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Integrating Modern Medicine and Complementary Therapies for Holistic Healing

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ABSTRACT

Objective: Integrative medicine (IM) combines the best of both modern medicine and traditional and complementary medicine (TCM) based on evidence for efficacy and safety along with a holistic personalized approach that focuses on health and wellbeing. Both have been known and established to have different strengths and weaknesses and so their integration might be beneficial to the general population.

Aim and Scope: The scope and role of complementary therapies such as yoga and music have been broadened currently as a popular pathway to holistic health and wellness.

Methods: Many scientific studies have shown that they can positively impact the body-mind complex in multiple ways and the healthcare providers are responding appropriately to these positive findings.

Results: Yoga and music therapies and modern medicine are complementary systems apart from being life changing and lifesaving sciences that understand the importance of holistic health. Their collaboration has a significant impact on our health care system. Need of the hour is to promote such an integrated approach and tap the potentials of both these sciences for benefit of humanity.

Conclusion: Integration of grand Medical Science with traditional complementary therapies is being achieved to a significant extent at Sri Balaji Vidyapeeth, Pondicherry, India, in order to coordinate and bring benefits of both systems to all patients. This is a unique effort and the first in India for integration of an Institute of Complementary Medicine within a university devoted to provide allopathic medicine care for promotion of Salutogenesis and holistic wellness.

KEYWORDS: Integration, holistic health and wellness, yoga therapy, music therapy, Salutogenesis.

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INTRODUCTION

Modern medical advancements provide the rationale for integration of various traditional healing techniques like Yoga, Naturopathy, Ayurveda, Siddha and Music therapy to promote health, healing and longevity with the support of the Government of India constantly promoting indigenous systems of health through Ministry of Ayush.

Health systems around the world are experiencing increased levels of chronic illness, population aging and escalating health care costs. Patients and health care providers are stressing that health care services be revitalized emphasizing on individualized, care. This includes expanding access to traditional and complementary medicine (TCM) products, practices and practitioners, in particular in primary health care. [1] Such a move would also enable more patients to seek holistic care.

NEED TO BRIDGE THE GAP BETWEEN TRADITIONAL AND MODERN METHODS

Although traditional therapies facilitate restoration of health, it may not be useful in emergency conditions (such as in accidents, myocardial infarction etc.) where there is a strong need for the intervention by a qualified medical practitioner. However there is also a growing demand for an additional/alternative approach to wellness that is relatively inexpensive and safe and can be incorporated as an adjuvant modality along with modern medical management and is available closer to home. Traditional

integrative medicine sees the person as a being with mind, body, and spirit and not as a patient with an isolated malfunction of a particular system or organ. Hence traditionalism combined with the novelty of modern medicine would result in enhanced quality of life for the care seekers throughout the world. [2]

Integrative medicine (IM) combines the best of both modern and TCM based on evidence for efficacy and safety, adopting a holistic personalized approach that focuses on health. Apparently both have been known and established to have different strengths and weaknesses and so their integration might be beneficial to the general population. The limitation of modern medicine in managing stress induced psychosomatic, chronic illnesses is the strength of these traditional healing systems and hence a holistic integration of both systems enables best quality of patient care. [3] Over the last decade or two, academic health centres are increasingly supportive of IM. The WHO traditional, complementary and integrative strategies (2014–2023) have provided potential guidance on the integration process. [4-7]

Emergence of terms such as holistic medicine, caring, healing, patient doctor communication, complementary therapies and medicine are testimony to the role of mind-body medicine in redefining strategies of health promotion, maintenance and management. It is of utmost importance to bridge the gap between the ancient practices and modern science through the pursuit of compassionate care and integration of diverse therapies and approaches. [8]

The scope and role of complementary therapies such as yoga and music have been broadened currently as a popular pathway to holistic health and wellness and have been accepted and are being adapted globally as preventive, curative and promotive modalities of therapy. Many scientific studies have shown that it can positively impact the body-mind complex in multiple ways and the healthcare providers are responding appropriately to these positive findings.

