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Yoga-based counselling module as an integrated yoga therapy to manage substance use disorder: A developmental and feasibility study

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Abstract

Objective: To develop, validate, and assess the feasibility of an Integrated Yoga Module for Substance Use Disorder (IYMSUD) which includes Yoga-Based Counselling (YBC). **Method:** Phase 1 involves developing IYMSUD through a systematic literature review following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines. Several databases were searched using relevant keywords. Studies were coded and qualitatively analyzed using the inductive thematic approach. Additionally, Yoga experts were interviewed, their input was recorded, transcribed, coded, and qualitatively analyzed to identify themes related to YBC and Substance Use Disorder (SUD). Phase 2 utilized the Delphi method with three iterations involving 17 experts to validate IYMSUD. Items with a Content Validity Ratio (CVR) score of 0.99 and above were retained. In Phase 3, IYMSUD was administered for 8 weeks on 12 participants following a residential 12 step program. **Findings:** After reviewing 24 articles and expert interviews in Phase 1, YBC themes were identified to develop IYMSUD. In Phase 2, IYMSUD, incorporating yoga theory, postures, breathing practices, relaxation, advanced techniques, and YBC, met high-quality standards and was deemed feasible for implementation by the experts. In Phase 3, all yoga participants perceived IYMSUD to be satisfactory, feasible, and culturally appropriate and reported no adverse effects. Significant improvements post-intervention were observed in Body Mass Index ($p < 0.001$), Vedic personality traits ($p = 0.014$), global health ($p = 0.008$), psychological domain ($p = 0.002$), and environmental domain ($p = 0.011$) of quality of life. **Novelty:** This pioneering study empirically integrates yogic counselling into a systematic approach, and shows its validity and feasibility. It could serve as an adjunct treatment for SUD.

Keywords: Addiction; Yoga; Psychology; Yoga-based counseling; Feasibility study

1 Introduction

Substance use disorder (SUD) is a medical condition characterized by the continued use of substances despite significant problems related to health problems, impaired social functioning, and difficulties with responsibilities⁽¹⁾. According to the 2023 World Drug Report, the 2021 global prevalence of drug use is 5.6% and 0.62% of the world population has drug use disorder⁽²⁾.

Common treatments used for SUD are pharmacological intervention, psychosocial intervention, supportive services, and alternative therapies⁽³⁾. Evidence shows that yoga as a form of specialized therapy may play a role in reducing the risk of alcohol and drug use⁽⁴⁾. Existing studies on yoga for SUD focus on physical movement, breathing practices, relaxation, and meditation^{(5) (6)}.

Yoga Based counselling (YBC) is a component within the Integrated Approach to Yoga Therapy (IAYT) which aims at promoting well-being in a holistic approach by correcting the imbalances at physical, mental, and emotional levels⁽⁷⁾. The theoretical basis of YBC is underlined by the psychological traits: sattvic guna (equilibrium), rajasic guna (dynamic), and tamasic guna (inertia), the physical constitution (doshas) as well as the theory of the five levels of existence (pancha kosha model).⁽⁷⁾ These five koshas are annamaya kosha (physical field), pranayama kosha (bioenergy field), mamonaya kosha (mind field), vignanamaya kosha (intellectual layer), and the anandamaya kosha (bliss layer). Imbalances in the gunas or the koshas can cause disruption in an individual's physical and psychological well-being⁽⁷⁾. The goal of YBC is to provide comprehensive care to an individual by utilizing targeted yoga techniques to address each of the five koshas, taking into account their physical and mental makeup⁽⁷⁾.

The present study seeks to address significant research gaps within SUD management, particularly focusing on the potential efficacy of YBC. Current literature predominantly emphasizes theoretical aspects rather than experimental validation, often overlooking the integration of psychological yoga philosophies^(8,9). While some studies explore the integration of yoga in psychotherapy, there is an absence of defined protocols for yogic counselling implementation. Overall, the study aims to contribute to the understanding of effective interventions for SUD by addressing these research gaps. Thus, the primary aim of this study is to develop and validate a Integrated yoga module for SUD (IYMSUD) that integrates physical and YBC components of yoga and test its feasibility for SUD. This individualized plan integrates practices specific to each of the five koshas, such as incorporating dietary changes, performing asanas, practicing pranayama, and engaging in cognitive and behavioral practices that promote self-reflection, mindfulness, and other philosophical concepts rooted in yoga.

2 Methodology

Ethical approval was granted by the Institutional Ethics Committee (IEC) and The National Ethics Committee Decision (Mauritius) and all participants provided informed consent.

2.1 Phase 1: Development of YBC for SUD

The YBC module was developed with a systematic review of yogic literature and an interview with yoga therapy experts.

