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Assessing the Impact of Structured Yoga Interventions on Health-Related Quality of Life in COVID-19 Adult Survivors

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Abstract

Framework: The World Health Organisation defines quality of life (QOL) as "an individual's perception of their position in life, considering the cultural and value systems they are part of, in conjunction with their goals, expectations, standards, and concerns." Standard indicators for quality-of-life include factors such as wealth, employment, environmental conditions, physical and mental health, education, and leisure, with numerous elements that affect quality of life. However, health-related quality of life (HQOL) is closely related to various dimensions of quality of life. Health is considered the fundamental step toward fulfilling life, as good health facilitates achieving other life goals. During the COVID-19 pandemic, there were movement restrictions, people were in quarantine and Yoga (YOG) has gained worldwide recognition as a key health intervention, with substantial evidence supporting its effectiveness in improving quality of life.

Method of research work: Eighty participants of both the genders (34 male & 46 female proportion 0.425 & 0.575) with median and interquartile range of male and female were 26(Q1; Q3, 24 to 28) and 25(Q1; Q3, 23 to 27) subsequently were chosen for this study using a simple random sampling method. Data collection was carried out using the World Health Organisation Quality of Life (WHOQOL-BREF) questionnaire, administered toparticipants both before and after undergoing specific interventions. Participants participated in designated yogic practices for duration of two months. The results of the pre- and post-intervention assessments were compiled, recorded and organised into tables to evaluate the impact of the yoga interventions. The study exclusion threshold was set at 10%.

Outcomes: Following a 60-day yoga intervention involving selected yoga practices, final test data was collected and analysed at a significance level (α) across all WHOQOL dimensions

on day 60. The average score for the physical domain of quality of life was recorded as 99.6 before the intervention and 101.8 afterward (P=<.001). Within the psychological domain, the mean scores were 75.5 initially and 77.7 after the intervention (P=<.001). The social relations domain showed mean scores of 42.20 before and 43.33 after the intervention (P=<.001). The environmental domain was measured with mean scores of 90.5 and 91.8, respectively (P=<.001). Overall, the mean quality of life was calculated at 308 before and 315 after the intervention (P=<.001).

Interpretation: In fact, an increase in the average value indicates an improved quality of life. Statistical evidence shows a significant difference in overall quality due to specific yogic practices. Consequently, such practices can be recommended as an integrative, alternative, or complementary medicine to improve quality of life after CoViD-19 treatment.

Keywords: COVID-19 survivors, Quality of Life, Yoga, Yoga micro exercise, Yoga cleansing technique

Introduction

To begin with, the word YOGA that has promiscuous definitions in numerous Indian manuscripts, the Indian heritage is serving the humanities since beginning with this magnificent system of health and healthy lifestyle, since health is not only required for happiness but also the foundation pillar of productivity and wealth, however, for emancipation health is primus. Quality of life is the measure of overall health, it finds the Physical, psychological, social and environmental domain. Lower the score of any domain considered as vanquishing the health in related segment. Each thought of yoga has its significance to uplift each domain and overall quality of life. Most renowned Hatha Yoga is generally considered for Physical domain enhancement; however, physical aspect of Hatha Yoga is a basic consequence but it's deeper and leads to conquering heaven. Though, good health leads to achieving the goal of life that is transcendental state. It is well known that physical health is associated with mental health that is known psychosomatic condition. Hathayogapradipika, upadesh 1 (Chapter 1) verse-17 very first limbs of Hathayoga are physical postures (Asana) are beneficial for physical and mental health, best known for health retention and prevention from diseases. This only part is favorable for physical and psychological domain of QOL. Moreover, Hathayogic practices are supportive for another domain of QOL. Yet, Yoga sutra of Patanjali or Patanjal yoga darshana (Yoga Philosophy of Patanjali) Samadhipada (Chapter-1) verse-33 recommend the deeds are required to improve and sustain mental health, in addition, Sidhasidhanta Paddti one of the Hatha Yoga manuscript upadesh 1 (Chapter-1) verse-8 sub verses 1–5 conveyed the message to enduring mental health and take one step ahead the psychological domain of QOL for instance, Niranjanata means group of traits or personality traits that destroy the peace and mental which are anger, greed, attachment and hate etc. which are associated with Kundilini serpent energy that help to join with the divine and transform the life, Balancing the aforementioned leads toward better psychological health. For the Psychological domain of QOL Patanjal yoga darshana (Yoga Philosophy of Patanjali) Sadhanapada (Chapter 2) verse-3 there are five types of

