

Synergizing Sustainable Hemp, Allied Health, and Mindfulness: Multidisciplinary Perspectives on Ethics and Law in India

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Abstract: Cannabis has always been a debatable plant in the Indian geopolitical context because of its intoxicating and healing properties, which are reflected in our traditions and culture. Over the past few years, it has started to make headlines in the Indian knowledge system, traditional healing, mindfulness practices, and allied healthcare. At present, internationally, and under the Narcotic Drugs and Psychotropic Substances Act, 1985, cannabis is a

narcotic drug, with hemp being an exemption. It is a variety used for industrial and medicinal purposes due to high CBD and low THC cannabinoid levels. This research paper examines the medicinal aspects of hemp plants in the context of traditional biological and ecological healing. Sustainable mindfulness and allied health are key aspects of hemp. This paper analyzes how regulatory authorities, such as AYUSH, CDSCO, and FSSAI, can promote sustainable living and overall well-being by providing dietary nutrition, rehabilitation, mental health treatments, pain management, and therapies, while considering opportunities and ethical and legal challenges. This paper applies a qualitative, conceptual, and analytical framework for assessment. There will be a systematic literature review of peer-reviewed studies, regulatory and policy analyses, and relevant comparative case studies. Hemp shall be studied from a scientific lens in respect of sustainability, allied health, and mindfulness practices, analyzing the opportunities, prospects, and legal and ethical challenges to achieve the Global Sustainable Goals 2030 and Viksit Bharat 2047..

Keywords: Hemp; Sustainability; Medicinal; Allied Health; Mindfulness.

Introduction

1.1 Background of the Study

The paradox between science and law is sometimes intriguing, and this is also the case with the cannabis plant. It differs from both the scientific and the legal lenses of investigation. In the botanical sense, cannabis is known as a genus of flowering plants that includes different species, varieties, cultivars, and chemovars. However, the law includes charas, ganja, and hashish oil, along with any mixtures, whether neutral or non-neutral material or drink prepared with the aforementioned forms, which are considered cannabis [1]. Cannabinoids are chemical compounds present in plants that are responsible for imparting psychoactive or non-psychoactive effects on the human body. Some of the major cannabinoids are cannabidiol (CBD), tetrahydrocannabinol (THC), cannabinol (CBN), cannabigerol (CBG), cannabichromene (CBC), and some minor cannabinoids such as THCV, CBDV, CBL, CBGA, and CBDA. Currently, the scientific community has shifted its focus from botanical-based definitions and classifications to cannabinoid-based definitions and classifications [2].

Hemp is a non-psychoactive variety of the cannabis plant with a high potency of CBD and a low potency of THC. It is associated with industrial and medicinal purposes. Stalks and seeds are mostly utilized for industrial, commercial, wellness, and nutritional purposes, whereas leaves and seeds are used for traditional and modern medicinal preparations [3]. The Single Convention on Narcotic Drugs, 1961, classifies cannabis as a narcotic drug, while the Convention on Psychotropic Substances, 1971, has classified one of its primary cannabinoids responsible for imparting psychoactive effects, THC, as a psychotropic substance. The same trend has been followed by India by enacting central legislation, that is, the Narcotic Drugs and Psychotropic Substances Act, 1985, classifying the cannabis plant and cannabis as a narcotic drug and THC as a psychotropic substance. Indian law excludes leaves and seeds that are not accompanied by flowering and fruiting tops from the definition of cannabis.

Traditional and modern medicinal drugs can be prepared by AYUSH (Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy) and CDSCO (Central Drugs Standard Control Organization) from the only excluded parts of the cannabis plant. For formulations prepared from the leaves and seeds, it is considered a non-narcotic material requiring no stringent NDPS licensing but is regulated under the Drugs and Cosmetics Act, 1940. In the case of formulations prepared from the flowering and fruiting tops of the plant, it is considered a narcotic material that requires stringent NDPS licensing and is also regulated under the Drugs and Cosmetics Act, 1940. Hemp is a versatile variety of the cannabis plant that offers multiple benefits across more than a single sector. This conceptual and analytical study, conducted in this research paper, revolves around the medicinal value of hemp in holistic healing, comprising allied health and mindfulness practices as its key components. Apart from its medicinal applications, hemp is the finest example of environmental sustainability. Its cultivation will not only involve healthy agricultural practices, but its multisectoral applicability will also promote socioeconomic stability, in addition to environmental sustainability [4,5]. However, Indian legislation and regulatory bodies that regulate cannabis are overly stringent, and the bottleneck policies and lack of ethical standards nearly make any development in this arena impossible for scientific researchers.

