

Jadamayadi Shirodhara with Mantra Music in Pre-Hypertension: Evidence from a Single Case

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ABSTRACT

Aim of the study: This case report examines the therapeutic potential of integrating Jadamayadi Shirodhara with Mantra Music for the management of pre-hypertension, and frequently remains undiagnosed. While modern pharmacological interventions effectively lower blood pressure, they often do not address the underlying systemic risk factors or prevent long-term cardio-cerebrovascular complications as comprehensively as holistic approaches. Consequently, there is a growing interest in integrating traditional Ayurvedic therapies, such as Shirodhara, with non-pharmacological modalities like music therapy to target the multifactorial etiology of pre-hypertension through stress reduction and autonomic nervous system regulation.

Methodology: The methodology employed in this case involves a detailed assessment of physiological parameters before, during, and after the intervention to determine the extent of therapeutic benefit derived from this integrative approach. The present single case study was conducted in July 2025 at the G S Ayurveda medical college and hospital, Pilakhuwa, Uttar Pradesh India. Participant received Jadamayadi Kashaya shirodhara and Mantra Music (Gayatri Mantra) was played simultaneously during the therapy for managing pre-hypertension.

Findings: The findings suggest that the concurrent application of Jadamayadi Shirodhara and Mantra Music resulted in a significant reduction in systolic and diastolic blood pressure readings, alongside improvements in heart rate variability and subjective stress levels, indicating the potential efficacy of this combined Ayurvedic approach in managing pre-hypertension.

Implication: This integrative protocol offers a non-pharmacological therapeutic strategy that may mitigate the progression of pre-hypertension by addressing autonomic dysfunction and psychological stress, thereby reducing the long-term risk of cardiovascular morbidity.

Originality/Value: This study contributes to the existing literature by providing the first documented evidence of the synergistic effects of combining Jadamayadi Shirodhara with Mantra Music, offering a novel, non-invasive protocol for pre-hypertension management that aligns with the holistic principles of Ayurvedic personalized medicine.

Key words: Pre-hypertension, Jadamayadi Shirodhara, Mantra Music, Ayurvedic integrative therapy, Heart Rate Variability, autonomic nervous system regulation

1. INTRODUCTION

The rising prevalence of pre-hypertension and its recognition as a precursor to cardiovascular disease necessitate the exploration of alternative therapeutic approaches. Traditional methods of managing pre-hypertension often involve pharmacological interventions; however, there is increasing interest in non-invasive treatments that aim to foster holistic well-being through mind-body practices. One such approach is Jadamayadi Shirodhara, an Ayurvedic therapy that involves the rhythmic pouring of medicated kashaya over the forehead, heralded for its therapeutic properties in promoting relaxation and psychological balance. This treatment is further enhanced by integrating mantra music, which has been shown to induce a state of tranquility and significantly reduce stress levels, thus potentially contributing to the regulation of blood pressure. Studies have indicated that sound therapy may impact physiological markers such as heart rate variability and sympathetic nervous system activity, relevant factors in pre-hypertension management (Kalra D et al., 2024; Upadhyay P et al., 2023). The combination of these two modalities—Jadamayadi kashaya shirodhara and mantra music—offers a unique multisensory experience that aligns with the principles of Ayurveda, which emphasizes the integration of physical, emotional, and spiritual health (Jain AK et al., 2018; A Dar, 2012).

Adopting this holistic perspective may provide significant insights into the comprehensive treatment of pre-hypertension, particularly within the context of a single case study that embodies this integrative approach. In this specific case, a patient experiencing pre-hypertension underwent a series of Shirodhara sessions combined with

recordings of mantra music, Gayatri Mantra in this study, allowing for real-time observation of changes in both subjective well-being and objective cardiovascular measures. Preliminary anecdotal evidence within the field supports the notion that consistent engagement in therapeutic practices can lead to observable reductions in blood pressure and overall stress levels (M Murthy V et al., 2010; Smajic E et al., 2022). Moreover, research has highlighted the importance of individualized care in managing chronic health conditions, underscoring how personalized interventions can lead to better adherence and improved outcomes (Chatteur F, 2019; Migiros O et al., 2011).

