



Review Article

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Effect of Classical Music on Fetus: A Review

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ABSTRACT

Even before birth, music may have a significant impact on your child's development. Music stimulates all aspects of a child's growth when they are exposed to it. And doing so at a young age may assist guarantee that your child grows up to be healthy. In several psychological conditions, music therapy is known to be effective, but not much research has been done to ascertain the effect of classical Indian music on psychiatric disorders. The ascendant is the antenatal musical practice. With reference to evidence-based study, the paper supports 5 primary objectives: music therapeutic modulation of pre- and perinatal stress, anxiety, and depression; mental and physical birth planning related to music, including cognitive change, emotional regulation, physical exercise, maintenance of relaxation and discomfort, and social inclusion; music-related bonding and self-efficacy; prenatal sound enhancement. Traditional therapeutic tools include Raga Chikitsa, Vedic chanting, Garbha Sanskara (Learning in the Womb), Time theory of ragas (combining ancient Ayurvedic notions) and Cakra activation (music and breathing approach using ragas). Outcomes in clinical are studied to see how they impact biological, physiological, psychological, chronobiological, as well as spiritual factors.

Keywords: Musical Education, Music Therapy, Prenatal Music, Prenatal Sound, Sound Stimulation.

INTRODUCTION

Although music therapy as a field began to develop in the United States in the 1940s, as well as scientific researchers in the area had also significantly increased over last four decades, the implications of music and sound on healthy as well as diseased states of body and mind seems to have been recognized since ancient times [1]. Researchers were able seeing a greater, more holistic picture of health that is effected both negatively and positively by numerous factors as well as genetic constitution, dietary and exercise, environment, and so on, thanks to advancements in embedded medicine, psychoneuroimmunology, and psycho-neuroendocrinology. To present, there is solid scientific evidence indicating the harmful consequences of noise on human health as well as the curative benefits of music and music therapy. According to scriptures and books, ancient civilizations such as the Indians as well as Greeks were aware of the healing properties of music and employed it therapeutically [2]. Many lines relating to musicology and health may be found in the Vedas, the ancient Indian writings ranging from 1500 to 1700 B.C. Gandharvattva, or Indian music science literature, dated from the fourth century B.C. Brhaddesi by Sri Matanga Muni, a 6th-century Indian musicology classic, but also Sangitaratnakara by Sarangadeva, a 13th-century treatise, are crucial not only for musicological but is also psychological, physiologic, as well as ideological reasons [3]. In this piece, we will look at major Indian traditional healing approaches in the framework of music therapy. they've also attempted to bridge the gap between tradition and current science by compiling the most recent scientific data that is either directly or indirectly connected to old beliefs [4].

From a young age, infants are capable listeners. The hearing apparatus begins to work in the third trimester of pregnancy, and fetuses are exposed to a range of noises. At this point, the fetus becomes more sensitive to sounds and starts to move in response to an external auditory stimuli like voice and music. The acoustic environment surrounding the fetus is not as silent and peaceful as previously thought. Internal and external sounds turn the womb into an acoustically diverse environment for the developing kid [5]. According to certain research, the fetus can listen to music [6].

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As per Old's research, unborn new-borns not just heard the music while still in the uterus, but also exhibited heartbeat oscillations in response to different tempi of music pieces (1986). The heartbeat of the unborn babies in the study were accelerated by fast music, but slow as well as quiet music created a comfortable and quiet heartbeat. The authors also looked at how music is transmitted to the fetus [1]. They discovered that although note assaults were muffled and high frequency notes were attenuated, the general quality of the music was preserved via intrauterine recordings of music performed outside [7]. The author research suggests that music education begins in the womb.

There is strong evidence to show that babies are born with extraordinary auditory perception ability. Infants are delicate to commotion characteristics, for example, recurrence and force when they are conceived [8]. Babies and new-borns have been exhibited to recognize low-pitched commotions better than more shrill sounds from the third trimester of pregnancy through the third month after birth [9]. Between the third and 6th post pregnancy months, this pattern flips, and by a half year old enough, new-borns have a grown-up like aversion to high pitches [10]. Orientation plays an intriguing part with regards to baby hearing, with female listening being considerably more delicate to recurrence than male hearing. As far as volume, children have been demonstrated to just detect commotions that are 40-50dB stronger than the grown-up ordinary level (for example 10 dB).

