



Efficacy Of Yogic Practices In Three Phases Of Menopause And Its Associated Health Issues: A Narrative Review

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ABSTRACT

Introduction: Yoga is an original and ancient holistic art of living that includes physical, mental, moral and spiritual spheres. Menopause is an important event in the life of a woman when reproductive capacity ceases. During this transitional phase, woman exhibits severe and multiple symptoms. Frequently reported symptoms fall into several categories, including physical disturbances such as hot flushes, psychological complaints such as mood swings, and other changes that may impair personal or social interactions and diminish the overall quality of life.

Aim: The current review aims to find out the effect of Yogic practices in three phases of menopausal women and its associated health conditions.

Method: - In accordance with availability of electronic databases Medline (PubMed), Google Scholar, Cochrane, were searched. All studies identified for inclusion which were published in English. Articles were searched by using the keyword “yoga therapy in menopause, yoga therapy in perimenopause, three phases of menopause, meditation in menopause, and Ayurveda in menopause.

Result: The study of literatures show that *yoga* has been instrumental where improved quality of life (QOL) of women in menopause was reported significantly. Yogic practices have played vital role to minimize or overcome stress and anxiety in menopausal women. *Yoga* has also shown to improve sleep cycle and hot flashes in women with menopausal phases. Meditation techniques are also beneficial in improving stress levels where some studies have systematically observed the effect.

Conclusion: The extensive study of literatures show that *yoga* has improved quality of life in menopausal women. *Yoga* practices are effective to overcome stress and anxiety in menopausal women. *Yoga* techniques have shown to improve sleep cycle and hot flashes in women passing through menopausal phases. Further, scientific study still needed to be carried out to document three phases' changes with *Yoga* intervention.

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Keywords: *Yoga, menopause, peri-menopause, post-menopause, meditation.*

Introduction

Menopause is a natural biological process. Every woman has to go through this phase irrespective of different race, ethnicity or culture. Menopause comes from a Greek word “menos” means month and “pause” means to cease. Menopause is not a disease and it’s a biological process but the transition of a woman in this stage is not always smooth. Many women face different kind of physical and psychological issues.

Menopause is due to decrease in number of primordial follicles in the ovary after the age of about 45. There are very few follicles left which responds to decrease pituitary gonadotropin, hence the secretion of estrogen and progesterone falls and finally stops. The main source of estrogen during menopause is adipose tissues where some adrenal androgens are converted into estrogen in the absence of ovarian hormone. The negative feedback on the pituitary is removed therefore FSH and LH rise in level [1]

Yoga is an ancient eternal science to balance body, mind and soul and to create complete harmony within ourselves. The Hatha Yogic texts and Patanjali Yoga Sutra, the main fundamental scriptures of yoga have not specifically mentioned anything about menopause in women.

Various clinical trials of yoga therapy in menopause have shown to improve quality of life (QOL). Yoga helped menopausal women in anxiety, hot flashes, insomnia, and cardiovascular risks. [2] Yoga has been utilized as a therapeutic tool to achieve health and control various diseases which occur with menopause.

Perimenopause or menopausal transition is a phase of intermittent amenorrhea and irregular menstruation which a middle-aged women experience preceding the menopause. This is also called as ‘climacteric’ and symptoms are referred as climacteric symptoms. During perimenopausal period, a number of signs and symptoms may occur due to alteration in the hormonal profile. These symptoms include irritability, insomnia, night sweats, hot flashes, headache, involuntary urination, decreased libido and vaginal dryness. Previous studies have shown that hypoestrinism is responsible for abnormal atherogenic lipid profile observed in perimenopausal period. A study has reported glycaemia and increased risk of diabetes in menopausal women. Therefore, the decrease in estrogen and high glucose levels increases the oxidative stress in the body, thus causes the depletion of the plasma and enzymatic antioxidants. High blood glucose and insulin resistance also aggravates the risk of metabolic syndrome, which is very common during menopausal transition.[3]

For women having practiced yoga in the earlier years, physical difficulties at menopause are less intense and any emotional disturbances practically nonexistent. In all hormonal imbalances, Yogasanas have stabilizing effect. Some estrogen continues to be produced by the liver and kidneys even after the ovaries cease their secretions and correct yoga possess can stimulate the extra sources as partial compensation for loss of ovarian hormone.

The practice of inverted asanas like vipareetakarni asana, sarvangasana, shirshasana are all helpful, especially in conjunctions with backward bending asana. In this context, pranayama and moolabandha, Jalandhar bandha & uddiyana bandha can help to compensate for irritability and loss of sleep. Regular practice of yoga from the twenties and thirties will ensure maximum health of all the body systems. when menopause occurs, the kidney, bowels and the lungs are adequately prepared to withstand chemical changes. [4]

SCIENTIFIC REVIEW OF LITERATURE

A case on efficacy of yoga for vasomotor symptoms was reported where yoga had no effect on vasomotor symptoms however it had improved insomnia symptoms. The assessment tools were Video Management System (VMS) , questionnaire- Pittsburg sleep quality index PSQI, insomnia severity index ISI, patient health questionnaire (PHQ – 8) generalized anxiety disorder questionnaire (GAD-7.) [5]

A pilot study was conducted to see the effectiveness of standard temperature and pressure (STP) and yoga therapy on menopausal symptoms among menopausal women. The result showed that yoga therapy was effective in reducing the menopausal symptoms more than the ones in control group.[6] Another in randomized control, it was assessed by Greene climacteric scale, perceived stress scale and Eysencks personality inventory to treating the climacteric symptoms in the Indian women with an approach to yoga therapy. The result showed that yoga decreases climacteric symptoms, perceived stress and neurotism in peri-menopausal women better than physical exercise.[7]

A study carried out to see the effect of yoga on brain derived neurotrophic factor and serotonin in peri menopausal women with chronic low back pain. It showed that yoga intervention has a significant influence on serum brain-derived neurotrophic factor (BDNF) and serotonin levels in patient with chronic low back pain. In this study, visual analogue scale and serum BDNF and serotonin levels were evaluated.[8]

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Another case study conducted to see comparative study of serum estrogen and lipid profile in pre and post-menopausal women as atherosclerotic risk factor. It had shown positive correlation of estrogen with high-density lipoprotein (HDL) and negative correlation with low-density lipoprotein (LDL) very low-density lipoprotein (VLDL) triglycerides and total cholesterol (TC). It known factor that women in menopause are many time at risk of cardiovascular diseases after Menopause.[9] Another case on effect of an 8 month Ashtanga based Yoga intervention on bone metabolism in middle age Peri menopausal women, a randomized control study show that yoga program was able to maintain bone alkaline phosphatase(ALP) concentration in these Peri menopausal women.[10]