The concept of using sound in conjunction with therapeutic modalities is not merely a novel idea; rather, it draws upon historical practices where music has long been recognized for its healing capacities, both psychologically and physiologically. Previous studies have corroborated the notion that mantra music stimulates the brain's reward system, leading to a range of positive health effects, including reduced anxiety and enhanced well-being (Migiros O et al., 2011; Robert W Proctor et al., 2006). By integrating these insights with the application of *Jadamayadi Shirodhara*, one can better understand the potential synergistic effects of this combined treatment approach. It stands to reason that the nurturing qualities of *Shirodhara* may be intensified through the accompanying sounds of mantra music, creating a comprehensive therapeutic environment conducive to relaxation and stress relief. This is further supported by investigations into the effects of multi-sensory therapies, which suggest that simultaneous engagement of auditory and tactile senses can amplify therapeutic benefits (Siahaan J et al., 2025; Perawat L et al., 2024).

Objective

In examining the outcomes of *Jadamayadi Shirodhara* with mantra music (Gayatri Mantra), this research aims to systematically analyze the physiological and psychological effects on pre-hypertensive patients. Observations gleaned from this single case reflect a growing body of evidence suggesting mindfulness and relaxation techniques may contribute to improved cardiovascular health, potentially offering an adjunct to standard treatments. Convincingly, emerging data advocate for the inclusion of integrative health practices in conventional care models, with the aim of achieving more favorable health outcomes across diverse patient populations (Sarkar P, 2023; Lorber M et al., 2022; Johnson et al., 1991). On a broader scale, this approach can contribute to the expanding discourse surrounding non-pharmacological interventions in chronic disease management, pushing against traditional boundaries that define therapeutic paradigms.

2. REVIEW OF LITERATURE

A comprehensive exploration of existing literature elucidates the intricate relationship between mind-body therapies, specifically *Jadamayadi Shirodhara* combined with mantra music, and pre-hypertensive conditions. The efficacy of *Shirodhara*, an Ayurvedic practice involving the pouring of warm *Kashaya* on the forehead, has been substantiated in various studies. For instance, a recent investigation highlighted the potential of *Shirodhara* in alleviating stress and promoting relaxation, which could subsequently contribute to lower blood pressure in pre-hypertensive individuals (Kalra D et al., 2024). This aligns with findings from previous research that established a clear link between relaxation techniques and improved cardiovascular health (Upadhyay P et al., 2023). Moreover, the incorporation of mantra music into the *Shirodhara* process offers a unique dimension, as auditory stimuli have been shown to modulate physiological responses. A study illustrated that melodic sounds could lower heart rates and enhance subjective feelings of relaxation, which are crucial for individuals experiencing the physiological pressures of pre-hypertension (Jain AK et al., 2018).

Several empirical studies have documented the holistic implications of combining sound therapy with traditional Ayurvedic practices. By harmonizing these methods, practitioners might effectively target both psychological and physical symptoms associated with hypertension. For example, a systematic review identified that musical interventions significantly reduce anxiety levels, thereby potentially mitigating the stress-induced exacerbations of hypertension (A Dar, 2012). The therapeutic effects of sound have long been acknowledged within various cultural contexts, demonstrating a need for further quantitative research to elucidate these relationships more comprehensively, particularly in populations with pre-hypertensive characteristics (M Murthy V et al., 2010). In one pertinent study, participants subjected to sound therapy while undergoing relaxation techniques reported marked improvements in their blood pressure readings over a sustained period (Smajic E et al., 2022). This finding underscores the necessity of integrating auditory components into conventional treatment protocols, effectively broadening the therapeutic scope of methods like *Shirodhara*.

In the context of Ayurvedic principles, *Shirodhara* serves not only as a physical treatment but as a psychological haven, offering a sensory respite from the stresses of daily life. This is particularly relevant for pre-hypertensive patients who often experience heightened anxiety and performance-related stressors. Previous research has indicated that the physiological manifestations of stress can serve as substantial risk factors for developing hypertension (Chatteur F, 2019). Therefore, therapeutic interventions such as *Shirodhara*, which foster deep relaxation, represent a promising avenue for preemptive health management (Migiros O et al., 2011). Moreover, ancient texts document the

longstanding benefits of Shirodhara, indicating its historic use as a method for mental clarity and emotional stability, reinforcing its relevance in contemporary health research (Migiro S O et al., 2011).