INTEGRATIVE MEDICINE IN PRACTICE AT SBV:

Numerous research projects and publications have documented these innovative efforts to integrate traditional systems of healing and wellness with modern medical approaches in patient care. [8]

The SBV Policy on Salutogenesis and SBV Standard Operating procedure for Salutogenesis (2018) reiterates our commitment to the creation of a health-promoting environment that can be understood as a salutatory extra-person factor promoting positive health. This pioneering innovation of integrating yoga in medical curriculum was initiated through 'Yogabhyasa'- a program especially organised and conducted for the benefit of medical students at SBV. [9]

This may be the first time around the globe that yoga therapy is incorporated as a regular training practice for healthcare students. A study done with 60 students who received yoga training twice weekly for 6 months showed significant beneficial changes in quality of life indices as well as haematological and biochemical parameters and these changes correlated positively with class attendance. [10]

CAM IN EDUCATION

Yoga should be made an integral part of medical and paramedical collegiate education. A specialized course namely “Foundation in Yoga Therapy” is being conducted as part of nursing curriculum, encompassing a total of 90 hours during the entire BSc (Nursing) course.

Yoga has been included as part of the elective programs for the first-year students of Allied Health Sciences (AHS) entitled “Basic Yoga and Practice” under which 45 hours of yoga teaching and training is given. The Masters’ (MSc) courses in AHS also receive the same training as mentioned above. Apart from this, the first-year students of the Schools of Pharmacy and Physiotherapy receive 30 hours of Yoga teaching and training every year. The inculcation of these traditional practices and universal values in healthcare students at the start of their professional career can help them be more humane in their life and profession and has transformed their outlook about the these practices. They are also confident enough to recommend them to a patient if required to make it integrative. [11]

In technical terms, as suggested by Mittelmark et al (2022), this can be understood as a salutatory extra-person factor that promotes positive health. We have explored yoga therapy and music therapy as part of Generalised Resistance Resources (GRR) development through Yogabhyasa and MEETS (Musically Express Emotions and Thoughts for Success) programs for our student community. They are being utilised extensively in the clinical setting of our hospitals as a part of Specific Resistance Resources (SRR). [12] Numerous research projects and publications have documented these innovative efforts to integrate traditional systems of healing and wellness with modern medical approaches in patient care. [9]

PRODUCING EVIDENCE OF RIGOROUS QUALITY

Both yoga and music therapies offer a holistic, non-invasive, and cost-effective approach to health, making them complementary and adjuvant modality of treatments alongside conventional medicine. SBV has opened up avenues for complementary and alternative medicine (CAM) for patient care in almost all areas including ICU and the operation theatres, apart from departments like Medicine, Obstetrics and Gynaecology, Pediatrics, Psychiatry, Surgery, Cardiology, Palliative care, Orthopaedics, Otorhinolaryngology, Ophthalmology, Neurosurgery and Neurology. Recently interest has been shown from the Dental, Nursing and Allied Health science institutes within SBV.

PUBLISHED EVIDENCES

With the advent of SBV opening up avenues of CAM for patient care, an array of interdisciplinary collaborative research studies have been undertaken in many areas with yoga and music therapies as an adjuvant modality alongside the medical management between ISCM and other medical departments of SBV. ISCM of SBV also caters to the needs of students who seek to qualify themselves in yoga and music therapies with a range of programs staring from a certificate course to a doctoral degree. Currently 13 scholars are pursuing their doctoral degree in yoga therapy and 2 scholars in music therapy at ISCM and 3 of them have completed and acquired the doctoral degree (PhD) in yoga therapy. All the research studies and publications discussed below with yoga and music therapies as interventions have been done at SBV.

