"Hawan" bridging between ancient rituals and modern mental health therapy

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Abstract

Background

Notable abnormalities in behaviour, emotional control, or cognitive function are indicative of mental disorders, which are usually associated with suffering or impairment in important domains of functioning. Allopathic medicine, effectual, and mostly founded on ideas created by the ancient Greeks, forms the basis of many contemporary health systems worldwide, impeccable for ailments that require rigorous and rapid therapy. Nouvelle medications can effectively address a wide range of undesirable symptoms, permitting patients to resume their regular activities with little discomfort, ignoring its underlying causes. Equitable use of medicinal plants, especially in the form of herbal medicines, could significantly contribute to ensuring healthy lives and fostering wellbeing in light of the shortcomings of allopathic medicine. Conventional medicine may offer a different approach to treating different neurodegenerative conditions. Effective methods for management of Alzheimer's disease (AD) and other neurodegenerative disorders include a balanced lifestyle, excellent dietary habits, getting socio-psychological support, employing Rasayanas, Nasal Drug Delivery (aromatherapy), and performing "Hawan", as defined by Ayurveda. Compared to conventional strategies, Nasal delivery has countless boons encompassing being non-invasive, having a quick commencement of action and having fewer detrimental effects owing to more engrossed distribution. Since, it is delivered intra-nasally; it circumvents both the blood-brain barrier and the systemic first-pass effect, making it a potentially effective medication delivery method for the treatment of neurological illnesses like Alzheimer's disease, Epilepsy, Anxiety etc. The key for clinical professionals and psychiatrists is cautious integration, which includes respecting cultural traditions, monitoring herb-drug combinations, alerting patients to possible risks, and considering evidence-based complementary use in addition to conventional therapies.

Keywords

Aromatherapy, Blood-Brain Barrier, Hawan, Neurological disorders, Nasal Drug Delivery

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INTRODUCTION

Mental disorders involve significant disruptions in behavior, emotions, or cognitive function, often causing distress or impairing daily life. In 2019, an estimated 970 million people worldwide experienced a mental illness, with anxiety and depression being the most common[1-2]. The COVID-19 pandemic in 2020 led to a substantial increase in anxiety cases, highlighting the global impact on mental health[3]. Despite advancements, stigma and discrimination persist, hindering access to necessary care. Efforts towards Sustainable Development Goals recognize mental health as crucial, urging increased awareness, affordable treatments, and innovative research for all mental disorders[4].

Less reliance on contemporary medicine

Allopathic medicine, which is swift, effectual, and mostly founded on ideas created by the ancient Greeks, forms the basis of many contemporary health systems worldwide, impeccable for ailments that require rigorous and rapid therapy.Nouvelle medications can effectively and quickly address a wide range of undesirable symptoms, permitting patients to resume their regular activities with little discomfort, frequently treating the symptoms of a problem, ignoring its underlying causes[5].

Herbal Medicine being preferred and inclined

The use of medicinal plants, particularly herbal medicines, is increasingly recognized for their sustainable and equitable healthcare contributions, complementing allopathic medicine[6]. Recent scientific advancements in identifying bioactive plant compounds have reignited interest in natural products, offering significant health

benefits globally[7-11]. The World Health Organization (WHO) emphasizes the importance of traditional medicines, promoting research and integration into healthcare systems.[10] Most member states (110 out of 179) explicitly declared that their citizenry utilizes herbs as a health resource in the 2019 WHO global survey [12]. Furthermore, since 1999, the number of member states enforcing laws pertaining to herbal medicines has continuously expanded (to 124 in 2018) [13].

Organizations like the European Medicines Agency (EMA) have made significant efforts to provide guidelines for the safe and effective use of herbal drugs, aiming to accelerate their development. However, only 1% of global registrations from 2016 to 2019 were clinical studies evaluating herbal medicines. Despite mounting scientific evidence supporting herbal therapies, widespread adoption as primary natural remedies for health issues remains a distant goal[12].