traits known as Pancha Klesha (Eliminator of Psychological health) to describe, Avidhaya Unknowingness or ignorance is one the root cause for depression and stress etc. and these weaken the psychological condition. Hathayogapradipika, upadesh 1 (Chapter 1) verse-12 beautifully taught for the social and environmental health of an individual the place to live in and availability of enmities for health social and environmental life. Several Yogic texts may be considered to improve the quality of life. Deeksha P. Shetty et al. (2025) found yoga to enhance Quality of life and suggest as a non-pharmacological approach. Zhengjia Li et al. (2025), concluded effectiveness for improving breast cancer-related fatigue and quality of life in a systematic review and network meta-analysis. M. Salih Tan et al. (2024), randomized control trial on patients with bronchiectasis significantly improved with yoga interventions. Savithri Nilkantham et al. (2025), increase in QOL in patients with hypothyroidism using a scientific yoga module in RCT. There are promiscuous sherds of evidence support yoga as integrative medicine to improve Quality of life as curative approach as well as to sustain health and overcome the ageing related consequences.

Aim of the Research

To evaluate the impact of structured yoga module grounded in Hathayogic texts and yogic micro exercises on the four domains of quality of life (physical, psychological, social, and environmental) to elucidate the psychosomatic mechanisms by which these practices promote holistic health.

Methodology

Independent variables

The study has selected certain SYPs as independent variables, specifically “Jal Neti”, “Kapalbhati”, as elaborated in traditional “Hathayogic” texts, and Dhirendra Brahamchari’s specific Yogic Suksam Vyayam, who was the founder of “Vishwayatan Yoga Ashram”, now referred to as “Morarji Desai National Yoga Institute” in Delhi, India.

Dependent variables

In this research study, quality of life, as defined by the World Health Organisation, was used as a dependent variable. The evaluation of health-related quality of life, encompassing the physical, mental, social, and environmental domains, was conducted using a questionnaire administered to subjects.

Duration of Intervention

Certain yogic exercises were administered to participants for 60 minutes daily for a span of 60 days, excluding weekends and additional days were administered for excluded weekends.

Null hypothesis

Ho1 There will be no significant change in the physical domain of quality of life of adult CoVid-19 survivors.

Ho2 There will be no significant change in the psychological domain of quality of life of adult CoVid-19 survivors.

Ho3 There will be no significant change in the domain of social relationships of quality of life of adult CoVid-19 survivors.

Ho4 There will be no significant change in the environmental domain of quality of life of adult CoVid-19 survivors.

Ho5 There will be no significant change in the quality of life of adult CoVid-19 survivors.

Research Design

In the study, a pre-test-post-test research design was used, which was non-invasive. Baseline data were collected on day 0 of the pre-test, and the SYP intervention began on day one, incorporating "selective cleansing" techniques and "micro-Yogic exercise" ("shuksma vyayam" by Dhirendra Brahmachari Ji). These practices were carried out for more than two months, with sessions lasting 60 minutes each day. On day 60, the post-test data were collected and tabulated. A "paired sample t-test" was used to analyse the data as shapiro-wilk test applied to check the normality of data at both pre and post stages, providing results to determine the effectiveness of the SYP approach.

Procedures

Eighty adults between the ages of 18 and 30 were chosen using the purpose-sampling technique. Informed consent was obtained through Google Forms, and a separate form was used to collect data on common symptoms of previous corona infections, based on the official website of the World Health Organization. On the first day of the intervention, pre-test data on the quality of life of the participants were collected, recorded, and organized for further analysis. Though, this research work is a non-invasive approach and does not take any personal information on the subjects so there was no need for ethical approval. However, information was submitted to institute regarding the research work.

The intervention is planned to last two months plus an additional sixteen days, excluding Saturdays and Sundays and attendance recorded each day before the intervention applied. This timeline will be adhered to during the manipulation of the independent variable, following the intervention schedule outlined for the subjects.

Following the intervention, the post-test sample data were collected, stored and organized into tables. A total of N = 80 participants were included in the analysis. Additionally, the independent variable was manipulated between 1 September and 8 December 2023, within the pre-winter and winter periods, also referred to as Basant and Sharad Ritu in Ayurveda's ritucharaya (seasonal cycle). During the study, the average temperature in northern India ranged from 18 to 19° C. Practices were carried out Monday through Friday, between 9 am and 10 am.