1.2 Sustainability Standpoint

Hemp is a unique plant supporting a multidisciplinary intersection among environmental sustainability, socio-economic sustainability, and holistic well-being. Its benefits can be divided into two main broad categories:

Environmental Sustainability

Hemp has several agricultural and environmental advantages over other traditional crops, such as cotton, barley, jute, flax, and linen. It is known for its carbon sequestration capability; that is, it absorbs atmospheric carbon dioxide at a much faster rate. Its extensive deep taproot system helps in preventing soil erosion and absorbs toxins and other contaminants from the soil, thus improving soil structure and reducing land pollution and degradation. Therefore, it is known as a phytoremediator [6]. Hemp also requires 50% less water for irrigation, and is naturally pest-resistant, thus eliminating the need for pesticides, herbicides, insecticides, and other fertilizers, which in turn reduces soil, land, and water pollution. It has been used to make hempcrete, biofuels, paper, bioplastics, textiles, cosmetics, automobiles, biodegradable materials, and other industrial applications. Hemp is the finest example of crop rotation, as its biomass can be used as a fertilizer for subsequent crops and has a rapid growth cycle of 90–120 days [7].

Socio-Economic Sustainability

From cultivation to product manufacturing, hemp creates a series of employment opportunities in agriculture, processing, extraction, manufacturing, and other industrial units. Since it is a high-yielding plant with minimal agricultural requirements, it becomes an alternative crop for farmers, allowing multiple harvests annually and offering a high profit income. It will create employment opportunities in rural and hilly areas, thus uplifting regional economies through increased social inclusion. Hemp-based products can also be exported, and a considerable amount of annual revenue can be generated through taxation and excise duties, thus contributing to the GDP and the country's economic growth. Through mutual sharing and transfer of technology, contributing to and having access to the global hemp market, India will align with the global sustainability goals agenda of 2030 and the Viksit Bharat Mission 2047 [8].

Theoretical Framework: Holistic Intersection of Hemp

Hemp has been an integral part of traditional healing in India for a long time. Holistic healing does not focus on relieving the symptoms alone; rather, it functions by treating the whole person, that is, mind, body, and soul. The fundamental lies in the mind–body connection, as the bioactive compounds of hemp interact with the physiological and psychological systems of the body. Its integration into modern allied health frameworks and mindfulness practices for holistic healing is an amalgamation of traditional Indian knowledge and modern science.

Mindfulness Applications

Cannabidiol (CBD) is a phytocannabinoid that binds with the endocannabinoid system (ECS) of the human body, a signaling network responsible for maintaining homeostasis and regulating physiological processes like stress response, sleep cycle regulation, mood cycle management, immune function, and pain perception. CBD indirectly interacts with CB1 and CB2 cannabinoid receptors and also interacts with serotonin (5-HT_{1A}) and TRPV1 receptors, primarily responsible for stress response and mood management [9]. CBD provides support to several mindfulness practices like yoga, meditation, mindful breathwork, walking, eating, etc. CBD calms the nervous system by reducing cortisol levels, thus creating a state of calmness and removing anxiety and stressful thoughts.

CBD's interaction with serotonin receptors regulates mood and increases emotional stability. The sleep cycle and mindfulness have an interwoven relationship, and CBD enhances the quality of sleep, thus ensuring the cognitive energy to maintain focus, required for such mindful activities [10,11]. Due to certain yoga postures, prolonged meditation sittings, and breathing exercises, physical discomfort arises that acts as a distraction, which can be cured by CBD, having analgesic and anti-inflammatory properties. Studies suggest that CBD promotes neuroplasticity, similar to mindfulness, by stimulating awareness and cognitive abilities while reducing hyperactivity in regions such as the amygdala and

prefrontal cortex, which are responsible for attention and the processing of emotions [12, 13]. Overall, CBD promotes mindfulness and creates an environment in which it can be practiced effectively, rather than creating mindfulness itself.

Allied Health Applications

Allied health professionals, such as physiotherapists, rehabilitation specialists, nutritionists, mental health counselors, and occupational therapists, are not doctors themselves but aid in treatment and rehabilitation. Hemp-based products are widely known for their health, wellness, and nutritional purposes, and their integration in allied health focuses on holistic healing for the overall well-being of individuals. Hemp seeds, oil, and powder offer nutritional value, such as omega-3 and omega-6 fatty acids, proteins, dietary fiber, vitamin E, B-complex, and minerals like zinc, iron, and magnesium, to support plant-based and anti-inflammatory diets, muscle recovery, weight management, and improve cardiovascular health [14].

