

Yoga at Primary Health Centers – A Pathway to Holistic Health: Narrative Review

Abstract

There is a global rise of noncommunicable diseases (NCDs), causing significant morbidity and mortality. Risk factors of NCDs commonly include drinking alcohol, smoking, eating unhealthy diet, and sedentary lifestyle. The current health-care system faces challenges dealing with them. In order to deal with this pandemic, the strengthening of primary health centers (PHCs) at community level is required, which supports the principles of promotion, prevention, and treatment of NCDs. Yoga is an ancient practice encompassing physical, mental, social, and spiritual techniques to obtain health. Numerous studies have proven the potential benefits of Yoga in reducing chronic physical and mental health issues, making it a cost-effective method to enhance overall well-being and reduce health-care costs. This review paper aims to explore the profound impact of integrating yoga in PHCs, focusing on its benefits in enhancing patient outcomes, supporting overall health and wellness. The study searched PubMed and Google for scholarly articles on yoga in primary care, public health care, promotion of health, rehabilitation care, cancer, wellness, prevention, health care, etc. By examining the role of yoga in PHCs, this paper seeks to provide insights into the potential of yoga as a complementary approach to conventional treatments. The paper concludes that the burden of NCDs can be addressed by increasing human resources and promoting preventive health care through Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy personnel. Integrating yoga in PHCs will raise awareness about lifestyle management and ultimately reduce the prevalence of diseases.

Keywords: Holistic health, noncommunicable disease, primary health centers, wellness, yoga

Introduction

The current trend of health problems has shown the rapid epidemiological transition in numerous low- and middle-income nations (LMINs) from communicable, maternal, neonatal, and nutritional deficiencies toward noncommunicable diseases (NCDs) and injuries.^[1]

Based on September 2023, the World Health Organization (WHO) statistics around 41 million (74%) annual deaths worldwide are due to NCDs, of which 17.9 million are caused by cardiovascular illnesses, followed by cancer (9.3 million), chronic respiratory diseases (4.1 million), and diabetes (2 million including deaths from renal disease induced by diabetes). Seventy-seven percent of these deaths occur in LMIN. About 17 million individuals die prematurely (<70 years) due to NCDs annually, and 86% of these deaths occur in LMIN. More than 80% of all early NCD

fatalities are caused by these four categories of diseases.^[2,3]

Rising of NCDs presents a significant challenge for the current health-care system as individuals suffering from these, regardless of age, gender, or socioeconomic status, require consistent, well-coordinated care in terms of monitoring treatment adherence, higher health expenditure, and managing complications.^[4-6]

NCDs have been associated with risk factors such as alcohol drinking, smoking, physical inactivity, unhealthy diet, dyslipidemia, and obesity. Research indicates that if risk factors are managed, a significant fraction of morbidity due to NCDs may be avoided.^[3,7]

Therefore, considering it as a global health priority, it is necessary to initiate NCD prevention and early treatment.^[8]

Primary health centers (PHCs), a government-funded public health system,

Priya Gupta

Department of Yoga, Sant Hirdaram Medical College of Naturopathy and Yogic Sciences for Women, Bhopal, Madhya Pradesh, India

Address for correspondence:

Dr. Priya Gupta,
Sant Hirdaram Medical College
of Naturopathy and Yogic
Sciences for Women, Bhopal,
Madhya Pradesh, India.
E-mail: drgpriya.1511@gmail.
com

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provide promotive, preventative, curative, and rehabilitative services to cater to the health issues faced by population, including NCDs.^[9] Strengthening PHCs at all levels, such as screening, early diagnosis, better equipment, availability of multi-disciplinary team of doctors and staff, cost-effective treatments, and infrastructure, are effective management strategies.^[3,6,10,11]

Engaging body, mind, and spirit, yoga is a comprehensive therapy that serves as an effective approach for individuals, communities, and countries, aiding in the prevention of chronic diseases by decreasing related risk factors. At the secondary level of prevention, it plays a valuable role in slowing their advancement or in reversing their trend. At the tertiary level, effects are seen based on the conditions and complications.^[12-15]

