IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Role Of Yoga In The Management Of Heart Rate Variability: A Narrative Review

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Abstract

Introduction: Heart rate variability (HRV) is a technique to assess cardiac autonomic rhythm non-invasively. It is a proxy for autonomic regulation and gives much psychophysiological information about holistic health. Having a higher HRV is a sign of sound cardiovascular health. According to WHO reports, 32% of global deaths occur due to malfunctioning of the cardiovascular system, which is the result of arrhythmic cardiac autonomic modulation. Many studies have suggested that yoga has the potential to increase HRV and alter HRV parameters towards parasympathetic activation, which has an immense positive effect on the mind and cardiac health.

Aim: The aim of this study is to investigate the existing scientific literature to explore the role of yoga in the management of Heart rate variability.

Methods: For this purpose, an online search on three specific databases, PubMed, Scopus, and Science Direct, was conducted using the keywords Yoga, Pranayama, Asana, Dhyan, meditation, "Heart rate variability", "RR interval," HRV and "autonomic nervous system" etc. Search was limited to years ranging from 2014 to October 2023 with all inclusion criteria. Filter was applied as English language and human subject.

Result: From all three databases, 3549 papers were recorded; after duplicates were removed and screened, only 11 RCT papers were included in this review based on the inclusion criteria. Studies suggested that yoga positively affected HRV and risk factors for cardiovascular disease across various populations.

Conclusion: This review suggests that yoga is significantly useful in cardiac autonomic modulation towards parasympathetic dominance, which increases HRV and sympathovagal tone.

Keywords: Heart rate variability, HRV, Cardiac Health, and Yoga.

INTRODUCTION

Cardiovascular disease (CVD) has become the leading cause among non-communicable diseases, bestowing many global health challenges in the 21st century(1,2). If we talk about WHO in this context, we come to know that 32 % of global deaths occur due to CVD, and approximately 19.8 million deaths occurred from CVD in 2022, which is a large number of deaths that draw our attention to the management of CVD and its complications(3).

HRV is defined as a variation or fluctuation between two consecutive beats. It is considered one of the best tools for assessing cardiovascular health. It also gives information about the balance between the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS), and with the help of analysis of HRV, we can understand the cardiac Autonomic nervous system (ANS) functioning(4). ANS is divided into three parts: the SNS, PNS, and the enteric nervous system, and provides neural coordination across the whole body except skeletal muscles(5). ANS is a major factor in regulating our cardiovascular system, and the effect of ANS on the cardiovascular system is assessed by the balance between its two major and counterpart branches, SNS and PNS(6,7). The PNS results in the high-frequency component of the HRV spectrum, and the SNS results in the low-frequency component of the HRV spectrum, which means both branches of ANS (PNS and SNS) influence the result of the HRV spectrum(8). It is found that when the input of sympathetic activity is increased, the level of HRV decreases, and when the input of parasympathetic activity goes up, then the HRV is increased(9). Decreased HRV is considered the failure of autonomic cardiac activity, resulting in sudden cardiac death, and is associated with the concerned situation of CVD(10). Many studies have shown that when the level of HRV goes down then it suppresses the vagal nerve activity and overbalances in sympathetic input, and this imbalance in autonomic nervous activity results in an increase in cardiac mortality and morbidity(11,12). Reduced HRV is not only a sign of cardiovascular impairment and various vascular diseases, but it also results in many types of mental disorders and cognitive deterioration(13). HRV is also associated with psychological health and is a significant tool for assessing many mental disorders, such as generalized anxiety disorder, major depressive disorder, and panic disorder(14). It was found that HRV is changed in response to ANS activity about stress(15). Generally, it is considered that a high resting HRV is a sign of great tolerance for stress and resilience(16). Anxiety is another psychological factor that is associated with a lower HRV(17). Meanwhile, high HRV is associated with better executive functioning, decision-making, and emotional regulation, which benefits health and well-being(18). With the help of HRV, the balance between sympathetic and parasympathetic regulation of cardiac activity is assessed, and this balance is the effect of gonadotropic hormones such as follicle-stimulating hormone, luteinizing hormone and Gonadotropin-releasing hormon(19). HRV serves as a non-invasive marker of autonomic nervous system activity, reflecting how the body responds to stressors and maintains homeostasis. By monitoring HRV, individuals can gain insights into how lifestyle factors such as sleep quality, stress management, exercise, diet, and mental well-being impact their cardiovascular health over time.