Admissible and elimination criteria

1. The study included adults aged 18 to 30 years from various demographic areas: urban, semi-urban, and rural areas.
2. Smokers and alcoholics were excluded.
3. Participants with diagnosed cardiac disease, hypertension, or those on chronic disease medications were also omitted.
4. Included were individuals who had fever, dry cough, loss of taste or smell, nasal congestion, sore throat, and muscle or joint pain.
5. Participants with symptoms consistent with CoViD-19, as defined by the World Health Organisation, were part of the study.

Table 1

Intervention schedule

Sr. No.	Name of the Independent Variable	Time	Rest time	Total Round	Total Time
1.	Jal Neti	5 min	1 min	1	6 min
2.	Kapalabhati	5 min	1 min	1	6 min
3.	Uccharan shal tatha vishuddhi chakra shudhi kriya	1 min	1 min	3	6 min
4.	Buddhi tatha Dhriti Shakti Vikashak kriya	1 min	1 min	3	6 min
5.	Medha Shakti Vikashak Kriya	1 min	1 min	3	6 min
6.	Griva shakti vikashak kriya –1	1 min	1 min	3	6 min
7.	Skanda tatha bahumool Shakti vikashak kriya	1 min	1 min	3	6 min
8.	Bhujaballi Shakti Vikashak Kriya	1 min	1 min	3	6 min
9.	Vaksha sthal shakti vikashak kriya part 1	1 min	1 min	3	6 min
10.	Vaksha sthal shakti vikashak kriya part 2	1 min	1 min	3	6 min
				Total time	60 min

Table 2

Results

Sr. No.	N	M	SD	r	df	t- value	Significance level (α)
QOL Physical domain	80	Pre-99.6 Post-101.8	15.2 14.5	.998	79	17.1	0.001
QOL Psychological domain	80	Pre-75.5 Post-77.7	16.4 15.8	.995	79	17.5	0.001
QOL Social relation domain	80	Pre-42.2 Post-43.3	8.3 7.9	.993	79	15.6	0.001
QOL Environmental Domain	80	Pre-90.5 Post-91.8	20.1 19.8	.999	79	17.8	0.001
Overall, QOL	80	Pre-308 Post-315	47.8 46.1	.998	79	26.2	0.001