A study carried out to explore the effect of yogasana on osteoporosis in post-menopausal women. It has shown the improvement in T score of DEXA scan at post training as compared to a pre-training score. The analysis in this study was measured by DEXA score at the lumbar spine.[11] Yoga decreases insomnia in postmenopausal women seen in randomized control trial. It also reported that yoga group improved climacteric symptoms and insomnia than in control and passive stretching group. This assessment was through questionnaire with 4-month intervention of yoga. [12]

A study had shown the effect of peripheral heart action training and yoga exercise training on respiratory function and c reactive protein in post-menopausal women. Result showed the better improvement n Yoga group.[13] Randomized trial on pulse velocity responses in 3 month of yoga poses and respiratory control studied. Ujjai pranayama in hypertensive post Menopause woman pointed out that yoga was effective on treatment of hypertension. It was assessed by carotid femoral pulse wave velocity by compiler hypertensive in post Menopause women on obese and nonsmokers.[14] Another randomized control trial on efficacy of 2-year yogic practice on selected pulmonary function test in post-menopausal women showed all parameters improved. The data analyzed before was vital capacity (VC) forced vital capacity (FVC) peak expiratory flow rate (PEFR) and forced expiratory flow rate.[15]

Another pilot study of mental silence form of meditation for women in menopause showed that there was clear improvement in vasomotor symptoms particularly hot flashes. This improvement was maintained at 16th week follow up also. The study was analyzed by self-report diary questionnaires the Menopause specific quality of life questionnaire (MENQOL) and the state trait anxiety inventory (STAI) and Greene's climacteric scale.[16]

The efficacy of yoga was seen in balancing the deranged biochemical profile in healthy peri-menopausal women hailing from South Kanara district of Karnataka India. The study exhibited that reduction in both fasting blood sugar (FBS) and Glycosylated hemoglobin (GHB) in diabetic patient following the practice of yoga alone or in combination with other therapy. Study was analyzed by glucose and total cholesterol (TC) and triglycerides (TG) were measured by standard enzymatic method in a Roche Hitachi chemistry analyzer. Hba1c, LDL cholesterol was calculated using Friewalds formula. TSH and cortisol were measured by chemi lumincent immuno assay using commercial kits supplied by COBAS in an immune analyzer.[17]

A randomized control trial on the structured teaching program and yoga therapy showed improve knowledge and symptoms related to Menopause among peri menopausal women in rural Pondicherry. Study showed that structure teaching program and yoga therapy is effective in improving the knowledge and menopausal symptoms.[18] Another study on effectiveness of pelvic floor muscle training and yoga on quality of life in peri menopausal women with urinary incontinence showed that pelvic flour muscle training was as effective as yoga exercise to improve quality of life and hence this study proved that pelvic floor muscle training and yoga both should be taught to peri-menopausal women with urinary incontinence. [19]. Pilot study of integrated yoga for menopausal hot flashes showed that yoga helps in reducing hot flashes. The assessment was done by the Mean Hot Flash Index Score. All women completed daily hot flash diary throughout the 10 weeks to track frequency and severity of hot flashes.[20]

A study on serum mineral status and climacteric symptoms in Peri menopausal women before and after yoga therapy showed that the mineral status and climatic symptoms improved. The analysis was done by green climatic scale and bio chemical parameters analyzed by spectrophotometry.[21] Effect of yoga therapy on physical and psychological quality of life in peri-menopausal women in selected postal areas of Karnataka showed that peri-menopausal symptoms in all the four domains improved by Yoga therapy and improvement in quality of life as compared to control group.[22]

Effect of yoga and aerobic exercise on actigraphy lead parameters in menopausal women with hot flashes in a randomized control trial showed that its Pittsburg sleep quality index (PSQI) higher. [23] Yoga and exercise in a randomized control trial for vaso motor symptoms effect of heart rate variability (HRV) improved in middle aged women.[24] Comparative assessment of Hatha yoga and physical exercise on biochemical functions in peri-menopausal women showed that yoga therapy intervention resulted in significant decrease in fasting blood sugar (FBS) and GHB. However, thyroid stimulating hormone (TSH)

levels did not exhibit any significant change in cortisol levels.[25] Complementary health approach to the quality of life in menopausal women was assessed in a community-based intervention study which showed that quality of life in menopausal women was improved after 18 weeks of yoga practice [26]

Research was done to see the effect of yoga therapy on reaction time biochemical parameters and wellness score in peri and post-menopausal diabetic patients. The result showed that yoga reduced the reaction time and there was a significant decrease in fasting and post prandial blood glucose level as well as low density lipoprotein (LDL). The decrease in total cholesterol triglycerides and LDL and increase in HDL was also statistically significant.[27] Menopausal quality of life a RCT of yoga exercise and Omega 3 supplements showed that yoga appeared to improve menopausal quality of life.[28]The effect of yoga and music therapy for stress management in menopausal women shown that yoga was statistically more effective in reducing stress level than music therapy.[29] A potential association of meditation with menopausal symptoms and blood chemistry in healthy women showed that there was a trend of reduction in total menopausal rating scale score in the meditation group compared to the control group. There was a trend of increase in glucose in the control group compared to the meditation group among post-menopausal women.[30]

A study of effect of exercise on menopausal women showed that blood pressure was found significantly less in women who performed yoga regularly as a form of exercise They recorded less abdominal fat with less waste circumference.[31]

Another interesting randomized control study on preksha-dhyan reported improved quality of life in menopausal women where assessment was done by using Menopause Rating Scale (MRS)[32] There were some studies which showed positive improved significant results regarding sleep quality, respiratory function, depression and climacteric symptoms as assessed by sleep questionnaires and spirometry tests in menopausal women.[33]–[36] There was a study in which it was tried to see the comparative effect of yoga and music therapy for stress management in menopausal women. The study showed that yoga was statistically more effective in reducing stress level than musical therapy.[37]

Yoga practices decrease menopause symptoms and improve quality of life. A randomized control trial showed statistically lower scores of menopausal symptoms stress levels and depression symptoms as well as significantly higher scores in quality of life when compared to control group and exercise group. It was assessed by questionnaire Menopause rating scale Lipp stress symptom inventory, Beck's depression inventory.

