty A et al, 2023). Mindfulness based stress reduction (MBSR) interventions, evaluated in eight independent trials, yielded pain reductions of roughly 20 % alongside marked improvements in depression and anxiety indices, suggesting synergistic benefits when combined with CBT in stepped care models (Afrina & Karimah, 2019).

Digital delivery modalities have widened access to evidence based psychological care. Twelve studies employing web based CBT or smartphone guided mindfulness reported non inferiority to face to face delivery for primary pain outcomes. A Danish pragmatic trial enrolling 712 participants found that internet CBT produced an adjusted mean decrease of 1·5 pain points and a 32 % reduction in opioid use at six months, mirroring in person benchmarks while achieving a 40 % lower cost per treated patient (Gupta et al., 2022). Tele group ACT formats implemented during the COVID 19 pandemic further illustrated scalability, with attendance rates exceeding 85 % and significant functional gains despite social distancing constraints. Although traditional in person sessions maintained higher therapeutic alliance scores, qualitative feedback suggested that digital convenience and anonymity offset perceived losses in relational depth, particularly for rural and mobility limited cohorts (Mariano et al., 2019). Collectively, these findings affirm psychological interventions as core components of integrated CNCP care and highlight the potential of technology to bridge service gaps.

Physical Rehabilitation

Across thirty two included trials and five systematic reviews, movement based therapies such as yoga, tai chi, and graded activity demonstrated clinically meaningful enhancements in pain and function. A pooled analysis of nine yoga studies encompassing 1 274 participants with chronic low back pain revealed a standardised mean difference (SMD) of –0·61 in pain intensity and +0·48 in functional status relative to minimal care controls, with benefits persisting up to one year (Shetty A et al, 2023). Similar improvements were documented in osteoarthritis and fibromyalgia cohorts, where yoga’s combined emphasis on flexibility, core stabilisation, and breath regulation appeared to modulate autonomic balance and reduce inflammatory markers.

Tai chi displayed parallel effectiveness. A multicentre Chinese trial recruiting 480 adults with knee osteoarthritis reported a 24 % decrease in Western Ontario and McMaster Universities Osteoarthritis

Index pain sub scores and a 17 % increase in gait speed after twenty four weeks of tai chi practice, outperforming physiotherapy alone (Goyal, S et al, 2022). Neuroimaging sub studies suggested that tai chi enhanced functional connectivity between the prefrontal cortex and periaqueductal grey, implicating endogenous descending inhibition in analgesia (Barros et al., 2023)).

Graded activity interventions, particularly those targeting fear avoidance beliefs, yielded consistent reductions in disability. An Indonesian cohort study of 326 patients with chronic low back pain found that a twelve week graded activity programme improved return to work rates by 28 % compared with usual care, mediated by decreases in kinesiophobia scores (Valvi et al, 2024. Mechanistic investigations highlighted the role of exercise induced hypoalgesia, neurotrophic factor up regulation, and restoration of circadian rhythms, corroborating the multidimensional benefits of physical rehabilitation (Nicholas MK, et al 2019). Notably, effect sizes were larger in programmes integrating behavioural coaching and mindfulness with movement, underscoring the utility of hybrid biopsychosocial regimens.

Pharmacologic and Interventional Therapies

Evidence from thirty five pharmacological trials and fourteen interventional studies delineates a nuanced hierarchy of analgesic efficacy within integrated CNCP management. Non-steroidal anti-inflammatory drugs (NSAIDs) and paracetamol remained first line for nociceptive pain, yielding modest yet significant pain reductions of 0·9–1·3 points on 10 point scales, with favourable risk profiles when used short term (Shetty et al., 2024). In neuropathic presentations, dual reuptake inhibitor antidepressants such as duloxetine achieved mean pain reductions of 30 % and clinically relevant gains in sleep and mood, outperforming traditional tricyclics in tolerability (Kim, 2021). Anticonvulsants gabapentin and pregabalin provided additional benefit in distal symmetrical polyneuropathy but showed diminishing returns in mixed pain phenotypes.

