



Effect of Yoga on Stress Management in Healthcare Professionals: A Systematic Review

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Authors' contributions

This work was carried out in collaboration among all authors. Author SS conceived and designed the study, performed the data collection, and data analysis, interpreted and wrote the first draft of the manuscript. Authors KKC and DS reviewed the final manuscript. Author SLK managed conceptualization, expert opinion collection, critical revision of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Background: Healthcare professionals are those who work relentlessly to provide care, empathy and support to the patients, therefore they are not able to take care of themselves due to demanding work and stress which affects their personal and professional life. Yogic practices including asanas, pranayama, and meditation, help to reduce the stress factors in healthcare professionals. Aim of the study is to systematically review the effects of yogic practices on stress management.

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Purpose: This review study intends to explain that how healthcare professionals can manage their stress and how they can improve their work efficiency and regulate the emotions. Using Pubmed, Google scholar & Indian database electronic searches were performed using keywords Yoga, Stress management & Healthcare professionals which occurs in 77 studies over a period of time (2010-2020).

Selections were made to include only studies written in English, published in peer reviewed journals & investigating effects of regular yogic practices on stress management in this study.

Summary: Yoga can help healthcare personnel manage their stress. The reasons which contribute to workplace stress were highlighted, along with the belief among healthcare professionals that yoga practices can improve one's physical, emotional, and mental health. Yoga practice further aid to prevent various physical and physiological issues, enhances the quality of sleep and decreases fatigue and exhaustion.

So present study is designed to systematically review the effects of yogic practices on stress management.

Keywords: Yoga; stress; health care professional.

1. INTRODUCTION

1.1 Healthcare Professionals

"Healthcare professionals' study, diagnose, treat and prevent human illness, injury and other physical and mental impairments in accordance with the needs of the populations they serve. They maintain health in humans through the application of the principles and procedures of evidence-based medicine and caring". [1] (wikipedia, n.d.) It includes job profiles like physician, surgeon, physician assistant, pharmacist, pharmacy technician, medical assistant, nurse, physical therapist, occupational therapist, dentist, midwife, psychologist, psychiatrist or who perform services in allied health professions.

"workers and is associated with decreased job satisfaction, days off work, anxiety, depression, sleeplessness, medical errors, and near misses. Decreased job satisfaction inevitably results in negative results and in negative attitudes toward one's work, family, and ultimately, self". (Mehta et al., 2018) "Chronic overstress often state as burnout. Emotional illnesses can lead to anxiety disorders, addictions, depression, eating disorders, and suicide. Poor health in turn, reduces human efficiency due to lack of alertness, focus, absenteeism, and other similar problems. Healthcare professions are among the first six most stressful ones. Not all health professionals develop the same level of stress, and not all of them develop signs of professional burn-out either. According to several studies, Intensive Care Unit medical/nursing staff report that dealing with death is their first source of stress, compared to nurses who work in Internal

Medicine or Surgical Departments. In general, healthcare professionals are more prone to stress and professional burn-out, because they are responsible for human lives and their actions – or lack of action – can have a serious impact on their patients" [2]. The effects of stress on the staff fall within the following categories. i) Subjective experiences (stress, depression, anxiety, emotional withdrawal, gradual loss of empathy towards the patients). ii) Physical consequences (the whole range of psychosomatic conditions, short-duration, migraines, skin rashes, irritable bowel syndrome, cardiovascular diseases and strokes). iii) Behavioral changes (irritability, alcoholism, addictive behaviors). Stress can compromise a professional's ability to provide high quality care to his/her patients, since it can promote professional burn-out and recurring depressive episodes. Finally, work-related stress can have an impact on the professional's family by decreasing their overall quality of life.

1.2 Yoga

"Yoga is an art and a science of good health. It is a spiritual practice founded on a highly subtle science that aims to harmonize the mind and body. Yoga has shown effects of practicing it and include this in lifestyle to make yourselves healthy. Yoga has shown the positive changes in the person on physiological response, physical aspect, psychological and mental well-being. The widely practiced Yoga Sadhanas (Practices) are: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana (Meditation), Samadhi /Samyama, Bandhas & Mudras, Shat-karmas etc" (Vasavaraddi, 2015).