A comparative study of the effect of yogic relaxing asanas and pranayamas on heart rate variability and perceived stress in healthy young volunteers concluded that practising either relaxing asana or pranayama enhances parasympathetic activity and decreases sympathetic activity. [13] Adjunctive yoga therapy was found to be extremely effective in depressive disorders in addition to a significant positive change in anxiety. [14]

Positive changes were observed in other studies done as part of interdisciplinary collaborative doctoral studies between the department of physiology and ISCM, on auditory and visual reaction times (ART and VRT) with yoga therapy, improvement in overnight quality of sleep and perceived stress in young healthy volunteers. Similarly the effect of yoga therapy on autonomic function and biochemical parameters in patients with newly diagnosed essential hypertension (HT) was found to have an enhanced change with significant reduction in HT.

Yoga was introduced as a life skill to participants of an alcohol de-addiction program and it was found to reduce the craving as well as enhance their quality of life. [15] Yoga therapy has been established in modifying stress in patients with psoriasis. [16]

Yogic breathing techniques may enhance cardiovascular hemodynamic of the maternal–foetal unit attributed to reduced sympathetic activity coupled with enhanced vagal parasympathetic tone. Such changes in cardiac autonomic status may enhance placental circulation and lead to healthier foetal development [17]

Metabolic syndrome (MetS) is a public health threat rising globally at an alarming rate and addition of life style changes including yoga as an adjuvant therapeutic modality has yielded beneficial effects in maintaining good health and reducing metabolic risk factors, which may have an impact on utilization of yoga therapy as a secure and cost-effective add-on in combating MetS. [18]

Yoga has a definite role as an adjuvant therapy and may help prevent progression of kidney damage in diabetic patients. It has been found to enhance standard medical care and hence, can be recommended in routine clinical management of diabetes to prevent progression to complications that are part of the natural history of the disease. [19]

Chronic renal failure is a severe and chronic illness that can significantly impact a person's quality of life. A study done with music therapy on this condition suggest that it can be an effective complementary treatment for patients undergoing haemodialysis helping to reduce fatigue and pain perception.[20]

A multitude of modalities are available for the treatment of chronic rhinosinusitis; however each one has its side effects and compliance issues. Bhramari pranayama, a breathing exercise in the practice of yoga offers an inexpensive and free from side effect modality in this regard. It was found that integrating regular practice of Bhramari pranayama along with the conventional management of chronic rhinosinusitis is more effective than conventional management alone. [21]

The term “diabetic lung" was coined by Sandler for the abnormal pulmonary function detected in diabetic patients due to underlying pulmonary dysfunction. Balaji et al and Artchoudane et al concluded that yoga has a definite role as an adjuvant therapy as it enhances standard medical care and hence is even more significant in routine clinical management of diabetes, improving physical condition, quality of life and pulmonary function. [22, 23]

Patients undergoing cardiac catheterization and coronary angiography often experience high levels of anxiety and physiological disturbances. Combination of music and yoga therapy interventions have been found to be effective in bringing down the anxiety and reducing the physiological disturbances for these patients by improving the deep breathing patterns of these patients posted for angiography. [24]

Functional dyspepsia (FD) is a common upper gastrointestinal disorder, characterized by bothersome epigastric pain or burning, fullness after meals or early satiety. The precise pathophysiology remains incompletely understood but may include the role of disordered gut-brain communication leading to disturbances in gastro-duodenal physiological functioning. Even if there are several pharmacological treatment options, it is a chronic and relapsing disorder with persistent symptoms that makes its management difficult. The present review summarized the current scientific understanding of the probable effects of yoga on the pathophysiological mechanisms involved in FD (gastric motility, fundic accommodation, hypersensitivity, duodenal inflammation, psychological distress and gut-brain dysfunction). The literature suggests yoga can have a beneficial role in the management of FD. However, rigorous research and clinical trials are required to confirm the same. [25,26]

Diabetes mellitus, characterized by chronic hyperglycemia, is attributed to relative insulin deficiency or resistance, or both. Studies have shown that yoga can modulate parameters of insulin resistance. A study explored the possible beneficial effects of integrated yoga therapy with reference to glycemic control and insulin resistance in individuals with diabetes maintained on

standard oral medical care with yoga therapy, compared to those on standard oral medical care alone. It was found that administration of integrated yoga therapy to individuals with diabetes leads to a significant improvement in glycemic control, insulin resistance, and key biochemical parameters [27]