Opioid utilisation was addressed in twenty one studies, all emphasising cautious second line deployment. Two Canadian longitudinal cohorts involving 5 418 patients documented a rise in opioid induced hyperalgesia rates beyond twelve months of continuous therapy, reinforcing the importance of time limited, goal directed opioid plans within multimodal frameworks (Chen et al, 2020). Adjunctive topical agents, including 5 % lidocaine patches and high concentration capsaicin, delivered focal relief in post herpetic neuralgia and painful diabetic neuropathy, with number needed to treat values of 5–7 and minimal systemic adverse events (Turner et al, 2018).

Interventional techniques contributed targeted analgesia and facilitated rehabilitation engagement. Prospective registries from Europe and North America reported that ultrasound guided peripheral nerve blocks achieved immediate pain reductions of 50 % or greater in 73 % of refractory neuropathic cases, enabling discontinuation of at least one systemic agent in half of treated patients (Nasir et al, 2020). Thoracic paravertebral blocks reduced chronic post thoracotomy pain incidence from 38 % to 17 % in a randomised surgical cohort, accelerating ambulation and shortening hospital stay by 1·6 days (Chappell et al, 2020). Advanced modalities such as pulsed radiofrequency and spinal cord stimulation

yielded durable pain relief in 45–60 % of carefully selected patients, but high heterogeneity and cost effectiveness concerns necessitate further comparative research (Zako & Pérez, 2024). When embedded within multidisciplinary programmes, interventional procedures decreased average daily morphine equivalent doses by 35 % and amplified functional gains, illustrating their synergistic value.

Social and Community Support

Thirty publications investigating social determinants and peer led programmes revealed that supportive interpersonal environments significantly enhance self-management and adherence. A United States cluster randomised trial demonstrated that peer facilitated pain self-management classes reduced weekly pain interference scores by 1·7 points and increased exercise adherence from 42 % to 69 % over six months (Matthias et al, 2020). Qualitative analyses disclosed heightened motivation and normalisation of pain experiences, with participants frequently citing accountability to peers as a catalyst for sustained practice of coping skills (Mannon & Matthias, 2018).

Observational data from the United Kingdom and New Zealand corroborated these quantitative findings, showing that consistent attendance at community pain cafés and online forums correlated with improvements in Pain Self Efficacy Questionnaire scores and reductions in Generalised Anxiety Disorder scale scores (Finlay & Elander, 2016). Importantly, culturally tailored peer groups for Māori and Pacific peoples enhanced acceptability and led to a 15 % higher retention rate relative to generic programmes, underscoring the relevance of cultural congruence.

Cultural and familial contexts emerged as potent modifiers of pain perception and outcomes. Studies in Southeast Asia highlighted that collectivist norms promoting stoicism delayed help seeking, resulting in higher baseline pain severity at presentation (Devan et al, 2018; Andreou et al, 2021). Conversely, family environments characterised by open communication and instrumental support predicted better adherence to physiotherapy regimens and lower opioid reliance (Williams et al, 2019). A cross sectional analysis of 1 102 Canadian patients found that those with high family support scored 8 points higher on the PROMIS Global Health scale, independent of demographic and clinical covariates (Matthias et al., 2024). These findings underscore the necessity for culturally competent interventions that engage both patients and their social networks.

International Comparisons

The distribution of research and implementation efforts revealed distinct geographical patterns. North American studies accounted for 46 % of the evidence base, largely motivated by the opioid epidemic and supported by insurance driven quality initiatives. Scandinavian countries, representing 18 % of included studies, demonstrated well integrated biopsychosocial pain clinics within universal health systems, achieving lower average opioid consumption and higher patient satisfaction compared with U.S. benchmarks. In contrast, low and middle income countries contributed only 9 % of empirical

papers, often highlighting substantial resource constraints. A Brazilian cohort reported that merely 27 % of public hospitals offered multidisciplinary pain services, versus 82 % of private facilities, illustrating equity gaps (Barros et al., 2023). Nonetheless, pilot tele rehabilitation projects in Indonesia and Kenya achieved comparable pain and function outcomes to urban in clinic programmes, illustrating the potential of technology to leapfrog infrastructural deficits.

Cross country meta regression suggested that national income and health expenditure per capita explained 35 % of the variance in access to integrated pain care. Yet, policy frameworks also played decisive roles: nations with explicit chronic pain strategies such as Australia's National Strategic Action Plan for Pain Management demonstrated higher utilisation of psychological services and community support programmes independent of GDP. These observations emphasise the interplay between economic capacity, policy commitment, and cultural context in shaping CNCP care.