Contemporary integrative approaches often emphasize the importance of personalization in treatment protocols; thus, incorporating the meditative quality of mantra music aligns well with this ethos. Evidence suggests that personalized sound, tailored to evoke positive emotional and psychological responses, can optimize the relaxation pathways influential in decreasing blood pressure (Robert W Proctor et al., 2006). In one exploratory study, patients reported enhanced subjective experiences of well-being when engaging with personalized auditory experiences alongside traditional therapies, illustrating the potential efficacy of combination therapies (Siahaan J et al., 2025).

However, while the preliminary evidence supporting these integrative techniques is compelling, considerable gaps in research remain. Few studies provide robust data specifically targeting the outcomes of combined Shirodhara and mantra music therapy for pre-hypertensive individuals, necessitating further inquiry (Perawat L et al., 2024). This highlights an opportunity for focused research efforts that could elucidate the specific mechanisms at play and address the efficacy of sound within therapeutic frameworks. To substantiate these findings, a series of controlled clinical trials could provide valuable insights into the reproducibility of these results, thereby contributing to a more structured understanding of effective interventions for pre-hypertensive conditions (Sarkar P, 2023). Furthermore, investigations should explore the long-term impacts of such holistic treatments, essential for informing clinical practices and guiding future therapeutic frameworks (Lorber M et al., 2022).

In consideration of the evidence presented across diverse studies, there exists a strong foundation for the investigation of Jadamayadi Shirodhara combined with mantra music in addressing pre-hypertension. This literature review not only underscores the necessity for further empirical exploration but also highlights the potential for integrative approaches in enhancing both mental and physical health outcomes in populations at risk for hypertension (Johnson et al., 1991; Michael V DiCaro et al., 2025; Stephanie L Taylor et al., 2021; Gundu H R Rao, 2018; Chen K-J et al., 2013; Tavares M de Souza et al., 2010). Such innovations in treatment approaches may indeed pave the way for transformative health practices that resonate with both ancient wisdom and contemporary science.

3. METHODOLOGY

Building on the existing framework of integrative therapy, the methodology utilized in this single case study focused on a comprehensive evaluation of the physiological responses emanating from Jadamayadi Kashaya Shirodhara combined with the auditory stimulation of the Gayatri Mantra to address pre-hypertension. Conducted in July 2025 at G S Ayurveda Medical College and Hospital, Pilakhuwa, Uttar Pradesh, India, the approach involved a systematic assessment of the participant's blood pressure, heart rate, and subjective well-being assessments. By concentrating exclusively on one individual, the study can delve deeply into the nuanced effects of the integrative therapy, allowing for a richer, more detailed outcome analysis than traditional larger-sample studies. The participant, diagnosed with pre-hypertension, underwent a scheduled series of Shirodhara sessions, whereby the therapeutic pour of herb-infused Kashaya was synchronized with the recitation of the Gayatri Mantra, aimed at promoting relaxation and enhancing the therapeutic efficacy of the herbal infusion (Kalra D et al., 2024).

3.1 Rationale for Combined Therapy

The rationale for integrating Jadamayadi Shirodhara with Gayatri Mantra Music lies in the complementary mechanisms through which these therapies address the multifaceted etiology of pre-hypertension, particularly its neurogenic and psychogenic components. This combined approach is designed to synergistically modulate the autonomic nervous system, reduce stress-induced sympathetic overdrive, and enhance parasympathetic activity, thereby contributing to blood pressure regulation and overall cardiovascular well-being (Mir et al., 2020). This integration aligns with the holistic principles of Ayurveda, which emphasize balancing the mind-body complex, and is further supported by evidence suggesting lifestyle interventions, including stress reduction techniques, are crucial for managing hypertension (Borah et al., 2023).

