



AN INTEGRATIVE PERSPECTIVE ON CHRONIC PAIN: NATUROPATHIC AND YOGIC INTERVENTIONS

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Abstract

Millions worldwide suffer from chronic pain, which impairs quality of life and function. Pharmaceuticals and surgeries can cause dependency, side effects, and limited long-term efficacy. Naturopathy and yoga are holistic, non-pharmacological, and patient-centered alternatives to chronic pain management. Naturopathy emphasizes the body's natural ability to heal through diet, herbal remedies, hydrotherapy, acupuncture, and physical therapy. Through asanas, pranayama, and meditation, yoga can reduce chronic pain by improving flexibility, stress, and neurobiological changes that increase pain perception. Both methods address physical, psychological, and physiological pain to reduce arthritis, fibromyalgia, lower back pain, and migraines, according to research. Scientific validation, regulatory standardization, and integration into traditional healthcare remain despite growing evidence supporting these techniques. This study examines the efficacy, mechanisms, and potential integration of naturopathic and yogic therapies for chronic pain management, emphasizing personalized, evidence-based approaches. To improve the credibility and accessibility of complementary therapies for chronic pain, clinical trials, mechanistic studies, and policy reforms are needed.

Keywords: Chronic Pain, Naturopathy, Yoga, non-pharmacological, physical therapy, clinical trials.

Introduction

Yoga, originating from ancient Indian traditions, has gained significant popularity as a holistic practice encompassing physical postures, breathing exercises, meditation, and ethical principles. The psychological, emotional, and spiritual well-being of an individual may improve as a result. More and more conventional healthcare facilities are incorporating yoga into their practices due to rising interest in the practice's purported therapeutic advantages. Yoga offers a unique combination of physical movements, breath control, and mindfulness techniques that can positively influence physical fitness, stress reduction, and overall quality of life. The practice of yoga is known to enhance strength, flexibility,

balance, and body awareness. Moreover, its emphasis on controlled breathing and relaxation techniques can have a calming effect on the nervous system, promoting mental clarity, emotional wellbeing, and stress resilience. According to studies that looked at a wide range of populations and health issues, yoga could be good for you. Several fields of research have shown promising outcomes, such as cancer treatment, musculoskeletal diseases, cardiovascular disease, mental illness, and chronic pain. Yoga has been found to complement conventional treatments, contributing to improved symptom management, functional outcomes, and overall patient wellbeing.

Chronic Pain

Chronic pain is pain that lasts longer than three months or beyond the normal healing time for an injury or illness. It can be a constant presence or come and go, and can significantly impact an individual's physical and emotional well-being, affecting their ability to work, participate in activities, and enjoy life.[1]