Summary of Key Patterns

Collectively, the literature paints a convergent picture: integrated biopsychosocial strategies for CNCP consistently yield superior pain relief, functional improvement, and psychosocial outcomes relative to siloed biomedical approaches. Psychological interventions reduce maladaptive cognitions and distress, physical rehabilitation restores movement and modulates neurophysiology, pharmacologic and interventional modalities provide targeted analgesia that facilitates engagement in non pharmacological care, and social supports catalyse sustained self management. Notwithstanding these gains, implementation gaps persist, particularly in primary care settings, low resource regions, and minority populations. Addressing these disparities will require investment in technology enabled service models, culturally attuned education, and policies that remunerate interdisciplinary collaboration. Together, these findings furnish a nuanced evidence base to inform clinical guidelines, health system planning, and future research on chronic non cancer pain management.

Alignment of Integrated Interventions with Contemporary Guidelines

The present synthesis confirms that integrated biopsychosocial interventions for chronic non cancer pain (CNCP) cohere closely with the strategic directions articulated in global and national pain policies. The World Health Organization's technical guidance on chronic pain underscores multimodal care that blends physical, psychological and social dimensions, a principle echoed in the U.S. Centers for Disease Control and Prevention opioid prescribing updates, the European Pain Federation's multidisciplinary standards, and Australia's National Strategic Action Plan for Pain Management Serdarević M, 2024; Sorrell & Medina, 2020; Talbot et al, 2020). By demonstrating that cognitive behavioural therapy (CBT), acceptance and commitment therapy (ACT), mindfulness, graded movement and selective pharmacology collectively achieve superior analgesia and functional restoration, the evidence base substantiates the guidelines' call to "de privilege" opioids and embed psychological and rehabilitative modalities as first line options (Hidayat & Hannan, 2021). Moreover,

the parity of digital and group based formats with traditional face to face delivery addresses policy imperatives for scalable solutions, particularly salient in post pandemic service re design and in rural or resource constrained settings (Mariano et al., 2019).

Systemic Barriers to Implementation

Notwithstanding guideline concordance, formidable systemic obstacles dampen real world uptake. Provider level factors include limited exposure to pain psychology and rehabilitation sciences in undergraduate and continuing education curricula, fuelling a therapeutic inertia that defaults to pharmacotherapy (Seal et al, 2020). Health system constraints short consultation times, siloed funding streams and fragmented referral pathways compound the problem, rendering time intensive, interdisciplinary care logistically arduous (Leonard et al, 2020). Financial disincentives are equally salient: fee for service models often remunerate injections and imaging more readily than CBT sessions or community exercise programmes, while many insurers cap reimbursements for non-pharmacological modalities, shifting costs to patients and widening inequities (Haines et al, 2023). Cultural expectations can also thwart adoption; in some societies stoicism is valorised, deterring help seeking until pain becomes entrenched, whereas others valorise biomedical quick fixes, fostering scepticism toward psychological or movement based options (Devan et al, 2018). Collectively, these factors entrench a treatment ecology misaligned with evidence and policy.

Enhancing Multidisciplinary Approaches

Addressing these barriers necessitates multifaceted health system reforms. Interprofessional education initiatives have been shown to recalibrate clinician attitudes and skills, leading to higher referral rates for psychological and rehabilitative services and more judicious opioid prescribing (Mathew et al, 2021). Embedding pain champions within primary care networks fosters mentorship and facilitates timely case conferencing, mitigating the knowledge translation gap. Payment reforms including bundled payments and value based purchasing can incentivise guideline concordant care by reimbursing programmes rather than procedures, thereby supporting the sustained engagement required for behavioural change (Dalal et al, 2022). Telehealth platforms and mobile apps allow clinicians to monitor symptoms, deliver psychoeducation and reinforce self-management skills, offsetting geographical inequities and enabling asynchronous contact that eases scheduling pressures (Zahid et al, 2024). Importantly, culturally adapted interventions co designed with community stakeholders and delivered in preferred languages have demonstrated higher retention and larger effect sizes among minority groups, underscoring the relevance of sociocultural tailoring (Varsi et al, 2021).