The limit of newborn children to detect force, similar to their capacity to see recurrence, creates as they develop. Soon after birth, infants can recognize the course of a sound source [11]. As indicated by the creators, such conduct starts gradually in the new-conceived days and slowly diminishes in recurrence and size as the child becomes older, in the long run vanishing among the first and third long periods of life [12]. Shockingly, the conduct returns between the ages of 4 and 5 months, and new-borns find sound sources with more nimble, adaptable, and managed head movements [13]. A lot of proof exhibits that children know about spoken sounds.

Three-day-old new-borns know their mom's voice and incline toward it to that of another lady. This partiality for the mother voice appears to keep going for a couple of months prior to disappearing as the baby develops [14]. In addition, new-borns have been demonstrated to differentiate and listen to their mother tongue for longer than a foreign language. There have also been studies on the influence of music on new-born behaviour. In new-borns, music has been displayed to diminish both action and pulse [15]. Besides, melodic therapies in the Neonatal Intensive Care Unit (NICU) have been displayed to further develop oxygen immersion, heart and respiratory rates, feelings of anxiety, hospitalization days, and the improvement of non-nutritive sucking propensities in preterm new-borns [16]. These findings imply that music has significant therapeutic value in childhood.

This investigations of music discernment as during second a half year of life has profited from systemic worries. Children gain capability in coordinated abilities like head pivot and may promptly take an interest in listening practices while sitting on their mom's lap during this intriguing progressive phase. Children, then again, dynamically lose interest in explicit consideration exercises, like paying attention to discourse or different kinds of commotions, as they approach the finish of their first year of life [17]. Furthermore, as infants begin to walk, it

might be difficult to keep them engaged in a job that requires them to sit on a lap. Numerous music scientists have focused on the 6-to year old due to these factors.

A run of the mill infant music discernment study incorporates an excursion to a college research office. The infant partakes in a short lap-sitting task that involves paying attention to single melodic perspectives (for example pitches, cadenced examples, topics, and so forth) or melodic scraps during the visit. Two key information gathering methodology that have been utilized generally lately are the molded head-turn strategy and the head-turn inclination technique. The conditioned head turn entails training new-borns to turn their heads whenever they hear a sound change and measuring the number of proper head rotations throughout a series of tests. This approach is especially appropriate to boosts with brief lengths, like musical and melodic examples.

The head-turn inclination strategy, then again, lean towards long-span improvements. The analyst assesses new-conceived listening periods to different commotions, including differentiating bits of music, in this methodology. The information gathered from both techniques has contributed to the development of a strong body of research concerning new-borns' musical perception. Since the focal point of this article is on new-conceived impression of music in "real" circumstances, examinations on new-born child view of inserted melodic attributes and music pieces will be offered explicit consideration. View of implanted melodic components, long haul memory for music, and inclinations for entertainers and singing sorts were the three essential parts of examination.

Infants have a specific sensitivity to high pitches at roughly 6 months of age, and they also like to listen to them. It's worth noting that the word "preference" isn't used in the same sense in infant cognition research as it is in ordinary life (i.e., favouring one object over another). When scientists assert that new-borns prefer one sort of stimulation over another, they use behavioural measurements like sucking, turning their heads, or paying attention to one stimulus for longer than another. The creators gave two gatherings of half year old new-borns two adaptations of similar youngsters' tune, performed by similar female entertainer at high and low tones. The high-pitch renditions of the tune were liked by babies over the low-pitch adaptations. A subsequent investigation was done to guarantee that the inclination for the high-pitch renditions of the tunes was not inferable from the entertainers' proclivity to sing in a high pitch. Two contraltos and two sopranos recorded interpretations of "Sparkle, Twinkle Little Star," which were performed. By and by, new-borns favored the high-pitch forms of the tune over the low-pitch ones.

It's also been shown that babies favour consonant versions of songs. The assessment of consonant as well as discordant versions of Central European folk tunes by 4-month-old new-borns was studied. The harsh variations were built on equal minor second stretches, though the consonant renditions were made on equal major and minor thirds. The consonant forms of the tunes drew additional consideration from the children. Whenever analysts took a gander at the listening inclinations of half year old new-borns, they tracked down tantamount discoveries. New-born child inclinations for consonant and harsh harmonies, as well as consonant and conflicting interpretations of an essential Mozart minuet, were explored in two tests.