Intraocular pressure (IOP) increases during "sirasasana" and may be a risk factor for the progression of glaucoma. There is a widely held belief that other "head below heart" asanas may also cause increase in IOP. However, on the contrary, we conducted a prospective observational study in a tertiary care hospital, study to determine the change in IOP following three "head below the heart" postures- "meruasana", "viparitakarni," and "sarvangasana". It was concluded that "meruasana," "viparitakarni," and "sarvangasana" when held for 30s by healthy yoga practitioners resulted in post-asana drop in IOP with no significant change in pulse rate or BP. [28]

Music therapy as receptive aspects and singing lullabies to the newborn was found to be effective as a coping strategy for stress and anxiety in primi lactating mothers, apart from its ability to help achieve early onset of lactation and aid in enhancing the maternal breast-feeding satisfaction levels. [29.] A review by Ramesh and Srinivasan provides an overview on the available literature on stress and endocrine markers during pregnancy, with a focus on evidence based the use of music & the effects of music therapy. It also provides insights into the future implications of its potency in pregnancy. [30] Positive improvement was found in prolactin levels with music therapy group in lactating primi mothers in comparison to the control group, establishing the effect of receptive music therapy using Indian classical music in primiparas women. The results of the study have generated adequate evidence clearly pointing to a quantitative decline in oxidative stress, following music intervention and with reference to lactating primi mothers [31]

In palliative care, music therapy aims at validation of feelings and thoughts, self-worth, spiritual wellbeing, increased self-awareness to aid coping, feeling of connectedness for those with cognitive impairment, language barriers, and/or communication difficulties, creative expression and a feeling of transcendence, support toward bereavement to deal with loss, acceptance and catharsis support, improve confidence and strength to move forward and strengthen its roots with the concept of Salutogenesis. [32]

SBV, a health sciences university, has pioneered an inclusive and holistic approach to enhancing the lives of children with special needs (CWSN) through integrative yoga and music therapy practices. This initiative, implemented through the ISCM aims to empower children with diverse abilities by fostering their physical, emotional, and cognitive development. The practice is rooted in a philosophy of dignity and inclusion, aligning with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) [33]

Regular practice of yoga helps CWSN sustain their attention span, improves their ability to comprehend and follow instructions, aids sensory-motor co-ordination as well as brings stability to their gestures and posture. The practice extends to the child's behaviour as it enhances their mental stability by eliminating fluctuations. [34]

The effect of Mukha Bhastrika, a bellows type pranayama on reaction time was evaluated in mentally challenged adolescents. Significant improvements in both the ART and VRT was found, proving the efficacy of yoga. [35]

Another study evidenced that yoga training can enhance RT in children with autism spectrum disorder (ASD). Both ART and VRT shortened which may be attributed to enhanced central neuronal processing resulting in better sense of alertness, sensitivity and awareness. Yoga training may be utilized to reduce dependency on others and enhance learning capabilities and social skills in children with ASD. [36]

A multidisciplinary research study between ISCM and Dentistry of SBV was done to evaluate effect of yoga as an adjunct to regular training methods in training brushing skill to children with ASD. Regular training methods such as visual pedagogy and video modelling for developing the skill of tooth brushing do not address the core deficits which facilitate their effective and quick learning and it was concluded that yoga training can be used as an adjunct to enhance tooth brushing learning capabilities of children with ASD in addition to visual modelling and pedagogy. [37, 38]

A similar study compared music and movement therapy (M&MT) and visual pedagogy (VP) for improving oral health in children with ASD. M&MT showed greater improvements in plaque and gingival indices and tooth brushing skills than VP group concluding that M&MT is a more effective intervention for promoting oral hygiene in children with ASD. [39]