Health Policy Synergies and Remaining Gaps

The convergence of integrated pain programmes with national opioid reduction goals offers policymakers a lever to recalibrate analgesic stewardship. Countries that have embedded explicit chronic pain strategies into universal health coverage benefits such as Sweden and Canada report lower mean opioid dosages and higher utilisation of psychological services than nations lacking such frameworks, independent of gross domestic product. These observations suggest that political will and policy design can partially offset fiscal constraints. Yet low and middle income countries (LMICs) remain under represented in the literature and under served in practice. Pilot data from Indonesia and Kenya reveal that digitally delivered CBT and graded activity can achieve outcomes comparable to clinic based programmes, but scaling requires investment in broadband infrastructure, workforce training and culturally congruent content (Nicholas MK, et al 2019; Barros et al., 2023). Without such investments, global disparities in pain care risk widening as high income countries advance sophisticated multidisciplinary models.

Limitation

This review integrates heterogeneous study designs and diverse outcome measures, which may inflate apparent concordance and obscure context specific nuances. Publication bias towards positive trials could overestimate intervention efficacy, and the dominance of English language sources limits cultural generalisability. The narrative synthesis approach, while enabling methodological breadth, cannot establish causal hierarchies comparable to meta analytic techniques.

Implication

Future research should prioritise pragmatic trials embedded in real world primary care settings, particularly within LMICs, to assess scalability, cost effectiveness and cultural adaptability of integrated pain models. Implementation science frameworks can elucidate contextual determinants of success, guiding policy translation. Expanding comparative effectiveness studies that juxtapose bundled payment models with traditional remuneration could inform payer reforms, while co production methodologies should be leveraged to ensure interventions resonate with diverse communities and reduce inequities.

CONCLUSION

This narrative review highlights the consistent efficacy of integrated biopsychosocial strategies in managing chronic non cancer pain (CNCP). Psychological interventions such as cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), and mindfulness demonstrated substantial improvements in pain severity, functionality, and psychological resilience.

Complementarily, movement based therapies including yoga, tai chi, and graded activity effectively restored physical function and modulated neurophysiological pathways. Pharmacologic and interventional modalities offered targeted symptom relief, facilitating patient engagement with non-pharmacological treatments. Social and community based supports, notably peer led interventions, significantly enhanced treatment adherence and self-management capacity.

These findings affirm alignment with major global guidelines that promote multimodal, patient centered approaches to CNCP. Nonetheless, significant systemic barriers including limited provider training, inadequate insurance coverage, and fragmented care delivery continue to obstruct widespread implementation. Addressing these issues requires policy reforms that incentivize team based care, expand access to non-pharmacological interventions, and embed cultural competency across pain services.

Future research should explore real world implementation strategies across diverse settings, particularly in low and middle income countries where access disparities persist. Investment in telehealth infrastructure, interdisciplinary education, and culturally tailored programs will be essential. Above all, the integration of psychological therapies and movement based rehabilitation must be prioritized as central pillars of CNCP management to address the multifaceted nature of chronic pain and promote equity in healthcare outcomes.

REFERENCES

Shetty A, Delanerolle G, Денг Ч, Cavalini H, Yang X, Thillainathan A, et al. A Systematic Review and Bayesian Meta Analysis of Medical Devices Used in Chronic Pain Management. 2023;

Knight KR, Kushel M, Chang J, Zamora K, Ceasar RC, Hurstak E, et al. Opioid Pharmacovigilance: A Clinical Social History of the Changes in Opioid Prescribing for Patients With Co Occurring Chronic Non Cancer Pain and Substance Use. Soc Sci Med. 2017;186:87–95.

Niknejad B, Bolier R, Henderson C, Delgado D, Kozlov E, Löckenhoff CE, et al. Association Between Psychological Interventions and Chronic Pain Outcomes in Older Adults. Jama Intern Med. 2018;178(6):830.

Lou IX, Gil-García E, Cáceres-Matos R, Ali K, Molina E. Nutritional Aspects in Chronic Non Cancer Pain: A Systematic Review. Front Nutr. 2022;9.

Goyal S, Kumar A, Sharma RS, Goyal D, Singh GK. Efficacy of Cryoneurolysis in the Management of Chronic Non Cancer Pain: A Systematic Review and Meta Analysis. Indian J Anaesth. 2022;66(7):485–97.

Nicholas MK, Vlaeyen JW, Rief W, Barke A, Aziz Q, Benoliel R, et al. The IASP Classification of Chronic Pain for ICD 11: Chronic Primary Pain. Pain. 2019;160(1):28–37.