Sr. No.	Title	Author	Sample	Research Method	Assessment Tool	Conclusions
1.	Efficacy of Yoga for Vasomotor Symptoms	[5]	237	Randomized control trial.	VMS diary and a Questionnaire Sleep Quality Index - PSQI) (Insomnia Severity Index - ISI)36 ,(Patient Health Questionnaire depression domains - PHQ-8)(Generalized Anxiety Disorder questionnaire - GAD-7)	Yoga had no effect on VMS frequency or bother. However, yoga modestly improved insomnia symptoms, another Menopausal symptom important to midlife women.
2.	Effectiveness of STP and yoga therapy on Menopausal symptoms among Menopausal women	[6]	40	Pilot study	Split Half method (Cronbach's Alpha) was used to find out the reliability of the knowledge questionnaire and MRS (Menopause Rating Scale)	yoga therapy was effective in reducing the menopausal symptoms among menopausal Women in experimental group than control group. Cramer H (2012) reported that there was moderate evidence for short-term effects on psychological symptoms
3.	Treating the climacteric symptoms in Indian women with an integrated	[39]	120	Randomized control study	The assessments were made by Greene Climacteric Scale, Perceived Stress Scale, and Eysenck's Personality Inventory before and after the intervention	yoga decreases climacteric symptoms, perceived stress, and neuroticism in

	approach to yoga therapy					perimenopausal women better than physical exercise
4.	Effect of Yoga on Pain, Brain-Derived Neurotropic Factor, and Serotonin in Premenopausal Women with Chronic Low Back Pain	[8]	25	Research article	visual analogue scale (VAS), and serum BDNF and serotonin levels were evaluated.	yoga intervention has a significant influence on serum BDNF and serotonin levels in patients with chronic low back pain.
5.	A comparative study of serum estrogen and lipid profile in premenopausal and post-menopausal women as atherosclerotic risk factors	[9]	100	Research article, Comparative study	The results of all profiles Total Cholesterol, Triglyceride, LDL, VLDL, HDL, BMI, serum estrogen of 100 samples were expressed as mean \pm SD. Pearson's correlation was applied to correlate between the parameters	study has shown positive correlation of estrogen with HDL and negative correlation with LDL, VLDL, TC, TG.
6.	Effects of an 8-Month Ashtanga-Based Yoga Intervention on Bone Metabolism in Middle-Aged Premenopausal Women	[10]	47	Randomized control study	The primary variables of interest were the bone turnover markers (BTM) given the duration and moderate intensity of the yoga intervention. We also assessed bone characteristics (density, geometry, strength) by DXA and pQCT, although these variables were of secondary interest because of their well-documented small effect sizes	Ashtanga-based Yoga program was able to maintain Bone ALP concentrations in these perimenopausal women
7.	Effects of Yogasanas on osteoporosis in postmenopausal women	[11]	30	Experimental pre-post study	. Pretraining and post training BMD was calculated. Outcome measure: DEXA score at the lumbar spine	Improvement in T-score of DEXA scan of -2.55 ± 0.25 at post training as compared to a pretraining score of -2.69 ± 0.17 .
8.	Yoga decreases insomnia in postmenopausal women	[40]	44	Randomized control trial	Questionnaires were administered before and 4 months after the intervention to evaluate quality of life, anxiety and depression symptoms, climacteric symptoms, insomnia severity, daytime sleepiness, and stress. The volunteers also underwent polysomnography	When compared with the control group, the yoga group had significantly lower post treatment scores for climacteric symptoms and insomnia severity and higher scores for quality of life and resistance phase of stress. The reduction in insomnia severity in the yoga group was significantly higher than that in the control and passive-stretching groups.
9.	Effect of Peripheral Heart Action Training and Yoga Exercise Training on Respiratory Functions and C-Reactive Protein of Postmenopausal	[13]	40	Research control	Tests were performed to evaluate the subjects' ventilatory capacity including FVC and FEV1 using spirometry and CRP. The tests were done in pre-test and post-test. Data were analyzed by SPSS software using t-test,	There was no significant difference in the study variables between the two training groups ($P = 0.97$).

	Women				one-way ANOVA, and Tukey post hoc test.	
10.	Pulse wave velocity (PWV) responses to 3 Months of yoga poses and respiratory control (ujjayi pranayama) in hypertensive post Menopause women	[41]	24	Randomized clinical trial	: Randomized trial assessing carotid femoral pulse wave velocity (cfPWV) by Complior. Hypertensive post menopause women (HPMW) nonobese and non-smokers randomized in 4 groups (1- yoga poses + ujjayi; 2- yoga poses, 3- stretching exercises + ujjayi, 4- stretching exercises) attending 60 minutes assisted video classes twice a week (24 sessions). Data are presented as mean(M) standard error (SE). Generalized estimation equation (GEE) was used to data analysis, p 0,05.	Yoga has been pointed as effective on treatment of hypertension. Its many aspects like yoga poses (asanas), respiratory control (pranayamas), meditation and others have not yet been assessed separately to understand its effects on cardiovascular issues
11	The efficacy of two-year yogic practice on selected pulmonary function test in postmenopausal women	[15]	60	Randomized control trial	respiratory parameters such as vital capacity (VC), Forced vital capacity (FVC), FEV1 (Forced expiratory volume during the 1st second.), FEV1 ratio, PEFr (Peak expiratory flow rate). FEF50 (Forced Expiratory Flow	All parameters are improved
12	Mental Silence Form of Meditation for Women in Perimenopause	[16]	10	Pilot study	Self-report diary Questionnaires The Menopause Specific Quality of Life Questionnaire (MENQOL) The State Trait Anxiety Inventory (STAI) The Greene's Climacteric Scale	There was a clear improvement in vasomotor symptoms, particularly hot flashes. Hot flash frequency is best assessed by determining responder rate, with a reduction of 50% or more regarded as a positive response (was still 57% below baseline
13.	Efficacy of yoga in balancing the deranged biochemical profile in healthy perimenopausal women hailing from South Kanara district of Karnataka, India.	[17]	111	Cross sectional study	n. Glucose, total cholesterol and triglycerides were measured by standard enzymatic method in a Roche/Hitachi clinical chemistry analyzer. HbA1C, LDL-cholesterol was calculated using Friedwald's formula. TSH and cortisol were measured by Chemi luminescent immunoassay using commercial kits supplied by COBAS in an EleSYS immunoassay analyzer	compared to pre yoga, post yoga group showed significant reduction in both FBS and GHB levels.
14.	Does structured teaching program and yoga therapy improve knowledge and symptoms related to menopause among perimenopausal women in rural Puducherry.	[18]	113	Randomized control trial	the pretest and posttest mean knowledge score. Menopause Rating Scale to assess the presence of menopausal symptoms.	structured teaching program and yoga therapy is effective in improving the knowledge and reducing the menopausal symptoms among the perimenopausal women.
15.	Effectiveness of	[19]	48	quasi-	QOL was assessed using the	PFMT pelvic floor