Yama's are restraints and Niyama's are observances. These are considered to be prerequisites for the Yoga Sadhanas (Practices). Asanas, are the body practices which provide stability in the body to perform Sadhna, giving ability to maintain a body position for a considerable length and period of time as well. Pranayama is a breathing practice which helps to create an awareness about the Pranic body and its energetic flow in the body. It contains three processes which are Inhalation (Svasa), Exhalation (Prasvasa) and Holding of Breath (Kumbhak) practices which helps in reducing stress and improves mental well-being of a person. Pratyahara indicates detachment of one's consciousness (withdrawal) from the sense organs which helps to centralize the mind and expand the self-awareness in one's mind. Dharana indicates a broad-based field of attention (inside the body and mind) which is usually understood as concentration. It binds the mind towards a particular subject or object. Dhyana (Meditation) is contemplation towards the self and spreading calmness and peace in one's mind. Samadhi – integration; the final stage of yoga which is beyond the objects and thoughts. Bandhas and Mudras are practices associated with pranayama. They help in centralizing the pranic energy in one's body and some specific techniques to follow these to complete sadhna.

Shat-karmas are purification procedures, help to remove the toxins accumulated in the body and are clinical in nature.

Many studies have shown the effect of yoga on stress in different body systems. There is a need for systematic review of relevant literature to determine that regular yoga practices are very much helpful in stress management.

1.3 MBSR

"Mindfulness is a form of self-awareness training adapted from Buddhist mindfulness meditation. It refers to non-judgmental awareness of moment-to-moment experience. Through mindfulness practice, a person intentionally pays full attention to whatever is occurring in the present moment without judging it. MBSR is an intensive structured training in mindfulness meditation has proved its efficacy in different population in different parts of the world" (Kumar et al., 2015).

Therefore, in this review research studies investigating effects of Yoga practices on stress for healthcare professionals.

1.4 Significance of the Study

Yogic Science have been found instrumental in management of stress in healthcare professionals. Yoga helps in eliminating prolonged stress in healthcare providers and reduces the risk of anxiety and depression, to cope up with increased workloads, to enhance the relationship between personal and professional life and to maintain a health, harmony and peace in life and happiness around them.

2. MATERIALS AND METHODS

Search articles for this systematic review were identified by accessing Pubmed, Google Scholar & Indian database. Each database was searched using keywords Yoga, Stress & Healthcare professionals. 77 studies were identified for initial evaluation.

Among 77 studies, 39 were excluded because of no relevance or research type (review) by viewing the titles. 10 articles were removed from the database because they were on stroke, and psychological techniques. 6 articles were excluded because of abstract given.

2 Case Study and 6 Pilot Study were excluded.

Finally, 14 trials were selected as they met criteria for final review.

2.1 Inclusion Criteria

- Published in English
- Had clear diagnostic for stress management
- Includes MBSR (Mindfulness Based Stress Reduction) techniques.
- Must include Health Care Professionals like medical students, medical and para-medical staff (Doctors, Nurses & Mental health care professionals) etc.
- Research papers taken from 2010-2020
- Age group 18-40 years

2.2 Exclusion Criteria

- Related to other disease
- Except yoga, other treatment like Naturopathy, Ayurveda
- Abstract
- Review papers
- Research papers before 2010
- Case study & Pilot Study

