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Effect of Mantra Therapy on Feto-Maternal Wellbeing: A Systematic Review

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ABSTRACT

Background: Mantra therapy is a vibrational healing modality grounded in Vedic and Ayurvedic philosophy that aims to enhance psychological and physiological health. Feto-maternal wellbeing encompasses maternal emotional stability, endocrine balance, immunological competence, and fetal neurodevelopment. Elevated stress and anxiety during pregnancy can perturb hormonal homeostasis, particularly by increasing cortisol levels, and thereby negatively influence pregnancy outcomes. Owing to the rising interest in non-pharmacological prenatal interventions, mantra therapy has been increasingly advocated as a potential integrative and holistic strategy for maternal care.

Objective: The present review seeks to investigate the influence of mantra therapy on feto-maternal health, with particular emphasis on its neurophysiological, psychological, and immunomodulatory roles throughout gestation. Additionally, it aims to identify methodological limitations in the current literature and underscores the necessity for rigorously designed empirical investigations.

Methodology: This systematic review was performed under the PRISMA guidelines. Electronic databases, including PubMed, Scopus, Web of Science, Cochrane Library, and Embase, were systematically queried for peer-reviewed articles published between 2000 and 2024, employing pre-defined MeSH terminology and keyword combinations. Studies were included based on their focus on pregnant individuals receiving structured mantra-based interventions.

Results: 12 studies met the inclusion criteria. These comprised randomized controlled trials (n=3), observational or interventional studies (n=6), theoretical models (n=2), and one systematic review. Across studies, mantra therapy, often integrated with meditation or yoga, was associated with reduced systolic blood pressure, improved sleep quality, lower anxiety levels, and decreased cortisol concentrations. Fetal auditory receptivity and potential immune modulation were also observed.

Conclusion: While mantra therapy holds promising theoretical value in promoting feto-maternal health, its clinical applicability remains under-explored due to a paucity of biomarker-based studies. Therefore, future research should prioritize robust randomized controlled trials incorporating physiological and molecular indicators to validate their therapeutic efficacy

Keyword: *Ayurveda, cortisol, mantra chikitsa, neurodevelopment, prenatal stress, pregnancy outcomes*

1. INTRODUCTION

Mantra therapy constitutes a structured therapeutic modality characterized by the rhythmic repetition of specific phonetic units, be it syllables, phrases, or sound patterns, intended to induce relaxation, modulate autonomic nervous system responses, and enhance cognitive clarity and attentional control [1]. Typically, mantras are composed in the literary form of single or multiple line shlokas, although variants in monosyllabic constructs are also traditionally recognized. This practice is fundamentally predicated on the premise that vibrational sound energy exerts regulatory influence upon bodily physiology, mental processes, and the subtle dimensions of consciousness.

Mantras in the Vedas

The Vedas, recognized as the most ancient scriptures of Hinduism, form the philosophical and spiritual cornerstone of Indian religious traditions. They serve as the primordial source of metaphysical knowledge and ritual guidance, which was transmitted orally across generations as sacred mantras. These potent sonic expressions were revealed to Vedic seers (Rishis)

during profound meditative absorption, earning them the title of Mantra Drishtas (those who have perceived the mantras) [2].

The structural framework of the Vedic corpus, comprising hymns, incantations, and ritual formulae, was largely organized around these sacred words. For instance, the *Rigveda* elucidates mantras' sanctity and vibrational potency, asserting their capacity to harmonize human consciousness with universal cosmic rhythms. The Vedic sages advocated mantra recitation as a transformative medium for elevating consciousness and facilitating divine communion [3]. Among the four Vedas, the *Atharvaveda* holds prominence for its emphasis on the pragmatic and curative applications of mantras. Atharvaveda integrates mantras for both spiritual evolution and material well-being. These include chants for healing physical ailments, safeguarding against malevolent influences, enhancing familial and societal prosperity, and attaining meditative transcendence. [4].