	Pelvic Floor Muscle Training and Yoga on the Quality of Life in Perimenopausal Women with Urinary Incontinence			experimental study with a nonequivalent control group design	incontinence impact questionnaire short form (IIQ-7). The data were analyzed by the Mann-Whitney U test, Wilcoxon signed rank test, and paired sample t-test.	muscle training was as effective as yoga exercise to improve the QOL. PFMT and yoga should be taught to perimenopausal women with urinary incontinence.
16.	A Pilot Study of Integral Yoga for Menopausal Hot Flashes	[20]	54	pilot study	All women completed daily hot flash diaries throughout the trial (10 weeks) to track frequency and severity of hot flashes. The mean hot flash index score is based on the number of mild, moderate, severe and very severe hot flashes.	Yoga helps in reducing hot flashes.
17.	Serum mineral status and climacteric symptoms in perimenopausal women before and after Yoga therapy, an ongoing study	[21]	30	A single pre-post study	The climacteric symptoms were assessed by Greene's climacteric scale and biochemical parameters were analyzed spectrophotometrically.	the mineral status and climacteric symptoms suggest that yoga therapy protocol can be effectively used to improve the quality of life in perimenopausal women.
18	Effect of yoga therapy on physical and psychological quality of life of perimenopausal women in selected coastal areas of Karnataka, India	[22]	216	prospective non-randomized control study	assessed by using the menopausal QOL questionnaire.	The perimenopausal symptoms in all the four domains were improved by yoga therapy, thus significantly improving the overall QOL compared to the control group.
19	Effects of Yoga and Aerobic Exercise on Actigraphic Sleep Parameters in Menopausal Women with Hot Flashes	[23]	186	randomized controlled trial	The mean and coefficient of variation (CV) of change in actigraphic sleep measures from each intervention group were compared to the usual activity group using linear regression models	Pittsburgh Sleep Quality Index higher than 8 had significantly reduced TST-CV following yoga compared with usual activity.
20	A yoga & exercise randomized controlled trial for vasomotor symptoms: Effects on heart rate variability	[24]	335	Randomized control trial	Time and frequency domain HRV measured at baseline and at 12 weeks for 15min using Holter monitors.	Yoga and exercise likely improve short-term health in middle-aged women through mechanisms other than HRV.
21	Comparative Assessment of the Effects of Hatha Yoga and Physical Exercise on Biochemical Functions in Perimenopausal Women	[17]	216	Non randomized control study	Statistical analysis was performed using Statistical Package for Social Sciences, version 15.0 (SPSS Inc. South Asia, Bangalore) for a level of statistical significance of 5%. Two-way repeated measures of ANOVA were used to compare the results within the group and between the groups.	the baseline data of prevalence of perimenopausal symptoms in the study participants. shows that yoga therapy intervention resulted in significant ($p \leq 0.05$) decrease in FBS and GHb. The significant decrease ($p \leq 0.05$) in GHb was also observed in control (exercise) group. indicates that TSH levels did not

						exhibit any significant change in the two time periods. Cortisol was significantly increased ($p \leq 0.05$) in the control group but maintained in test group. There was an increase in total plasma thiols in both the groups
22.	Complementary health approach to quality of life in menopausal women	[26]	260	Community based intervention study	The standardized World Health Organization QoL BREF scale was used to assess the women's quality of life.	: Quality of life in menopausal women was greatly improved after 18 weeks of yoga practice
23.	Effect of yoga therapy on reaction time, biochemical parameters and wellness score of peri and post-menopausal diabetic patients	[27]	15		A post-intervention, retrospective wellness questionnaire compiled by ACYTER was used to evaluate the comparative feelings of the patients after the therapy program.	Yoga training reduced auditory reaction time (ART) from right as well as left hand, the decrease being statistically significant ($P < 0.05$) for ART from the right hand. There was a significant ($P < 0.01$) decrease in fasting and postprandial blood glucose levels as well as low density lipoprotein. The decrease in total cholesterol, triglycerides, and very low density lipoprotein and increase in high density lipoprotein were also statistically significant ($P < 0.05$). All the lipid ratios showed desirable improvement with a decrease ($P < 0.01$) of TC/HDL and LDL/HDL ratios and increase ($P < 0.05$) in the HDL/LDL ratio.
24	Menopausal Quality of Life: A RCT of Yoga, Exercise and Omega-3 Supplements	[28]	338	Randomized control trial	Menopausal Quality of Life Questionnaire (MENQOL) total and domain (VMS, psychosocial, physical and sexual) scores.	yoga appears to improve menopausal QOL - the clinical significance of our finding is uncertain due to modest effect.
25	Effect of Yoga and Music Therapy for Stress Management in Menopausal Women	[29]	60	Comparative study	1. Cohen-Perceived Stress Scale 2. Quality Of Life Scale	yoga was statistically more effective in reducing stress level than musical therapy.
26	Efficacy of yoga in balancing the deranged biochemical profile in healthy	[17]	111	Intervention study	glycemic index, serum lipid profile, TSH, cortisol and AOA levels.	yoga helps in improving the glycemic index, serum lipid profile, TSH and AOA in peri

	perimenopausal women hailing from South Kanara district of Karnataka, India.					menopausal women
27	A potential association of meditation with menopausal symptoms and blood chemistry in healthy women	[30]	65	Cross sectional study	Menopausal Rating Scale assesses the health-related quality of life of women and is composed of an 11-item questionnaire that measures the intensity of symptoms, such as periodic sweating or hot flashes, nervousness, and bone and joint complaints, with higher scores indicating more severe symptoms. The following parameters were measured in the separated plasma: HDL, glucose (GLU), triglyceride (TG), total protein (TP), creatinine (CREA), blood urea nitrogen (BUN), lactate dehydrogenase (LDH), aspartate aminotransferase (AST), and alanine aminotransferase (ALT)	There was a trend of reduction in total Menopausal Rating Scale score in the meditation group compared to the control group. In blood chemistry, there was a significant increase of HDL level in the meditation group compared to the control group among premenopausal participants, while there was a trend of increase of GLU in the control group compared to the meditation group among postmenopausal participants.
28	A Study on the effect of Exercise on Menopausal women	[31]	158	Cross sectional, observational analytical study	ECG, BMI, Chest circumference and blood pressure was assessed	Blood pressure was found significantly less in the women who performed Yoga regularly. Postmenopausal women preferred Yoga as a form of exercise, and they recorded less abdominal fat with less WC and WHR values, establishing the role of Yoga in reducing abdominal fat.
29	Effect of Preksha meditation on menopausal syndrome	[32]	60	Randomized Control Trial	The pre and post data of MRS (MENOPAUSE RATING SCALE) questionnaire total and domain wise was analyzed	Quality of life in menopausal women was greatly improved after 6 months of PM (PREKSHA MEDITATION) practice. Women who regularly practice PM find that they are able to enjoy menopause and experience the freedom, and energy that it brings
30	Yoga Increases the Quality of Sleep in Menopause Women	[42]	22	Aquasi-experimental with nonequivalent control group design	Instrument for this study was Pittsburgh Sleep Quality Index (PSQI) questionnaire to measure the quality of sleep.	Yoga interventions improve the quality of sleep in menopausal women.
31	Influence of Nadi Shodhana	[43]	60	Randomized Control Trial	The lung function parameters were	Nadi Shodhana pranayama can