Consonant harmonies and minuet variations were liked above dissonant harmonies and minuet variants, as indicated by the outcomes. There are not many examinations on child impression of instrument tones. They showed sets of synchronized film of two entertainers playing two particular instruments to 7-to 9-month-old new-borns. The children likewise heard a music that hoped to be synchronized with the two recordings yet just paired one of them. Newborn children could undoubtedly interface the look and sound of a few instruments, including the trombone, viola, and cello, in spite of their absence of associate with them. These findings imply that babies develop some links between timbres as well as musical instruments based on the instruments' physical qualities. Early in childhood, rhythmic awareness develops. Infants are born with the ability to recognize and discern the temporal intricacies of the environment around them. Babies can distinguish between opposing temporal patterns, according to many research.

When babies are exposed to various genres of music, they exhibit a variety of behaviours. They likewise observed that while paying attention to cradlesongs, new-borns were more focused on themselves and expressed more than while paying attention to play tunes. Differentiating rhythms and tempi in music have been seen to affect infants' consideration and conduct state, which is obvious. Melodic structure is critical to infants. The creators played normal and counterfeit melodic examples from 16 Mozart minuets (i.e., bits with stops put toward the end and center of a melodic expression, individually) to a gathering of 4-month-old infants and surveyed their mindful tuning in for every sort of extract. Babies paid attention to normally portioned music extricates for considerably longer than they did to falsely isolate sound examples.

The infant is described as a capable listener in the research evaluated in this study. Music education begins as soon as the auditory system is functional, which is already highly advanced at birth. Children not just separate specific intrinsic melodic characteristics all through the primary year of life, yet in addition display clear inclinations for explicit voices, singing styles, and versions of melodic works. Newborn child coordinated melodies with a high pitch will quite often be the most well-known, especially at whatever point the guardians sings the tune directly to the child. Teachers should ponder these worries to all the more likely set up their examples. Guardians have a significant impact in their youngsters' melodic instruction. Accordingly, parent music schooling should be one of the points of pre-birth and post pregnancy youth music programs. Such projects could pressure the educating of tunes, rhymes, melodic games, and moving, also as parental singing, which could motivate guardians to take part in additional singing exercises with their new-borns.

Early kinds of nurturing are said to include parental singing, rocking, and dancing. On that point, a few clinicians and teachers feel that music might be an important instrument for guardians and their kids as far as correspondence and holding. Early childhood music education programs may aid in the development of healthy child-parent bonds. Instructors might have the option to help guardians and new-borns logically lay out their own collection by empowering them to sing a mix of newly gained melodies and old top choices. Such a repertory may be gainful in the arrangement of the connection between the new-conceived and the parent, and it can change and increment as the child

creates. Instructors working in multicultural settings should know that many guardians would like to sing a melody from their own way of life in their local language rather than a tune from their new country.

These unfamiliar melodies are easy to add into an illustration plan, likely stirring up a lot of enjoyment for new-borns, guardians, and schoolmates. Music teachers could use accounts of traditional or other melodic classes to direct guardians and new-borns to significant listening rehearses. These accounts may be utilized with development practices in class and at home by guardians and new-borns. Guardians may be urged to partake in these activity exercises with their youngsters at home while paying attention to their cherished music. Instructors and guardians, then again, ought to try not to play music too noisily for new-borns. Despite the fact that the newborn child's aversion to sound varies from that of a grown-up, too booming music may not be charming for the new-conceived and may even be harming to their hear-able turn of events. Parents and new-borns may benefit from musical experiences in a number of ways, and there are numerous resources available in the shape of CDs, toys, and films. As a result, carefully selecting repertoire and activities for infant-parent music education programs is required. Youth teachers are liable for giving viable and charming music programs that advance both early advancing as well as parent-kid connection.

