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REVIEW ARTICLE

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Integrative Yoga and Psychoneuroimmunology for Post-Surgery Recovery - A Complementary Therapy in Post-Surgical PTSD

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ABSTRACT

Posttraumatic stress complaint (PTSD) can do after trauma. While PTSD operation strategies include first- line pharmacotherapy and psychotherapy, mind – body curatives, similar as yoga, are applied in the PTSD population. This overview aimed to epitomize the effectiveness of yoga interventions on PTSD symptoms in grown-ups in a methodical review (SR) including randomized controlled trials RCTs). While yoga remedy seems promising for dwindling PTSD symptoms, unborn exploration should regularize yoga remedy duration/ frequence/ type and consider long- term efficacity to more delineate yoga remedy efficacity in PTSD cases. numerous individualities with internal health judgments, including post-traumatic stress complaint (PTSD), have incorporated a group of reciprocal and integrative health strategies known as mind and body practices in their health care authority. Test anxiety may be a contributing factor to low- performing examination scores among scholars. There can be multitudinous physiological responses in the body that lead to test anxiety. One is the body's response to stress, which activates the brain to release hormones that stimulate central and supplemental nervous responses. Stressors during testing include the system of information delivered, previous knowledge of the subject material, emotional state, or how directly the pupil can retain knowledge.

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Introduction

Post-traumatic Stress complaint (PTSD), is diagnosed when intrusion, avoidance, differences in cognition and mood, differences in thrill and reactivity last for further than a month, can do after a trauma, similar as exposure to death or to a death trouble, to serious injuries or to sexual violence. Yoga is grounded on the practice of three main principles with physical postures, breathing ways and contemplation and is carried out by further than 300 million people around the world. Yoga claims to give health benefits including physical, metabolic, physiological, internal health and well- being in the general population and in populations presenting with cerebral impairments. In attempts to ameliorate the gruelling operation of PTSD symptoms, which is conventionally treated by psychotherapy and pharmacotherapy, reciprocal approaches including yoga are currently well considered. originally rehearsed to cultivate an inner state of imperturbability, and to reach an advanced position of knowledge, yoga is presently rehearsed substantially as a way to promote physical exertion and internal well- being [1]. While the authors reported overall positive results on PTSD symptoms, the position of substantiation was limited by the addition of clinical trials both with and without a controlled randomized design. The authors recommended examining the quality of SRs regarding yoga, the ideal being to establish a new global conflation of literature by furnishing current substantiation of yoga efficacity on PTSD symptoms and recommendations for unborn exploration. In a recent bibliometric analysis of SR, stressed the growing interest in yoga remedy and recaptured 332 SR of which 8 specifically concentrated on PTSD. The main end was to give current substantiation of the effect of yoga treatment on PTSD symptoms. In addition, retention of benefits, safety, adherence and cost were considered as secondary issues likely to give recommendations for unborn studies [2].

Literature Review

Yoga is an ancient system for integrating the mind, body, and spirit. In the hatha yoga ashtanga tradition (the eight limb Patanjali Yoga), three of the limbs are meditation, breathwork (pranayama) and physical postures (asana), which are widely practised in yoga classes. The benefits of yoga for mental and physical health are rooted in the practice's origins: in yoga, stress is said to be the root of all diseases. The established fields of psychoneuroimmunology and immunopsychiatry study the interplay between the immune system and mood or mental states. This mini-review has shifted the emphasis from research that focuses on yoga's benefits for stress, the most commonly studied outcome of yoga research, to a summary of the research on the effects of yoga practices on the immune system [2].