Yoga is an ancient technique to get rid of a fluctuating and wandering mind. It is considered a traditional “mind-body-breath” discipline, which encompasses a variety of practices such as posture(asana), deep

breathing(pranayama), and meditation, but it comprises self-discipline and moral conduct, also, which aims to integrate mind and body and result in physical, mental, intellectual and spiritual growth(20–23). It helps to evolve the ability to connect life, detoxify the mind, body, and emotions, and live a harmonious and meaningful life. In the yoga sutra, Maharshi Patanjali says, "Yogashchittvrittinirodhah," which means yoga is the serenity of activities of the Mind(24). Yoga is used to reduce stress, enhance well-being, prevent and manage various endocrinal diseases, and promote overall health on different levels - physical, mental, emotional, and spiritual(25–27). Many studies show that there is a correlation between yoga and markers of autonomic responses such as heart rate, HRV, heart rate turbulence (HRT), and baroreflex sensitivity (BRS) attention, cognitive ability, emotional regulation, and mental resilience(23,28). The practice of yoga is related to the activation of vagal nerve activity with no side effects in healthy persons (29). Additionally, it is also effective clinically in blood pressure, heart rate, and cardiovascular risk factors(30). Yoga has also been studied for its positive effect on HRV. Many studies have shown that practicing yoga increases vagal tone and leads to an increase in vagal dominance at rest compared to non-yoga practitioners, as well as influencing HRV(23). Despite the rising interest in the impact of yoga on HRV, a research gap exists. Much research has been done, but in that research, there are some shortcomings; some researches have short-term interventions, some have small-sized data, some do not have structured data, and others have not properly defined the various types of yogic interventions. Due to this, more robust, long-term, and standardized research is needed to establish clear, evidence-based guidelines and understand the underlying mechanisms by which yoga influences HRV across various populations and practice styles.

This study aims to investigate the scientific published literature to describe the effect of yoga practices on HRV and understand how these practices can contribute to cardiovascular health and autonomic nervous system regulation. For this purpose, the findings of multiple studies are summarized and synthesized in this study to provide a comprehensive understanding of the present state of knowledge in the field of yoga and HRV

METHODS AND MATERIALS

This study was carefully carried out following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines 2020.

Article Inclusion Criteria

Papers having only Randomized Control Trial (RCT) research design were included in this study. This review research was done on papers with only human subjects with no age restriction. Only English-language papers from all countries were selected for this narrative review. This study included only those papers that included yoga or any yoga practice as an intervention and measured HRV with any electronic device.

Article Exclusion Criteria

No other papers (e.g., non-RCT, observational study, cross-sectional study, qualitative research design, etc.) were included in this study except for the randomized control trial. Papers giving interventions other than

yoga in combination with yoga were also excluded. Studies that did not measure HRV were also excluded. Papers that did not use the English language were also excluded from this study.

Search Methods

For this study, three electronic databases, PubMed, Scopus, and Science Direct, were searched using the words around Yoga and HRV. The search strategy for PubMed was ("Heart rate variability"[All Fields] OR "RR interval"[All Fields] OR "HRV"[All Fields] OR "autonomic nervous system"[All Fields]) AND ("yoga"[MeSH Terms] OR "yoga"[All Fields] OR ("pranayama"[All Fields] OR "pranayamas"[All Fields]) OR ("asana"[All Fields] OR "asanas"[All Fields]) OR "Dhyan"[All Fields] OR ("meditate"[All Fields] OR "meditated"[All Fields] OR "meditating"[All Fields] OR "meditation"[MeSH Terms] OR "meditation"[All Fields] OR "meditations"[All Fields] OR "meditation s"[All Fields] OR "meditational"[All Fields] OR "meditative"[All Fields] OR "meditator"[All Fields] OR "meditators"[All Fields]) OR "Yogic breathing"[All Fields] OR "Yogic exercise"[All Fields] OR "yogic technique"[All Fields] OR "yogic intervention"[All Fields]) and then, humans and English filter were applied. The search for the Scopus database was (yoga OR pranayama OR asana OR dhyan OR meditation OR "Yogic breathing" OR "Yogic exercise" OR "yogic technique" OR "yogic intervention") AND ("Heart rate variability" OR "RR interval" OR hrv OR "autonomic nervous system") AND PUBYEAR > 2015 AND PUBYEAR < 2024 AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (EXACTKEYWORD , "Human")) and at last Science Direct database were searched using the exact terms: (Yoga OR Pranayama OR Asana OR Dhyan OR meditation) AND ("Heart rate variability" OR "RR interval" OR HRV OR "autonomic nervous system") and Humans and English filter were applied after this search. The whole search was conducted on 10 October 2023. And all the databases searched were limited to the years ranging from 2014 to 2023. Two reviewers (both authors) independently screened the titles and abstract for the screening process; citations meeting the criteria were then selected for a full-text review. Data on patients (e.g., age, gender), methods and design (only randomization control trail), interventions (e.g., any type of yogic practices, frequency, and duration), outcomes (e.g., outcome measures, assessment time points), and results were extracted by two authors independently Discrepancies were discussed by both authors until a consensus was reached.