A randomized control trial was done on the effect of yoga therapy on musculo-skeletal, cardiovascular and neurological function and quality of life of children with autism spectrum disorder. This PhD thesis by Artchoudane established the efficacy of yoga therapy in improving the cognitive function along with significant reduction in VRT and severity of autism in children with ASD. This may be attributed to integration of musculoskeletal function with enhanced neurological response in children with ASD after yoga therapy. The review by Artchoudane et al highlighted the neuro-plastic benefits of yoga practices. Harmonization of mind-body-emotion through yoga helps develop social skills and promotes self-confidence. It was concluded that yoga therapy may be used effectively and safely and may be adopted as an adjuvant therapy to reduce severity as well as co-morbidities related to autism. [40-42]

An exploration of ASD was done through the lens of Salutogenesis, focusing on Sense of Coherence (SoC) as a key to understanding health. The article highlights how individuals with ASD may experience challenges in developing SoC due to

difficulties with change and chaos. The article calls for adapted SoC tools to better understand and support children with ASD. [43] Another randomised control trial was conducted on the effect of yoga therapy on psychological variables among care givers of special children and those who participated in yoga showed a substantial reduction in perceived stress, anxiety, and depression levels, enhancing emotional resilience and coping abilities. Quality of life improved significantly in all domains, including physical health, psychological well-being, social interactions, and environmental perception. Additionally, sleep quality was enhanced leading to reduced fatigue. It was concluded that yoga may effectively reduce caregiver burden and stress, enhancing the quality of life among caregivers of children with special needs. [44]

Yet another doctoral work is in progress on the effect of improvisational music therapy on biopsychosocial parameters in children and adolescents with ASD and we hypothesise beneficial effects in this under privileged vulnerable population with the intervention of music therapy.

FUTURE DIRECTIONS- CHALLENGES AND FINDING SOLUTIONS

Challenges: The major challenges for the practitioners of Complementary Medicine are

- Lack of standardized practices and terminology in traditional medicine
- Difficulties in obtaining reliable scientific evidence for traditional practices due to lack of access in institutes of modern medicine
- Cultural and philosophical differences between traditional and modern healthcare systems
- Potential conflicts with existing regulations and healthcare policies

Plausible Solutions:

By addressing these challenges and promoting open dialogue between stakeholders, the integration of traditional and modern healthcare can lead to a more comprehensive and patient-centered approach to health and well-being. While they have potentially complementary perspectives, efforts to improve care – as well as personal and population health – are hampered by lack of communication and coordination between medical and public health professionals and a fragmented data systems. Differing perspectives and disconnected data have also hindered effectiveness of shared efforts between health professionals and other stakeholders, including community-based organizations and health plans. While the call for greater synergy between health care and public health is hardly new, emerging technologies and the urgent need for health reform create the opportunity and imperative for them to come together. [45]

We at ISCM of SBV have adopted similar approaches to fill up the gaps/ lacunae and build a strong and everlasting bridge between the two grand sciences.

CONCLUSION

Extensive research on yoga and music has shown promise with regard to various disorders that seem to be amiable to these ancient traditional therapies when integrated as an adjuvant to modern medicine. Yoga and modern medicine are but complementary systems apart from being life changing and lifesaving sciences that understand the importance of holistic health. Their enlightened collaboration will have a significant impact on our health care system. Hence the need of the hour is to promote such an integrated approach and tap the potentials of both these grand sciences for the benefit of humanity.

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REFERENCES

1. Medcalf A, Bhattacharya S, Momen H, Saavedra M, Jones M, eds. *Health For All: The Journey of Universal Health Coverage*. Hyderabad (IN): Orient Blackswan; 2015.
2. Kuruvilla S, Gopalakrishna Pillai GK, Kuchenmüller T, Wieland S, Patwardhan B, Reeder J. Traditional medicine and global health: a call for papers. *Bull World Health Organ*. 2024; 102(11):770-770A. doi:10.2471/BLT.24.292621
3. Bhavanani AB, Meena R, Dayanidy G, Balaji R, eds. Yoga Therapy for Care seekers. *Institute of Salutogenesis and Complementary Medicine (ISCM), Pondicherry*. 2023. ISBN: 978-81-962215-1-5
4. Hoenders R, Ghelman R, Portella C, et al. A review of the WHO strategy on traditional, complementary, and integrative medicine from the perspective of academic consortia for integrative medicine and health. *Front Med (Lausanne)*. 2024; 11:1395698. Published 2024 Jun 11. doi:10.3389/fmed.2024.1395698
5. Raja M, Cramer H, Lee MS, et al., Addressing the challenges of traditional, complementary, and integrative medicine research: an international perspective and proposed strategies moving forward. *Perspectives on Integrative Medicine*, 2024; 3 (2): 86-97. Published online: June 30, 2024 doi: 10.56986/pim.2024.06.004