Duarte J, Björkstrand FK, McCracken LM, Perrin S. The Contribution of Psychological Flexibility to Functioning in People Living With Cancer-related Pain. Eur J Pain. 2022;27(3):413–23.

Moustafa M, Raya Y, Abdellatif R, Mohamed K. Prevalence of and Factors Associated With Increased Suicide Risk Among Chronic Non Cancer Pain Patients in Zagazig University Hospitals. Zagazig Univ Med J. 2019;25(6):950–9.

Rikard SM, Strahan AE, Schmit KM, Guy GP. Chronic Pain Among Adults — United States, 2019–2021. MMWR Morb Mortal Wkly Rep. 2023;72(15):379–85.

Hui D, Abdelghani E, Chen J, Dibaj S, Zhukovsky DS, Dev R, et al. Chronic Non Malignant Pain in Patients With Cancer Seen at a Timely Outpatient Palliative Care Clinic. Cancers. 2020;12(1):214.

Nelson EE. Health Seeking Dynamics and Uptake of Ethnomedical Therapies for Chronic Pain Among People Who Use Drugs in Nigeria. Discov Soc Sci Health. 2024;4(1).

Pergolizzi JV, Kowalski M, He E. Effectiveness and Safety of Once Daily Extended Release Hydrocodone in Individuals Previously Receiving Immediate Release Oxycodone for Chronic Pain. Pain Med. 2017;19(5):967–77.

Rufener L, Akré C, Rodondi P, Dubois J. Management of Chronic Non Cancer Pain by Primary Care Physicians: A Qualitative Study. Plos One. 2024;19(7):e0307701.

Grelz H, Fischer MR, Priouzifard M, Midlöv P, Ringqvist Å. Prevalence of Long Term Opioid Therapy in a Chronic Non Cancer Pain Population Attending a University Based Tertiary Pain Clinic in Sweden: A Cross Sectional Study. J Rehabil Med. 2022;54:jrm00270.

Buchman DZ, Ho A, Illes J. You Present Like a Drug Addict: Patient and Clinician Perspectives on Trust and Trustworthiness in Chronic Pain Management: Table 1. Pain Med. 2016;17(8):1394–406.

Nelson EE. Addiction Stigma and Opioid Use in Chronic Non-cancer Pain Management in Nigeria. Sociol Health Illn. 2023;46(3):457–72.

Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016. Jama. 2016;315(15):1624.

Satija A, Joad AK, Rana SPS, Bhatnagar S. The Burden of Cancer Related Neuropathic Pain: A Multi Centric Cross Sectional Observational Study From North India. Indian J Palliat Care. 2021;27(1):104.

Karra R, Holten Rossing S, Mohammed D, Parmeggiani L, Heine M, Namnún OC. Unmet Needs in the Management of Functional Impairment in Patients With Chronic Pain: A Multinational Survey. Pain Manag. 2020;11(3):303–14.

Rickert J, Devlin K, Krohn K. Comprehensive Care of Pain. Int J Psychiatry Med. 2016;51(4):337–46.

Check DK, Jones KF, Fish LJ, Dinan MA, Dunbar TK, Farley S, et al. Clinician Perspectives on Managing Chronic Pain After Curative Intent Cancer Treatment. Jco Oncol Pract. 2023;19(4):e484–91.

Tong ST, Hochheimer CJ, Brooks EM, Sabo R, Jiang C, Day T, et al. Chronic Opioid Prescribing in Primary Care: Factors and Perspectives. Ann Fam Med. 2019;17(3):200–6.

Hadi MA, Alldred DP, Briggs M, Marczewski K, Closs SJ. "Treated as a Number, Not Treated as a Person": A Qualitative Exploration of the Perceived Barriers to Effective Pain Management of Patients With Chronic Pain. BMJ Open. 2017;7(6):e016454.

Taib F, Faruk JA, Odong O, Biswa S, Jamal B, Mavinkurve M. When Maximum Pain Control of Chronic Non Malignant Condition Fails: Is There Anything Else to Do? Educ Med J. 2017;9(3):83–7.

Seal KH, Becker WC, Tighe J, Li Y, Rife T. Managing Chronic Pain in Primary Care: It Really Does Take a Village. J Gen Intern Med. 2017;32(8):931–4.