Naturopathic and Yogic Approaches in Chronic Pain Management

A lot of people are interested in using the integrative and holistic principles of yoga and naturopathy to manage chronic pain. Pain that lasts longer than three months is considered chronic pain. Both patients and healthcare providers find this kind of pain very challenging due to the intricacy and range of symptoms. Naturopathy and yoga are complementary medical practices that may help with chronic pain. Naturopathy focuses on the body's natural healing abilities and uses natural medications. Yoga combines physical postures, breathing exercises, and meditation. While treating chronic pain with naturopathic medicine, the focus is on getting to the root of the problem rather than just alleviating symptoms. This method includes changes to one's diet, herbal remedies, physical treatment, and overall lifestyle. Because different foods may have opposite effects on inflammation, dietary changes are a crucial part of naturopathic pain management. Eating more anti-inflammatory foods is one strategy to reduce inflammation and pain. Items such as fresh fruit, whole grains, and omega-3 fatty acids fall within this category. The pain symptoms of inflammatory bowel illnesses, osteoarthritis, and rheumatoid arthritis may be significantly reduced by switching to an anti-inflammatory diet, according to research. [2]. Herbal remedies, another cornerstone of naturopathic medicine, have demonstrated efficacy in pain management. Turmeric (*Curcuma longa*), known for its anti-inflammatory properties, and willow bark (*Salix alba*), containing salicin, a precursor of aspirin, are commonly used to manage pain[3]. An important part of naturopathy's physical treatment for chronic pain is hydrotherapy, massage, and acupuncture. Improvements in circulation, reduction of muscular spasm, and general well-being have been shown via hydrotherapy, which involves the use of water for pain relief and treatment. The same holds true for musculoskeletal discomfort; massage treatment may help by relaxing muscles, increasing blood flow, and decreasing tension (Field, 2016). The natural practice of acupuncture has its roots in traditional Chinese medicine. To achieve this state of harmony, the practitioner places tiny needles into certain anatomical locations on the body. Acupuncture has been shown in several trials to effectively alleviate chronic pain, such as that caused by osteoarthritis, migraines, and back pain. [4]. Asanas, or physical postures, pranayama, or breathing exercises, and meditation are all parts of yoga that may help people with chronic pain. Achieving inner calm via consistent yoga practice has many health and happiness benefits. Many people get relief from chronic pain via yoga. This includes those who suffer from fibromyalgia, arthritis, low back pain, and related ailments. Their physical and emotional well-being are both enhanced by this. Regular practice of yoga's physical postures may alleviate pain by strengthening and stretching muscles, increasing flexibility, and improving posture. As an example, a research indicated that those with persistent low back pain who practiced yoga regularly had much less

pain and far better function than those who had conventional medical treatment. Breathing techniques, or pranayama, are another essential component of yogic practice that can aid in pain management. Even while stress and worry often accompany chronic pain, practicing regulated breathing techniques may help activate the parasympathetic nervous system, which in turn reduces pain and promotes a state of calm. Two methods that have shown potential in enhancing emotional regulation and decreasing pain perception are diaphragmatic and alternative nostril breathing. (Brown & Gerbarg, 2005). Meditation, an integral part of yoga, further complements these benefits by promoting mindfulness and altering the perception of pain. Mindfulness meditation, which encourages non-judgmental awareness of the present moment, has been shown to reduce pain intensity and improve coping strategies in chronic pain sufferers [5]. The synergistic effects of naturopathic and yogic approaches offer a comprehensive and holistic strategy for managing chronic pain. These approaches emphasize the importance of addressing the physical, emotional, and spiritual dimensions of pain, rather than solely focusing on the physical symptoms. Integrating naturopathy and yoga into conventional pain management protocols can provide a more effective and sustainable solution for chronic pain patients. Yoga and dietary changes, for instance, may have a multiplicative effect on anti-inflammatory effects and general wellbeing when practiced together. Herbal medicines, acupuncture, meditation, and deep breathing exercises might form a more comprehensive strategy for pain alleviation. Even when alternative treatments like naturopathy and yoga show improvement, it is crucial to have a personalized treatment plan. Every person's experience with chronic pain is different, depending on factors including their genetics, lifestyle, and mental health. As a result, a one-size-fits-all approach may not be effective. It is important for patients and healthcare providers to work together to determine each person's unique needs and preferences so that tailored treatment plans may be developed. This collaborative approach can enhance patient engagement and adherence to treatment, ultimately leading to better pain management outcomes.[6] Naturopathic and yogic approaches offer valuable complementary strategies for managing chronic pain. People with chronic pain may see a significant improvement in their quality of life if these methods are effective in treating the root causes of the condition and fostering overall wellness. Future research should continue to explore the mechanisms and efficacy of these approaches, as well as their integration into conventional pain management protocols. As our understanding of chronic pain evolves, so too should our approaches to managing it, embracing the holistic and patient-centered perspectives offered by naturopathy and yoga.

Literature Review

(Bhalla et al., 2019)[7] This study shows that holistic treatments for persistent orofacial pain are becoming more popular due to rising costs and side effects. The study compared naturopathy, yoga, and traditional medicine for myofascial pain and trigeminal neuralgia. For myofascial pain, a combination of pharmaceutical and holistic approaches worked best. Pharmacological treatment for trigeminal neuralgia was effective, but yoga and naturopathy only helped when combined with it. Without harmful drugs, holistic methods may manage chronic orofacial pain.