Ayurvedic Perspective of Mantra Therapy

Ayurveda, the ancient medical tradition of India, transcends the boundaries of a mere therapeutic discipline; it represents a comprehensive philosophy of life designed to sustain physical health, mental equilibrium, and spiritual liberation. Rooted in the *Atharvaveda*, Ayurveda encompasses a diverse spectrum of healing modalities, one of which is Mantra Chikitsa (mantra-based therapy). This intervention is traditionally classified under *Daiva-Vyapashraya Chikitsa* (a spiritually oriented form of treatment that employs sacred mantras, rituals, and prayers, etc) to address disorders believed to arise from karmic influences or metaphysical imbalances [5,6].

Mantra therapy is extensively cited in the Ayurvedic literature, including the Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, which collectively form the foundation of classical Ayurvedic knowledge. These texts advocate that the systematic chanting or auditory exposure to specific mantras can modulate the psychophysiological framework of an individual. The therapeutic effects are theorized to manifest through vibrational resonance, influencing bodily *doshas* (Body humors), *manas* (mental states), and *atma* (spiritual consciousness) alike [7,8]. The practice is considered particularly effective for conditions classified as *Adhyatmika* (spiritual origin) or *Adhidaivika* (divine cause) disorders, such as *unmada* (psychosis), *apasmara* (epilepsy), and other psychosomatic disturbances. The vibrational frequencies generated by repetitive mantra chanting are believed to stimulate subtle neural and energetic pathways, thereby restoring harmony across the body-mind-consciousness triad [9]. Thus, mantra therapy in Ayurveda is not merely symbolic but is positioned as a bio-psycho-spiritual intervention with cross-dimensional therapeutic relevance, rendering it a viable candidate for integrative approaches in modern prenatal care.

Contemporary interpretations also correlate mantra chanting with modulation of the hypothalamic-pituitary-adrenal (HPA) axis, promoting neuroendocrine stability and enhancing parasympathetic tone, which aligns with ancient claims of mental tranquility and immune restoration [10-12]. This neurophysiological pathway governs the body’s endocrine response to stress, and its regulation is essential for maintaining homeostasis during pregnancy.

A culturally embedded exemplar of this practice is found in Garbha Sanskar, an Ayurvedic protocol that includes the recitation of mantras during pregnancy with the intent of influencing fetal development [13]. It is traditionally believed to enhance the unborn child's cognitive faculties, emotional equilibrium, and moral disposition by exposing the fetus to sacred sound vibrations during critical periods of neurodevelopment [14].

From a historical standpoint, mantra therapy is deeply entrenched in Vedic traditions, where it is considered both a spiritual and therapeutic modality. These ancient systems emphasized the role of sound frequencies in harmonizing physiological and psychological domains, positioning mantra chanting as a vibrational medicine aimed at aligning mind, body, and consciousness [15].

By inducing a parasympathetic state through rhythmic vocalization, mantra therapy facilitates relaxation, mental clarity, and emotional resilience. Such outcomes are particularly valuable in the prenatal context, where maternal stress levels directly influence pregnancy outcomes and fetal neurobehavioral trajectories [16,17].

In the context of pregnancy, maternal well-being, comprising psychological composure, physiological stability, and optimal fetal development, remains a critical determinant of perinatal health outcomes [18]. Emotional distress, particularly in the form of heightened anxiety or chronic stress, is known to dysregulate hormonal pathways, notably through the elevation of circulating cortisol levels, thereby adversely affecting fetal brain development, placental function, and overall gestational outcomes [19,20].

Rationale of the Study

Amid growing awareness of the limitations and potential risks associated with pharmacological interventions during pregnancy, there has been a notable shift toward holistic and non-invasive modalities. A significant proportion of expectant mothers are increasingly inclined to explore complementary and alternative medicine as a supportive strategy for managing pregnancy-related stress and anxiety [21]. Among these modalities, mantra therapy has emerged as a culturally rooted and spiritually resonant approach that may offer a safe and effective means of promoting maternal and fetal well-being [22].