Indian Traditional Music therapy

As far as musicology, Indian old style music is isolated into two frameworks: Karnatik music and Hindustani music. The two frameworks have an enormous number of Ragas (a Raga is a particular and resonant construction of chosen notes and microtones). Raga Chikitsa, which in a real sense signifies "treatment by raga," is an unmistakable word in Indian customary music treatment. Raga Chikitsa might be considered a kind of responsive music treatment experience with remedial collaborations in which a patient is compelled to pay attention to at least one explicit Ragas to encounter their helpful advantages. Ragas can be used in an assortment of ways, including melodic and vocal act of spontaneities, as well as music/exhibitions that have been pre-recorded. Evidence of the advantage of different Ragas on explicit clinical issues is expanding, including a couple of randomized controlled examinations. Be that as it may, given a huge number of melodic sound, the intricacy of the human hearing interaction, and the multi-layered nature of wellbeing and infection, it has been hard to disclose how paying attention to a specific Raga is valuable in a particular ailment.

From the second trimester onwards, low recurrence drones are utilized as hear-able feeling for pregnant ladies in India. The therapists and the expectant ladies chant together. The procedure is thought to control the microenvironment in the uterus during pregnancy, with the goal of providing health advantages to both the mother and the growing baby. The benefits of sound on foetuses have long been known in modern music therapy, and prenatal music exposure has been linked to positive neurobehavioral outcomes. A recent study found that prenatal music exposure is linked to brain representations that endure for months after birth, confirming the core premise of "education in the womb".

LITERATURE REVIEW

G. Gebuza *et al.* states that despite its demonstrated therapeutic impact, music therapy is infrequently employed as an addition to treatment in perinatology and obstetrics. Music has been displayed to goodly affect the soundness of grown-ups and new-borns, with a particular capacity in the development of rashly conceived youngsters. It's additionally entrancing to perceive how music influences babies. Goals. The objective of his exploration is to utilize cardiocotographic recording to analyze the boundaries of hatchlings in ladies in their third trimester of pregnancy while paying attention to Pyotr Tchaikovsky's "Resting Beauty" and "Swan Lake" [18].

R. Sumaningsih *et al.* suggested that Music affects human brain science, giving a sense of safety, solace, and happiness. Traditional, normal, and murottal music have a tone, mood, pace, and delicate meter that might animate alpha waves, peacefulness, and unwinding, which are all useful to the baby's prosperity. The objective of this exploration is to analyze the impacts of traditional, regular, and murottal melodic on fetal prosperity. This review is a semi explore utilizing a pretest-posttest plan. An aggregate of 40 individuals were isolated into four gatherings of mothers. Old style music, regular, murottal, and no music are the autonomous factors. The fetal prosperity is the reliant variable. It was sensible to figure the mean qualities when the mediation. The discoveries of fetal prosperity in view of the fetal pulse of the old style music bunch showed that 10% of hatchlings had gentle aspysia before treatment and 0% of babies had gentle aspysia after treatment. When treatment, 100% of babies in the Natural and Murottal Music Group had typical fetal pulses; when treatment, 50% of embryos had Mild Aspasia. The Apgar score is utilized to decide fetal government assistance. Of the Classical Music bunch, 10% announced gentle Aspysia subsequent to paying attention to old style music. In the wake of paying attention to regular music and murottal, the Natural Music Group and Murottal shaped. Under normal conditions, 100% of infants are born [19].

V. Sidorenko *et al.* classified in his study that Music has been used to cure people for thousands of years. Pythagoras of Greece established a notion for the use of music in medicine around the year 550 B.C., valuing music above many other medicinal therapies. The German old style performer and musicologist Peter Huebner's Medical Resonance Therapy Music (MRT-Music) depends on this Pythagorean music medication thought. The normal event of reverberation between both the consonant guidelines of the microcosm of music as well as the natural laws of the body might best clarify its helpful effect. The outcomes got in the wake of utilizing MRT-Music show that it has various great impacts on the living being of pregnant ladies, both in sound and pathologic pregnancies, essentially bringing down the gamble of preterm conveyances. MRT-Music has been demonstrated to be a brilliant way in the muddled treatment of late gestoses, as well as a basically indispensable instrument for preoperative readiness of pregnant people for cesarean medical procedure. It had a solid enemy of stress sway and took into consideration a 1.5 to 2.0 decrease in the amount of pain relievers given to pregnant ladies, bringing down the horrible pharmacological burden on the embryo. It likewise abbreviated the time it took for the child to be conceived and the time she spent in the emergency clinic. It worked on the useful, hormonal, and psycho-enthusiastic conditions of pregnant and lying-in ladies, bringing about ideal circumstances for the course of pregnancy and a higher aggravation awareness limit [20].