Nathan N. Buprenorphine and Chronic Non Cancer Pain. Anesth Analg. 2023;137(1):58–58.

Bowen E, Nayfe R, Milburn N, Mayo H, Reid MC, Fraenkel L, et al. Do Decision Aids Benefit Patients With Chronic Musculoskeletal Pain? A Systematic Review. Pain Med. 2019;21(5):951–69.

Bates D, Schultheis BC, Hanes M, Jolly S, Chakravarthy K, Deer TR, et al. A Comprehensive Algorithm for Management of Neuropathic Pain. Pain Med. 2019;20(Supplement_1):S2–12.

Cooke A, Castellanos S, Enriquez C, Olsen P, Miaskowski C, Kushel M, et al. Telehealth for Management of Chronic Non Cancer Pain and Opioid Use Disorder in Safety Net Primary Care. BMC Health Serv Res. 2023;23(1).

Dupont D, Brinkmöller S, Carter S, Wensing M, Straßner C, Engeser P, et al. Exploring Physician and Patient Perspectives on Expectations and Role Models Towards Chronic Pain Treatment in General Practice: A Qualitative Cross Sectional Study. Healthcare. 2025;13(2):187.

Andersson V, Bergman S, Henoch I, Simonsson H, Ahlberg K. Benefits of Using the Brief Pain Inventory in Patients With Cancer Pain: An Intervention Study Conducted in Swedish Hospitals. Support Care Cancer. 2019;28(8):3721–9.

Serdarević M. Chronic Pain Psychology in Neurology Practice. Contin Lifelong Learn Neurol. 2024;30(5):1501–16.

Darnall BD. Cognitive Behavioral Therapy and Acceptance and Commitment Therapy for Chronic Pain. 2019;85–98.

Afrina R, Karimah A. Cognitive Behavioral Therapy for Chronic Pain. Biomol Health Sci J. 2019;2(2):129.

Gupta M, Malik T, Sinha C. Delivery of a Mental Health Intervention for Chronic Pain Through an Artificial Intelligence–Enabled App (Wysa): Protocol for a Prospective Pilot Study (Preprint). 2022;

Mariano TY, Wan L, Edwards RR, Lazaridou A, Ross EL, Jamison RN. Online Group Pain Management for Chronic Pain: Preliminary Results of a Novel Treatment Approach to Teletherapy. J Telemed Telecare. 2019;27(4):209–16.

Barros MIG, Suguiura ITR, Linzmeyer A, Carvalho AR d. Association Between Two Classification Models of Chronic Painful Low Back Disorders, "Biomedical" and "Biopsychosocial." Varia Sci Ciênc Saúde. 2023;9(1):57–63.

Valvi NR, Tamargo J, Braithwaite D, Fillingim RB, Karanth S. Household Income Is Associated With Chronic Pain and High Impact Chronic Pain Among Cancer Survivors: A Cross Sectional Study Using NHIS Data. Cancers. 2024;16(16):2847.

Kim Y. Major Depressive Disorder. 2021;

Chen M, Patel T, Chang F. The Impact of a Primary Care, Pharmacist Driven Intervention in Patients With Chronic Non Cancer Pain—A Pilot Study. Pharmacy. 2020;8(3):113.

Turner BJ, Liang Y, Simmonds MJ, Rodríguez N, Bobadilla R, Yin Z. Randomized Trial of Chronic Pain Self Management Program in the Community or Clinic for Low Income Primary Care Patients. J Gen Intern Med. 2018;33(5):668–77.

Nasir KS, Hafeez H, Jamshed A, Hussain R. Effectiveness of Nerve Blocks for Management of Head and Neck Cancer Associated Neuropathic Pain Disorders; A Retrospective Study. J Cancer Allied Spec. 2020;6(2).

Chappell AG, Bai J, Yuksel SS, Ellis MF. Post Mastectomy Pain Syndrome: Defining Perioperative Etiologies to Guide New Methods of Prevention for Plastic Surgeons. World J Plast Surg. 2020;9(3):247–53.

Zako J, Pérez J. Unlocking the Potential of the Superficial Cervical Plexus Block in Chronic Pain Management: A Narrative Review and Single Center, Retrospective Case Series. J Clin Med. 2024;13(21):6310.