Mantra therapy is believed to exert regulatory effects on the autonomic nervous system and enhance placental perfusion [23,24] while simultaneously fostering emotional resilience in pregnant individuals. Despite these promising theoretical underpinnings, the current body of literature offers limited empirical validation of its efficacy during pregnancy. Existing studies frequently lack methodological rigor, standardized protocols, and robust outcome measures, thereby hindering conclusive interpretations regarding their clinical utility [25].

This review aims to assess whether mantra therapy provides clear clinical benefits and how useful it might be support to standard obstetric care. Moreover, the review highlights critical gaps in the existing literature, identifies common methodological shortcomings, and emphasizes the urgent need for well-designed, biomarker-driven randomized controlled trials to validate the clinical applicability and efficacy of mantra therapy within contemporary prenatal healthcare paradigms.

2. MATERIALS AND METHODS

A comprehensive and systematically structured literature search was undertaken following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological integrity, employing Medical Subject Headings (MeSH)-based search strings [27]. The database search strategy included PubMed, Scopus, Web of Science, Cochrane Library, and Embase, encompassing publications from 2000 to 2024. MeSH terms and relevant keywords about “mantra therapy,” “prenatal care,” “feto-maternal health,” and “pregnancy outcomes” were combined using Boolean operators to retrieve all pertinent literature. (Table 1)

Table 1: Search Terms to retrieve the literature

Concept	Search Terms
Mantra Therapy	"Mantra therapy" OR "Vedic chanting" OR "sacred sound healing" OR "repetitive sound meditation" OR "mantra-based intervention"
Prenatal Care	"Prenatal care" OR "antenatal care" OR "maternal health" OR "pregnancy wellness" OR "gestational care"
Feto-Maternal Wellbeing	"Fetal neurodevelopment" OR "maternal stress reduction" OR "hormonal balance in pregnancy" OR "immune function in pregnancy" OR "fetal neurodevelopment"
Complementary Medicine	"Complementary and alternative medicine" OR "integrative obstetric care" OR "holistic prenatal therapy" OR "non-pharmacological interventions"

The inclusion and exclusion criteria used for study selection focused on structured mantra therapy during pregnancy and excluded studies lacking prenatal assessment, control groups, or outcome relevance. (Table 2)

Table 2: Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Population	Pregnant individuals receiving prenatal care	Postpartum or neonatal studies without prenatal assessment
Intervention	Mantra therapy is a structured, repetitive intervention	General meditation without specific mantra therapy
Comparators	No intervention, standard prenatal care, or alternative relaxation methods such as yoga, guided meditation, or music therapy	Studies without a control or comparison group
Outcomes	Maternal stress reduction, hormonal modulation, immune function, fetal neurodevelopment, and pregnancy complications	Studies lacking outcome assessment for prenatal effects
Study Type	RCTs, observational studies, systematic reviews, meta-analyses	Case reports, editorials, opinion pieces, and reviews without original data

This PRISMA flow diagram illustrates the study selection process for a systematic review on mantra therapy in pregnancy. Out of 344 articles initially identified, 34 duplicates were removed, and 52 were excluded during title and abstract screening.

Of the 258 articles sought for retrieval, 161 could not be accessed due to paywalls, technical issues, or indexing problems. After full-text screening of 97 articles, 12 studies met the inclusion criteria, with exclusions mainly due to lack of structured mantra interventions, absence of prenatal assessments, and insufficient physiological data. (Figure 1)