Cannabidiol (CBD) has anti-inflammatory and pain-relieving properties and is used to treat inflammation in muscles and soreness post-exercise, chronic pain, and arthritis-related pain. Physiotherapists use CBD products in rehabilitation therapies such as physical, massage, therapeutic, and mobility therapies [15]. It also reduces stress and anxiety issues, regulates the stress response of the body, improves sleep quality, and supports emotional balance, which, in turn, offers complementary support in lifestyle and wellness interventions, cognitive and behavioral therapies, attaining mindfulness, and stress management. Since hemp seed oil has anti-inflammatory and healing properties, skincare and dermatology professionals mostly support the use of hemp-based products [16].

1.4 Problem Statement

Hemp, the non-psychoactive variety of cannabis, is mostly associated with industrial and medicinal use because of the presence of high CBD and low THC cannabinoids. Although cannabis has been recognized internationally and nationally as a narcotic drug, the exception of hemp has necessitated its demand across multiple arenas, including sustainability, healthcare, and wellness. In addition to offering numerous environmental benefits, hemp-based products have wide utility in nutrition, therapeutic support, wellness, and holistic practices, including mindfulness, stress reduction, and mental well-being. Despite these vast applications, its integration across these sectors raises serious ethical, legal, and regulatory concerns. Legal and regulatory frameworks for cannabis in India vary from state to state, and so does its regulation, raising questions of uncertainty for producers, manufacturers, industry workers, farmers, consumers, researchers, and policymakers. Individual healthcare rights, public safety, and social responsibility need to be ensured in respect of hemp innovation across healthcare while examining the ethical and legal dimensions of hemp within the contexts of allied health, mindfulness practices, and sustainability.

1.5 Significance of the Study

This multidisciplinary study is important because hemp is increasingly recognized across various sectors worldwide while promoting its responsible use in sustainable practices, healthcare, and mindfulness, all within ethical and legal boundaries. It is a versatile variety of cannabis with socioeconomic and environmental benefits; however, ethical and legal constraints make its integration into allied health frameworks and wellness practices difficult. From a multidisciplinary perspective, this conceptual research provides ethical insight into the responsible and transparent use of hemp-based products in holistic healing and analyzes these multi-sectoral uses in light of the socio-legal framework of India. This study will make valuable contributions to policy reformations and practice guidelines for promoting a hemp-based sustainable model in holistic healing that is ethically and legally sound.

OBJECTIVES

The primary aim of this conceptual research paper is to provide an interdisciplinary roadmap for sustainable hemp, allied health, and mindfulness, considering the ethical and legal constraints that

hinder the effective integration of a sustainable strategy in the wellness and healthcare sectors. To this end, specific objectives have been addressed as follows:

To analyze the role of hemp in socio-economic and environmental sustainability.

To evaluate the role of sustainable hemp in achieving holistic healing, especially in allied health and mindfulness.

To evaluate the ethical implications of the safe, responsible, and transparent integration of hemp-based products in allied health and wellness practices.

To examine the legal and regulatory constraints that affect the integration of hemp across the allied healthcare and wellness sectors.

To propose practical suggestions on the responsible use of hemp in overall holistic healing in view of ethical and legal considerations.

METHODS

3.1 Research Design

The research adopts a multidisciplinary approach to review literature from multiple studies in agriculture, mindfulness, holistic healing, healthcare, ethics, and law. Conceptual, qualitative, and analytical designs are employed to study the utility of sustainable hemp-based products in allied healthcare frameworks and mindfulness practices under the backdrop of ethical and legal standards in India. The research is also exploratory in nature since, through an extensive literature review, critical gaps are identified, explored, discussed, and further policy and practical reforms are suggested, keeping the scope of future research open.

3.2 Data Sources

Since the research adopts a multidisciplinary, integrative approach, both primary and secondary data sources are relied upon. Statutes, official legislative records, original government reports, court transcripts, and policy statements are the primary data sources. Scopus and Web of Science indexed research papers, reviewed and interpreted policy reports, book analyses, and any interdisciplinary research on sustainable hemp and holistic healing are the secondary data sources.

3.3 Systematic Analytical Framework

The paper will adopt a multidisciplinary systematic framework for analysis while combining the socio-legal, socio-ethical, and socio-health perspectives on integrating sustainable hemp into allied healthcare and mindfulness practices for overall healing. The doctrinal and conceptual analysis will be followed by the ethical and legal assessments, and lastly, the socio-health perspectives shall be taken into consideration.