Figure 1 Flow Chart of Literature Search

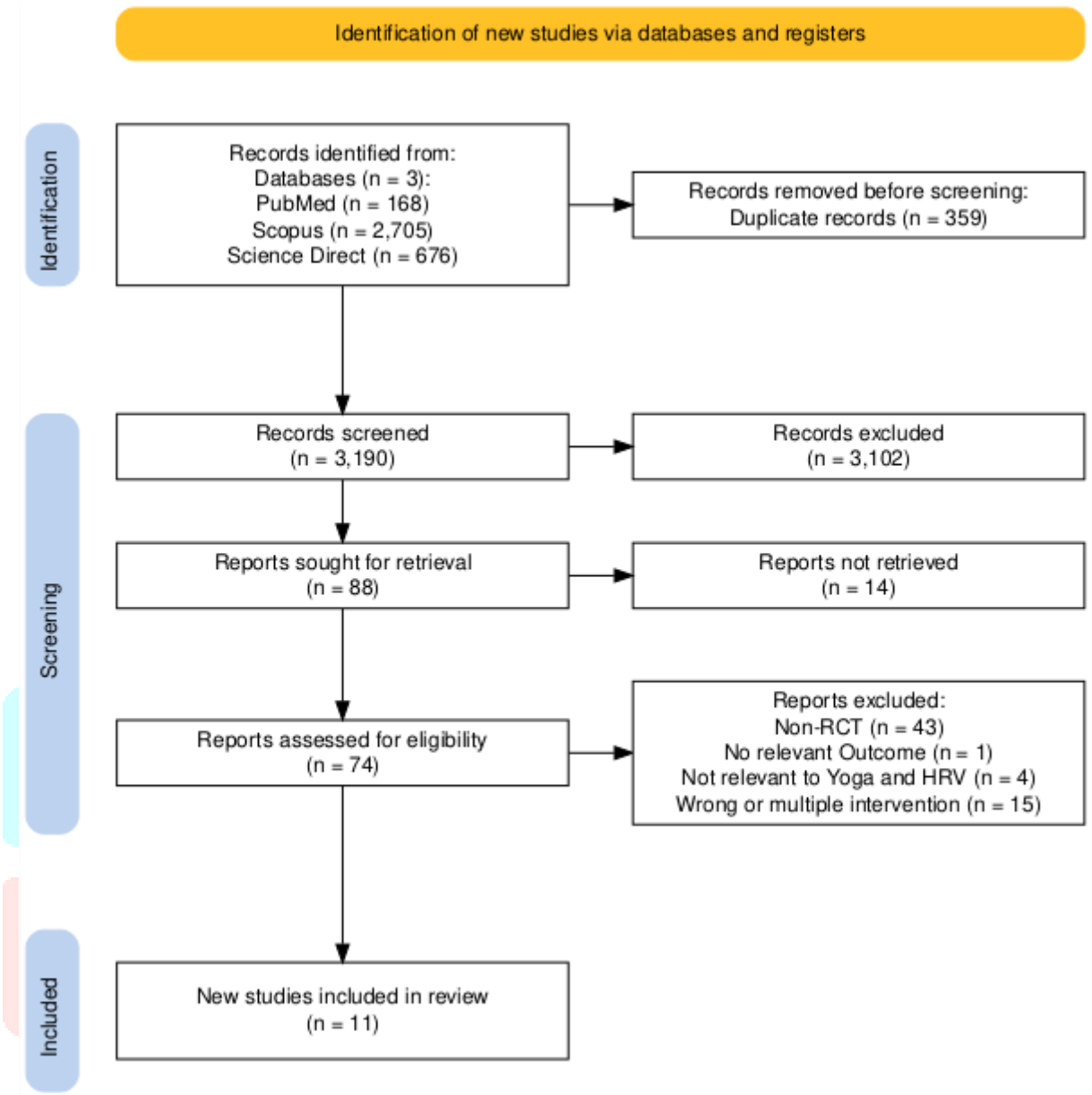

Table 1 Published study of Yogic management for HRV

Citation Details	Sample and design	Intervention	Result
Balamadhuwanthi S. et al. 2023(31)	60 nursing professionals, Experimental group (EG) (30) and Control Group (CG) (30), RCT	Chair yoga, 20 minutes for 5 days a week for 2 months	Significant increase in RR interval, SDNN, and PNN50, reduction in stress, and increase in sleep quality
Inbaraj et al. 2023(32)	68 breast cancer patients undergoing adjuvant chemotherapy, RCT	Integrated Yoga Program for 5 days a week for 18 weeks	The yoga group showed an increase in HRV indices, while the non-yoga group noted a lower HRV.
Karthiga et al. 2022(33)	234 pregnant women having the risk of gestational hypertension, EC (121), CG (113), RCT	Sukshma Vyayama, asanas, Slow pranayamas, and shavasana for 2 hours a day for 20 weeks	A decreased incidence of hypertension, reduced cardiometabolic risks, and increased HRV were observed in the yoga group
Lalitha et al. 2021(34)	50 healthy volunteers, pranayama group (25), CG (25), RCT	Five cycles of 5 minutes of kapalbhati	Enhance parasympathetic withdrawal immediately after kapalbhati, and parasympathetic dominance was recorded after 20 min. of resting time
Kuppusamy et al. 2019(35)	520 healthy adolescents, breathing group (260), CG (260), RCT	5 minutes Yoga breathing (bhramari pranayama) 5 times, 5 days a week for 6 months	A positive shift in cardiac autonomic modulation toward the parasympathetic predominance