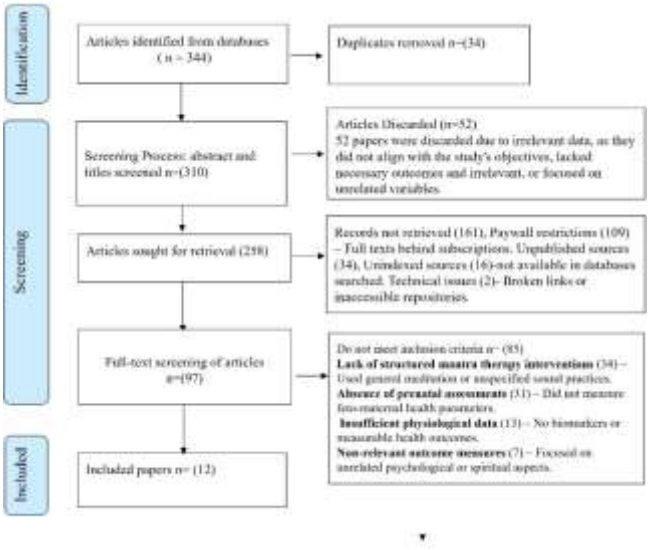

Figure 1: PRISMA flowchart of included studies

3. RESULTS

Primary findings: 12 studies met the inclusion criteria, comprising three randomized controlled trials, six observational or interventional studies, two theoretical models, and one systematic review (Table 3). Collectively, these studies suggest that mantra therapy is increasingly recognized as a supportive, non-pharmacological intervention during pregnancy, though it is frequently implemented within broader mind-body frameworks such as yoga, meditation, and music therapy.

Table 3: Summary of Evidence on Mantra Therapy in Feto-Maternal Wellbeing

Study	Study Type	Key Findings	Statistical Significance	Conclusion on Mantra Therapy	Level of Evidence
Taghavi & Beasley (2013) [28]	Review of Clinical Procedures	Mantra as a metaphor for early intervention in fetal therapy	No	Metaphorical use of 'mantra' in structured fetal therapy	Low
Murugesan S. (2022) [29]	Interventional Study (Non-Randomized)	Significant reduction in SBP in pregnant women post yogic-mantra practices	Yes	Supports the role of mantra in hypertensive management during pregnancy	Moderate
Jaiswal KV et al. (2017) [30]	Cross-Sectional Observational Study	Positive attitude and awareness toward transcendental meditation (Relaxation procedure includes Mantra chanting)	KAP (Knowledge, Attitude, and Practice) scores analyzed	Potential for antenatal education using meditation and mantra	Moderate
Gogate MD, Patil NR	Comparative Interventional	Mantra and physiotherapy reduced BP in pregnancy-	Yes	Sound-based intervention effective in	Moderate

(2019) [31]	Study	induced hypertension		reducing PIH symptoms	
Doty MS et al. (2022) [32]	Multicenter Randomized Controlled Trial	Daily meditation (including Mantra chanting) reduced anxiety in hospitalized high-risk pregnant women.	Yes	Effective for managing antenatal anxiety; supports maternal mental health	High
Sidorenko VN (2000) [33]	Clinical Observational Study	Music therapy improved outcomes in high-risk pregnancies	Yes (abstract-level)	Positive role for music therapy, relevant to sound-based mantra therapy	Moderate
Beddoe AE & Lee KA (2008) [34]	Systematic Review	Mind-body therapies, including yoga and meditation, may support stress relief and maternal well-being	Mixed across studies	Mind-body techniques aid in maternal relaxation and improve pregnancy outcomes	Moderate
Al-Qahtami HH (2005) [35]	Experimental Study	Fetuses respond to external auditory stimuli, including the maternal voice	Yes – fetal movement	Fetal auditory receptivity supports sound stimulation in utero, relevant to mantra/music exposure	Moderate
Liu YH et al. (2016) [36]	Randomized Controlled Trial	Improved sleep, reduced anxiety with mantra-based intervention in sleep-disturbed pregnant women.	Yes	Mantra helpful for sleep regulation and psychological health	High
Wild (2010) [37]	Ethical Review	Mantra is discussed as an ethical, non-invasive traditional medicine	No	Mantra therapy may serve as an ethical antenatal support tool	Low
Muhandiram et al. (2023) [38]	Theoretical Biological Study	Mantra Bio Therapy may modulate feto-maternal immune responses	No	Suggests immunological benefit of mantra; needs empirical confirmation	Low