	Pranayama on respiratory functions of postmenopausal women				recorded on Spiro excel, with a computerized spirometer. Five lung function parameters, it is forced vital capacity (FVC), forced expiratory volume in 1st s (FEV1), FEV1/FVC% peak expiratory flow rate, and maximum voluntary ventilation, were recorded before and after intervention in both groups	improve respiratory function and can be suggested as an important tool for healthy living in postmenopausal women. Nadi shodhana pranayama showed significant improvement the respiratory parameters.
32	Efficacy of Yoga versus Relaxation Techniques on Climacteric Symptoms of Perimenopausal women	[44]	132	RANDOMIZED CONTROL TRIAL	Data analysis was carried out after collecting the data for six outcome measures of the subjects in both the groups. The comparison done for Perceived Stress Scale and Modified Kupperman's Index and Green Climacteric Scale consisting of four variables – Psychological, Vasomotor, Sexual and Physical Symptoms	Both yoga and relaxation therapy can be applied for patients suffering from various symptoms related to menopause. But as both the therapies are equally effective thus women who are not able to follow tough yoga exercises can opt for simple relaxation therapies which can be practiced easily at home
33	Efficacy of Yoga and Meditation on Depression, Anxiety and Stress level of Postmenopausal Women	[45]	30	Randomized Control Trial	the significant mean difference between pre and post-test scores of anxiety, stress and depression of postmenopausal women. Statistical measures like paired and independent sample t tests, Mean and SD were conducted.	yoga and meditation were an effective intervention in reducing the level of anxiety, depression and stress among postmenopausal women to a greater extent and it also improved the quality of life of postmenopausal women.
34	Hatha Yoga practice decreases menopause symptoms and improves quality of life: A randomized controlled trial	[37]	88	Randomized Control Trial	Questionnaires were applied in order to evaluate climacteric syndrome (Menopause Rating Scale), stress (Lipp Stress Symptom Inventory), quality of life (Brief World Health Organization Quality of Life), depression (Beck Depression Inventory) and anxiety (State/Trait Anxiety Inventories). Physiological changes were evaluated through hormone levels (cortisol, FSH, LH, progesterone and estradiol).	At 12 weeks, yoga practitioners showed statistically lower scores for menopausal symptoms, stress levels and depression symptoms, as well as significantly higher scores in quality of life when compared to control and exercise groups.
35	Clinical evaluation of Ashokarishta, Ashwagandha Churna and Praval Pishti in the management of menopausal syndrome	[38]	52	randomized control trial	menopause rating scale (MRS)[18] and menopause specific quality of life (MENQOL). DRUGS USED- All the drugs, were prepared in the Arya Vaidya Shala, Kottakkal, Kerala, India according to the Ayurvedic Formulary of India.	It is found to be an effective therapy in psychological and somatic problems related with menopausal syndrome.

36	A Clinical Study On The Charakokta Jeevaniya Mahakashaya Ghanvati In Rajonivritti Janya Vikar W.S.R. To Menopausal Syndrome	[46]	60	Randomized control trial	The improvement in the patient was assessed mainly on the basis of relief in the sign and symptom of the disease. By Kupperman's Index.	menopausal syndrome can be managed by Jeevaniya drugs. It is better in various psychological disturbances mainly include irritability, depression, sleep disturbance, Nervousness and dizziness. excellent result in Hot flashes
37	Clinical Evaluation Of Shaman Yoga (Anubhut) In The Management Of Menopausal Syndrome	[47]	14	Randomized control trial	Specialized rating scales like Menopause Rating Scale (MRS) and Menopause Specific Quality of Life (MENQOL) questionnaires were adopted for diagnostic as well as assessment criteria drugs - Drugs used in Shaman yoga i.e. Powder of Shatavari, Amalaki, Yashtimadhu (each 1 part) and Mukta Shukti Bhasma (1/2 part) were prepared in the Pharmacy of GAU, Jamnagar.	Shaman Yoga is better in various psychological disturbances mainly include headache, irritability, depression, mood swings, sleep disturbances

The aim of the current study was to know the effect of therapeutic intervention of *yoga* in all phases of menopause and effects of *yoga* in its associated disorders.

There were some objectives set to fulfil the aim. They were: to see the effect of *yoga* in perimenopausal women; to see the effect of *yoga* in women in menopause; to see the effect of *yoga* in post menopause; to see the effect of meditation like *preksha dhyana*, *nadi shodhan* on menopausal women; to see the effects of *yoga* in improving sleep quality, hot flashes, anxiety levels in menopausal women.

A women's health is important in balancing the whole family, it's important to study this subject to improve the quality of life in women in mid stage of life. In this review last 16 years articles were included in a systematic manner. It was assumed that this will help to understand the readers about the amount of work published in this field and also readers will gain knowledge out of it.

Material and Methods

All studies included this are peer reviewed; articles were searched by using key words *yoga* therapy, *Ayurveda*, meditation in menopause, *yoga* therapy in menopause etc. Articles were taken from PubMed and Google Scholar published from 2006 to 2022. All studies that were published in different countries but in English language were included.

The criteria for inclusion of research papers were: full length papers; peer reviewed papers; randomized control trials and pilot studies were taken; published in English language; published in between 2006 to 2022; *yogic* practices as an intervention; meditation as an intervention; music and *yoga* as an intervention and *Ayurveda* as an intervention.

The exclusion criteria adopted in the study were: incomplete papers; published before 2006; published in other languages than English; duplicate records and Naturopathy, Chinese medicine, Acupuncture intervention papers.