Ganesan et al. 2020(36)	166 patients with RA, RCT	60 minutes of yoga sessions twice a week for 12 weeks	improve sympathovagal balance and reduce disease activity in RA patients
Christa et al. 2019(37)	80 patients with post-myocardial infraction, RCT	12-week Yoga program	Additive effect in shifting the sympathovagal balance towards parasympathetic predominance
Patil et al. 2019(38)	64 non-diabetic offspring of type-2-diabetes parents, RCT	8-week yoga training	Improvement in cardiac autonomic function and insulin resistance
Hewett et al. 2017(39)	63 stressed and sedentary adults, RCT	16-week Bikram Yoga program	No increase in the high frequency of HRV; regression analyses indicated a reduction in diastolic blood pressure, body fat, fat mass, and Body mass index.

Chu el al. 2017(40)	26 sedentary women, RCT	1-hour yoga program, twice a week for 12 weeks	Significant decrease in low-frequency and ratio of low-frequency and high-frequency HRV, an increase in high-frequency HRV, and a reduction in depressive symptoms
Punita et al. 2015(41)	80 subjects with hypertension, RCT	12-week yoga program	An increase in HRV and vagal tone and a decrease in sympathetic activity in the subject with hypertension

EG: experimental group, CG: control group, RCT: randomised control trial, RR: the time interval between successive R peaks in an ECG, SDNN: standard deviation of normal-to-normal intervals, PNN50: mean number of times per time interval in which the change in the successive normal sinus (NN) intervals exceeds 50 milliseconds, HRV: heart rate variability, RA: Rheumatoid Arthritis