Several studies have reported statistically significant improvements, including reductions in systolic blood pressure (Murugesan, Gogate et al.), decreased anxiety (Doty et al.), and enhanced sleep quality (Liu et al.) among pregnant women receiving mantra-based interventions. However, most of these studies employ multimodal approaches, where mantra chanting is integrated with additional components like pranayama or guided imagery, thus making it challenging to isolate the specific therapeutic contributions of mantra recitation alone. Observational research, such as that conducted by Jaiswal and Sidorenko, highlights favorable subjective perceptions and some physiological shifts, yet the dependence on self-reported measures such as Knowledge, Attitude, and Practice (KAP) scores limits the generalizability and reproducibility of these findings. Theoretical contributions by scholars, including Wild and Muhandiram, propose ethical, immunological, and

bioenergetic relevance of mantra-based practices; however, these hypotheses remain speculative in the absence of robust mechanistic or biomolecular evidence. Al-Qahtami et al. demonstrate that fetal response to sound exposure underscores the potential for prenatal auditory stimulation to influence early neurodevelopment. However, whether these responses translate into measurable long-term developmental outcomes remains unverified.

4. DISCUSSION

This systematic review has been undertaken to critically evaluate the potential of Mantra Therapy as a complementary intervention in prenatal care, with particular emphasis on its multidimensional impact on both maternal and fetal health outcomes. This systematic review evaluated the role of mantra therapy in optimizing feto-maternal outcomes through the integration of data from diverse study methodologies. While its application in pregnancy is conceptually grounded in classical Ayurvedic frameworks and increasingly acknowledged in integrative medicine, the body of empirical evidence remains relatively underdeveloped. Findings from the literature review highlight encouraging patterns of reduced psychological burden, improved hormonal dynamics, and signs of immune regulation in expectant mothers undergoing mantra-based interventions. Nonetheless, considerable limitations exist, particularly with mechanistic insight, protocol standardization, and the incorporation of validated biomarker endpoints.

Contemporary research has demonstrated its potential benefits in reducing psychological distress, enhancing immune function, and contributing to antenatal care (Agarwal et al., 2019). Practices such as Garbha-Sanskar (educating the child from the time of conception), which incorporate mantra recitation during gestation, have been associated with improved fetal neurodevelopment and enhanced maternal well-being (Kulkarni, 2021). Emerging evidence suggests that mantra therapy positively contributes to maternal health by alleviating stress, regulating hormonal profiles, and promoting fetal neurological maturation.

From a physiological standpoint, it is believed that vibrational sound induction in Mantra therapy influences the hypothalamic-pituitary-adrenal (HPA) axis, thereby reducing the secretion of stress-related cortisol (Kelleher, 2020; Parmar, 2021).[39] Elevated cortisol levels during pregnancy are strongly associated with complications such as intrauterine growth restriction, premature labor, and neurodevelopmental delays in the fetus (Dietert, 2008). Thus, interventions that mitigate HPA axis overactivation may hold key significance for optimal perinatal outcomes. Several trials included in this review (Doty et al., 2022; Liu et al., 2016; Murugesan, 2021) documented substantial improvements in anxiety reduction, blood pressure regulation, and sleep quality following either Mantra Therapy or multimodal yogic interventions. These cumulative findings support the hypothesis that mantra therapy may bolster autonomic regulation and maternal emotional resilience during pregnancy. A particularly compelling dimension of mantra therapy pertains to its potential influence on fetal neurodevelopment via in utero auditory exposure. Studies such as Al-Qahtami (2005) and later investigations have emphasized that by the third trimester, the fetus is neurologically receptive to external auditory stimuli. Structured sonic inputs like mantra chanting may facilitate neural entrainment, which could enhance fetal heart rate variability and exert modulatory effects on long-term sensory processing and cognitive development (Verma & Shukla, 2023). Although this framework offers a plausible neurodevelopmental pathway, the current body of literature remains predominantly observational or theoretical, underscoring the need for controlled neuroimaging studies or standardized neurobehavioral evaluations to substantiate causal relationships and trace developmental outcomes. (Figure 2)