6. Howick J, Koletsi D, Ioannidis JPA, et al. Most healthcare interventions tested in Cochrane Reviews are not effective according to high quality evidence: a systematic review and meta-analysis. *J Clin Epidemiol*. 2022; 148:160-169. doi:10.1016/j.jclinepi.2022.04.017
7. Ornish D. Intensive lifestyle changes and health reform. *Lancet Oncol*. 2009;10(7):638-639. doi:10.1016/S1470-2045(09)70175-5
8. Bhavanani AB, Meena R, Sobana R, et al., Bridging traditional healing systems and modern medical science through salutogenesis. *Institute of Salutogenesis and Complementary Medicine (ISCM)*, *Pondicherry.* 2023. ISBN: 978-81-962215-0-8
9. Dayanidy G, Nilachal P, Ramanathan M. and Bhavanani AB. Enhancing Yoga Awareness Among Future Healthcare Practitioners: A Study on MBBS Students' Knowledge and Perceptions. *South Eastern European Journal of Public Health*. (Nov. 2024), 1797–1802. doi:10.70135/seejph.vi.2213.
10. **Singh SB, Ramanathan M, Bhavanani AB, et al.,** Effectiveness of Online Yoga Sessions on Wellbeing of Undergraduate Health Care Students: Students' Perspectives . *Educational Administration: Theory and Practice*. 30, 5 (May 2024), 15128–15133. doi:10.53555/kuey.v30i5.8294.
11. Dayanidy G, Bhavanani AB, Ramanathan M. Enhancing awareness of yoga in health professions education students through a single interactive session: A pretest-post test study. *Journal of Education Technology in Health Sciences.* 5, 1 (July 2018) 20-24 doi:10.18231/2393-8005.2018.0005
12. Mittelmark MB, Sagy S, Eriksson M, et al., eds. *The Handbook of Salutogenesis*. Cham (CH): Springer; 2017.
13. Vasanthan S, Madanmohan, Bhavanani AB, et al., Comparative study on the effect of yogic relaxing asanas and pranayamas on cardiovascular response in healthy young volunteers. *Natl J Physiol Pharm Pharmacol*. 2017; 7(1): 127-130. doi:10.5455/njppp.2017.7.0824018082016
14. Kumar S, Subramaniam E, Bhavanani AB, Sarkar S, Balasundaram S. Effect of adjunct yoga therapy in depressive disorders: Findings from a randomized controlled study. *Indian J Psychiatry*. 2019; 61(6):592-597. doi:10.4103/psychiatry.IndianJPsychiatry_173_19
15. Balaji R, Ramanathan M, Bhavanani AB, Karri RR. Effects of adjuvant yoga therapy on craving and perceived stress in alcohol dependence syndrome: A randomized control study. *Arch Ment Health.* 2024; 25(1): 1-6, Jan–Jun 2024. | doi: 10.4103/amh.amh_83_23
16. Dayanidy G, Bhavanani AB, Ramanathan M, Srikanth S. Effect of yoga therapy on cardiovascular parameters in patients with psoriasis: A randomized control trial pilot study. *IP J Nutr Metab Health Sci*. May 2021;4(2):61-63.
17. Vasundhara VR, Bhavanani AB, Ramanathan M, et al., Immediate effect of Sukha Pranayama: A slow and deep breathing technique on maternal and fetal cardiovascular parameters. *Yoga Mimamsa* Jan 2018; 50:49-52. doi:10.4103/ym.ym_14_18
18. **Balaji R, Ramanathan M, Bhavanani AB.** Role of yoga as an adjuvant therapy in the management of metabolic syndrome – A randomized control pilot study. *Yoga Mimamsa* 53(2): p 116-121, Jul–Dec 2021. | doi: 10.4103/ym.ym_109_21