This review paper is written to highlight the necessity of integrating the yogic practices in PHCs to meet the 2030 Agenda for Sustainable Development, which aims to reduce by one-third the chance of dying from any of the four primary NCDs between the ages of 30 and 70 years by 2030 and solve the current scarcity of health professionals in India.^[3,13]

Materials and Methods

A thorough search was done through the PubMed database and Google search engine to find scholarly articles as well as relevant articles related to the WHO and Indian government websites related to various health schemes. Preventive and Social Medicine book by K. Park was also referred. More focus was placed on review articles and clinical trials. Key words used were Yoga in Primary care, Yoga and Public health care, Burden of Non-communicable disease, Yoga and diabetes, Yoga and Promotion of Health, Yoga and Rehabilitative care, Yoga and Cancer, Yoga and wellness, Yoga and Prevention, Yoga in health care, Yoga and COPD, Yoga and Cardiovascular disease, Yoga and Cardiac Rehabilitation etc. Only articles with full text availability, written in English language and included human subjects were chosen.

Yoga for Health Promotion

According to the WHO, health is a state rather than an outcome, hence regular care is necessary.^[16] One essential technique for achieving that “state” of health, also mentioned in Bhagwad Gita,^[17] is by adopting a yogic lifestyle (Consuming healthy and moderate diet known as Ahar; engaging in physical activities and cleansing techniques [kriyas] known as Achar; appropriate relaxation or recreational activities known as Vihar; cultivating positive attitude [Vichar]) having a significant potential for promoting general public’s health. Yoga is an integrated science of life that addresses an individual as well as society’s physical, mental, emotional, and spiritual well-being. It is generally safe, cost-effective, comprehensible, and accessible to everyone, including the old, sick, and disabled.^[18,19]

Yoga is known to enhance all the domains related to one’s quality of life – general health, psychological, physical, social, and environmental. Psychophysiological benefits include stress reduction, improved cognitive function, neuromuscular performance, increased muscle strength and flexibility, boosting immunity, and emotional management, which subsequently enhance the willingness for social contact.^[20-26]

Several yogic practices and relaxation techniques act as self-help to treat anxiety, depression, headaches, sleeplessness, obesity, and pain.^[21,26-29] In addition, they enhance memory, focus, and attention span and decrease distractibility in students.^[14,30]

Yoga alters the general biochemistry of all body systems.^[18] In particular, regular yoga practice improves cardiorespiratory fitness and pulmonary function parameters.^[31] Yogic practices make us mindful^[21,30] to take charge of our happiness and well-being through self-control and discipline^[26] and help establish positive perspectives on life through elevated dopamine and serotonin levels in the body. The psycho-immuno-neuro-endocrine system functions well when yoga is practiced, which results in optimal body functioning.^[18,21]

Asanas and pranayama are regarded as high- to moderate-intensity physical activity because they involve a higher energy expenditure and thus can be a strong suggestion for public health initiatives to obtain health benefits.^[32]

To remain healthy, adults should engage in at least 150–300 min of moderate-intensity, or 75–150 min of vigorous-intensity aerobic physical activity, or an equivalent mix of both throughout the week. For added health advantages, adults can increase their moderate-intensity to above 300 min, or raise their vigorous-intensity aerobic physical activity to over 150 min, or engage in an equivalent mix of both throughout the week.^[33]

The vast majority of Indians lead unhealthy lifestyles which are linked to developing NCDs. Yoga may lessen the risk factors that lead to the development of NCDs, including hypertension, dyslipidemia, psychological imbalance, obesity, and impaired glucose metabolism and delaying the onset of NCDs.^[13]

Yoga for Disease Prevention and Treatment

The use of yogic practices to address medical issues is known as therapeutic yoga.^[34] Yoga has a wide range of applications in preventing and treating ailments such as stress-related psychosomatic conditions (headaches, atherosclerosis, bronchial asthma, diabetes mellitus, hypertension, heart problems, irritable bowel syndrome, and gastrointestinal ulcer illnesses); psychiatric conditions (anxiety disorders, depression, obsessive-compulsive disorder, and substance misuse); musculoskeletal disorders (lumbago, spondylosis, sciatica, and carpal tunnel syndrome); endocrine disorders;

immune disorders; obesity; and the modern metabolic syndrome. Patients benefit either by reducing or, in some cases completely eliminating their medication dosage and dependence.^[12,17,18,23] Yoga targets the modifiable risk factors linked to NCDs,^[19,21] such as stress reduction, correcting hypertension, hyperglycemia, dyslipidemia, obesity, body mass index (BMI), and waist circumference.^[21,22,35]