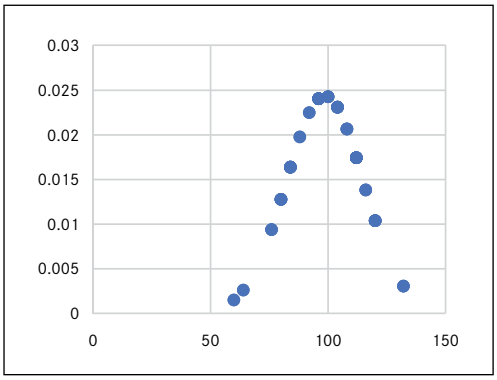

Figure 1 Pre-test Data Distribution of QOL Physical Domain

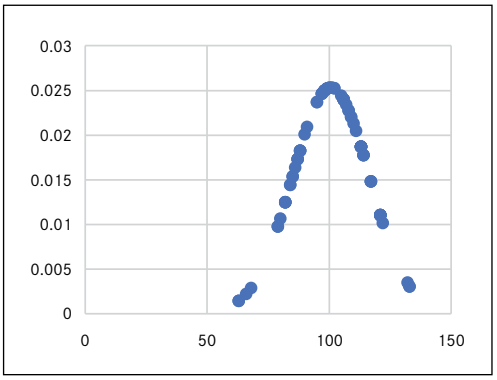

Figure 2 Post-test Data Distribution of QOL Physical Domain

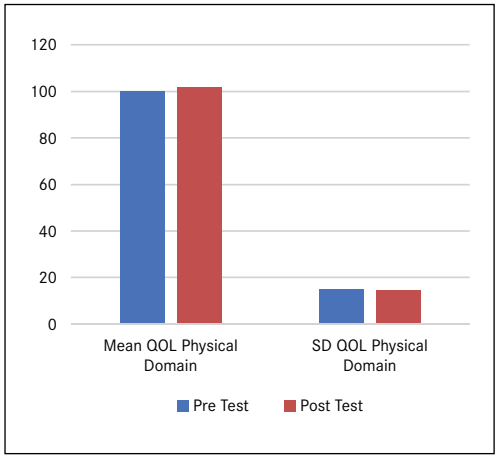

Figure 3 **QOL Physical Domain Mean and SD**

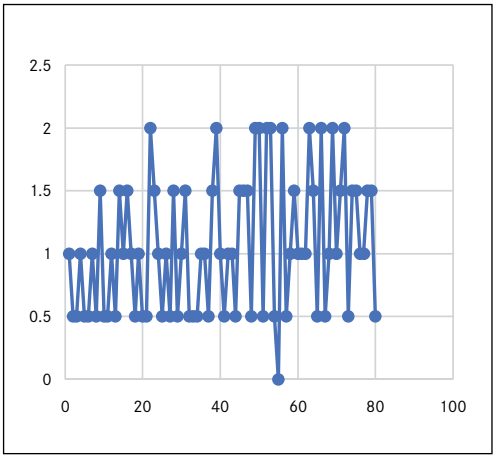

Figure 4 **Standard Error Pre- and Post- Test Data of QOL Physical Domain**

For 60 days, the subjects underwent a specific yoga practice and on the 60th day the data was collected and analysed. Mean (SD) QOL physical domain before yoga intervention 99.6 (15.2) was lower than after the implementation 101.8 (14.5), with statistically significant difference 2.16, 95% TI [1.91–2.41], $t(79) = 17.1$, $p < .001$, $d = 1.91$. The calculated t overcomes the p value which support to reject the null hypothesis.

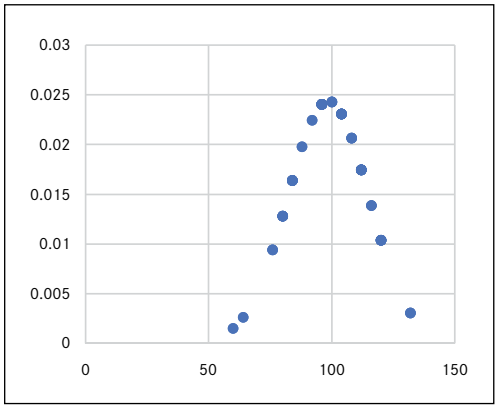

Figure 5 **Pre-test Data Distribution of QOL Psychological Domain**

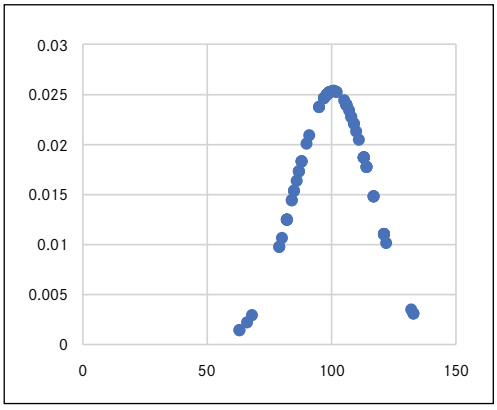

Figure 6 **Post-test Data Distribution of QOL Psychological Domain**

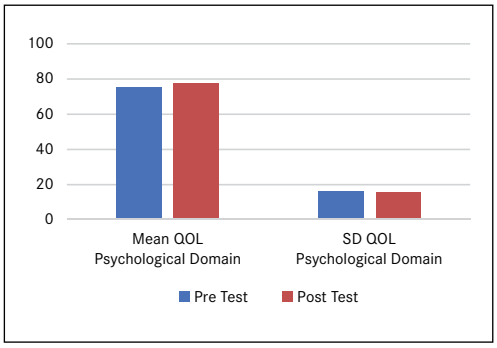

Figure 7 **QOL Psychological Domain Mean and SD**

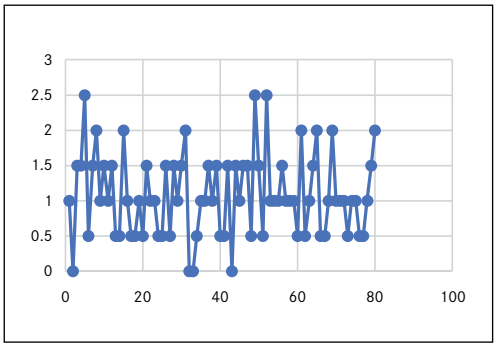

Figure 8 **Standard Error Pre- and Post- Test Data of QOL Psychological Domain**

A specific yogic practice was applied to participants for duration of 60 days, with data collected and analysed on day 60 for a post-test evaluation. Mean (SD) QOL psychological domain before yoga intervention 75.5 (16.4) was lower as compare to after the yogic application 77.7 (15.8), with statistically significant difference 2.17, 95% TI [1.58–2.33], $t(79) = 17.5$, $p < .001$, $d = 1.96$.