Herbal products for Mental Disorders

Indigenous peoples have long practiced traditional herbal medicine to treat various ailments, drawing from a rich reservoir of plant-based chemical compounds that hold potential for drug discovery. These ancient medicinal practices, refined over millennia through empirical methods, harbor valuable biomedical insights awaiting modern scientific exploration [14-17]. Approximately 70% of all known natural products originate from plants and their endophytes[16]. Examples include morphine from opium poppies for pain relief, paclitaxel from yew trees used in chemotherapy, and artemisinin from sweet wormwood, recognized with a Nobel Prize for its anti-malarial properties. Nicotine, an alkaloid found in tobacco plants, acts as an effective deterrent against plant-eating insects and finds applications in both contemporary industry and traditional Native American medicine [17].

Several plants, such as eucalyptus and sage, produce volatile 1,8-cineole, which acts as a neuropathic pain inhibitor but also defends against pathogenic infections in damaged plant tissues[18-19]. Salicylic acid, a phenolic compound derived from white willow bark and the precursor to aspirin, regulates responses to environmental stresses like low temperatures, droughts, and salinity[20-21]. Nerolidol, found in essential oils of plants like ginger and tea, supports plant-to-plant communication and enhances resistance to cold stress[22-23]. While Hypericum perforatum, Crocus sativus, Passiflora spp., Galphimia glauca, Ginkgo biloba, Withania somnifera, and Curcuma longa show promising effects in treating various disorders shown in Table 1 [24], research has only explored a fraction of known plant species pharmacologically, with significant gaps remaining[25-26].

Table 1: Adverse Effects Caused by Herbal Medicine

S. No.	Herbal medicine	Disease	Adverse effects caused
1.	Ginkgo (Ginkgo biloba)	Schizophrenia	• Oncogenic impact on the liver and thyroid • Inducing tumorigenesis in the nasal cavity
2.	KAVA (Piper methysticum)	Anxiolytic agent	• Consuming excessively may cause sensitivity to light and double vision
3.	ST. John's Wort (Hypericum perforatum)	Depressive disorder	• Hypersensitivity and breathing difficulty • Hyperventilation with flushing headache, pupil dilation, nausea, irregular heartbeat, and tremble.
4.	Passion flower (Passiflora spp.)	Anticonvulsant activity	• Speculatively heighten the risk of bleeding and disrupt blood test monitoring coagulation parameters.
5.	Ashwagandha (Withania somnifera)	Affective Cause disorders	• DNA Damage • Forms Adducts with Amines and Thiols • Liver Toxicity
6.	Opioids	Neural disorders	• Sedation • Constipation • Decreased Cognition.
7.	Ginseng Total Saponins (Panax ginseng)	Anti-stress	• Loss Of Appetite • Melancholy • Low Blood Pressure • Swelling • Anxiousness

Limitations & side- effects of herbal medicine

The safety of herbal remedies remains a contentious issue despite patients' favorable perceptions and reported satisfaction with therapeutic outcomes, juxtaposed with dissatisfaction towards conventional allopathic medicines due to perceived efficacy and safety concerns [(27-28)].

Herb-induced liver damage shows as a clinical concern and, in rare instances, escalates to acute liver failure. There is no diagnostic marker that distinguishes herb-induced liver injury (HILI) from other types of liver damage, and the clinical indications are frequently non-specific [(29)].

Opioids are commonly used for managing moderate to severe acute and chronic pain despite their drawbacks. These medications often lead to analgesic tolerance, addiction, and behavioral side effects that can result in patient non-compliance. The historical medicinal use of opioids

raises questions about the precise mechanisms underlying their harmful effects during prolonged usage.

Concurrently using sedative herbal supplements like valerian, kava, and chamomile with opioid analgesics can exacerbate central nervous system depression. Opioid prescriptions are known to inhibit GI tract peristalsis and gastric emptying, delaying drug absorption and reducing fluid absorption. This intestinal fluid depletion contributes to constipation and hardened stools [30].