RESULT

The results of the Literature search step, like identification, screening, and inclusion, were fully figured out in Figure 1 using the Shiny app(42). For this narrative review, three databases, PubMed, Scopus, and Science Direct, were searched online, and a total of 3549 papers were retrieved, out of which 168, 2705, and 676 were from PubMed, Scopus, and Science Direct, respectively. Out of which 359 papers were found to be duplicates. after removing the duplicates, 3190 papers remained. After this, both authors screened these papers independently by reading the title and abstract. Then, 3102 papers were excluded based on inclusion criteria, after which only 88 papers remained. Of these 88 papers, 14 were found to be non-full text. Thus, only 74 papers were found to be full-text and went for further final screening. In the final screening, 63 papers were excluded for not following the final inclusion criteria, of which 43 papers were not RCT, one paper had no relevant outcome, 4 papers were not relevant to yoga and HRV, and 15 papers had either wrong intervention or multiple interventions. Thus, only 11 papers remained that were included in this narrative review.

This review suggests that yoga is helpful in a healthy population with increased dominance of the PNS. A study done by Balamadhuwanthi S. et al. among healthy nursing professionals showed that the practice of Chair Yoga was significantly resulted in betterment of HRV domains such as RR ($P< 0.0001$), SDNN ($P< 0.0342$), PNN50 ($P< 0.0001$), LF ($P< 0.0001$), HF ($P< 0.0001$), LF/HF ($P< 0.0006$)(31). The other outcomes of this study were increased sleep quality and decreased perceived stress. Additionally, studies done by Lalitha et al and Kuppuasamy et al were also observed significant ($P<0.05$) improvement towards parasympathetic dominance after kapalbhati and bhramari pranayama practices(34,35).

A drastic change in HRV parameters after yoga practice was also observed in the study with cardiac patients. A study done by Karthiga et al. reported that after 20 weeks of the yoga program, the HRV was increased in participants with 16 weeks of pregnancy. Due to 2 hours of practicing yoga daily for 20 weeks, hypertension and cardiometabolic risk were decreased, and HRV indices were increased in pregnant women having risk of gestational hypertension(33). Similarly, research done by Christa et al. stated that the result of a short-term yoga program was significant($p=0.01$) on cardiac rehabilitation in patients with post-myocardial infarction.

In this research, it was seen that after practicing yoga for 12 weeks, there was an increase in parasympathetic predominance, while the time domain parameters of HRV were not significantly different in both groups, but the frequency domain of HRV was significantly different in favour of yoga group, and overall, the HRV was increased in the yoga group(37). Additionally, a study done by Punita et al. again reported that yoga was beneficial for patients with hypertension, as their systolic and diastolic blood pressure was decreased after a 12-week yoga session(41). In this study, the yoga group reported that the low frequency of HRV power was decreased, which was manifested in increased vagal tone and heart rate variability in subjects with hypertension. Emerging evidence suggests that yoga may confer therapeutic benefits even in populations with life-threatening illnesses like cancer, rheumatoid arthritis, and type 2 diabetes. A study done by Inbaraj et al. showed that the Integrated Yoga Program was a protective therapy for cardiac autonomic function in patients with breast Cancer(32). In this study, 68 Breast Cancer Patients undergoing adjuvant Chemotherapy were taken and randomly divided into two groups. The yoga therapy group received an Integrated yoga Program for 5 days a week with chemotherapy, while the non-therapy group normally received chemotherapy. After 18 weeks, it was seen that the HRV indices of the Yoga group were increased, and in the non-yoga group, sympathetic activity was increased, which was a symbol of lower HRV indices in the non-yoga group. Thus, yoga had a protective effect on Cardiac health in patients receiving chemotherapy for breast cancer. Additionally, a study done by Ganesan et al. reported that the effect of yoga on disease activity, inflammatory markers, and HRV was significant ($p<0.05$) in patients with Rheumatoid Arthritis. In this study, the cortisol level in both groups was decreased, but the level of cortisol in the yoga group was more significant than that of the control group(36). Similarly, study done by Patil et al. showed that the effect of yoga on cardiac autonomic dysfunction and insulin resistance in non-diabetic offspring of type-2 diabetes parents was significant. In this study, 8 weeks of yoga training was given to the experiment group, and as a result, it was seen a significant($p=0.005$) decrease in the Low-frequency domain of HRV, the ratio of low frequency and high frequency (0.004), and insulin resistance($p<0.001$), and high-frequency domain of HRV was significantly (0.022). Thus, yoga might be stated as an effective lifestyle modality for diabetes patients with cardiac dysfunction(38).