DISCUSSION

Classical music may calm your baby and lead to her becoming a classical music aficionado later in life, but it will not make her smarter. The Mozart effect, a transient rise in intellect observed after listening to a piano sonata produced by the legendary musician, has been discredited, according to researchers at Appalachian State University. Researchers from the University of California in Irvine initially detailed the Mozart impact in 1993, and a similar gathering rehashed the investigation in 1995. The exploration uncovered learning scholarly who paid attention to a Mozart sonata for quite some time prior to finishing a test estimating spatial association capacities performed better compared to understudies who took the test in the wake of paying attention to music by one more entertainer or no music by any means. The effect on the children was somewhat short lived (15 minutes) and has been far from being obviously true 100% of the time.

In spite of this, the media and legislators got on board with the Mozart impact temporary fad, expressing that paying attention to the music had numerous wellbeing benefits and could assist individuals with physical and psychological instabilities. This frenzy brought forth that infants would be more intelligent assuming they paid attention to traditional music. The legislative leader of Georgia declared that all new newborn children be given an exemplary music CD, which incorporated the sonata and different tunes and was provided by Sony, when they left the medical clinic one year. Notwithstanding normal conviction, there was just temperamental proof that paying attention to traditional music made individuals more brilliant. Regardless of whether he believes that paying attention to a Mozart sonata helps condition the mind to confront numerical difficulties, the primary analyst in the first U.C. Irvine review noted in a Forbes piece that the conviction that old style music can treat medical problems and make babies more intelligent has no establishment indeed. Various papers, ayurvedic and present day course readings, legitimate pages, rumored diaries, writing, compositions, and so forth were provided with materials relating to traditional music on embryo.

Antenatal Care through Music

Antenatal treatment is concerned with musical clinical elimination of maternal pain, anxiety, and depression as well as music-related management of associated dispositional risk factors. One of the remarkable specialists on pre-birth pressure, Vivette Glover (2015), brings up that few planned discoveries have seen that as assuming a mother is discouraged, anxious, or overpowered while pregnant, this raises the probability that her baby might have a wide assortment of unfavorable impacts, including mental challenges, indications of a lack of ability to concentrate consistently jumble, or lessened mental turn of events. Glover notes that these findings are clearly affected by hereditary factors and postnatal treatment, but emphasizes the prenatal causal elements.

Psychological and Somatic Preparation for Childbirth

For antenatal, perinatal, and postnatal health treatment, there are extremely valid quality requirements. They primarily apply to the regulation of physiological and behavioural risk factors such as pregnancy hypertension or suicidal dispositions. We interpret music therapy as an add-on intervention from this point of view, as a means

to promote the enhancement of wellbeing as well as prevention steps, and to improve individual and social well-being. Music therapy aims to stabilize physiological and psychological conditions during breastfeeding and to promote the sustainability of antenatal care interventions in closely balanced coordination with obstetrics and midwifery.

Perceptive Modification and Emotional Regulation

Pregnancy is a significant thing in life, certainly. It may be joyful, and may haunt the intellect and feelings of the mother. It can enrich lives or ruin plans and hopes for life. When expecting an infant, cognitive adaptation is always a sensitive issue. Affonso, Liu-Chiang, and Mayberry (1999) describe the most heterogeneous issues people may face throughout the childbearing era, such as how pregnancy affects the appearance of one's body, whether the baby is safe and safe, how pregnancy affects the relationship with the husband or girlfriend, whether to continue working during or after pregnancy, and uncertainties regarding appropriate finances to support.