Stress and addictions

Research indicates that stress plays a role in the development of NCDs, including cancer, heart disease, and stroke.^[26] Yoga is known for stress reduction,^[23,35] hence improving mood, sleep, and quality of life.^[21] Yoga enhances regenerative, restorative, and rehabilitative abilities, promoting holistic health and overall well-being by recovering autonomic balance across all levels of existence.^[18] Numerous research has shown the positive impact of yogic practices on improving mental health, including anxiety and depression.^[21]

Furthermore, yoga is a powerful tool for individuals struggling with addiction, transforming them from self-harming and body-disregarding behaviors to acts of kindness, compassion, and love.^[25,26]

In a parallel research design study conducted on 73 returning citizens living with HIV and substance use, participants were randomized to 12 sessions of weekly 90-min Hatha yoga intervention, which included discussion of yoga philosophy, pranayama, asana, and meditation reduced stress and substance abuse problem than the conventional treatment.^[36]

Cardiac health

Yoga has been found to have beneficial effects on cardiac health, including improving myocardial perfusion and reducing atherosclerotic^[35] and coronary lesions.^[37-39] It can also prevent and treat cardiovascular disease,^[40] particularly in hypertension patients, by reducing heart rate, diastolic pressure, mean pressure, and blood pressure (BP) indices.^[19] Yoga, by lowering the reactivity of hypothalamic–pituitary–adrenal axis and increasing vagal stimulation, potentially reduces the risk of cardiovascular illnesses and improves exercise capacity in patients with chronic heart failure (25% ejection fraction).^[18,21]

An open-label single-arm study involving 374 yoga-naïve volunteers aged 18–55 years showed a significant decrease in systolic BP, pulse rate, BMI, and total cholesterol: high-density lipoprotein (HDL) ratio and a statistically significant increase in serum HDL by performing common yoga protocol for 30 consecutive days.^[41]

The American Heart Association recommends practicing yoga for individuals with high BP (>120/80 mmHg), if clinically appropriate.^[35]

Diabetes

Yoga plays a crucial role in diabetes management,^[42] improving insulin sensitivity and reducing its negative correlation with waist circumference.^[43] It also enhances

glycemic management, lipid profiles, and body composition in individuals with diabetes.^[44,45] Yoga, particularly pranayama and asana, has been found to enhance glycemic management and nerve conduction velocity in type 2 diabetic patients with neuropathy. The American Diabetic Association (2023) states that via immunological and psycho-neuro-endocrine mechanisms, mindfulness practice can lower blood glucose levels similar to those of some diabetic medications.^[21]

A meta-analysis consisting of 12 randomized controlled trials (RCTs) (until April 2016) involving 864 T2 diabetes mellitus human patients suggested that yoga intervention (Hatha Yoga, Asana, Pranayama, Sudarshan Kriya, and Meditation) can significantly decrease a patient's glycated hemoglobin, fasting blood glucose level, postprandial blood glucose level, total cholesterol, and LDL-cholesterol levels and increase their HDL-cholesterol.^[46]

In another study, practicing weekly twice 60 min of Iyengar Yoga for 12 weeks significantly decreased diabetes distress and improved quality of life in 24 yoga participants as compared to the standard exercise group. Yoga group also showed greater improvements in diabetes self-care activities related to diet, foot care, and physical activity. They had better long-term glycemic control than other groups.^[47]

Chronic obstructive pulmonary disease

Yoga is a strategy that has been proven to make physical activity and breathing easier for COPD patients^[48] by improving lung functions and exercise capacity.^[49] Yoga (in particular breathing exercises) combined with pharmaceutical treatments, is a promising treatment for COPD, enhancing gas transfer and diffusion capacity, making it an effective adjunct therapy alongside traditional medical treatments.^[21,50]