(C. D. Myers et al., 2002)[8] A limited but focused review of CAM treatments for chronic facial pain includes relaxation techniques, biofeedback, and acupuncture. These methods performed similarly to intraoral devices. Other CAM therapies like herbal remedies, homeopathy, chiropractic, massage, meditation, and yoga lacked randomized controlled trials. This gap requires more rigorous research. Dental professionals cannot recommend CAM for chronic facial pain due to a lack of evidence. Therefore, clinical decisions must carefully weigh patient needs and evidence.

(Elliott et al., 2003)[9] This study shows that chronic pain patients' sadness and anxiety hinder pain relief. The SF-36 Health Survey, especially its Mental Composite Score, accurately identified and

predicted depression in these individuals. Depression negatively correlated with SF-36 scores. Both depressed and non-depressed chronic pain patients had poor health-related quality of life. In detecting depression, the SF-36 was sensitive, specific, and reliable. Thus, it aids mental health assessment and chronic pain treatment.

(Vallath, 2010)[10] Chronic pain affects emotional and physical health by going beyond physical discomfort. Pranayama, asanas, and meditation calm the nervous system and promote deep relaxation, making body-based yoga a holistic pain treatment. These techniques reduce muscle tension, improve sleep, balance vital functions, and build emotional resilience. Yoga boosts healing by regulating breath and mind-body awareness. By treating physical and mental pain, this integrative method improves chronic pain patients' quality of life.

(Chen & Michalsen, 2017)[11] Western medicine and CAM formed complementary and integrative medicine (CIM). A third of American adults and 12% of youth use CIM for chronic pain. Chronic pain remains unbearable for many despite advances in treatment. Analgesics are difficult to take with diarrhea, renal failure, and addiction. Multimodal CIM can reduce pain in multiple dimensions with few side effects. CIM's effects on chronic neck, back, and rheumatoid arthritis are examined in this study. It covers the mind-body connection, acupuncture, herbal treatment, nutrition, dietary therapies, fasting, and CIM modalities' clinical efficacy and action mechanisms.

Objectives

1. Assess the effectiveness of naturopathic treatments in managing chronic pain: This objective involves evaluating the overall impact of naturopathic interventions on pain reduction, functional improvement, and quality of life in individuals with chronic pain. It will involve reviewing and analyzing relevant clinical studies, randomized controlled trials (RCTs), and systematic reviews.
2. Investigate the safety profile of naturopathic treatments for chronic pain: This objective focuses on assessing the adverse effects and potential risks associated with naturopathic interventions. A systematic review of reported adverse events, case studies, and observational studies will be conducted to determine the safety profile of these treatments.
3. Explore the mechanisms of action underlying the efficacy of naturopathic treatments: This objective aims to understand the biological, physiological, and psychological mechanisms through which naturopathic interventions exert their effects on chronic pain. It will involve a comprehensive review of relevant literature, including studies on herbal medicine, acupuncture, dietary modifications, and mind-body techniques.
4. Identify gaps in current knowledge and future research directions: Based on the findings of the previous objectives, this objective seeks to identify any gaps or limitations in the existing literature. It will propose potential areas for further research and provide recommendations for designing robust clinical trials, including appropriate outcome measures, study populations, and intervention protocols.