Traditional holistic approach for the management of neurological disorders

Conventional medicine offers diverse approaches to treating neurodegenerative conditions, while Indian ayurvedic medicine presents potential through plant-derived compounds for future neurological research. Ayurveda employs polyherbal formulations with antioxidant properties, amyloid reduction, and neuroprotective, anti-inflammatory, and immunomodulatory effects, influencing neuroendocrine-immune activities, enhancing memory and neurofunctions, and elevating quality of life. Strategies for preventing and managing Alzheimer's disease and other neurodegenerative disorders include balanced lifestyles, optimal dietary habits, sociopsychological support, Rasayanas, Nasal Drug Delivery (e.g., aromatherapy), and "Hawan" rituals as per Ayurvedic practices [31-37].

Nasal Drug Delivery and its importance in Ayurveda for Mental Disorders

Intranasal medication delivery has gained prominence in pharmaceutical R&D over the past decade. Compared to conventional systemic administration, nasal delivery offers numerous benefits including non-invasiveness, rapid onset of action, and often fewer side effects due to enhanced absorption. By bypassing the blood-brain barrier and systemic first-pass effect, intranasal delivery shows promise for treating neurological disorders like Alzheimer's disease (38). Ayurveda highlights Nasya Karma as a crucial part of Panchakarma, offering a sophisticated nasal drug delivery system known for its therapeutic and preventive effects on brain function, eye and ear health, and muscular balance. It is also recommended for localized conditions such as sinusitis [39].

Inhalation Aromatherapy via Brain-targeted Nasal delivery for mood disorders

Aromatherapy, dating back millennia, was favored by Hippocrates for its health benefits through scented massages and baths. Modern pioneers endorse it as a therapeutic practice for mind, body, and soul. Essential oils are used sparingly to stimulate the limbic system via the olfactory nerve cells, affecting neurological and circulatory systems [40]. Common essential oils include lemon, chamomile, lavender, orange, cedarwood, and bergamot, applied through massage, topical treatments, inhalation, and complementary medicine [41].

Essential oils used in aromatherapy affect the sympathetic nervous system, HPA axis, and neurotransmitter systems like GABA, dopamine, and serotonin in animal models [42]. Inhalation of volatile oils stimulates the olfactory system, triggering neurotransmitter release and impacting neurophysiological brain activity, biomarkers, behavior, and mental health [43]. This suggests aromatherapy's benefits for mental health involve both psychological perception and pharmacological actions through systemic absorption or nerve system modulation via nasal olfactory chemoreceptors, crucial for survival and unaffected by psychological processes [44-48].

Risks associated with aromatherapy

There is a chance that aromatherapy will have side effects, some of which are severe. Their frequency is still unclear. The lack of sufficient evidence to support efficacy and potential side effects of aromatherapy raise doubts about the modality's applicability in treating any ailment. There was one fatality among the mild to severe adverse effects. In terms of side effects, dermatitis was most frequent. The most widely used essential oils that were harmful were peppermint, lavender, ylang-ylang, and tea tree oil [49].

"Hawan"- A Spiritual Way to Treat Diseases

"Hawan," derived from Sanskrit, involves placing offerings into a consecrated fire, a significant ritual in Hinduism, Jainism, and Buddhism. It's a scientific process using a dedicated fire pit (agni-kunda) where herbal compositions ("Hawan Samagri") are transformed into vapors, releasing medicinal phytochemicals. This transformation through fire enhances their therapeutic potential, emitting electromagnetic waves and sound signals from mantras to amplify effects in the atmosphere and beyond [37, 50].

Epilepsy

"Hawan samagri" contains over 70% volatile oils that vaporize at high temperatures, many of which possess anticonvulsant properties similar to benzodiazepines, phenobarbital, or valproate by enhancing GABA-nergic

inhibition. These botanicals in "Hawan" also scavenge free radicals, boost antioxidants, reduce nitric oxide levels, and employ other mechanisms to potentially prevent epilepsy. Regular "Hawan" practice could help maintain antiepileptic elements in the body, potentially reducing seizure risk [37].