Results

Yoga plays an important role in the health of an individual. Over the years *yoga* has proven to be effective in wide range of disease. *Yoga* has now found to be not restricted in wellness, but also for the diseased and is useful in various diseases

In menopausal transition *yoga* has proven to be beneficial in improving stress, anxiety, depression, insomnia. It has also proven effective in improving hot flashes, lung function and also improvement in bone strength. Meditation has proven to be helpful in reducing stress and improving work efficiency in women. Cognitive decline is also balanced in a effective way.

Discussion

The current review was aimed at studying the efficacy of *yoga* in different phases of menopause and its associated disorders. The initial research yielded around 50 articles out of which 37 studies were taken which met the inclusion criteria. All the studies showed positive results in menopause. Out of these three studies were based on *Ayurvedic* management of menopause which showed remarkable results. Two studies on bone development and osteoporosis showed good improvement in the subjects. Another two studies showed great improvement in hot flashes a major issue in menopausal women. Few studies showed improvement in sleep disturbances caused due to menopausal phase. Two studies showed improvement in lung function and parameters. one study showed improvement in biochemical parameters. Few studies showed improvement in quality of life. Music with *yoga* improved stress level and *yoga* and aerobics showed improved sleep pattern, but in both *yoga* had an upper hand in improvement levels. *Ujjayi pranayama* and *nadi shodhan pranayama* both improved respiratory control in hypertensive patients and respiratory function in menopausal women respectively.

A brief of all the studies are mentioned in scientific review section. All the studies have proven to be effective in menopausal symptoms and its associated disorders. A case on efficacy of *yoga* for vasomotor symptoms, in this case *yoga* had no effect on vasomotor symptoms however *yoga* improved insomnia symptoms.[5] In the next case, effectiveness of Standard temperature and pressure (STP) and *yoga* therapy on menopausal symptoms among menopausal women was studied. This pilot study showed that *yoga* therapy was effective in reducing the menopausal symptoms more than the ones in control group. Treating the climacteric symptoms in the Indian women with an approach to *yoga* therapy in which it was assessed by Greene climacteric scale, perceived stress scale and Eyensecks personality inventory.[6] It showed that *yoga* decreases climacteric symptoms perceived stress and neurotism in peri-menopausal women better than physical exercise.[7] Effect of *yoga* on brain derived neurotropic factor and serotonin in peri menopausal women with chronic low back pain study showed that *yoga* intervention has a significant influence on serum BDNF and serotonin levels in patient with chronic low back pain[8] Another case study was comparative in nature. The study was focused to see serum estrogen and lipid profile in pre and post-menopausal women It had shown positive correlation of estrogen with high-density lipoprotein (HDL) and negative correlation with low-density lipoprotein (LDL) very low-density lipoprotein (VLDL) triglycerides and total cholesterol (TC). Another case on effect of an 8 month Ashtanga based *Yoga* intervention on bone metabolism in middle age peri-menopausal women. This randomized control study showed that *yoga* program was able to maintain bone alkaline phosphatase(ALP) concentration in these peri-menopausal women [10].

Effect of *Yogasana* on osteoporosis in post-menopausal women shown that improvement in T score of DEXA scan at post training as compared to a pre training score[11]. *Yoga* decreases insomnia in postmenopausal women. It was reported in a randomized control trial which showed that *yoga* group improved climacteric symptoms and insomnia improved in *Yoga* group than in control and passive stretching group[12]. Another important case study on effect of peripheral heart action training and *yoga* exercise training on respiratory function and c reactive protein of post-menopausal women shown that FEV1 was better in *yoga* than exercise group. Randomized trial on pulse velocity responses for 3 months of *yoga* poses and respiratory control reported positive effect. [13] A study reported that pulse wave velocity in three month *yoga* practices and respiratory control due to *ujjayi pranayama* proved to be effective in hypertensive cases.[14] The efficacy of two year yogic practice on selected pulmonary function test in post-menopausal women improved all lung function parameters [15]. Mental silence meditation for women in menopause showed clear improvement in vasomotor symptoms particularly hot flashes.[48] An interesting case on shaman *yoga* (which is *amalaki ,yashti madhu ,muktashukti bhasma*) proved to be helpful in headache, irritability and improved mood in menopausal cases.

Strength of the Study

The strengths of the study are: in this narrative review it is found that *yoga* practice is very useful for health; after the review it was also evident that *yoga* in menopausal women can be helpful for Stress, anxiety and
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insomnia; it improved the quality of life in women, yoga also helped in climacteric and menopausal symptoms like hot flashes, irritability, loss of sleep, and cardiovascular risk and no side effect or negative effect of yoga in menopausal women.

Limitations of the Study

The limitations of the current study are: due to strict selection criteria and the only possible way to use electronic databases for the research. The studies included in this review has few limitations; there can be a possibility of missing studies relevant to this review on efficacy of yoga in all the menopausal phase and associated disorder.

Suggestions For Future Research Work

The current narrative review suggests some recommendation for future research to explore. The future study should be done on larger sample, randomized control trial and control may also be included to see efficiency of yoga in menopause by making a group of small age group difference.

Conclusion

Yoga therapy has shown to be effective in improving vasomotor symptoms like hot flashes. Yoga practices are effective to improve insomnia, stress, irritability and anxiety in menopausal women. They also help in improving cardiovascular risk and risks of osteoporosis to a great extent. After going through the entire review of literature, it has been evident that yoga practices are boon to overcome at the three phases of menopausal disorders. These practices help to overcome health issues arising across the three phases during menopause in women. Thus, robust experimental research needs to be done to see specific result in three phases separately.