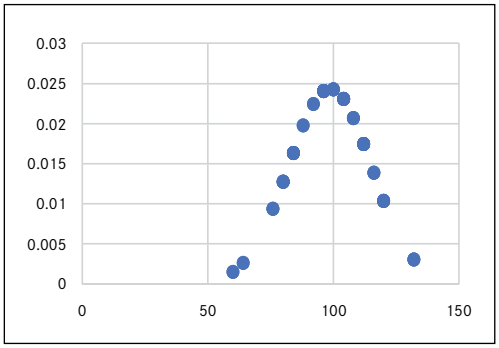

Figure 9 **Pre-Test Data Distribution of QOL Social Relation Domain**

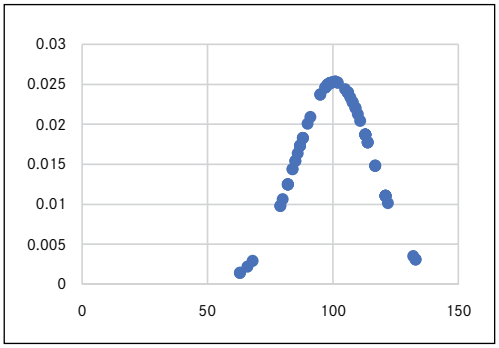

Figure 10 **Post-test Data Distribution of QOL Social Relation Domain**

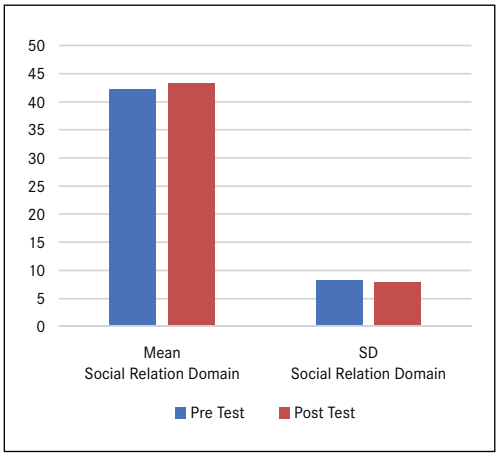

Figure 11 **Mean and SD of QOL Social Relation Domain**

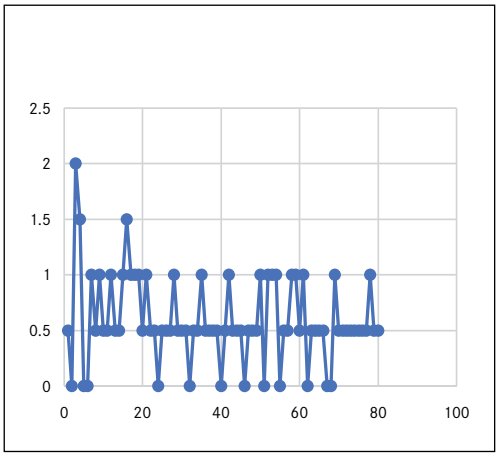

Figure 12 **Standard Error Pre- and Post- Test Data of QOL Social Relation Domain**

For a duration of 60 days, the subjects underwent a specific yogic practice, with evaluations conducted on the 60th day. Initially, Mean (SD) QOL social relation domain before yoga intervention 42.2 (8.30) was lower as compare to after the yogic application 43.3 (7.92), with statistically significant difference 1.13, 95% TI [1.40–2.09], $t(79) = 15.6$, $p < .001$, $d = 1.75$. Based on the result the null hypothesis is rejected.