Pain is an unpleasant and upsetting experience. Persistent pain has an impact on an individual's quality of life which causes

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stress and mood disorders. There are currently no pain-relieving techniques available that can eliminate pain and offer relief without causing any adverse effects. These factors draw attention to traditional treatments like yoga and meditation, which can reduce biological stress and hence increase immunity, as well as alleviate the psychological and emotional suffering produced by pain. Yoga reduces the stress response and the pain cascade via the downregulation of the hypothalamus-pituitary-adrenal (HPA) axis and vagal stimulation. Yoga is a cost-effective growing health practice that, unlike pharmaceuticals, has no side effects and can help patients stay in remission for longer periods of time with fewer relapses [3].

Opioids are potent painkillers but come with serious adverse effects ranging from addiction to potentially lethal respiratory depression. A variety of drugs with separate mechanisms of action are available to prevent or reverse opioid-induced respiratory depression (OIRD). Model-based drug development is needed to design an 'ideal' reversal agent—that is, one that is not influenced by opioid receptor kinetics, does not interfere with opioid analgesia, has a rapid onset of action with long-lasting effects, and is devoid of adverse effects. The PKPD analyses show that although all reversal strategies may be effective under certain circumstances, there are conditions at which reversal is less efficacious and sometimes even impossible [4].

This study was aimed to assess the efficacy of yoga-based lifestyle program (YLSP) in improving quality of life (QOL) and stress levels in patients after 5 years of coronary artery bypass graft (CABG). In YLSP group, all practices of integrative approach of yoga therapy such as yama, niyama, asana, pranayama, and meditation were used as an add-on to conventional cardiac rehabilitation. The control group (CLSP) continued conventional cardiac rehabilitation only. World Health Organization (WHO)-QOL BREF Questionnaire, Perceived Stress Scale, Positive and Negative Affect Scale (PANAS), and Hospital Anxiety and Depression Scale (HADS) were assessed before surgery and at the end of the 5th year after CABG. As data were not normally distributed, Mann–Whitney U-test was used for between-group comparisons and Wilcoxon's signed-rank test was used for within-group comparisons [5].

There is a growing body of research on yoga as a therapeutic intervention for psychological symptoms of post-traumatic stress disorder (PTSD) accompanied by speculations on underlying physiologic mechanisms. The purpose of this systematic review is to identify, qualitatively evaluate, and synthesize studies of yoga as an intervention for PTSD that measured physiologic outcomes in order to gain insights into potential mechanisms. The focus is on studies evaluating yoga as a therapeutic intervention for PTSD rather than for trauma exposure, PTSD prevention, or subclinical PTSD. Multiple databases were searched for publications from the past two decades using terms derived from the question, "In people with PTSD, what is the effect of yoga on objective outcomes?" Eligibility criteria included yoga-only modalities tested as an intervention for formally diagnosed PTSD with at least one physiologic outcome [6].

Post-Traumatic Stress Disorder

Post-traumatic stress complaint (PTSD) is an internal and behavioral complaint that develops from passing a traumatic event, similar as sexual assault, warfare, business collisions, child abuse, domestic violence, or other pitfalls on a person's life or well-being [7]. Symptoms may include disturbing studies, passions, or dreams related to the events, internal or physical torture to trauma- related cues, attempts to avoid trauma- related cues, differences in the way a person thinks and feels, and an increase in the fight- or- flight response. These symptoms last for further than a month after the event and can include triggers similar as misophonia. youthful children are less likely to show torture, but rather may express their recollections through play. A person with PTSD is at a advanced threat of self-murder and purposeful tone- detriment. utmost people who witness traumatic events don't develop PTSD. People who witness interpersonal violence similar as rape, other sexual assaults, being abducted, stalking, physical abuse by an intimate mate, and nonage abuse are more likely to develop PTSD than those who witness on-assault-based trauma, similar as accidents and natural disasters. Those who witness prolonged trauma, similar as slavery, attention camps, or habitual domestic abuse, may develop complex post-traumatic stress complaint (C- PTSD). C- PTSD is analogous to PTSD, but has a distinct effect on a person's emotional regulation and core identity [5].