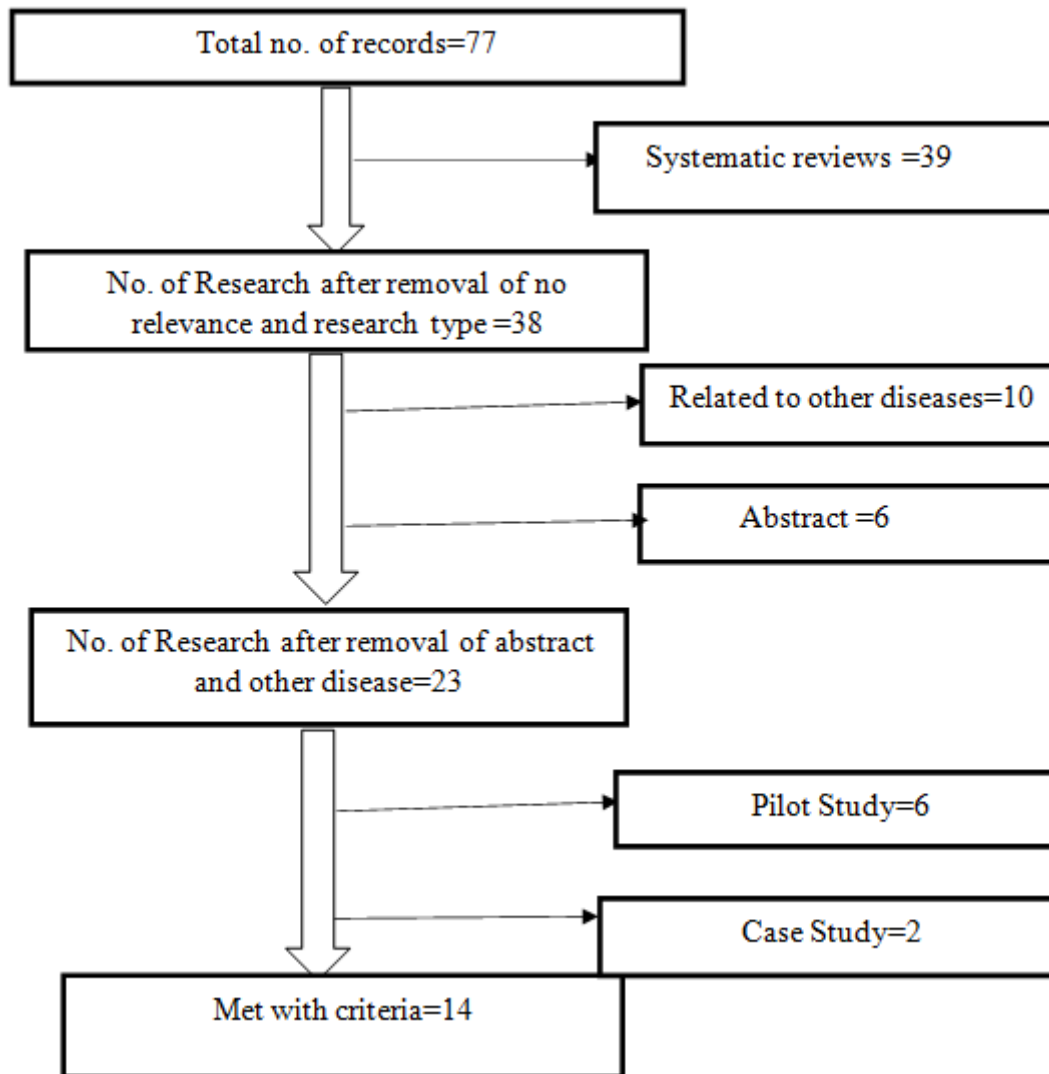


Fig. 1. Schematic representation of study searching and selection as per criteria

3. RESULTS AND DISCUSSION

3.1 Results

Search yielded a total of 77 trials, of which 14 met criteria for final review. All studies including work efficiency, productivity, burnout and fatigue as parameters for health care professionals.

Health professionals experience work-related stress from work or work-related factors. The work-related stress can result in fatigue, anxiety, depression, reduced work capacity, and even symptoms of burnout increase and often find emotional exhaustion in them. Yoga and mindfulness practices together have been found effective to reduce stress and anxiety, emotional fatigue and fear in healthcare workers, providing

them with emotional regulation, decrease burnout and improved lifestyle.

Yoga practices have been found to be efficacious among healthcare professionals for management of stress by maintaining the physical and mental fatigue in body and works to manage stress, anxiety and burnout.

3.2 Discussion

3.2.1 Literature review

This clinical trial shows that [3] “Yoga and mindfulness practices administered together seem effective to reduce stress and anxiety in health care workers, providing them with more consciousness and ability to manage work and stressful demands”. This follows up study

Table 1. Recommended yoga practices

S. No.	Yogic Practices
1	Shatkarma
2	Sukshma Vyayam
3	Asana
4	
5	
6	
7	Pranayama
8	Meditation

Table 2. Stress management through yoga for health care professional

S. no	Author's name & Year	Publication	Research study	Popul.	Intervention	Duration	Measures taken	Outcomes
1.	Giuseppe La Torre, 2020	Journal of clinical medicine	Single-arm clinical trial	n=48	1.5–10 min of starting session with motivational purposes 2. 30 min of breathing, posture, and sound exercises meant to achieve benefits for work-related stress and burnout 3. 20 min of pranayama, aiming at slowing and controlling breathing with diaphragmatic respiration exercises to reduce perceived anxiety. The most used pranayama were "bastrika" breathing, NadiShodana, alternate nostrils breathing, and breathe of fire. 4. 20 min of specific meditation exercises with movements and postures for releasing tension, relieving fatigue, and achieving mental well-being. 5. 5 min of mantra 6. 10 min of relaxation	4 weeks	IARA Model Anxiety: Zung Self-Rating Anxiety Scale (SAS)	Anxiety, fear, weakness, and anger ↓ Improved consciousness and ability to manage work stressful demands ↑
2	Massimiliano Barattucci	Google scholar	Randomized pre-post evaluation	n=497	MBSR	6 months	IARA Model Anxiety: Zung Self-Rating Anxiety Scale (SAS)	Better emotional regulation, ↑