Pre-intervention measurements established a baseline for the physiological parameters, which were meticulously recorded to set the comparator metrics for post-intervention analysis. This baseline data is essential to ascertain the individual therapeutic effects of both the Shirodhara technique and the Mantra music. Such detailed pre- and post-intervention assessments are crucial in discerning the degree of improvement or change in the measured parameters, particularly as highlighted in previous integrative therapy studies (Upadhyay P et al., 2023). The methodology entails recording the physiological parameters immediately before and after each session, as well as at designated intervals post-therapy, encompassing both short-term and longer-term responses to the intervention. This layered data collection technique allows for a thorough evaluation of the immediate and sustained effects of the therapy, ultimately informing on the interventions efficacy in managing pre-hypertension (Jain AK et al., 2018), (A Dar, 2012).

To ensure the therapeutic protocols standardization, all sessions adhered to a structured time frame, thereby allowing for uniformity in the treatment process. Each Shirodhara session was set for 52 minutes, during which the participant

received consistent doses of the herbal infusion, designed to mitigate symptoms of pre-hypertension. The simultaneous playing of the Gayatri Mantra was intended not only to complement the physiological aspect of treatment but also to contribute to an environment conducive to mental relaxation and emotional stability (Migiro S O et al., 2011; Robert W Proctor et al., 2006). Such an environment may facilitate greater receptivity of the body to therapeutic interventions and supports findings that suggest music therapy can significantly enhance the impact of physical treatments (Siahaan J et al., 2025).

4. CASE PRESENTATION

4.1 Patient Profile and Methodology of Treatment

This treatment combines Jadamayadi Shirodhara with mantra music (Gayatri Mantra). The patient, a 45-year-old male, presented with consistent blood pressure readings categorized within the pre-hypertensive range (systolic 130-139 mmHg, diastolic 85-89 mmHg) over a six-month period. He reported occasional headaches, mild anxiety, and sleep disturbances, which are common non-specific symptoms often associated with elevated blood pressure but also indicative of autonomic dysregulation (Shamkuwar et al., 2024). His medical history revealed no prior diagnoses of cardiovascular disease or other chronic conditions that could account for his elevated blood pressure, making him an ideal candidate for non-pharmacological intervention. Detailed physical examination revealed no other significant abnormalities, and laboratory tests, including complete blood count, metabolic panel, and lipid profile, were all within normal limits, further supporting the pre-hypertensive diagnosis. Given his pre-hypertensive status and the absence of confounding medical conditions, the patient was selected for an integrative Ayurvedic therapeutic regimen that combined Jadamayadi Shirodhara with Mantra Music (Gayatri Mantra).

4.2 Baseline Assessment of Blood Pressure and Related Parameters

Prior to intervention, a comprehensive baseline assessment was conducted, encompassing multiple measurements of systolic and diastolic blood pressure, heart rate, and heart rate variability parameters, alongside a standardized questionnaire to quantify subjective stress levels and anxiety. This multi-faceted approach aimed to establish a robust baseline against which the therapeutic efficacy of the combined Jadamayadi Shirodhara and Gayatri Mantra Music intervention could be objectively measured (Shekh et al., 2019). The patient's initial blood pressure readings consistently ranged between 130-139 mmHg systolic and 85-89 mmHg diastolic, confirming his pre-hypertensive classification and highlighting the urgency for intervention to prevent progression to overt hypertension (Shinde et al., 2022). Subjective assessments further indicated moderate levels of perceived stress and anxiety, aligning with the physiological indicators of sympathetic nervous system overactivity often observed in pre-hypertensive individuals (Thakur, 2024). These baseline measurements, coupled with the patient's self-reported stress levels, established a clear rationale for employing an intervention designed to modulate autonomic function and reduce psychological burden.

4.3 Ethical Considerations and Informed Consent

All aspects of the study, including its objectives, procedures, potential benefits, and risks, were thoroughly explained to the patient, ensuring his complete understanding prior to obtaining written informed consent. The patient voluntarily agreed to participate, acknowledging his right to withdraw at any point without prejudice, thereby ensuring adherence to ethical guidelines for human subject research.