Forced expiratory volume in 1 s (FEV1), FEV1% pred, and 6-min walking distance are all improved by yoga training (mostly pranayama), according to a meta-analysis of five RCTs (until January 2014) with a total cohort size of 233 patients. This suggests that yoga training could be used as an adjunct pulmonary rehabilitation program for COPD patients as it improves lung function and exercise capacity.^[49]

Cancer

Stress contributes to the etiology of cancer by suppressing the immune system, failing it to distinguish between host and cancer cells. Engaging in mind-body de-stressing techniques such as asanas, breathing exercises, relaxation, and meditation can effectively reduce stress. These practices have been shown to positively impact natural killer cell counts and reduce DNA damage. Additionally, maintaining a nutritious diet, practicing fasting, exercising regularly, and avoiding alcohol, smoking, tobacco, and drugs — key components of a yogic lifestyle — contribute significantly

to cancer prevention.^[51,52] In this way, Yoga could inhibit the formation and spread of tumors as well as potentially aid in the treatment of cancer.^[53] Yoga also modifies the cellular milieu through genetic remodeling and lowers distress, anxiety, symptom severity, nausea and vomiting, and quality of life in cancer patients.^[51,53-59]

Therefore, Yoga can be used in complementary and alternative medicine (CAM) for slowing or reversing the progression of NCDs.^[17]

Rehabilitation

Physical, psychological, and social are various forms of rehabilitation. Aspects of psychological and physical rehabilitation are included in social rehabilitation. As part of physical rehabilitation, patients with coronary artery disease, stroke, COPD, muscular dystrophy and idiopathic Parkinson's syndrome got benefitted by Yoga.^[60] Yoga assists individuals healing from injuries and physical traumas by improving their physiological functions, restricting their disabilities, improving strength, endurance and balance with improved functional abilities.^[12,18]

It has also been shown to aid in the restoration of psychological function and mental equilibrium in patients suffering from posttraumatic stress disorder,^[61] as well as some psychotic illnesses.^[62] Mentally challenged individuals who practiced yoga saw improvements in their cerebral capacity, motor coordination, and social abilities. In substance abusers, practice of meditation reduces anxiety and strengthens their mind.^[63]

Cancer is a vast researched area to demonstrate the positive impact of yoga on psychological (anxiety, anger, and distress), physiological (anemia, appetite loss, fatigue, nausea, and vomiting), and emotional well-being (fear of reoccurrence, social adjustment, and delirium) as well as their quality of life.^[53] Cancer therapy must address the psychological and physical side effects of the disease in order to improve reduced quality of life, adherence to treatment, and survival rates. Six months after a yoga session, an observational study including 58 cancer patients was conducted to assess long-term changes in depression, anxiety, and fatigue. For 8 weeks, the intervention took the form of weekly 60-min yoga sessions. It began with some relaxation and discussion of mental and physical wellness, followed by some supervised Hatha yoga positions and concluded with a meditation session. A printed handbook and CD were provided to promote training at home. Anxiety, depression, and exhaustion scores after the 6-month follow-up were significantly lower than the baseline scores. In addition, 69% of patients said that they felt subjectively improved. These results suggest that yoga treatment may have a long-term positive impact on reducing anxiety, depression, and exhaustion. According to the study's findings, approaches for supportive cancer treatment should include yoga.^[64]

In a prospective randomized, open, blinded-endpoint study design involving 3959 participants aged 18–80 years with acute myocardial infarction, participants randomized to 12 weeks of Yoga-CaRe program showed improved self-rated health and returned to preinfarct activities after acute myocardial infarction, although the trial lacked statistical power to provide evidence of difference in major adverse cardiovascular events.^[65] Yoga-CaRe comprised 4 phases consisting of 13 sessions over 3 months. Phase I deals with educating participants about the health issue, its treatment, the healing process, and useful tips for everyday living and lifestyle choices. Phase II involves session where the patient learns how to properly perform the breathing exercises, meditation, and relaxation techniques that make up the yoga portion of the course.