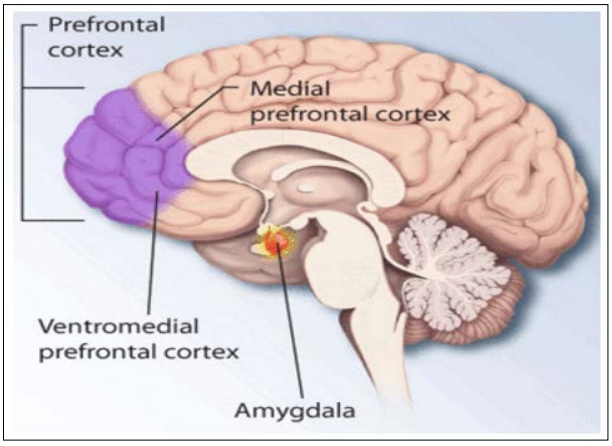

Figure 1: Regions of the Brain Associated with Stress and Post-Traumatic Stress Disorder

Symptoms of PTSD

Symptoms of PTSD generally begin within the first three months after the inciting traumatic event, but may not begin until times latterly. In the typical case, the individual with PTSD persistently avoids either trauma- related studies and feelings or discussion of the traumatic event and may indeed have amnesia of the event (dissociative amnesia). still, the event is generally relived by the existent through protrusive, intermittent remembrances, dissociative occurrences of reliving the trauma ("flashbacks"), and agonies (50 to 70). While it's common to have symptoms after any traumatic event, these must persist to a sufficient degree (i.e., causing dysfunction in life or clinical situations of torture) for longer than one month after the trauma to be classified as PTSD

(clinically significant dysfunction or torture for lower than one month after the trauma may be acute stress complaint). Some following a traumatic event experience post-traumatic growth [3].

Figure 2: Service Members Use Art to Relieve PTSD Symptoms

Associated Medical Conditions

Trauma survivors frequently develop depression, anxiety diseases, and mood diseases in addition to PTSD. further than 50 of those with PTSD have co-morbid anxiety, mood or substance use diseases. Substance use complaint, similar as alcohol use complaint, generally co-occur with PTSD. Recovery from post-traumatic stress complaint or other anxiety diseases may be hindered, or the condition worsened, when substance use diseases are comorbid with PTSD. Resolving these problems can bring about enhancement in an existent's internal health status and anxiety situations. PTSD has a strong association with tinnitus, and can indeed conceivably be the tinnitus' cause. In children and adolescents, there's a strong association between emotional regulation difficulties (e.g. mood swings, wrathfulness outbursts, temper explosions) and post-traumatic stress symptoms, independent of age, gender, or type of trauma [8]. Moral injury, the feeling of moral torture similar as a shame or guilt following a moral transgression, is associated with PTSD but is distinguished from it. Moral injury is associated with shame and guilt, while PTSD is associated with anxiety and fear.

Psychological Trauma

Post-traumatic stress responses have been studied in children and adolescents. The rate of PTSD might be lower in children than grown-ups, but in the absence of remedy, symptoms may continue for decades. One estimate suggests that the proportion of children and adolescents having PTSD in anon-wartorn population in a advanced country may be 1 compared to 1.5 to 3 of grown-ups. On average, 16 of children exposed to a traumatic event develop PTSD, with the prevalence varying according to type of exposure and gender. analogous to the adult population, threat factors for PTSD in children include womanish gender, exposure to disasters (natural or man- made), negative managing actions, and/ or lacking proper social support systems. PTSD has been associated with a wide range of traumatic events [9]. The threat of developing PTSD after a traumatic event varies by trauma type and is the loftiest following exposure to sexual violence (11.4), particularly rape (19.0). Men are more likely to witness a traumatic event (of any type), but women are more likely to witness the kind of high- impact traumatic event that can lead to PTSD, similar as interpersonal violence and sexual assault. Motor vehicle collision survivors, both children and grown-ups, are at an increased threat of PTSD. Encyclopaedically, about 2.6 of grown-ups are diagnosed with PTSD following anon-life-threatening business accident, and a analogous proportion of children develop PTSD. threat of PTSD nearly doubles to 4.6 for life- changing bus accidents. Ladies were more likely to be diagnosed with PTSD following a road business accident, whether the accident passed during nonage or majority [10].