Methodology

- **Research methodology** :- this section provides a comprehensive overview of the research methodology, including ethical considerations, data collection, and analysis. It emphasizes the systematic nature of scholarly research, from problem identification to hypothesis testing and validation.
- **Qualitative interviews with experts** :- this qualitative study is designed to gather in-depth insights from experts on the use of naturopathic treatments for chronic pain. By carefully selecting knowledgeable participants and conducting semi-structured interviews, the research ensures a comprehensive exploration of professional perspectives. The open-ended nature of the interviews allows for rich, nuanced data, which will be analyzed using thematic analysis to identify recurring themes and patterns. This approach will provide a deeper understanding of the role, perception, and effectiveness of naturopathic therapies in chronic pain management, offering valuable guidance for both clinical applications and future research.
- **Quantitative questionnaire survey with patients** :- this quantitative questionnaire survey aims to generate reliable, empirical data on the effectiveness of naturopathic therapies in managing chronic pain. By selecting patients with documented diagnoses and treatment histories, the study ensures relevance and representativeness. The well-structured questionnaire will explore critical dimensions such as pain levels, quality of life, and treatment satisfaction. Data collection will be flexible and ethically conducted to ensure wide participation and privacy. Through rigorous statistical analysis, the study seeks to uncover meaningful patterns and outcomes, offering valuable insights to inform both clinical practices and future research in chronic pain management.
- **Integration and Triangulation of Findings** :- this integrated research approach combines both subjective insights from expert interviews and objective data from patient questionnaires to gain a comprehensive understanding of naturopathic treatments for chronic pain. Through an extensive literature review, robust data collection, in-depth case studies, and rigorous statistical analysis, the study aims to bridge the gap between experiential and empirical evidence. This mixed-method framework not only highlights the measurable outcomes of such therapies but also brings forth the nuanced, personal experiences of patients. Ultimately, this approach strengthens the credibility and applicability of findings, providing a holistic perspective on the impact and effectiveness of naturopathic interventions.
- **Implications** :- Comprehending the impacts of naturopathic interventions on persistent pain holds considerable ramifications for the field of healthcare. It provides patients with alternate methods of pain management that go beyond traditional approaches, which could potentially decrease the need for drugs and invasive procedures. This research has the potential to enhance our understanding of chronic pain therapy by focusing on a comprehensive approach that emphasizes holistic and preventive care. Furthermore, it can facilitate multidisciplinary cooperation between naturopathic practitioners and conventional healthcare providers, encouraging integrated and patient-focused healthcare. Collaboration of this nature has the potential to improve treatment outcomes, increase patient happiness, and develop individualized care plans, ultimately increasing the overall quality of healthcare delivery.

Need of the study

Chronic pain remains a challenging condition with limited treatment options, as conventional therapies often provide only partial relief and carry side effects. This has led to growing interest in naturopathic and holistic approaches that emphasize personalized, whole-person care. Naturopathic therapies offer promising alternatives by addressing the root causes of pain through natural methods like diet, herbal medicine, and lifestyle changes. However, despite their potential, more rigorous, evidence-based research is necessary to validate their effectiveness. By integrating personalized and scientifically backed naturopathic treatments into chronic pain management, healthcare can evolve toward more comprehensive, patient-centered care.

Ethical considerations

Ethical conduct in research—especially in studies involving naturopathic remedies for chronic pain—is essential to protect participants and uphold scientific integrity. Informed consent ensures voluntary participation through clear communication of risks and benefits. Maintaining participant confidentiality fosters trust and encourages honest disclosure. Addressing conflicts of interest promotes transparency and research credibility. Most importantly, safeguarding participant welfare through risk assessment, continuous monitoring, and access to support services is crucial. Together, these ethical practices create a responsible, respectful, and trustworthy research environment.

Results

Functional improvement and quality of life are just two of the many health outcomes that have been shown to benefit greatly from naturopathic treatments. It proves their efficacy with solid statistical models and demographic analysis. These treatments provide a substantial explanation for the observed health benefits, as confirmed by the high R-squared values.

Table 4.1: Age wise distribution of respondents

Age		
	Frequency	Percent
Below 40 years	60	20.0
40 to 50 years	92	30.7
51 to 60 years	90	30.0
61 to 70 years	38	12.7
Above 70 years	20	6.7
Total	300	100.0

The above table discusses age wise distribution of respondents. In below 40 years, frequency is 60 and percentage is 20%. In 40 to 50 years, frequency is 92 and percentage is 30.7%. In 51 to 60 years, frequency is 90 and percentage is 30%. In 61 to 70 years, frequency is 38 and percentage is 12.7%. In Above 70 years, frequency is 20 and percentage is 6.7%.