Phase III includes group sessions. Each session begins with three warm-up exercises and then moves into a sequence of yoga poses, breathing techniques, and relaxation and meditation techniques. At the end of each session, patients spend time talking about problems and experiences (facilitated by the instructor) pertaining to these practices, changing their lifestyles, and learning to cope (socially, emotionally, and physically) with day-to-day activities as they resume their prior relationships and activities. Phase IV requires long-term maintenance of lifestyle modifications and practicing yoga poses, breathing techniques, meditation, and relaxation techniques on most days at home with the help of the booklet and DVD. This study demonstrated the beneficial effect of yoga in cardiac rehabilitation.^[66]

In an RCT, 138 patients with idiopathic Parkinson's disease (PD) were randomized to receive either stretching and resistance training or mindfulness yoga. For 8 weeks, the intervention consisted of weekly 90-min mindfulness yoga sessions. The regimen included 12 Hatha yoga positions, Sun Salutation, breathing exercises, and mindfulness meditation led by a certified teacher. For 8 weeks, the control group participated in weekly 60-min sessions of resistance and stretching exercises. A gradual sequence of warm-up, resistance training, stretching, and cool-down activities led by physiotherapists comprised the program. Furthermore, it was recommended to all participants to practice for 20 min twice a week at home. The results showed that the mindfulness yoga practice seems to be a helpful and secure coping strategy for PD sufferers to attend to their emotional and physical needs. It showed notable effects in psychological distress, spiritual well-being, and health-related quality of life in addition to improvements in motor symptoms and mobility.^[67]

Quoted literature recommends yoga to be an integral part of rehabilitation.

Examples of Integrating Yoga in Primary Health Centers/Public Health Systems

Example 1: Located in Gaithersburg, Maryland, Casey Health is a public, nonprofit integrative PHC facility that provides

services to the greater Washington, DC metropolitan region. In order to treat certain medical conditions and alleviate symptoms in patients, it has incorporated a yoga therapy program. These conditions range from musculoskeletal pains to addressing hypertension, headaches (including migraines), fatigue, sleep disturbances, anxiety, and depression by a full-time Clinical Yoga Specialist who is an integral member of the medical team, in addition to a Wellness Center offering classes in general yoga, fitness, mindfulness meditation, stress reduction, Reiki, sleep hygiene, and healthy cooking and eating for both the general public and clinic patients. The established yoga studios are well-equipped with rope walls and therapeutic and yoga props such as mats, yoga belts, blocks, blankets, and chairs. Together with research and daylong and weekend courses on yoga therapy for certain health disorders and symptoms, it has launched a 200-h yoga teacher training program.^[68]

Example 2: To assess the benefits of yoga as CAM, a prospective study was carried out in a Portuguese PHC setting. The results showed that integrating yoga into the Health Center of Ponta Delgada (HCPD) is safe and plausible, with substantial levels of satisfaction and adherence. In addition, it showed that practicing yoga for 24 weeks considerably enhanced every aspect of quality of life, including physical, psychological, social, and environmental wellness in addition to overall health. Additionally, they discovered that yoga is a treatment strategy to which HCPD users respond well.^[23]

Example 3: Community-based yoga activities saw a sharp rise following the COVID-19 pandemic owing to the Directorate of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (AYUSH) J and K's tenacious efforts and the use of numerous community platforms for the promotion and propagation of yoga, particularly as a health promotion intervention. Increased community engagement was the result of tailored, locally focused word-of-mouth advertising by yoga instructors as well as their easy accessibility at the Ayush Health and Wellness Centre (AHWC). The Directorate of AYUSH made an attempt to converge governmental and nongovernmental organizations and mainstream yogic interventions through platforms such as Nasha Mukta Bharat Abhiyan and Sri Amar Nath Ji Yatra 2022. Yoga instructors received training in managing and educating drug addicts, and their families on how to handle treatment for drug addiction. Yoga camps with highly qualified yoga instructors were provided to pilgrims and religious tourists during their ascent to the high altitude of Sri Amarnath Shrine to provide better acclimatization. According to the reports, about 25 lakh people attended 72,000 yoga sessions organized by yoga instructors and the AHWC in the Union Territory (UT) of J and K. Inclusion of Yoga instructors has demonstrated a beneficial effect on the promotion of yoga and its acceptance in the community in the UT of J and K, particularly in Kashmir Division, where socio-cultural

and religious barriers are high and make it difficult for the promotion of yoga to permeate the community. With particular reference to NCDs and national health schemes, this study shows that the role of yoga instructor as a health communicator and community mobilizer must be optimally utilized for better public health delivery and public health outcomes.^[69]