The level of HRV in the population with any psychological issues was also improved after practicing yoga. The study by Chu et al. reported that a 12-week yoga program was beneficial in lowering depressive symptoms and the frequency domain of HRV for sedentary women. This study showed a significant reduction in depression and the low frequency of HRV and an increase in the high frequency of HRV, which demonstrated an increase in parasympathetic tone in sedentary women(40). Hewett et al. reported that 16 weeks of Bikram yoga had no significant effect on the high-frequency domain of HRV in stressed and sedentary adults. However, the study further noted that the regression analysis gave the indication of a significant reduction of diastolic blood pressure($p=0.039$), body fat percentage ($p=0.001$), fat mass($p=0.003$), and body mass index($p=0.05$), which denoted Bikram yoga as a tool to lower stress-related CVD risk(39).

DISCUSSION

The effect of yoga in managing HRV has been extensively investigated in various studies, highlighting its role in enhanced autonomic function and cardiovascular health. HRV serves as a non-invasive indicator of the autonomic nervous system, with higher HRV assumed to be better cardiac health and adaptability to the factors that affect stress. Yoga, as a complete holistic technique including asana, pranayama, meditation, and mindfulness practices, has been found to manage stress-related cardiac dysfunction and seem to increase vagal activity which leads to increased HRV. In the last few years, research in yoga has recognized a complementary approach to managing stress-related autonomic dysfunction and improving cardiovascular resilience. Practicing yoga has also been linked to the betterment of endothelial function, reduced oxidative stress, and improved baroreflex sensitivity, which eventually contribute to overall cardiovascular stability and enhanced HRV parameters towards increased PNS. Now, Yoga, which is part of mind-body therapy, also has the result of enhancing parasympathetic stimulation. Mind and heart are interlinked to each other, and negative mental conditions like chronic stress, loneliness, depression, worry, and anger can increase cardiac disorders and badly affect the existing cardiac problems(43). Stress, anxiety, depression, frustration, and other negative mental problems have a profound effect on the brain, resulting in reduced stimulation of the vagal nerve, which leads to sympathetic stimulation and reduces the time domain parameters of HRV, which promotes heart problems and their complications. For many years, Yoga has been used as a tool to reduce the levels of stress and promote mental health(44). In hath yoga pradeepika(chapter 2, shlok 2) it is said that “chale vate chalam chitam nishchalae nishchalam bhavet”. That is, due to the movement of vaat (prana), the chitta becomes mobile and due to the stability of vaat, the mind also becomes stable(45). Here, chitta, which is a form of mind, is affected by the speed of prana, and the mind also affects the speed of our heart, and HRV is affected by the rate of the heart. Therefore, the movement of prana, which is determined through pranayama, can affect the heart rate, and as a result, it can also determine the parameters of HRV. Therefore, the above facts indicate that Pranayama can become a factor affecting HRV. Therefore, it can be said that Yoga has a comprehensive effect on psychological and physiological indices of well-being. Many studies show that practicing yoga increases HRV and improves mindfulness, which causes the autonomic nervous system to become more parasympathetic, and these modifications point to a significant increase in autonomic balance, which further results in better HRV parameters and general health results.

Yogic practices are not only the cause of lower stress, anxiety, depression, and managing the HRV Parameters, but also the cause of higher activation of sympathovagal nerves. This is seen in Selvakumar Ganesan et al. research’s results, where patients with RA practiced yoga for 12 weeks and found a better balance of sympathovagal nerves, which indicates that yoga can increase the vagal tone. According to the study of Punita et al., with the help of the practice of yoga, the vagal nerves of hypertensive patients were stimulated, and there was a significant decrease in sympathetic tone, which supports an increase in HRV. This review suggests that yoga has the potential to alter cardiac autonomic regulation. The findings of the studies mentioned above in Table 1 support the positive impact of yoga on HRV and ANS activity. The result reveals a wide range of autonomic modulation and a positive shift towards parasympathetic dominance after yoga intervention. This