S. no	Author's name & Year	Publication	Research study	Popul.	Intervention	Duration	Measures taken	Outcomes
							Difficulties in Emotion Regulation Scale (DERS-36)	anxiety and stress reduce ↓
3	Dr.B.Lavanya Devi 2018	IOSR Journal of Dental and Medical Sciences	Cross sectional study	n=303	Regular physical exercise or yoga or both	6 months	Holmes-Rahe Scale DASS score	Build up lifestyle Improved awareness↑ Harmony and peace↑
4	Jayaram Thimmapuram 2017	Journal of Community Hospital Internal Medicine Perspectives	Cohort trial	n=47	Heartfulness meditation	12 weeks	Maslach Burnout Inventory (MBI) Emotional Wellness Assessment (EWA)	Burnout decrease↓ Conflict reduces↓ Stress adaptation↑
5	Rebekah K. Hersch 2016	Pubmed	Randomized controlled study	n=104	The BREATH	Not given	Nursing Stress Scale (NSS)	Conflicts with colleagues reduced↓ Workload decrease. ↓
6	Gina K. Alexander 2015	CONTUINING EDUCATION GOOGLE SCHOLAR	Pilot-level randomized controlled trial	n=20	Kundalini yoga	8 weeks	Postural alignment, deep breathing, Monitor the mind with simple meditations.	Higher self- care↑ Emotional exhaustion and depersonalization↓
7	Shu-Ling Lin 2015	ORIGINAL PAPERS GOOGLE SCHOLAR	Randomized Controlled Trial	n=60	Abdominal breathing, cooling breath, and bellows breath, followed by forced abdominal breathing, meditation, Body stretching positions.	12 weeks	Work-related stress scale Stress adaptation scale	Work-related stress ↓ Stress adaptation of mental health professionals↑ Autonomic nerve activity ↑
8	Kari Sulenes 2015	The journal of alternative and complementary medicine	Mixed-model analysis of variance	n=1500	Yogic practices	4 weeks	Ethical practice, personal observances, posture practice, breathing exercise, sense withdrawal, concentration practices, meditation, and absorption.	Skeletal symptoms increase↑ Psychological symptoms increase↑
9	Christiane Brems 2015	Google scholar	Survey	n=1585	Yoga practices	4 weeks		Physical pain↓ Flexibility↑ Relaxation ↑
10	Julie Anne Irving 2015	Original papers	Interview and Cohort study	n=26	MBSR Internal and external landscapes	3 weeks	Enhancement of awareness, mindfulness practices	Self-compassion increase↑

S. no	Author's name & Year	Publication	Research study	Popul.	Intervention	Duration	Measures taken	Outcomes
					Awareness Culture Focus, observe, acceptance, change Self and others		(informal and formal), internal and external context, group experience, mindful strategies & Consequences for self and others.	Awareness and attention increase↑
11	Michael de Vibe 2013	BMC Medical Education	Randomised Controlled Trial	n=288	MBSR	7 weeks	'General Health Questionnaire, Maslach Burnout Inventory Student version, Perceived Medical School Stress, Subjective Well-being, and Five Facet Mindfulness Questionnaire'	Positive improvements in mental health↑ Distress, study stress, subjective well-being↓
12	Peter Barbosa 2013	Original Research Paper	Quasi-experimental trial	n=33	MBSR	2 months	Jeerson Scale of Physician Empathy	Anxiety ↓ Empathy↑
13	Matthew J. Goodman 2013	Google scholar	Pre-post observational study	n=93	MBSR	8 weeks	The body scan, mindful movement, walking meditation and sitting meditation	Improvements in burnout scores and mental well-being. ↑
14	Andrés Martín-Asuero 2010	Research gate	Semi-experimental study	n=29	MBSR Meditation and Yoga Stretches	8 weeks	Psychological Distress Questionnaire The Positive and Negative Affect Scale (PANAS) Emotional Control Questionnaire (ECQ) Perceived Stress Scale (PSS)	Psychological distress ↓ The negative component ↓ The positive component did not change.