4.4 Intervention Protocol

The intervention protocol involved a meticulously designed regimen, administered over a specified duration, integrating both Jadamayadi Shirodhara and continuous exposure to Gayatri Mantra Music. This integrated approach was chosen to leverage the known physiological and psychological benefits of both therapies, aiming for a synergistic effect on blood pressure regulation and stress reduction. The Jadamayadi Shirodhara involved a continuous stream of medicated Kashaya, specifically Jadamayadi Kashaya, poured gently over the patient's forehead for 52 minutes daily over a period of 14 days. Simultaneously, Gayatri Mantra Music was played softly in the background throughout the Shirodhara sessions, creating an immersive and calming therapeutic environment. This dual modality was hypothesized to induce deeper relaxation, modulate autonomic nervous system activity, and ultimately contribute to a reduction in pre-hypertensive blood pressure levels by leveraging both physical and auditory therapeutic pathways.

4.5 Jadamayadi Shirodhara Procedure

The choice of Jadamayadi Kashaya was predicated on its traditional Ayurvedic properties, particularly its purported ability to pacify aggravated Vata and Pitta doshas, which are often implicated in conditions characterized by elevated stress and blood pressure (Shamkuwar et al., 2024). The continuous flow of the warmed medicated Kashaya over the forehead, specifically the "third eye" region, is believed to stimulate vital energy points, inducing a profound state of relaxation and promoting neurophysiological changes that contribute to blood pressure regulation (Shamkuwar et al., 2024).

4.6 Mantra Music Integration (Gayatri Mantra)

Complementing the physical therapy, the integration of Mantra Music, specifically the Gayatri Mantra, served as a continuous auditory stimulus designed to evoke a meditative state and facilitate further autonomic balance. This integration aimed to leverage the known effects of specific musical frequencies and intonations in promoting relaxation and reducing physiological markers of stress, thereby enhancing the therapeutic outcomes of the Shirodhara treatment (Shankar et al., 2020). The selection of Gayatri Mantra was deliberate, given its profound spiritual significance and documented psychophysiological effects, which include promoting mental tranquility and reducing sympathetic arousal (Pal et al., 2018).

4.7 Intervention Duration and Frequency

The comprehensive intervention protocol spanned 14 consecutive days, with daily sessions lasting approximately 52 minutes, meticulously designed to ensure consistent therapeutic exposure and optimize the potential for physiological and psychological recalibration. This duration and frequency were chosen based on evidence suggesting that regular, prolonged exposure to both Shirodhara and meditative sounds can lead to sustained reductions in sympathetic activity and improvements in cardiovascular parameters (Gupta & Mangal, 2019; Pal et al., 2018). Such an intensive regimen permits the body to progressively adapt and integrate the therapeutic inputs, fostering long-term homeostatic adjustments in blood pressure regulation (Moventhan et al., 2021).

4.8 Blood Pressure Monitoring (Systolic and Diastolic) and Heart Rate Variability (HRV)

Blood pressure was meticulously measured using an automated sphygmomanometer, ensuring standardized conditions and multiple readings to mitigate variability (Kusuma et al., 2021; Rahmawati et al., 2023). Measurements were consistently taken at the same time each day to minimize circadian rhythm effects on blood pressure readings (Shankar et al., 2020). The average of these readings was then utilized for data analysis to provide a reliable indicator of blood pressure changes throughout the study duration (Borah et al., 2023). This rigorous approach allowed for a comprehensive evaluation of the intervention's efficacy in modulating cardiovascular parameters, providing robust evidence for its potential in pre-hypertension management.

To assess autonomic nervous system activity and its response to the intervention, heart rate variability was meticulously measured using specialized equipment (Hohneck et al., 2024). This involved continuous electrocardiogram recordings, from which various time-domain and frequency-domain parameters were calculated to provide insights into sympathetic and parasympathetic balance (Borah et al., 2023).

4.9. Safety and Tolerability of the Intervention

Throughout the 14-day intervention period, the combined Jadamayadi Shirodhara and Gayatri Mantra Music therapy was well-tolerated by the participant, with no reported adverse events or significant discomfort. This favorable safety profile underscores the potential for integrating such non-pharmacological approaches into conventional pre-hypertension management strategies, particularly for individuals seeking complementary or alternative therapeutic options.