positive shift in cardiac autonomic modulation towards parasympathetic predominance leads to better HRV and overall cardiovascular health. A study reported that during the practice time of kapalbhati, the parasympathetic withdrawal was recorded, and after 20 min. of recovery, parasympathetic dominance was assessed, which shows that regular practice of kapalbhati is helpful in managing stress and is positive for mental health. Meanwhile, another research study demonstrates the advance in sympathovagal balance with the help of yoga. This alteration not only indicate a more adaptive autonomic response to stress but also leads to a reduction in disease activity, especially in patients diagnosed with rheumatoid arthritis. Furthermore, the research highlights the significant impact of yoga as reported a decreased incidence of hypertension, reduced cardiometabolic risks, and increased HRV indices in the yoga group. yoga is helpful in the betterment of HRV, not only for healthy people but also for ill persons. A study conducted by 38 breast cancer patients supported that the yoga group had improvement in their cardiac autonomic modulation as their HRV indices increased after 18 weeks of the Integrated yoga program.

yoga is helpful in the betterment of HRV, not only for healthy people but also for ill persons. A study conducted by 38 breast cancer patients supported that the yoga group had improvement in their cardiac autonomic modulation as their HRV indices increased after 18 weeks of the Integrated yoga program. Adversely, in the study done by Hewett et al, demonstrated no significant change in the high-frequency power component of HRV or any other CVD risk factors investigated(39). However, reductions in cardiac risk factors such as diastolic blood pressure, body fat, fat mass and BMI, and weaker associations were noted in systolic blood pressure, body weight and waist circumference was observed in experimental group after 16 weeks of practicing Bikram Yoga.

Integrating mindfulness techniques and meditation into yogic practices has further been linked with improved emotional stability, increased mental clarity, and better resilience to stress. Nowadays, evidence suggests that yoga can contribute to neuroplastic chance, improving vagal tone and emotional stability, which, as a result, positively influences HRV. The efficacy of yoga to bestow emotional well-being and mitigate psychological distress focuses its broader applications beyond physical health, including mental and emotional wellness. Moreover, yogic practices have been associated with improved sleep patterns, with research highlighting that regular yoga practice enhances the secretion of sleep hormones, contributing to better sleep quality and recovery of cardiac autonomic function. With the help of existing literature, this review suggests the significant role of yoga in the modulation of HRV and enhancing the autonomic balance toward parasympathetic dominancy. Incorporating yoga-based intervention into clinical and preventive healthcare can provide significant results in managing cardiovascular risk factors, stress-sponsored autonomic dysfunction, and overall well-being. Moreover, yogic adaptability makes it a reasonable intervention for people across different age groups and health circumstances. Combining physical postures, breathing exercises, and mindfulness practices in yoga has enhanced cardiovascular resilience, autonomic regulation, and psychological wellness. The evidence mentioned above supports yoga as a viable, non-pharmacological intervention for enhancing cardiac autonomic regulation by improving HRV and quality of life.

LIMITATION

The limitation of this study was that this review included only RCT studies. This review included only those studies written in English; studies available in other languages were not included. Also, various yoga practices such as chair yoga, Bikram yoga, pranayama, and integrated yoga pranayama were included in it, which can affect its result. The population of the papers included in this study was also of various groups like breast cancer patients, nursing professionals, RA patients, patients with hypertension, etc., and the population age group was not the same in all included study ages. This study was limited to 10 years only ranging from 2014 to 2023.

CONCLUSION

In conclusion, this narrative review shows that yoga practices have shown the capability of positively influencing HRV towards parasympathetic dominance, a leading indicator of autonomic nervous system function and overall cardiovascular health. Incorporating yoga into lifestyle therapy for the betterment of HRV facilitates the increase in parasympathetic dominance and reduction in sympathetic activity. Additionally, the findings indicate that regular practice of yoga can lead to the betterment of HRV, such as balancing of sympathovagal tone and overall balance in autonomic function. These changes in autonomic activity effects contribute to better cardiovascular well-being and are useful for stress reduction, emotional well-being, and overall quality of life. As research evolves in this area, it will be important for us to identify the potential of yoga as a complementary intervention for increasing HRV and promoting overall cardiac wellness. By integrating yoga into regular routines, one can take its profound benefits on the autonomic nervous system, ultimately leading to better cardiovascular health and overall well-being.

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