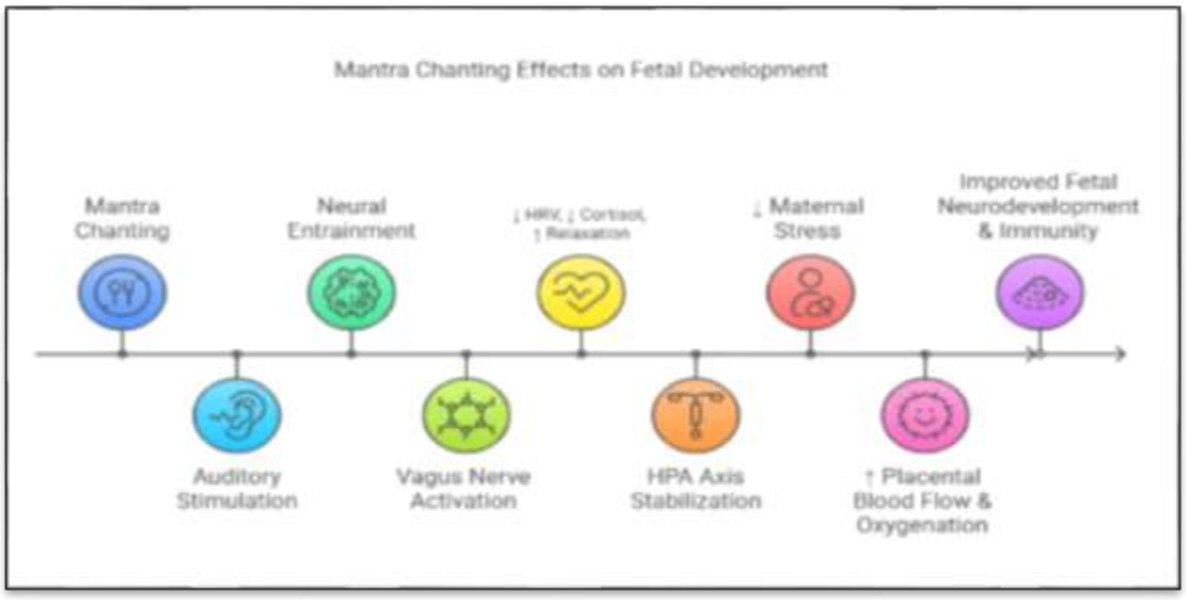

Figure 2: Effect of Mantra chanting on fetal development

Empirical studies have demonstrated that mantra recitation can modulate brainwave activity, notably enhancing theta and alpha oscillations, which are associated with meditative states, relaxation, and emotional regulation. The vibrational dynamics induced by mantra repetition are hypothesized to stimulate dormant healing potentials within the individual, facilitating an alignment with broader cosmic or energetic fields (Benn, 2010; Cramer et al., 2024; Ahlquist, 2023). Hypotheses identified in this review propose that mantra-induced relaxation may contribute to maternal-fetal immunotolerance by attenuating pro-inflammatory cytokines (Muhandiram et al., 2023). Considering that immune dysregulation has been implicated in gestational complications such as preeclampsia, spontaneous abortion, and intrauterine growth restriction, therapeutic modalities that foster immunological homeostasis warrant further inquiry.