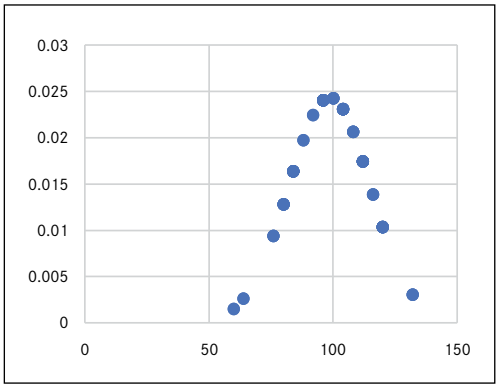

Figure 13 **Pre-test Data Distribution of QOL Environmental Domain**

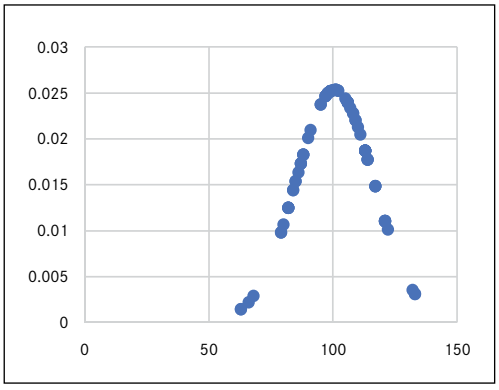

Figure 14 **Post-test Data Distribution of QOL Environmental Domain**

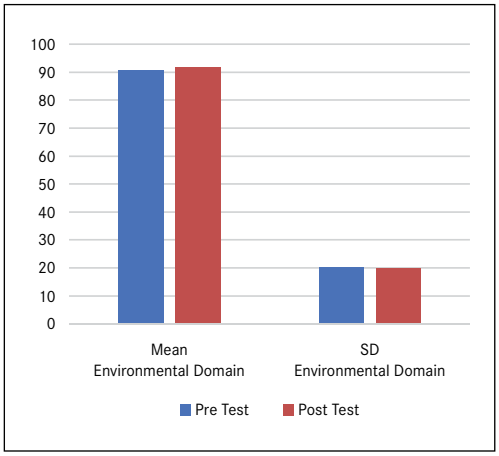

Figure 15 **Mean and SD of QOL Environmental Domain**

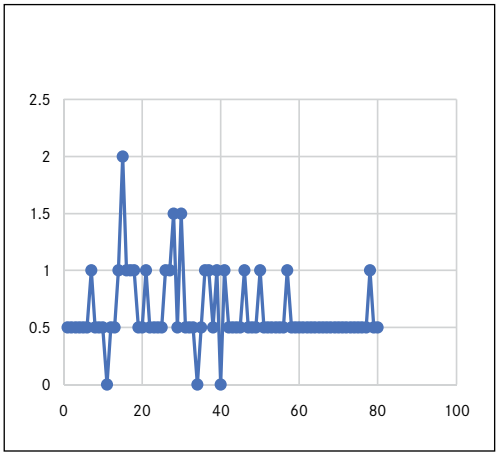

Figure 16 S**tandart Error Pre- and Post- Test Data of QOL Environmental Domain**

For duration of 60 days, the subjects underwent a specific yogic practice and on the last day the collected data were evaluated. Mean (SD) QOL environmental domain prior yoga intervention 90.5 (20.1) was lower as compare to after the yogic application 91.8 (19.8), with statistically significant difference 1.24, 95% TI [1.61–2.37], $t(79) = 17.8$, $p < .001$, $d = 1.99$. The null hypothesis is therefore rejected.