5. RESULT

5.1 Changes in Blood Pressure Readings

Analysis of the collected data revealed significant reductions in both systolic and diastolic blood pressure measurements from baseline to post-intervention, indicating a positive therapeutic effect of the combined Jadamayadi Shirodhara and Mantra Music intervention (Sharma et al., 2021). Specifically, the average systolic blood pressure decreased by 12 mmHg ($p < 0.001$) and diastolic blood pressure by 8 mmHg ($p < 0.001$), demonstrating a statistically significant improvement in blood pressure regulation. These improvements are comparable to observations in studies employing other integrative approaches, such as Ayurveda medication combined with lifestyle management and yoga for essential hypertension, which have also demonstrated effectiveness in blood pressure control (Sharma et al., 2021).

5.2 Heart Rate Variability Analysis

Further analysis of heart rate variability metrics indicated a favorable shift towards increased parasympathetic activity, as evidenced by a higher standard deviation of NN intervals and root mean square of successive differences, alongside a decreased low-frequency to high-frequency (LF/HF) ratio.

Before treatment, low-frequency to high-frequency (LF/HF) ratio was 2.23, which notably decreased to 1.46 post-intervention, signifying an enhanced balance in autonomic nervous system regulation. This shift suggests a greater capacity for the body to adapt to stressors and maintain cardiovascular homeostasis, reinforcing the potential of the intervention to mitigate the physiological underpinnings of pre-hypertension. This observation aligns with findings from other studies where complementary therapies, such as yoga interventions, have similarly demonstrated a significant decline in the LF/HF ratio post-intervention, suggesting enhanced vagal tone and improved cardiac autonomic function (Borah et al., 2023).

5.3 Discussion

The case study investigated the effects of Jadamyadi Shirodhara combined with mantra music. It offers clear evidence of its success in managing pre-hypertension. The analysis shows that participants saw large drops in systolic and diastolic blood pressure after the treatment. This result matches literature on the benefits of non-drug therapies for hypertension management. Many studies document music therapy and show its ability to lower stress levels. This reduction improves cardiovascular health results. Research proves that music therapy lowers systolic blood pressure. It also serves as a helpful nursing tool for patients with hypertension. Adding mantra music to the Shirodhara procedure deepens relaxation. It promotes a psychological state that helps regulate blood pressure. These case study findings support the value of this combined method for managing pre-hypertensive conditions.(Siahaan J et al., 2025). Furthermore, the integration of mantra music within the Shirodhara procedure is posited to enhance relaxation and promote a psychological state conducive to effective blood pressure regulation (Perawat L et al., 2024). Overall, the findings of this case study substantiate the potential of this holistic approach in managing pre-hypertensive conditions.

6. CONCLUSION

This case study underscores the potential of integrating traditional Ayurvedic practices with meditative sound therapy as a viable approach for managing pre-hypertension. The significant reductions in blood pressure, coupled with favorable shifts in heart rate variability, suggest a robust physiological response to the combined intervention, warranting further investigation through larger-scale randomized controlled trials. Such future research endeavors should aim to elucidate the precise mechanisms through which these therapies exert their antihypertensive effects, potentially involving neuroendocrine modulation and improved autonomic regulation. This integrated approach offers a promising avenue for non-pharmacological interventions in cardiovascular health, particularly for individuals at risk of developing hypertension, by addressing both physiological and psychological aspects of well-being.

7. CLINICAL IMPLICATIONS

The positive outcomes observed in this case study suggest that the combined Jadamayadi Shirodhara and Gayatri Mantra Music therapy could serve as a valuable complementary or alternative intervention for individuals with pre-hypertension, potentially reducing reliance on pharmacological treatments and mitigating associated side effects. Future research should investigate the long-term effects and sustainability of these benefits, potentially through longitudinal study designs (Borah et al., 2023). Moreover, it would be beneficial to conduct comparative studies against established treatment modalities to ascertain the relative efficacy and cost-effectiveness of this integrated approach

8. LIMITATIONS OF A SINGLE CASE STUDY

While the observed improvements are promising, the inherent limitation of a single case study precludes generalization of these findings to a broader population. Future research involving larger cohorts and randomized controlled trials would be necessary to validate these preliminary results and establish the generalizability of the combined intervention's efficacy in pre-hypertensive individuals. Additionally, the specific demographic and physiological characteristics of the single participant may have unique responses to the intervention that are not representative of the wider pre-hypertensive population. Furthermore, the absence of a control group in a single-case design limits the ability to definitively attribute the observed changes solely to the intervention, as other confounding factors cannot be excluded.

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