When compared to other mind-body interventions, the distinctiveness of mantra therapy becomes evident. While yoga, guided visualization, and music-based therapies have demonstrated efficacy in mitigating stress during pregnancy, mantra therapy offers a unique mechanism by integrating rhythmic vocalization with acoustic resonance, potentially leading to enhanced parasympathetic nervous system activation. Empirical evidence from Murugesan (2021) and Singh et al. (2024) supports this, noting superior improvements in heart rate variability and mood profiles among participants undergoing mantra-based interventions, as compared to those receiving instrumental or non-verbal mindfulness stimuli. [40-42] Mechanistically, this effect is likely mediated through auditory-motor neural circuits, vagal tone augmentation, and the rapid induction of meditative alpha and theta brainwave states (Fortanasce, 2015; Ahlquist, 2023). [43]

A notable strength of mantra therapy lies in its inherently low cognitive demand. In contrast to cognitive behavioral therapy (CBT) or MBSR, which require sustained executive function and cognitive engagement, mantra repetition induces a meditative state through passive yet intentional auditory focus. This characteristic makes it particularly amenable to use during pregnancy, a physiological state often characterized by fatigue, emotional lability, and reduced attentional capacity. [44-46] Furthermore, existing research indicates that mantra recitation enhances alpha and theta brainwave activity, electrophysiological markers linked with relaxation, attentional modulation, and memory integration (Cramer et al., 2024; Benn, 2010) [47-49].

Study limitations and challenges

Although reductions in self-reported anxiety levels and enhancements in subjective well-being are frequently documented, physiological indicators such as serum cortisol concentrations, uteroplacental blood flow, fetal heart rate variability, and gene expression profiles are rarely employed, thus limiting the biological validation of these findings. [50,51] Moreover, methodological concerns extend to the design and scope of these studies. Many are constrained by small sample sizes, non-randomized protocols, and the absence of long-term follow-up, which collectively compromise their generalizability and external validity. Cultural variability presents an additional challenge, as the acceptability and resonance of mantra chanting may differ significantly depending on an individual's cultural familiarity with Vedic traditions or their openness to spiritually connoted practices.

The integration of standardized developmental tools, such as the Bayley Scales of Infant and Toddler Development, along with immune biomarkers (e.g., cytokine panels) and stress-related physiological indicators (e.g., salivary cortisol, heart rate

variability, and placental gene markers such as NR3C1 and HSD11B2), will be critical in objectively establishing therapeutic effectiveness.[52,53] Nonetheless, considerable variability in intervention characteristics, including mantra type, duration, and delivery mode (e.g., live versus recorded chanting), poses challenges for inter-study comparability and emphasizes the urgent need for methodological standardization in future clinical research.[54]

5. CONCLUSION

The reviewed studies suggest that mantra therapy positively impacts feto-maternal well-being, with noted benefits including reduced systolic blood pressure, decreased maternal anxiety, and improved sleep quality. Commonly assessed parameters include physiological measures like blood pressure, self-reported anxiety and sleep scores, and fetal responses to sound. However, the specific effects of mantra chanting remain difficult to isolate due to multimodal intervention designs. Nevertheless, its current evidence base lacks the robustness required for widespread clinical endorsement. These research studies are predominantly conceptual, with limited empirical substantiation. The therapeutic framework of mantra therapy is often vaguely characterized and inconsistently applied across studies, frequently integrated into broader mind-body practices without clearly delineating its specific role. Enhancing its scientific credibility will necessitate the development of standardized intervention frameworks, the application of quantifiable physiological endpoints, and the adoption of culturally adaptable models for delivery. As interest in non-pharmacological approaches to maternal health continues to expand, mantra therapy stands as a compelling candidate for further exploration and potentially transformative inclusion in antenatal care protocols.

Ethics statement

The authors declare that no animal studies have been performed for this research.

Declaration

The manuscript's language was improved by using an AI tool to improve its overall quality. Specific refinements included restructuring sentences to enhance clarity and readability. No content was generated or modified beyond linguistic improvements.

Conflicts of interest

There are no conflicts of interest.

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