3.4 Scope and Limitations

The scope of this research paper includes the health-related facets of sustainable hemp in allied healthcare frameworks and mindfulness practices in India, in light of ethical considerations and legal standards. It examines the legal and regulatory frameworks as well as the ethical standards on hemp and explores its integration into the Indian healthcare system for holistic healing. However, the paper holds certain limitations as well. It excludes empirical data collection, and in the methodology, the primary data sources do not include primary data collection. Hemp regulation is constantly evolving, making it open to future research and interpretation, while this study is restricted to the Indian context, excluding any extensive discussion and review of global jurisdictions.

CONCEPTUAL FINDINGS AND DISCUSSION

4.1 Hemp in Mindfulness and Allied Health: The Wellness Nexus

This nexus reflects a paradigm shift from hemp being considered a narcotic earlier to its role in

sustainability, allied health frameworks, and mindfulness practices for holistic healthcare. This happened due to recent developments made by the scientific community on phytocannabinoids and their interaction with the endocannabinoid system in the human body. Since hemp plants have naturally high concentrations of CBD and low concentrations of THC, they have proven their potency in wellness, therapeutics, and nutrition while possessing environmental and socio-economic benefits. They aid the physical and psychological well-being of individuals.

FSSAI has recognized the utility of hemp seeds, oils, flour, and beverages as food commodities, while AYUSH recognizes it as a traditional herb, referred to in Ayurveda as the Vijaya plant, associated mostly with its healing properties. It is widely used in the wellness industry for enhancing health and immunity. Although some scientific studies support that CBD promotes good mental health and emotional stability, clinical evidence is required for incorporating it into traditional, modern medicines and wellness aids for psychological well-being, and for that, AYUSH and CDSCO are the regulatory authorities responsible for conducting such research based on scientific empirical evidence.

Synergizing hemp with sustainability, allied health, and mindfulness practices resonates with the ancient and traditional philosophies of holistic healing in Ayurveda and Yoga, focused on establishing harmony among the mind, body, and soul. Its environmental and socio-economic factors cannot be overlooked, as a lot of research is being conducted on different aspects of hemp varieties. But its alignment with the allied health framework and mindfulness practices requires ethical, legal, and regulatory considerations for safe and transparent use of hemp-based products in India. This also involves extensive scientific research, clinical trials, and regulatory supervision. With this clarity, hemp has the potential to contribute to a multidisciplinary field of research that includes sustainability, allied health, and mindfulness practices.

4.2 Industrial Standards on Sustainable Hemp

Hemp is a versatile plant known for its agricultural and environmental benefits and is an excellent commercial resource, contributing to socio-economic sustainability. Ensuring the sustainable cultivation of hemp, along with product quality and safety, involves regulated agricultural, industrial, and environmental standards. Hemp is the variety known for low concentrations of THC and high concentrations of CBD, used for industrial and medicinal purposes, so there should be a legal threshold for clearly distinguishing between psychoactive and non-psychoactive cannabis. Internationally, the accepted standard for cultivating industrial hemp is that THC concentrations should not exceed 0.3% on a dry weight basis, clearly demarcating between industrial and medicinal cannabis and the recreational one. Even for nutraceutical purposes, the Food Safety and Standards Authority of India (FSSAI) has clearly defined CBD and THC thresholds for hemp-based products. Currently, India has no such clearly established THC threshold limit, considering it a demerit for farmers, scientific researchers, legal experts, manufacturers, and consumers in differentiating between THC-dominant and CBD-dominant varieties of the cannabis plant.

4.3 Legal and Regulatory Implications

Hemp is associated with cannabis since it is one of the non-psychoactive species serving different purposes across industry and healthcare sectors, but its regulation is nonetheless different from that of cannabis itself; it is regulated just like other narcotic drugs under the primary legislation of India, that is, the Narcotic Drugs and Psychotropic Substances Act, 1985. However, it strictly regulates activities surrounding cannabis, such as its cultivation, manufacturing, production, possession, sale, import-export, and transportation, but industrial, medicinal, and scientific use of leaves and seeds, supported by state licenses and regulatory approval under the same Act, is also an exception to the general provisions. Even with an exemption, the process for granting licenses and regulatory approvals is non-uniform, discretionary, and bottlenecked.

There are no standardized policies on hemp across India, since there is a lack of proven scientific and clinical research, with no legal clarity and distinction between hemp and other psychoactive cannabis. One of the premier government research institutions, CSIR-IIIM Jammu, has also initiated India's first scientific research project focusing on the medicinal use of cannabis, known as the Cannabis Medicine Project, while several states, like Uttarakhand, Uttar Pradesh, and Madhya Pradesh, have

allowed the controlled commercial cultivation of industrial hemp, meeting the thresholds of THC concentrations for supporting the socio-economic and environmental sustainability, along with its multi-sectoral applications.