Possible Challenges and Recommendations for Incorporating Yoga in Primary Health Centers

Incorporating yoga into primary health care possess challenges which could be addressed by a multifaceted approach involving education, policy development, research, and collaboration among health-care providers, patients, and yoga practitioners. Some of the challenges are briefed below:

A small number of evidence have documented the adverse effects of yoga, which can be significantly decreased with the right direction and supervision;^[70] therefore, it is necessary to include trained and certified yoga professionals that demand institutes of excellence and a regulatory body.^[35] Second, there are many false beliefs regarding yoga among the general public, which deters them from practicing it regularly. Promoting the integration of yoga requires educating and creating awareness about its potential benefits via involving stakeholders and ministries.^[71] One major barrier, particularly for individuals with lower incomes, may be the expense of the classes.^[72] One way to solve this is to include reimbursement plans or subsidies for yoga sessions in health insurance policies. People could opt out from working in rural and remote areas due to perceived low pay and uninviting requirements to work. Hence, the government can increase the number of opportunities and incentivize them for the rigorous and routine work.^[6] Sometimes, time constraints pose a challenge on both sides. Because of the hectic work schedules and other commitments, it is difficult to attend regular yoga classes by patients.^[73] Hence, online instructional videos, guided meditation, and yoga sessions can be provided where they can easily practice yoga at home or during work breaks. On the other hand, attending individual yoga classes can limit instructor's time and consume more energy; therefore, group participation is a plausible alternative. Lack of tailored yoga therapy protocol could be an obstacle. The creation of standardized, evidence-based yoga prescription guidelines that are suited to the requirements of various groups can enhance accessibility and facilitate the incorporation of yoga therapy into PHCs. Appropriate funding should be promoted on yoga researches and the creation of therapeutic regimens in order to ensure the caliber and uniformity of yoga practice. Finally, setting up a room with dedicated space and equipment for PHCs that already operate with limited budgets is a challenge which could be resolved by appropriate resource allocation by ministries.^[71]

Conclusion

Raising awareness of yoga's benefits encourages individuals to adopt healthier behaviors and reject harmful ones. This approach aims to instill a sense of personal and communal responsibility for health. Health education disseminates important information, promotes wellness practices, fosters healthy environments, supports positive relationships, and empowers communities to make ethical decisions.^[74]

Health-care professionals should, where appropriate, advise patients to practice yoga in order to enhance well-being, manage illnesses, especially NCDs, and hasten the healing process after illnesses and injuries.^[15,35]

The government of India, under the National AYUSH Mission (2014), is promoting yoga through yoga camps and awareness drives. In addition, the National Health Policy 2017 emphasizes "wellness" over "sick care" by establishing "Health and Wellness Centres" at primary care facilities.^[35]

In this context, the incorporation of yoga as an adjunctive therapy in PHCs, which requires just yoga mats, basic props, well-ventilated room, and a licensed instructor, supports the sustainability of the health-care system by aiding in the promotion, prevention, and/or treatment of several illnesses.^[23]

Limitations

This narrative review highlights the potential benefits of promoting yoga in PHCs but emphasizes the need for further research to substantiate these claims. It identifies only a few challenges that may arise in practical implementation, whereas the reality can be much more challenging and notes that the review primarily focuses on NCDs, with less attention given to other aspects of PHC care, such as women and child care. This paper serves as an initial step in demonstrating the importance of integrating yoga into PHCs. Future studies should concentrate on practical application and increasing the currently limited data on yoga's effectiveness in Indian PHCs.

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Conflicts of interest

There are no conflicts of interest.

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