19. Balaji R, Ramanathan M Bhavanani AB. Nephroprotective Impact of Adjuvant Yoga Therapy on Diabetes A Randomised Controlled Trial. *J Clin Diagn Res*. Dec 2020; 14(12): KC01-KC04. doi: 10.7860/JCDR/2020/39687.14318
20. Sobana R, Jaiganesh K and Parthasarathy S. Effect of Music Therapy on pain perception, fatigue level, and physiological variables in patients undergoing hemodialysis - A prospective randomized interventional trial. *Int.J. Life Sci.Pharma Res*. 13 Special issue 4 (Mar 2023), L89-L89L94 doi: 10.22376/ijlpr.2023.13.2.SP2.L89-L94
21. Abishek K, Bakshi SS, Bhavanani AB. The Efficacy of Yogic Breathing Exercise Bhramari Pranayama in Relieving Symptoms of Chronic Rhinosinusitis. *Int J Yoga*. 2019;12(2):120-123. doi:10.4103/ijoy.IJOY_32_18
22. Balaji R, Ramanathan M, Bhavanani AB, et al., Effectiveness of Adjuvant Yoga Therapy in Diabetic Lung: A Randomized Control Trial. *Int J Yoga*. 2019; 12(2):96-102. doi:10.4103/ijoy.IJOY_20_18
23. Artchoudane S. Ranganadin P, Bhavanani AB et al., Effect of Adjuvant Yoga Therapy on Pulmonary Function and Quality of Life among Patients with Chronic Obstructive Pulmonary Disease: A Randomized Control Trial. *J Basic Clin Appl Health Sci*. Sep 2018; 1(3):117-22. doi:10.5005/JP-JOURNALS-10082-01135
24. Ajmera S, Sundar S, Amirtha Ganesh B, et al., A comparative study on the effect of music therapy alone and a combination of music and yoga therapies on the psycho-physiological parameters of cardiac patients posted for angiography. *J Basic Clin Appl Health Sci.* 2018; 1(1): p 13-18, Oct–Dec 2018. | doi: 10.5005/jp-journals-10082-01145
25. Setia G, Bhavanani AB, Ramanathan M, et al. Yoga Therapy in Functional Dyspepsia. A Narrative Review. *J Gastrointestin Liver Dis*. 2023;32(4):513-525. Jan 2023. doi:10.15403/jgld-4867
26. Setia G, Ramanathan M, Bhavanani AB, et al., Adjuvant yoga therapy for symptom management of functional dyspepsia: A case series. *J Ayurveda Integr Med*. May 2023;14(3):100715. doi:10.1016/j.jaim.2023.100715
27. Mangala Gowri M, Rajendran J, Srinivasan AR, et al., Impact of an Integrated Yoga Therapy Protocol on Insulin Resistance and Glycemic Control in Patients with Type 2 Diabetes Mellitus. *Rambam Maimonides Med J*. 2022;13(1):e0005. Jan 2022. doi:10.5041/RMMJ.10462
28. Swathi N, Ramanathan M, Srikanth K, et al., Intraocular pressure changes following three "head below the heart" postures in yoga practitioners – A prospective observational study. *Int J Yoga*. Jul 2023; 16:34-7. doi: 10.4103/ijoy.ijoy_28_23
29. Ramesh B, Sundar S, Ghose S, et al., Evaluating the effect of music therapy on the establishment of lactogenesis and maternal breastfeeding satisfaction levels. *Int.J.Med.Health res.* May 2020;6;05-09.
30. Ramesh B, Srinivasan AR. Impact of music therapy and the influence of Indian classical music on the extracellular status of endocrine markers in pregnant women: A review. Music and Medicine, Oct 2022, 14(4):245-260 doi: 10.47513/mmd.v14i4.881