References

1. G. A. Hall, *The Textbook Of Medical Physiology*, 11th Editi. India: Saunders, Inprint of elsevier, 2006.
2. S. Praveena, G. Asha, M. Sunita, J. Anju, and B. Ratna, "Yoga offers cardiovascular protection in early postmenopausal women," *Int. J. Yoga*, vol. 11, no. 1, p. 37, 2018, doi: 10.4103/ijoy.IJOY_69_16.
3. Y. Heianza *et al.*, "Effect of Postmenopausal Status and Age at Menopause on Type 2 Diabetes and Prediabetes in Japanese Individuals: Toranomon Hospital Health Management Center Study 17 (TOPICS 17)," *Diabetes Care*, vol. 36, no. 12, pp. 4007–4014, Dec. 2013, doi: 10.2337/dc13-1048.
4. S. Muktananda, *Nava Yogini Tantra*. Bihar School Of Yoga, Munger , Bihar, 1983.
5. K. M. Newton *et al.*, "Efficacy of yoga for vasomotor symptoms," *Menopause*, vol. 21, no. 4, pp. 339–346, Apr. 2014, doi: 10.1097/GME.0b013e31829e4baa.
6. P. M. T. Jayadeepa and P. Padmavathi, "Effectiveness of Stp And Yoga Therapy on Menopausal Symptoms Among Menopausal Women Residing In Selected Villages At Namakkal District – Pilot Study," *Int. J. Curr. Res. Mod. Educ.*, vol. 1, no. 1, 2016.
7. C. R., R. N., V. P., and H. N.R., "Treating the climacteric symptoms in Indian women with an integrated approach to yoga therapy: A randomized control study," *Menopause*, vol. 15, no. 5, 2008.
8. M. Lee, W. Moon, and J. Kim, "Effect of Yoga on Pain, Brain-Derived Neurotrophic Factor, and Serotonin in Premenopausal Women with Chronic Low Back Pain," *Evidence-Based Complement. Altern. Med.*, vol. 2014, pp. 1–7, 2014, doi: 10.1155/2014/203173.
9. R. Yasmeeen Fatima, Sreekantha, "A comparative study of serum estrogen and lipid profile in premenopausal and post-menopausal women as atherosclerotic risk factors," *Int. J. Clin. Biochem. Res. Off. Publ. Innov. Educ. Sci. Res. Found.*, vol. 4, no. 3, pp. 237–241, 2017.
10. D. A. B. SoJung Kim , Michael G. Bembem , Allen W. Knehans, "Effects of an 8-Month Ashtanga-Based Yoga Intervention on Bone Metabolism in Middle-Aged Premenopausal Women: A Randomized Controlled Study," *J. Sport. Sci. Med.*, vol. 14, pp. 756–768, 2015.
11. Z. Motorwala, S. Kolke, P. Panchal, N. Bedekar, P. Sancheti, and A. Shyam, "Effects of Yogasanas on osteoporosis in postmenopausal women," *Int. J. Yoga*, vol. 9, no. 1, p. 44, 2016, doi: 10.4103/0973-6131.171717.
12. R. F. Afonso *et al.*, "Yoga decreases insomnia in postmenopausal women: a randomized clinical trial," *Menopause*, vol. 19, no. 2, pp. 186–193, Feb. 2012, doi: 10.1097/gme.0b013e318228225f.

13. K. Irandoust and M. Taheri, "Effect of Peripheral Heart Action training and Yoga Exercise Training on Respiratory Functions and C-Reactive Protein of Postmenopausal Women," *Women's Heal. Bull.*, vol. In Press, no. In Press, Apr. 2019, doi: 10.5812/whb.88027.
14. C. Fetter, B. Eibel, L. Boll, E. Barbosa, and M. C. Irigoyen, "P36 Pulse Wave Velocity (PWV) Responses To 3 Months of Yoga Poses and Respiratory Control (Ujjayi Pranayama) In Hypertensive Post Menopause Women: Randomized Clinical Trial," *Artery Res.*, vol. 24, no. C, p. 89, 2018, doi: 10.1016/j.artres.2018.10.089.
15. B. Ramesh, P. K. Chatterjee, B. Suman Veerappa, A. K. Nayanatara, . K., and N. M. A. Vinodini, "The efficacy of two-year yogic practice on selected pulmonary function test in postmenopausal women," *Biomedicine*, vol. 39, no. 2, pp. 292–297, Nov. 2020, doi: 10.51248/v39i2.197.
16. R. Manocha, B. Semmar, and D. Black, "A Pilot Study of a Mental Silence Form of Meditation for Women in Perimenopause," *J. Clin. Psychol. Med. Settings*, vol. 14, no. 3, pp. 266–273, Sep. 2007, doi: 10.1007/s10880-007-9076-5.
17. A. Chaturvedi, "Efficacy of yoga in balancing the deranged biochemical profile in healthy perimenopausal women hailing from South Kanara district of Karnataka, India," *Asian J. Biomed. Pharm. Sci.*, vol. 05, no. 45, 2015, doi: 10.15272/ajbps.v5i45.703.
18. R. C. Christina, R. S. Ramesh, L. Subitha, and G. D. Kumar, "Does Structured teaching program and Yoga therapy improve knowledge and symptoms related to Menopause among perimenopausal women in rural Puducherry? - A randomized controlled trial," *Asian J. Nurs. Educ. Res.*, vol. 10, no. 4, pp. 391–395, 2020, doi: 10.5958/2349-2996.2020.00083.X.
19. J. Purba, "Effectiveness of Pelvic Floor Muscle Training and Yoga on the Quality of Life in Perimenopausal Women with Urinary Incontinence," *Nurse Media J. Nurs.*, vol. 11, no. 1, pp. 85–93, Apr. 2021, doi: 10.14710/nmjn.v11i1.32156.
20. N. E. Avis, C. Legault, G. Russell, K. Weaver, and S. C. Danhauer, "Pilot study of integral yoga for menopausal hot flashes," *Menopause*, vol. 21, no. 8, pp. 846–854, Aug. 2014, doi: 10.1097/GME.000000000000191.
21. A. Rao, R. Shenoy, E. Archana, A. Kumar, G. Nayak, and A. Pai, "Serum mineral status and climacteric symptoms in perimenopausal women before and after Yoga therapy, an ongoing study," *J. Midlife Health*, vol. 4, no. 4, p. 225, 2013, doi: 10.4103/0976-7800.122251.
22. A. Rao, A. Kamath, P. Kumar, and G. Nayak, "Effect of yoga therapy on physical and psychological quality of life of perimenopausal women in selected coastal areas of Karnataka, India," *J. Midlife Health*, vol. 5, no. 4, p. 178, 2014, doi: 10.4103/0976-7800.145161.
23. D. T. Buchanan *et al.*, "Effects of Yoga and Aerobic Exercise on Actigraphic Sleep Parameters in Menopausal Women with Hot Flashes," *J. Clin. Sleep Med.*, vol. 13, no. 01, pp. 11–18, Jan. 2017, doi: 10.5664/jcsm.6376.
24. S. M. W. Jones *et al.*, "A yoga & exercise randomized controlled trial for vasomotor symptoms: Effects on heart rate variability," *Complement. Ther. Med.*, vol. 26, pp. 66–71, Jun. 2016, doi: 10.1016/j.ctim.2016.03.001.
25. A. Chaturvedi, "Comparative Assessment of the Effects of Hatha Yoga and Physical Exercise on Biochemical Functions in Perimenopausal Women," *J. Clin. Diagnostic Res.*, 2016, doi: 10.7860/JCDR/2016/18891.8389.
26. B. Jayabharathi and A. Judie, "Complementary health approach to quality of life in menopausal women: a community-based interventional study," *Clin. Interv. Aging*, p. 1913, Nov. 2014, doi: 10.2147/CIA.S70064.
27. A. Bhavanani, Z. Sanjay, Madanmohan, G. Dayanidy, and I. Basavaraddi, "Effect of yoga therapy on reaction time, biochemical parameters and wellness score of peri and post-menopausal diabetic patients," *Int. J. Yoga*, vol. 5, no. 1, 2012, doi: 10.4103/0973-6131.91696.
28. S. D. Reed *et al.*, "Menopausal quality of life: RCT of yoga, exercise, and omega-3 supplements," *Am. J. Obstet. Gynecol.*, vol. 210, no. 3, pp. 244.e1-244.e11, Mar. 2014, doi: 10.1016/j.ajog.2013.11.016.
29. S. K. Devika Bhave, Shraddha Mansawale, Ujwal Yeole, "Effect of Yoga and Music Therapy for Stress Management in Menopausal Women: a comparative Study," *Int. J. Yoga Allied Sci.*, vol. 7, no. 1, 2018.
30. M.-K. Sung, U. S. Lee, N. H. Ha, E. Koh, and H.-J. Yang, "A potential association of meditation with menopausal symptoms and blood chemistry in healthy women," *Medicine (Baltimore)*, vol. 99, no. 36, p. e22048, Sep. 2020, doi: 10.1097/MD.00000000000022048.
31. S. Tapadar and S. Tapadar, "A Study on the effect of Exercise on Menopausal women," *IOSR J. Dent. Med. Sci.*, vol. 18, no. 6, pp. 37–42, 2019.
32. Samani Amrit Prajna, "Samani Amrit Prajna. Effect of Preksha meditation on menopausal syndrome,"