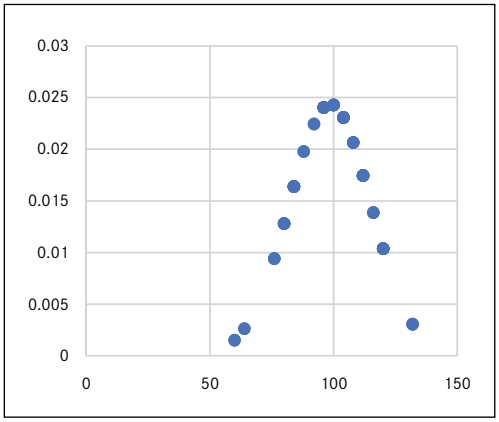

Figure 17 **Pre-test Data Distribution of Quality of Life**

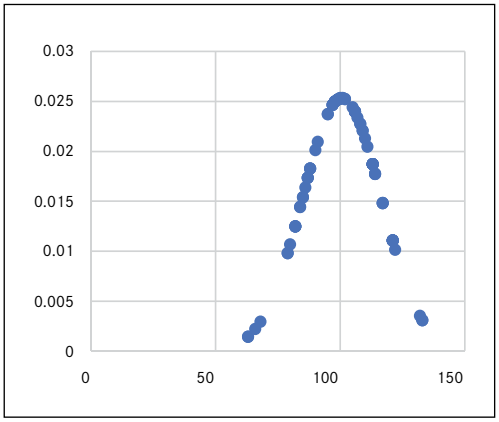

Figure 18 **Post-test Data Distribution of Quality of Life**

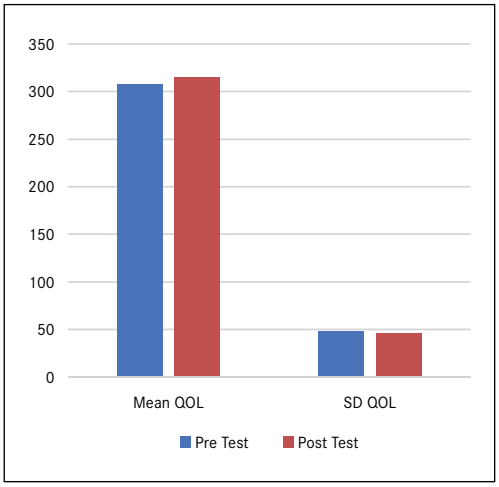

Figure 19 **Mean and SD of Quality of Life**

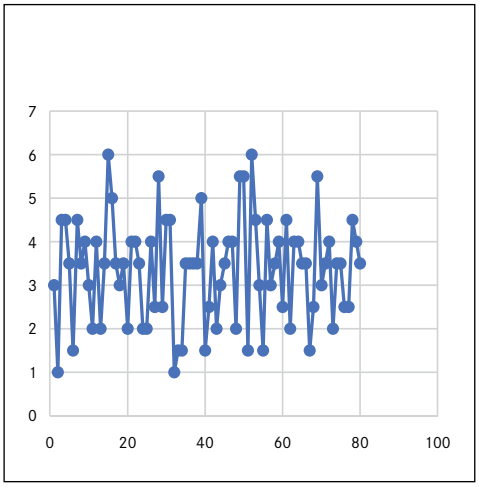

Figure 20 **Standart Error Per- and Post- Test Data of Quality of Life**

Subjects underwent a 60-day yogic intervention involving selected practices, with data collected and statistical analysis performed on day 60. The initial and follow-up Mean (SD) QOL 308 (47.8) and 315(46.1) respectively, with statistically significant difference 6.70, 95% TI [6.19–7.21], $t(79) = 26.2$, $p < .001$, $d = 2.91$.

Data Analysis

To evaluate data before and after the test, paired samples t- test was conducted using Jamovi version 2.6.44, and then the results were analysed.

Discussion and review of the literature

Sridevi Prabhu et al. (2023) from India conducted a systematic review and meta-analysis of randomized controlled trials to evaluate the efficacy of yoga therapy for caregivers of individuals with dementia. Their findings suggested that yoga significantly helps alleviate caregiver stress and improve psychological well-being (95% CI 0.64–0.89, $p < 0.05$). The reduction in stress among these caregivers was significant. Although various yoga traditions have their distinct importance, Patanjali's Yoga Sutras and Hathayoga are the most esteemed texts within the vast array of yogic literature. Patanjali's yoga philosophy is divided into four sections, each offering knowledge relevant to the practitioner's aptitude and interest, with the eight limbs being particularly prominent. Specifically, postures (Asana), breathing exercises (Pranayama), and meditation (Dhyana) are central practices. Postures contribute to stability and address musculoskeletal structures, yet every yogic discipline embraces a holistic approach, indirectly or directly influencing various bodily systems. Breathing exercises involve expanding, regulating, and controlling breath, which methodically enhances the expansion of the chest cavity and other pulmonary functions.

it regulates the autonomic cardiac function. Additionally, breathing practices have potential to manage the hypertension among mild hypertensive subjects, Efficacious meditation manages stress by balancing the hypothalamic-pituitary-adrenal axis and the combination of postures, breathing practices, and meditation that are crucially significant for health and lifestyle-related problems. Mindfulness-Based Stress Reduction (MBSR) is a well-established psychoeducational and skill-oriented treatment that integrates hatha yoga with mindfulness meditation. The Mindfulness component is designed for individuals facing chronic conditions such as depression, anxiety, skin and immune disorders, chronic pain, cancer, diabetes mellitus, and hypertension, as well as those looking to enhance their coping skills and decrease stress. The practice of yoga enhances well-being by reducing stress and enhancing mental health, and it can also serve as a distraction for caregivers of individuals with serious mental illnesses. Yoga provides significant stress relief for caregivers of individuals with schizophrenia, as demonstrated by notable enhancements in their overall quality of life and substantial reductions in total psychological distress mental health component score.vivii M.J. Sangeethalaxmi Alex Hankey (2023) Yoga breathing and relaxation were impacted as an additional therapy on quality of life, anxiety, depression, and lung function in young adults with bronchial asthma , the yoga module included rhythmic abdominal breathing, Vakshasthala Shaktivikasaka kriya, Kapalabhati, Bhastrika, and guided relaxation . Srinivas M et al. (2023) the efficacy of yoga was found to be significant in quality of life in patients with pulmonary tuberculosis in a randomised control trial. Resti Yudhawati and Mariani Rasjid Hs (2019) validate the effect of yoga consisting of postures and breathing practices twice a week for 60 minutes added, Ujjayi, Kaphalabati and Sitkari breathing. In addition, a spiritual focus was introduced to increase the feeling of comfort during meditation. Savasana was chosen as a meditative movement exercise. However, yoga administered twice a week still affected the quality of life of COPD patients. Yoga should be part of life and performed on a regular basis, which may be more effective. J. Amy et al. (2012) demonstrated the effects of ten weeks of yoga training on improving the quality of life of women suffering from asthma. The yoga regimen involved one hour sessions twice a week and included 40 minutes of home practice each day. It integrated breathing techniques, yoga poses, relaxation, and meditation. The study results indicated a notable improvement in the quality of life of the participating women. Gülyeter Erdoan Yüce and Sultan Taşc (2019) reported that pranayama improved asthma management and asthma- related quality of life in individuals with asthma, although no significant change was observed in the pulmonary function test. The exercise of breathing for twenty minutes daily for a month revealed its effectiveness, suggesting that consistent pranayama practice could maintain respiratory health in the long term. The essential elements of Yogic breathing involve controlled and deep breaths and are recommended to promote a healthy lifestyle. Swami Dayananda Saraswati, a sage and founder of Arya Samaj, recommended the daily practice of at least three rounds of nadi shodhana (deep inhalation, holding breath, and managed exhalation) to maintain cardiovascular health. Kandula UR and Wake AD (2021) used the Google Scholar database to assess the quality of life of yoga professionals, acknowledging them as front-line defenders against the CoViD virus. Their findings indicated that quality of life deteriorated