Table 4.2: Gender wise distribution of respondents

Gender		
	Frequency	Percent
Male	171	57.0
Female	129	43.0
Total	300	100.0

Gender wise distribution of respondents is discussed in the table above. There are 171 males and 129 females are included in this study, whose percentage is 57% and 43% respectively.

Table 4.3: Chronic Pain Diagnosis of respondents

Chronic Pain Diagnosis		
	Frequency	Percent
Arthritis	99	33.0
Slipped Disc	107	35.7
Cervical Spondylitis	94	31.3
Total	300	100.0

The above table discusses chronic pain diagnosis of respondents. In arthritis, frequency is 99 and percentage is 33%. In slipped disc, frequency is 107 and percentage is 35.7%. In cervical spondylitis, frequency is 94 and percentage is 31.3%.

Table 4.5: Impact of naturopathic interventions on pain reduction

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716 ^a	.513	.511	5.82856
a. Predictors: (Constant), Naturopathic Interventions				

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10659.953	1	10659.953	313.786	.000 ^b
	Residual	10123.684	298	33.972		
	Total	20783.637	299			
a. Dependent Variable: Pain reduction						
b. Predictors: (Constant), Naturopathic interventions						

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.358	1.194		5.323	.000
	Naturopathic interventions	1.268	.072	.716	17.714	.000
a. Dependent Variable: Pain reduction						

The data strongly supports the effectiveness of naturopathic interventions in reducing pain. With a high positive correlation ($R = 0.716$) and a substantial amount of explained variance (Adjusted $R^2 = 0.511$), the model demonstrates a solid fit. The statistically significant results from ANOVA and

regression coefficients confirm that naturopathic treatments are reliable predictors of pain reduction. Each unit increase in such interventions leads to a measurable and meaningful decrease in pain levels. Overall, the analysis validates the impact of naturopathic therapies as an effective approach to managing and alleviating pain.

Table 4.6: Impact of naturopathic interventions on functional improvement

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561 ^a	.315	.312	3.72963
a. Predictors: (Constant), Naturopathic interventions				

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1903.768	1	1903.768	136.862	.000 ^b
	Residual	4145.232	298	13.910		
	Total	6049.000	299			
a. Dependent Variable: Functional improvement						
b. Predictors: (Constant), Naturopathic interventions						

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.722	.764		8.795	.000
	Naturopathic interventions	.536	.046	.561	11.699	.000
a. Dependent Variable: Functional improvement						

The analysis clearly establishes that naturopathic interventions have a significant and positive impact on functional improvement. With a moderate correlation ($R = 0.561$) and 31.5% variance explained, the model demonstrates strong predictive power. The statistical significance ($F = 136.862$, $p < .001$) confirms that these results are not due to chance. Furthermore, the coefficient value ($B = 0.536$) and high t-value (11.699) highlight the substantial effect of naturopathic treatments. Overall, the findings strongly support the efficacy of naturopathic interventions in promoting functional recovery.

Table 4.6: Impact of naturopathic interventions on quality of life

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.693 ^a	.480	.478	3.86458
a. Predictors: (Constant), Naturopathic interventions				

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4110.609	1	4110.609	275.233	.000 ^b
	Residual	4450.627	298	14.935		
	Total	8561.237	299			
a. Dependent Variable: Quality of Life						
b. Predictors: (Constant), Naturopathic interventions						

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.138	.792		7.751	.000
	Naturopathic interventions	.787	.047	.693	16.590	.000
a. Dependent Variable: Quality of Life						

The analysis clearly demonstrates a strong and statistically significant relationship between naturopathic interventions and quality of life. With an R value of 0.693 and an R Square of 0.480, nearly half of the variance in quality of life is explained by these interventions. The model's robustness is confirmed by the adjusted R Square (0.478) and the highly significant ANOVA results ($F = 275.233$, $p < .001$). The coefficient value ($B = 0.787$) underscores that increases in naturopathic interventions lead to notable improvements in quality of life. These findings provide strong empirical support for the positive impact of naturopathy on overall well-being.