Alzheimer's disease

Based on literature, "Hawan" was traditionally devised by ancient healers as a preventive measure against Alzheimer's disease (AD). Regular "Hawan" therapy aims to maintain beneficial anti-AD components in the brain, potentially slowing disease progression. Modern formulations now employ targeted drug delivery to ensure precise medication concentration. The ritualistic use of "Hawan" allows volatile oils to vaporize, delivering therapeutic vapors to the central nervous system via the nasal cavity, suggesting its potential in AD prevention by sustaining therapeutic thresholds in the body [51].

Anxiety

The elevated fire temperature during "Hawan" causes volatile oils in the ingredients to vaporize, including vanillin in cloves, saffron, and myristin in nutmeg, which interact with GABA-A receptors to reduce anxiety. Beta-caryophyllene in cloves binds CB2 receptors, also contributing to its anti-anxiety effects. "Hawan" components possess antioxidant properties that combat free radicals, offering therapeutic benefits for anxiety and mental health conditions [50].

"Hawan" recommended as Nasal Drug Delivery system

Vedic literature describes "Hawan" as a treatment method for a wide range of diseases, including infectious and non-infectious conditions, with detailed guidelines on precautions, procedural steps, causes of diseases, and therapeutic enhancements. Yagyopathy has proven highly beneficial for managing psychological, psychiatric, and psychosomatic ailments. Mental illnesses, more prevalent and severe than physical ailments, affect nearly every aspect of society. About 90% of somatic disorders stem from deep-seated mental causes. Unchecked, common mental flaws like confusion, anxiety, and rage can escalate, causing profound psychological suffering such as depression, insomnia, and other complex disorders, even leading to insanity.

Accidie, aboulia, amnesia, dullness, and inefficiency are manifestations of mental illness, leading to socioeconomic challenges such as poverty, backwardness, insults, neglect, and scorn [52]. During "Hawan," the body absorbs sublimated vital compounds and medicinal products primarily in the brain before distribution to other organs, both delicate and robust. Thus, it directly alleviates brain-triggered ailments and disorders as the body absorbs heat from the sacrificial fire and vapors of sublimated herbs through pores and inhalation. Once reaching the brain and nerves, it boosts levels of free radicals, antioxidants, and negatively charged ions, effectively alleviating the primary source of mental anguish [53-54]. Activation of different therapeutic pathways in mental health through volatile oils released from Hawan smoke is listed in Figure 1.

Clinical Implications for Psychiatrists and Clinical Practitioners

1. Holistic & Integrative Psychiatry: Psychiatrists should be aware that a large number of their patients actively use herbal and traditional medicines, occasionally in addition to prescription drugs. When closely watched, integrative methods that blend allopathic treatment with scientifically proven herbal remedies (such as ashwagandha for stress/anxiety and St. John's Wort for mild depression) might increase patient satisfaction and adherence.
2. Monitoring Safety & Herb-Drug Interactions: Adverse effects (such as hepatotoxicity, bleeding concerns, and drowsiness) are possible with herbal therapy. In order to detect possible herb–drug interactions, especially with psychotropics (SSRIs, benzodiazepines, and antipsychotics), practitioners should regularly inquire about the usage of herbal supplements. For instance, St. John's Wort can lessen the effectiveness of antidepressants or anticonvulsants by inducing CYP3A4 enzymes.
3. Evidence-Based but Cautious Adoption: Only around 1% of herbal products go through clinical studies, despite WHO's encouragement for the integration of traditional medicine. Psychiatrists should distinguish between experimental approaches (like Hawan therapy, which is based only on cultural or ritual evidence) and empirically supported treatments (like saffron extract for depression and aromatherapy for mild anxiety).
4. Aromatherapy & Nasal Delivery for Mood Disorders: By modifying the HPA axis and neurotransmitter systems, inhaled essential oils (lavender, bergamot, and chamomile) exhibit quantifiable anxiolytic effects. Aromatherapy is not a substitute for conventional medication, but rather a supplemental adjuvant for mild anxiety and sleep disorders.
5. Ayurvedic Approaches to Neurodegeneration: In

preclinical models of Parkinson's and Alzheimer's disease, ayurvedic polyherbal formulations exhibit neuroprotective benefits. To create preventive and supportive care plans, psychiatrists who treat senior citizens may look into partnering with integrative medicine experts.