31. Ramesh B, Srinivasan AR, Kumar A, Ghose S. Evaluation of potential lactogenic effect of receptive music therapy using Indian classical music in primiparas women: A case control study. *Res O&G Forum*. Jun 2024;34(2s):68-73.
32. Ramesh B. Role of Music Therapy in Palliative Care-Methods and Techniques. J Palliat Care. Published online Feb2024. doi:10.1177/08258597241235110
33. Peter Bartlett. The United Nations Convention on the Rights of Persons with Disabilities and the future of mental health law. *Psychiatry*. Dec 2009, 8 (12), 496-498. doi:10.1016/j.mppsy.2009.09.012
34. Ramanathan M, Bhavanani AB. Addressing Autism Spectrum Disorder through Yoga as a Complementary Therapy. *SBV Journal of Basic, Clinical and Applied Health Science,* Jul 2018; 2(2):3-7. doi: 10.5005/jp-journals-10082-01123
35. Bhavanani AB, Ramanathan M, Harichandrakumar KT. Immediate effect of mukha bhastrika (a bellows type pranayama) on reaction time in mentally challenged adolescents. *Indian J Physiol Pharmacol*. Apr 2012; 56(2):174-180.
36. Ramanathan M, Eswari R, Bhavanani AB, et al., Yoga training enhances auditory and visual reaction time in children with autism spectrum disorder: A case - control study. *J Basic Clin Appl Health Sci*. Mar 2019; 2:8-13 doi: 10.5005/jp-journals-10082-02103
37. Ramassamy E, Gajula Shivashankarappa P, Adimoulame S, et al., Yoga therapy as an adjunct to traditional tooth brushing training methods in children with autism spectrum disorder. *Spec Care Dentist*. Nov 2019;39(6):551-556. doi:10.1111/scd.12422
38. Eswari R, Prathima G S, Sanguida A, et al., Integrated yoga therapy for teaching toothbrushing skills to children with autism spectrum disorder: A qualitative study of parents' perceptions. *Yoga Mimamsa Jul* 2019. 51(2): 43-47, doi: 10.4103/ym.ym_17_19
39. Raja R, Sharma A, Ramesh B, et al. Comparative evaluation of music and movement therapy and visual pedagogy as interventional tools in promoting oral health in children with Autism spectrum disorder: A randomized controlled trial. Spec Care Dentist. 2025;45(2):e70015. doi:10.1111/scd.70015
40. Artchoudane S, Ramanathan M, Bhavanani AB, Muruganandam P, Jatiya L. Effect of Yoga Therapy on Neuromuscular Function and Reduction of Autism Severity in Children With Autism Spectrum Disorder: A Pilot Study. *International Journal of Health Systems and Translational Medicine*. Jan 2021; 1(1): 76-85. doi: 10.4018/IJHSTM.2021010104
41. Artchoudane S, Bhavanani AB, Ramanathan M, Mariangela A. Yoga as a therapeutic tool in autism: A detailed review. *Yoga Mimamsa* Jan 2019;51:3-16 *doi:* 10.4103/ym.ym_3_19
42. Soccalingam A, Ramanathan M, Bhavanani, AB. Yoga Therapy on Cognitive Function in Neurodevelopmental Disorders. In: Tanu Wadhera & Deepti Kakkar (eds). Interdisciplinary Approaches to Altering Neurodevelopmental Disorders. IGI Global.2020. pp.143-160.
43. Rajakumari JC, Ramanathan M. Salutogenesis, sense of coherence and autism spectrum disorder: What do we know? *Indian journal of health and wellbeing*. Aug 2024;15:434-437
44. Priya PF, Bhavanani AB, Ramanathan M, et al., "The Role of Yoga in Promoting Mental Resilience Among Special Educators in Puducherry". *South Eastern European*
45. *Journal of Public Health.* Mar 2024; 1909–1919. doi:10.70135/seejph.vi.2749.
46. Lurie N, Fremont A. Building bridges between medical care and public health. *JAMA*. 2009; 302(1):84-86. doi:10.1001/jama.2009.959