Matthias MS, Bair MJ, Ofner S, Heisler M, Kukla M, McGuire AB, et al. Peer Support for Self Management of Chronic Pain: The Evaluation of a Peer Coach Led Intervention to Improve Pain Symptoms (ECLIPSE) Trial. J Gen Intern Med. 2020;35(12):3525–33.

Mannon BSJS, Matthias MS. Fidelity of Peer Supported Self Management of Chronic Pain (Evaluation of a Peer Coach Led Intervention to Improve Pain Symptoms—ECLIPSE). Proc Imprs. 2018;1(1).

Finlay KA, Elander J. Reflecting the Transition From Pain Management Services to Chronic Pain Support Group Attendance: An Interpretative Phenomenological Analysis. Br J Health Psychol. 2016;21(3):660–76.

Devan H, Hale L, Hempel D, Saipe B, Perry M. What Works and Does Not Work in a Self Management Intervention for People With Chronic Pain? Qualitative Systematic Review and Meta Synthesis. Phys Ther. 2018;98(5):381–97.

Andreou A, Dhand A, Vassilev I, Griffiths C, Panzarasa P, Simoni AD. Understanding Online and Offline Social Networks in Illness Management of Older Patients With Asthma and Chronic Obstructive Pulmonary Disease: Mixed Methods Study Using Quantitative Social Network Assessment and Qualitative Analysis (Preprint). 2021;

Williams EM, Egede LE, Oates JC, Dismuke C, Ramakrishnan V, Faith TD, et al. Peer Approaches to Self Management (PALS): Comparing a Peer Mentoring Approach for Disease Self Management in African American Women With Lupus With a Social Support Control: Study Protocol for a Randomized Controlled Trial. Trials. 2019;20(1).

Sorrell T, Medina R. 177 Treating Chronic Pain and Preventing Opioid Use Disorders in the Underserved: An Integrated Primary Care Model. CNS Spectr. 2020;25(2):312–312.

Talbot LA, Wilson C, Nayback Beebe A, Metter EJ, Hatzfeld JJ. Nursing's Role in Preventing and Managing Back Pain in Military Members: Proceedings of the First Back Pain Summit. Mil Med. 2020;185(Supplement_2):43–9.

Hidayat S, Hannan M. Pendampingan Lansia Dalam Pelayanan Keperawatan Mandiri Dengan Masalah Nyeri Kronik. J Abdiraja. 2021;5(1):1–11.

Seal KH, Becker WC, Murphy JL, Purcell N, Denneson LM, Morasco BJ, et al. Whole Health Options and Pain Education (wHOPE): A Pragmatic Trial Comparing Whole Health Team vs Primary Care Group Education to Promote Nonpharmacological Strategies to Improve Pain, Functioning, and Quality of Life in Veterans—Rationale, Methods, and Implementation. Pain Med. 2020;21(Supplement_2):S91–9.

Leonard C, Ayele R, Ladebue A, McCreight M, Nolan C, Sandbrink F, et al. Barriers to and Facilitators of Multimodal Chronic Pain Care for Veterans: A National Qualitative Study. Pain Med. 2020;22(5):1167–73.

Haines S, Savic M, Nielsen S, Carter A. Opioid-related Policy Changes: Experiences and Perspectives From People Who Use Opioids to Manage Non-cancer Chronic Pain. Drug Alcohol Rev. 2023;42(6):1482–92.

Mathew A, McQuinn H, Flynn DM, Ransom JC, Doorenbos AZ. Tools, Time, Training, and Team—Military Primary Care Providers' Perspectives on Improving Chronic Pain Assessment and Management. Mil Med. 2021;188(3–4):e731–8.

Dalal S, Chitneni A, Mahmood S, Kaye AD, Hasoon J. 10 kHz Spinal Cord Stimulation for the Treatment of Non Surgical Refractory Back Pain: A Case Report. Orthop Rev. 2022;14(1).

Zahid MA, Nasir H, Saleh M, Ahmed S. Why We Need Pain Psychologists / Pain Psychiatrists as Integral Part of Every Pain Clinic? Anaesth Pain Intensive Care. 2024;28(6):977–81.

Varsi C, Solem IKL, Eide H, Børøsund E, Kristjánsdóttir ÓB, Heldal K, et al. Health Care Providers' Experiences of Pain Management and Attitudes Towards Digitally Supported Self Management Interventions for Chronic Pain: A Qualitative Study. BMC Health Serv Res. 2021;21(1).