Life-Threatening Illness

Medical conditions associated with an increased threat of PTSD include cancer, heart attack, and stroke. 22 of cancer survivors present with lifelong PTSD like symptoms. ferocious- care unit (ICU) hospitalization is also a threat factor for PTSD. Some women witness PTSD from their gests related to bone cancer and mastectomy. Loved bones of those who witness life- changing ails are also at threat for developing PTSD, similar as parents of a child with habitual ails. Research exists which demonstrates that survivors of psychotic occurrences, which live in conditions similar as schizophrenia, schizoaffective complaint, bipolar I complaint, and others, are at lesser threat for PTSD due to the gests one may have during and after psychosis. similar traumatic guests include, but are n't limited to, the treatment cases experience in psychiatric hospitals, police relations due to psychotic gets, suicidal gests and attempts, social smirch and embarrassment due to gests while in psychosis, frequent intimidating gests due to psychosis, and the fear of losing control or factual loss of control. The prevalence of PTSD in survivors of psychosis may be as low as 11 and as high at 67 [11].

Research Methodology

This methodology aims to explore the efficacity of integrative yoga and psychoneuroimmunology in easing PTSD symptoms and perfecting overall recovery in post-surgical cases, offering a holistic approach to mending. Mixed- styles study combining quantitative and qualitative approaches. Duration is 12 weeks, with pre- and post-intervention assessments. Sample Size is 60 cases who have experienced surgery and exhibition symptoms of PTSD. Severe psychiatric diseases, ongoing substance abuse, or contraindications for yoga practice. Combination of gentle yoga acts, breathwork, contemplation, and awareness practices. Focus of Enhancing mind- body connection, reducing stress, and promoting relaxation. Psychoeducation are Workshops on the mind- body connection and the impact of stress on the vulnerable system. awareness ways for Incorporating guided imagery and relaxation ways during sessions. PTSD symptoms assessed using the Clinician- Administered PTSD Scale (CAPS- 5). Immune function measured through blood samples (cytokine situations). Quality of life estimated using the SF- 36 Health Survey. Anxiety and depression situations measured with the Sanatorium Anxiety and Depression Scale (HADS). Pre-Intervention is birth assessments for all outgrowth measures. Post-Intervention are reprise assessments at 6 weeks and 12 weeks post-intervention. Qualitative Data are Focus groups and interviews conducted at the

end of the study to gather actors' gests and comprehensions of the intervention. Thematic analysis of focus group and interview reiterations to identify common themes and gests. A Retrospective case series (RCS) of PTSD cases treated with homoeopathic drugs.

Table 1: The PTSD Cases of Homoeopathic Medicines Prescribed

S. No.	Name of Homoeopathic Medicine	Frequency
1.	Arsenicum Album	4
2.	Aurum Metallicum	4
3.	Ignatia Amara	4
4.	Kalium Carbonicum	4
5.	Lycopodium Clavatum	4
6.	Natrium Muriaticum	4
7.	Nitricum Acid	4
8.	Nux Vomica	4
9.	Pulsatilla Pratensis	4
10.	Sulphur	4
11.	Anacardium Orientale	2
12.	Belladonna	2
13.	Calcarea Carbonica	2
14.	Causticum	2
15.	Hyoscyaminum	2
16.	Lachesis Mutus	2
17.	Mercurius Solubilis	2
18.	Phosphorus	2
19.	Sepia Officinalis	2
20.	Stramonium	2
	Total	60

Retrospective Case Series (RCS)

100 cases were screened retrospectively from the OPD case records among the 60 cases, 20 cases fulfilled the pre-set addition criteria. As per the addition criteria, certain PTSD clusters editorialized as essential for opinion were estimated with the help of the extensively used tool i.e., the clinician- administered PTSD scale (CAPS- 5). The data of the 20 PTSD cases were collected in the excel distance format and were statistically anatomized by SPSS software. Majorly, the cases from the age group 31 – 35 times old were suffering from PTSD followed by 36 – 40 times and 41 – 45 times of age group cases as Table 2.