6. Risk Management: Patients must be informed of the side effects of herbal and aromatic therapy, such as dermatitis, hepatotoxicity, and drowsiness. The practice of psychiatry should incorporate standardized safety recommendations, such as those issued by the EMA.
7. Patient Education: Patients should be informed by clinicians that "natural" does not always equate to "safe." Non-compliance, abuse, and hazardous polypharmacy can all be decreased by shared decision-making.

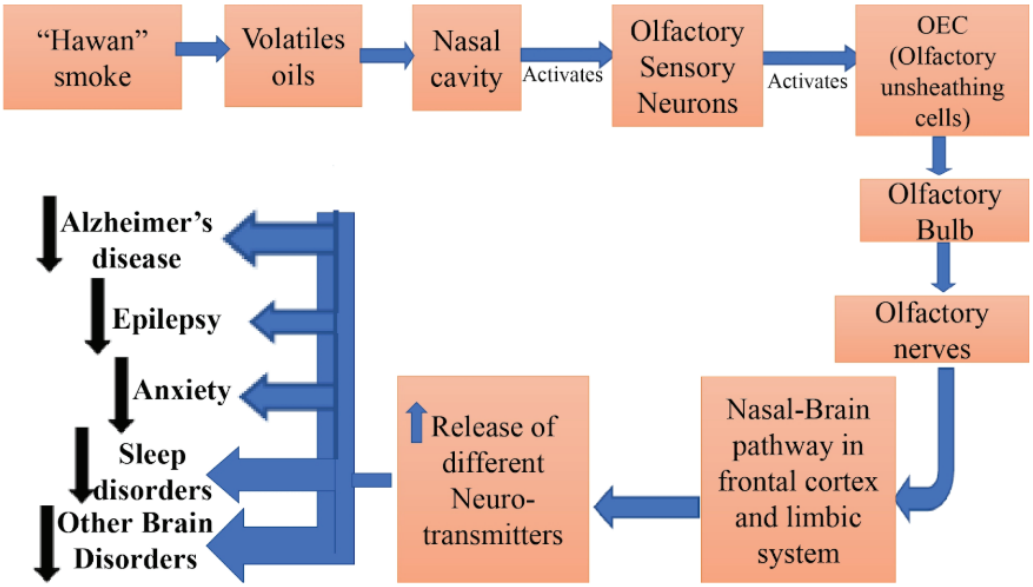

Figure 1: Activation of therapeutic pathways in mental health through volatile oils released from Hawan smoke

CONCLUSION

The research provides a comprehensive review of using Yagya Therapy for treating psychological and neurological disorders. Ancient civilizations have long utilized medicinal smoke from various herbs, supported by ancient medical texts. Yagya therapy, detailed in Vedic literature, addresses both infectious and non-infectious diseases and mental health issues. Components of "Hawan samagri" vaporize during the ritual and have shown therapeutic effects such as anti-convulsant, anti-anxiety, anti-epileptic, and anti-Alzheimer properties. "Hawan" emerges as a therapeutic approach for conditions like anxiety, Alzheimer's, and epilepsy. The secret for psychiatrists and clinical professionals is cautious integration, which includes honoring cultural customs, keeping an eye out for herb-drug combinations, warning patients about potential hazards, and taking evidence-based complementary use into account in addition to mainstream therapies. While maintaining safety, a well-rounded, patient-centered strategy can improve treatment results.

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CONFLICT OF INTEREST

NIL

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