4.4 Ethical Considerations

Safe, transparent, and responsible use of hemp-based products in holistic healthcare requires several ethical considerations on public health and perception, equitable access, and sustainability. Even though hemp-based products have high levels of CBD, full-spectrum hemp-based products contain minimal levels of THC. Regulations and policies should ensure appropriate product labeling to avoid misbranding and misinformation, supervision by medical professionals for therapeutic use, and consumer awareness of the use, misuse, and limitations of hemp-based products. Historically, apart from medicinal and healing purposes, cannabis has also been associated with abuse and misuse, which resulted in a social stigma, even if it is a non-psychoactive variety, that is, hemp. To address this social stigma, Indian knowledge systems on traditional medicinal uses should be introduced in the curriculum, public education and awareness programs, and transparent legal and regulatory frameworks for providing a clear distinction among industrial, medicinal, and recreational cannabis.

CONCLUSION AND SUGGESTIONS

5.1 Summary of Key Findings

The study addresses ethical considerations and legal and regulatory constraints that were relevant to be under scrutiny for delving deep into the multidisciplinary dimensions of hemp across allied healthcare and mindfulness practices. Hemp is governed under the same definition of cannabis under the primary legislation of India, that is, the Narcotic Drugs and Psychotropic Substances Act, 1985, only excluding leaves and seeds from the definition of narcotic cannabis. Industrial, medicinal, and scientific use of cannabis, with a proper license and product approval by state governments and regulatory authorities, respectively, is an exemption under the NDPS Act, 1985. Some states like Uttarakhand, Uttar Pradesh, and Madhya Pradesh have allowed the commercial cultivation of industrial hemp, witnessing its growing recognition across multiple sectors. Premier governmental research institutions like CSIR-IIIM Jammu, through a collaborative effort, have initiated India's first Cannabis Medicine Project, considering its value in traditional and modern medicines. Hemp-based products include using leaves, stalks, hurds, and seeds for nutrition, wellness, therapy, and traditional formulations, acting as a complementary tool in allied healthcare and mindfulness practices for overall well-being. Hemp cultivation offers recognized agricultural and environmental benefits and promotes socio-economic sustainability, and its integration across public health requires clarity and standardization of ethical guidelines and legal and regulatory frameworks.

5.2 Conclusion

From a strictly regulated substance to proving its utility in sustainability and public health, hemp holds a very significant and promising position of multidisciplinary recognition in India. The cannabis plant holds deep cultural and traditional value in medicine and recreation in Indian history. Later, its criminalization and penalization reduced its historical significance to a mere narcotic drug under the NDPS Act of 1985. It is the scientific community that recognized its worth again beyond recreation, this time drawing focus towards cannabinoids to clearly lay distinction between psychoactive and non-psychoactive cannabis. Hemp has globally positioned itself across multiple sectors, and despite such global recognition, India needs to take lessons from other countries and their successful models on hemp. It is high time that legal and regulatory policies are reformed while clearly formulating ethical guidelines so that multidisciplinary research could be undertaken to prove the potential of hemp in sustainability and holistic well-being.

5.3 Suggestive Reforms for Hemp in Practice and Policy

Several reforms are suggested:

Distinguishing between hemp and psychoactive cannabis under the NDPS Act, 1985

There should be a standardized national-level policy on hemp providing clarity on licensing, cultivation, quality control, supply chains, manufacturing, processing, transportation, product labeling, marketing, and availability.

Uniform national policies on hemp would promote interdisciplinary scientific research, which should also be undertaken by government and private institutions, agencies, and universities.

Regulatory and ethical standards should be introduced for hemp-based products, ensuring accurate consumer information, appropriate labeling, and accountability.

Integration of hemp-based products into allied health frameworks and mindfulness practices for holistic healing should be supported by scientific research and clinical evidence, not by false claims on health benefits.

Awareness programs, public information, and education will help in reducing the social stigma associated with cannabis, often considering hemp as a narcotic.

5.4 Future Directions

They are as follows:

Promoting hemp-based products supported by authentic scientific evidence and clinical trials.

Considering traditional Indian knowledge on Vijaya and Bhang plants, which were historically prevalent in ancient Ayurveda and known for their controlled uses in medicine and healing.

Policies on hemp should also start considering the socio-economic and environmental sustainability aspects of hemp.

Successful global models on hemp should also be studied and taken into consideration in policy-related matters.

Technology innovation across allied healthcare sectors should be undertaken.

ETHICAL APPROVAL

Not required for doctrinal, conceptual, and analytical papers

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