Table 3. Details of yoga practices

Author's name	Intervention yoga group
Giuseppe La Torre	30 min of breathing, posture, and sound exercises and burnout (shoulders, neck, hips, and leg muscles were the most treated body district) 20 min of pranayama. 20 min of specific meditation exercises with movements and postures 5 min of mantra 10 min of relaxation
Massimiliano Barattucci	MBSR
Dr.B.Lavanya Devi	Yoga, meditation, prayer, guided imagery, recitation, singing, drumming, chanting that effectively build their present awareness, attention and harmony.
Jayaram Thimmapuram	Heartfulness meditation practice asks participants to sit comfortably and gently focus their attention, with eyes closed, on the source of light within the heart.
Rebekah K. Hersch	The BREATHE
Gina K. Alexander	Kundalini yoga
Shu-Ling Lin	Abdominal breathing, cooling breath, and bellows Breath, followed by forced abdominal breathing, meditation, body stretching positions.
Kari Sulenes	Posture practice, breathing exercise, and mindfulness or meditation Practices
Christiane Brems	MBSR & Yoga practices combined
Julie Anne Irving	MBSR
Michael de Vibe	MBSR
Peter Barbosa	MBSR
Matthew J. Goodman	MBSR
Andrés Martín-Asuero	MBSR

conducted for six months states that [4] “yoga practices enhance the positive relationship between emotional regulation, perceived stress and anxiety”. This article states that [5]. “Stress reduction can be achieved through better life style pattern, learning traditional medical systems that use Yoga, meditation, prayer, guided imagery, recitation, singing, drumming, chanting which supports them effectively to build their present awareness, attention and harmony”. According to this study, “Meditation offers an accessible and efficient method by which physician and nurse burnout can be ameliorated and wellness can be enhanced” [6]. This randomized controlled study states that [7] “The BREATHE web-based program can be an effective means of reducing nurse’s perceived stress and how to avoid negative coping tools to manage workload and conflicts from other physician” [8]. According to this study, Yoga practice may be an effective strategy for health promotion among nurses and may lead to a reduction in experiences of burnout. This randomized controlled trial concludes that (Chu et al., 2015) Mental health professionals experienced a reduction in work-related stress and an increase in autonomic nerve activity in a weekly Yoga program. This articles states that [9] “there is a significant positive relationship between level of personal Yoga practice and willingness to refer patients to Yoga. The importance of developing strategies to make health professionals more aware of the merits of yoga, regardless of whether they themselves are yoga practitioners or not”. [10] According to this study intervention, health care professionals who practice Yoga in their daily life recommends others to do yoga practices as it helps them to maintain health and fitness. Yoga practices also provide the evidences of curriculum of health to acquaint care providers with benefits. This theory model states that [11] MBSR, practices support students and professionals with care, sympathy and mindful communication to reduce stress and anxiety in people. This randomized controlled study states that [12] “Female medical and psychology students experienced significant positive improvements in mental distress, study stress, subjective well-being and mindfulness after participating in the MBSR programme”. “The conception of MBSR practices results provide supportive evidence for a behavioral intervention to reduce anxiety and increase empathy among graduate healthcare students” [13]. “A continuing education course based on mindfulness-based stress reduction was associated with significant improvements in

burnout scores and mental well-being for a broad range of healthcare providers” [14]. This journal article states that [15-17] “the combination of observation and acceptance of the contents of thoughts and of physical sensations, promoted by MBSR, has been found to reduce rumination, negative affect and the perception of stress, and as a result psychological distress is significantly reduced” [18-20].

4. CONCLUSION

MBSR (Mindfulness Based Stress Reduction) techniques are beneficial practices for healthcare professionals to manage the stress. MBSR also appeared to reduce anxiety and increase empathy. MBSR techniques significantly improve sleep quality and duration.

Yogic practices are very effective to manage the stress and anxiety. Yogic practices help to manage cortisol level and emotional exhaustion in body. Practices helps to reduce anger and fear and increase the empathy towards others and management of time and work adaptation increase.

5. RECOMMENDATION PRACTICES

Some yogic practices are recommended for healthcare professionals to manage the stress:

5.1 Supportive Basis of Practices Given for Above Protocol

Shatkriyas (Purification procedures) are the practices which helps to liberate the body on physical level from toxic substances present in the body. Asanas are the physical postures which helps to relieve physical exhaustion from the body. Pranayama are the breathing practices which helps to create awareness and attention in mind and body by controlled breathing. Meditation is a technique which helps to increase the focus and consciousness present in the body which helps to reduce stress, anxiety which increases the work productivity and creativity in working professionals.

6. STUDY LIMITATIONS

- Practices should give in the article so that reader can follow it. Detail of practices had not given in some articles.
- Consideration should also be given to appropriate measurement of spiritual aspects of yoga.

- Studies should consider a longer period of follow to check long term efficacy & long-term acceptability.
- Author should also explain the MBSR techniques in detail.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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