Table 2: Distribution of the Patients Suffering from Post-Traumatic Stress Disorder for Age-Wise

Age Group (Years)	No. of Patients	Percentage
21 – 25	6	10%
26 – 30	6	10%
31 – 35	16	26.66%
36 – 40	12	20%
41 – 45	12	20%
46 – 50	2	3.33%
51 – 55	6	10%
Grand Total	60	100%

The gender-wise distribution of the cases showed an equal distribution that 30 cases were womanish and 30 cases were manly cases. The cases showed a variety of traumatic events which touched off or initiated the PTSD occurrences. The gender-wise distribution of the traumatic events endured by the cases was given in Table 3. The age-wise distribution of the traumatic events is given in Table 4.

Table 3: The Events which had Precipitated PTSD for Gender-Wise Categorization

Traumatic event	Female (n=30)	Male (n=30)	Grand Total
Death	10	16	26
Domestic violence	8	-	8
Hospitalization	4	4	8
Quarantine	2	10	12
Sexual assault	6	-	6
Grand Total	30	30	60

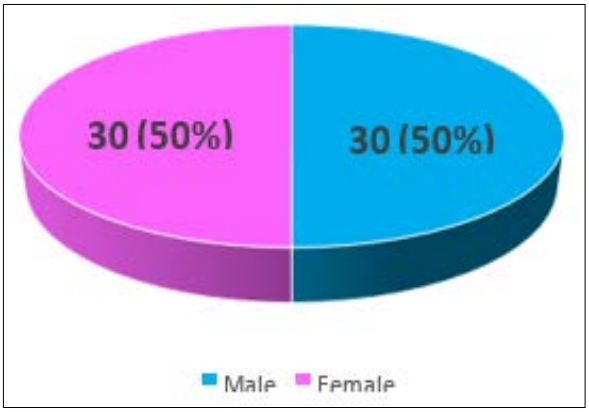

Figure 3: Distribution Of 60 PTSD Patients for Gender-Wise

Table 4: The Events which Had Precipitated PTSD for Age-Wise Categorization

Age/Trauma	COVID-19			Physical Harassment		Total
Age (Years)	Death	Quarantine	Hospitalization	Domestic Violence	Sexual assault	
21 – 25	2	4	-	-	-	6
26 – 30	2	-	-	4	-	6
31 – 35	10	2	-	-	4	16
36 – 40	6	-	2	4	-	12
41 – 45	4	4	4	-	-	12
46 – 50	-	2	-	-	-	2
51 – 55	2	-	2	-	2	6
Total	26	12	8	8	6	60

Conclusions

The current overview, in collaboration with clinicians and psychotherapists, this overview suggests a need for specific yoga programs considering social factors and having a standardized duration of 12 weeks (or further), the ideal being to assess not only PTSD symptoms, but also secondary issues similar as pain and physical exertion. stressed promising results of yoga effectiveness for operation of PTSD symptoms. unborn studies should include long- term follow- up duration and neuroimaging to specifically delineate efficacity and neuroplasticity in PTSD cases. Emotional stresses, particularly apparent during surgical processes, impact vital recovery aspects similar as crack mending and postoperative well- being. This necessitates a visionary part by healthcare professionals in stress operation to optimize surgical results. While interventions similar as cognitive- behavioral remedy offer pledge, challenges in ethical concurrence and health difference remain. The future of PNI, still, is auspicious, pointing toward an immingle of individualized drug, technological invention, and a revamped holistic approach to health [12-17].

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