Emphasizing that these issues are heavily affected by the aspects of the personality of the mother, coping patterns, cultural outlook, and social climate, the writers consider the "adaptation of women to childbearing" to be of vital significance to mental health. There are, of course, myriads of psychoanalytic, cognitive-behavioural, Gestalt-therapeutic, and so on approaches to facilitate and strengthen adaptation to life. Therapeutic approaches to music may appeal to these theoretical concepts, but are more generally based on the very special characteristics of human and music dyads, music-induced trance that causes mental self-organization and readjustment of life, music-guided readjustment of philosophies of life and one's self-concept, and musically controlled modulation of energy and mood. They are not likely to produce unfavourable pathological self-labelling since these methods are often not conflict-centered but resource-oriented.

Physical Movement

Many studies encourage physical exercise during breastfeeding and demonstrate positive birth outcomes (Domenjoz, Kayser, & Boulvain, 2014). Hence, clear-cut antenatal exercises have become a practice in obstetrics and midwifery. However, in sports medicine, a dilemma of strong preventive medical significance is the delicate difference between understanding and performing. It has become a popular occurrence to listen to music to improve one's impetus towards physical activity. Furthermore Grahl, Kirkland, Halfpaap, Fritz, and Villringer (2013) observed that it makes actual exercise more alluring to blend music making with deliberately expanding physiological fervor by practice machine exercise.

Relaxation and Control of Pain

Muscle stiffness and lower back pain are typical discomforts in pregnancy. While they are often caused by the accelerated weight gain of the female and particular abdominal muscle tension, we still need to take into consideration potential causes of psychosomatic stress. Progressive muscle relaxation (PMR) treatment has been found to be an effective alternative therapy in such situations, and is expected to enhance the physical and psychological effects of pregnancy. In

pregnant women with lower back pain, Akmeşe and Oran (2014) demonstrate that PMR accompanied by music can be an efficient therapy to improve pain and quality of life.

Social Inclusiveness

The poetic title of a postpartum depression qualitative meta-data study gets to the heart of the problem: "suffering in silence" (Knudson-Martin & Silverstein, 2009). A big outcome of this research relates to the coincidence of the impression of a woman that a "good mother" has refused to live up to societal expectations and the experience that these emotions cannot be articulated. The self-attribution of incompetence and loneliness play key roles in this social high-risk constellation.

Self-Efficacy and Affection

Music is also tagged as an ideal instrument for reinforcing the relationship between mother and child. New research takes into account the complex dimensions of vaginal delivery and pain. With regard to the fact that adverse birth conditions have been found to have a negative effect on postpartum maternal wellbeing, Simavli *et al.* (2014) emphasize that the use of music therapy decreased postpartum anxiety and discomfort during labour, improved childbirth satisfaction and lowered the rate of early postpartum depression (p. 194). They suggest that as an alternative, safe, simple, and pleasant nonpharmacological approach for postpartum well-being, music therapy may be clinically prescribed.

A clear-cut environment is used by Partanen, Kujala, Tervaniemi, and Huotilainen (2013) to generate compelling and logical prenatal learning claims. They exhibit that broad pre-birth openness to a tune produces neuronal portrayals that keep going for quite some time, utilizing occasion related potential. In addition, from their intrauterine periods, the fact that infants remember music and particularly the singing voice of the mother (Cevasco, 2008) gives rise to psychological questions about music. The processes of fetal learning and neuronal brain growth are closely interrelated.

Crying infants, naively speaking, are sad children and their mothers are stressed. "Baby rest designs and maternal weariness are firmly connected with another beginning of burdensome manifestations in the post pregnancy time frame," all the more deductively speaking (Dennis and Ross, 2005). (p. 187). There is clear evidence that the amount of baby crying irritates the circadian patterns of mothers during the first months of postpartum, exacerbates their exhaustion, induces depressive symptoms, and interferes with the relationship between parent and child (Kurth, Kennedy, Spichiger, Hösli, & Stutz, 2011).

CONCLUSION

Antenatal courses and prenatal relaxation to music are gaining in popularity worldwide. When coping with the creation of the fetus and a sound stimulus-controlled increase of cerebral neuroplasticity, ethical expectations demand high accountability. We promote interdisciplinary scientific research related practices and value human perspectives. There are strong reasons for believing that pre- and postnatal music classes have major advantages. Nevertheless, those threats have to be considered and monitored as well. Music has been a

good health-promoting influence in many areas. This appears to refer to the fetus and the unborn infant as well.

Conflict of Interest

None declared.

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