during the pandemic. Yoga and Ayurveda were crucial in addressing stress, anxiety, and other mental health issues arising from the virus outbreak. The meta-analysis conducted by Kuan-Yin Lin et al. (2011) on an online database indicated promising advantages of yoga for cancer patients in enhancing psychological well-being. Ancient yogic texts document the effects on both physiological and psychological health, leading to liberation. In contemporary settings, yoga is believed to foster harmony, increase happiness, and increase productivity in both personal and professional aspects. Tantsura Y et al. (2020) described in their brief communication the impact of the COVID-19 pandemic on the quality of life of families in Ukraine with children with epilepsy. They found that financial instability was a common issue among these families during the pandemic. Additionally, they noted that yoga serves as a cost-effective approach to enhance psychological well-being. The study by Désirée Lötzke et al. (2016) in Germany evaluated the impact of Iyengar-Yoga on women with stage I-III breast cancer as part of adjuvant treatments (Neo), focussing on aspects such as quality of life related to health, mindfulness, spirituality, life satisfaction, and fatigue associated with cancer. The findings indicated that the Yoga Intervention (YI) improves quality of life. YI combines yoga poses with breathing exercises, and Iyengar Yoga is known to use props such as belts, blocks, and ropes to aid practitioners in maintaining the correct alignment of postures.

Conclusions

Quality of life is largely determined by variety of factors, including social, political, economic, and environmentalaspects that are often interrelated; however, these can be managed effectively by individuals in good health. Yoga has shown a therapeutic impact on improving quality of life among adult COVID-19 survivors. SYP is broadly effective in elevating the quality of life for survivors, as yoga benefits health in a comprehensive way, serving as a countermeasure against the viral impact that disrupts quality of life. This yoga module may be recommended as a complementary and alternative medicine to enhance quality of life. Although, More RCT to be conducted to for deep validation of the said selective intervention.

Consent and ethical clearance

Consents were obtained from participants via Google forms; additionally, as this is a non-invasive study, ethical clearance is not required.

Limitation

Diet, lifestyle, and social, cultural, financial, and political contexts all impact the quality of life of the individuals, which could serve as a limitation of this study. Additionally, random variations can affect the findings, since the research was conducted in humans who are subject to genetic and environmental influences. The eating habits and lifestyles of the participants were not regulated, which could have positively impacted the results. In particular, this research was confined to a single city in the central northern part

of central India, although the participants came from a variety of demographic backgrounds. It is important to note that the study population consisted solely of adults and that the sample size was limited to 80 individuals.

Suggestions

Human subjects may vary in age, demographic locations, and socioeconomic conditions, influencing the effectiveness of a specific yogic package in various settings. In addition, factors such as diet or weather might affect the results of the SYP.

Submission statement. *The researcher states that the content detailed within this work has not been previously published (with the exception of abstract form or inclusion in a published lecture or academic thesis). Furthermore, it is not submitted for publication elsewhere, and should it be accepted, it will not be published in any other format, including eletronically, in any language such as Hindi, without the copyright holder's written permission.*

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