Table 4.7: Impact of naturopathic interventions on biological, physiological, and psychological dimensions

Multivariate Tests ^a						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.932	1259.498 ^b	3.000	277.000	.000
	Wilks' Lambda	.068	1259.498 ^b	3.000	277.000	.000
	Hotelling's Trace	13.641	1259.498 ^b	3.000	277.000	.000
	Roy's Largest Root	13.641	1259.498 ^b	3.000	277.000	.000
VAR00015	Pillai's Trace	.690	4.170	60.000	837.000	.000
	Wilks' Lambda	.374	5.377	60.000	827.251	.000
	Hotelling's Trace	1.502	6.901	60.000	827.000	.000

	Roy's Largest Root	1.385	19.319 ^c	20.000	279.000	.000
a. Design: Intercept + VAR00015						
b. Exact statistic						
c. The statistic is an upper bound on F that yields a lower bound on the significance level.						

Tests of Between-Subjects Effects						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Biological mechanisms	1532.732 ^a	20	76.637	14.160	.000
	Physiological Mechanisms	1177.610 ^b	20	58.880	8.283	.000
	Psychological Mechanisms	1244.716 ^c	20	62.236	9.887	.000
Intercept	Biological mechanisms	14233.451	1	14233.451	2629.911	.000
	Physiological Mechanisms	13411.715	1	13411.715	1886.681	.000
	Psychological Mechanisms	12174.485	1	12174.485	1934.016	.000
VAR00015	Biological mechanisms	1532.732	20	76.637	14.160	.000
	Physiological Mechanisms	1177.610	20	58.880	8.283	.000
	Psychological Mechanisms	1244.716	20	62.236	9.887	.000
Error	Biological mechanisms	1509.988	279	5.412		
	Physiological Mechanisms	1983.307	279	7.109		
	Psychological Mechanisms	1756.284	279	6.295		
Total	Biological mechanisms	28656.000	300			
	Physiological Mechanisms	27013.000	300			

	Psychological Mechanisms	24676.000	300			
Corrected Total	Biological mechanisms	3042.720	299			
	Physiological Mechanisms	3160.917	299			
	Psychological Mechanisms	3001.000	299			
a. R Squared = .504 (Adjusted R Squared = .468)						
b. R Squared = .373 (Adjusted R Squared = .328)						
c. R Squared = .415 (Adjusted R Squared = .373)						

Table shows that naturopathic interventions significantly impact biological, physiological, and psychological factors. Numerous multivariate tests, including Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root, show significant ($p < .001$) effects of naturopathic interventions on these dimensions. The between-subjects effects emphasize each dimension's unique impact. The model explains 50.4% of biological process variance ($F = 14.160$, $p < .001$) and 37.3% of physiological mechanism variance ($F = 8.283$, $p < .001$). The model explains 41.5% of psychological process variation ($F = 9.887$, $p < .001$). Naturopathic interventions significantly improve health outcomes across all three dimensions, confirming their importance.

Conclusion

This study emphasizes the significant advantages of naturopathic treatments for chronic pain management and improving general health. Herbal medicine, acupuncture, mind-body techniques, and manual therapies are evidence-based pain relievers, mobility enhancers, and mental health boosters. Naturopathy, with its emphasis on whole health, provides an alternate or complementary approach to traditional medicine that may lessen the need for drugs and invasive procedures. The results of these statistical studies corroborate the positive associations between naturopathic medicine and improved health. Integrative healthcare models that combine naturopathy with conventional medicine have the ability to provide more tailored and long-term treatment solutions, according to the study. To improve patient agency over their own healthcare decisions, it urges more training for healthcare providers, public outreach, and education about the benefits of naturopathic medicine. The study's credibility and validity were assured by its rigorous ethical framework, which is an important consideration. To further establish the scientific foundation of naturopathic practices and to establish standardized treatment protocols, the results call for additional research, especially in diverse populations. In the end, this research highlights the increasing importance of naturopathy in modern healthcare. To alleviate chronic pain, improve quality of life, and redefine patient-centered care in the modern era, naturopathic medicine bridges traditional wisdom with modern medical practice.

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