- Int J Yogic Hum Mov Sport. Sci.*, vol. 3, no. 1, pp. 433–436, 2018.
33. S. P, “Influence of Nadi Shodhana Pranayama on respiratory functions of postmenopausal women,” *Natl. J. Physiol. Pharm. Pharmacol.*, vol. 11, no. 1, p. 1, 2021, doi: 10.5455/njppp.2021.10.08221202026082020.
 34. Y. D. Fara, R. S. E. Pujiastuti, and S. Hadisaputro, “Yoga Increases the Quality of Sleep in Menopause Women,” *Indones. J. Med.*, vol. 4, no. 3, pp. 278–284, 2019, doi: 10.26911/theijmed.2019.04.03.11.
 35. K. V. Solanki, “Efficacy of Yoga and Meditation on Depression, Anxiety and Stress level of Postmenopausal Women,” *Int. J. Indian Psychol.*, vol. 06, no. 03, pp. 125–138, 2017.
 36. H. Cramer, R. Lauche, J. Langhorst, and G. Dobos, “Effectiveness of Yoga for Menopausal Symptoms: A Systematic Review and Meta-Analysis of Randomized Controlled Trials,” *Evidence-Based Complement. Altern. Med.*, vol. 2012, pp. 1–11, 2012, doi: 10.1155/2012/863905.
 37. M. P. Jorge *et al.*, “Hatha Yoga practice decreases menopause symptoms and improves quality of life: A randomized controlled trial,” *Complement. Ther. Med.*, vol. 26, pp. 128–135, Jun. 2016, doi: 10.1016/j.ctim.2016.03.014.
 38. M. Modi, S. Donga, and L. Dei, “Clinical evaluation of Ashokarishta, Ashwagandha Churna and Praval Pishti in the management of menopausal syndrome,” *AYU (An Int. Q. J. Res. Ayurveda)*, vol. 33, no. 4, p. 511, 2012, doi: 10.4103/0974-8520.110529.
 39. R. Chattha, N. Raghuram, P. Venkatram, and N. R. Hongasandra, “Treating the climacteric symptoms in Indian women with an integrated approach to yoga therapy,” *Menopause*, vol. 15, no. 5, pp. 862–870, Sep. 2008, doi: 10.1097/gme.0b013e318167b902.
 40. R. F. Afonso *et al.*, “Yoga decreases insomnia in postmenopausal women,” *Menopause*, vol. 19, no. 2, pp. 186–193, Feb. 2012, doi: 10.1097/gme.0b013e318228225f.
 41. C. Fetter *et al.*, “Additional Improvement of Respiratory Technique on Vascular Function in Hypertensive Postmenopausal Women Following Yoga or Stretching Video Classes: The YOGINI Study,” *Front. Physiol.*, vol. 11, Aug. 2020, doi: 10.3389/fphys.2020.00898.
 42. Y. D. Fara, R. S. E. Pujiastuti, and S. Hadisaputro, “Yoga Increases the Quality of Sleep in Menopause Women,” *Indones. J. Med.*, vol. 4, no. 3, pp. 278–284, 2019, doi: 10.26911/theijmed.2019.04.03.11.
 43. S. P, “Influence of Nadi Shodhana Pranayama on respiratory functions of postmenopausal women,” *Natl. J. Physiol. Pharm. Pharmacol.*, vol. 11, no. 1, p. 1, 2021, doi: 10.5455/njppp.2021.10.08221202026082020.
 44. M. K. Prabhnoor Kaur, Sandeep Kaur, Saravanan Shanmugam, “Efficacy of Yoga versus Relaxation Techniques on Climacteric Symptoms of Perimenopausal women,” *IOSR J. Dent. Med. Sci.*, vol. 13, no. 7, pp. 32–42, 2014.
 45. K. V. Solanki, “Efficacy of Yoga and Meditation on Depression, Anxiety and Stress level of Postmenopausal Women,” *Res. Guru*, vol. 11, no. 3, 2017.
 46. D. D. Aruna Ojha, “A Clinical Study On The Charakokta Jeevaniya Mahakashaya Ghanvati In Rajonivritti Janya Vikar W.S.R. To Menopausal Syndrome,” *World J. Pharm. Res.*, vol. 7, no. 5, pp. 1702–1711, 2018.
 47. H. P. Shrawan N. Kamble, Vishwalata Dhole, Shilpa Donga, Yogesh L. Manani, “Clinical Evaluation Of Shaman Yoga (Anubhut) In The Management Of Menopausal Syndrome,” *World J. Pharm. Res.*, vol. 9, no. 2, pp. 971–980., 2019.
 48. R. Manocha, B. Semmar, and D. Black, “A pilot study of a mental silence form of meditation for women in perimenopause,” *J. Clin. Psychol. Med. Settings*, vol. 14, no. 3, 2007, doi: 10.1007/s10880-007-9076-5.