Literature Review

Our recent systematic review⁽⁷⁾ explored YBC themes related to the management of SUD. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis

guidelines were used. Published articles from inception till August 2021 were identified through Web of Science, Scopus, and MEDLINE/PubMed databases using the Boolean operators (“counseling” [Title/Abstract] OR “psychotherapy” [Title/Abstract] OR (“counsel” [All Fields] OR “counseled” [All Fields] OR “counselings” [All Fields] OR “counselled” [All Fields] OR “counselling” [All Fields] OR “counseling” [MeSH Terms] OR “counseling” [All Fields] OR “counsellings” [All Fields] OR “counsels” [All Fields])) AND (“yoga” [Title/Abstract] OR “yogic” [Title/Abstract] OR “bhagavad gita” [Title/Abstract] OR “Patanjali” [Title/Abstract] OR “ramayana” [Title/Abstract])). The selected articles were coded and qualitatively analyzed using an inductive thematic approach. The first author (A.R.) conducted preliminary open coding, assigning themes and sub-themes. Traditional yoga texts such as Bhagavad Gita, Patanjali Yoga Sutra, Yoga Vashistha, Ramayana, and Upanishads were reviewed for collecting relevant information. These formed the basis for the interview.

Interview of Experts

An online qualitative interview was conducted using a semi-structured interview guide with open-ended questions. Yoga experts with a minimum of 10 years of experience in yoga therapy or a Ph.D. in Yoga were selected. The interviews were audio recorded, transcribed, coded, and qualitatively analyzed. Themes and sub-themes were categorised and repeated themes were combined. The second author (V.R.) reviewed the final list of themes and modifications to the module were made. The themes were categorized into items and divided into eight sessions.

2.2 Phase 2: Validation of YBC for SUD

Delphi Method with three iterations

For the module validation, quantitative and qualitative inputs were gathered from experts after obtaining their informed consent. The quantitative inputs were collected using the Delphi method, an inductive method of inquiry⁽¹⁰⁾. The experts ranked the usefulness of each item and the entire module on a scale of 1 to 3 (1-not necessary, 2-useful but not essential, 3-essential). Based on the responses from the five experts, the module was modified and sent for a second round of validation with six new experts to avoid the primacy effect. A similar process was followed for the third round of iteration with 6 new experts. The data collection was concluded at the third iteration as data saturation was achieved.

2.3 Phase 3: Feasibility testing of newly developed yoga module for SUD

Pilot Study with participants with SUD

In the next phase, a quasi-experimental study was carried out to assess the module as an add-on treatment for SUD. 12 consenting male participants diagnosed with SUD belonging to an 8-week male-only residential rehabilitation center in Mauritius participated in the study. Convenience sampling was adopted and the sample size was determined based on the range given in the systematic review on yoga module development⁽⁵⁾. Previous studies have shown that the minimum sample size required for yoga feasibility testing is 5 participants⁽⁵⁾.

Participants underwent detoxification which involves taking medications to replace the drugs in the body and refraining from taking any other substances. This is often followed by the withdrawal phase. Once withdrawal was managed, participants were allotted to the residential program. The rehabilitation center adopted the 12-step Program as an addiction recovery approach. A trained psychiatrist diagnosed the participants using DSM-V-TR criteria. The intervention was taught by a Registered Psychologist who is also a yoga therapist. Individuals between 18 to 40 years old with mild, moderate, or severe SUD were eligible to participate. Only participants who have not practiced yoga in the past were considered. Those with psychotic disorders, acute withdrawal symptoms, chronic neurological issues, recent surgery, or suicidal ideations were excluded from the study. At the end of each session, participants were asked to give their feedback by rating the session on a scale of 1 to 5 to indicate the level of satisfaction with the intervention (1 being least feasible and 5 most feasible). Data was collected pre-intervention and post-intervention.

Two modules were integrated for the intervention. The authors have previously developed the Yoga Module for SUD⁽⁵⁾ which focuses on physical practices while the YBC module for SUD focuses on the counselling aspect. These two modules were combined to form the Integrated Yoga Module for SUD (IYMSUD). IYMSUD was carried out two days/week for eight weeks. The first day consisted of one hour of physical practice and on the second day one hour of counselling was delivered. IYMSUD was taught as an add-on to their Treatment as Usual (TAU) which involves the 12-step Method. Throughout the TAU program, participants attended regular meetings and worked with a sponsor or mentor to support their recovery journey. The add-on IYMSUD program was designed to guide individuals through a series of steps toward recovery from addiction through yogic principles, personal accountability, and support from a community of peers.

Table 1. Yoga Module Development and Validation Checklist⁽¹¹⁾

Domain	Item number	Checklist items	Reported: Yes or No
Yoga module development	1	Traditional literature review	Yes
	2	Scientific literature review	Yes
	3	Dose, frequency, and duration of intervention	Yes
	4	Involvement of experts, clinicians, and participants in the development phase	Yes
	5	Yoga practice sequence	Yes
	6	Customization of practices	Yes
	7	Instructor qualification	Yes
	8	Reporting adverse effect	Yes
	9	Home practice details	Yes
	10	Involvement of stakeholders	No
Yoga module validation	11	Professional eligibility of experts	Yes
	12	Diversity of experts	Yes
	13	Details of the items provided to experts	No
	14	Involvement of stakeholders	No
	15	Expert content validation	Yes
	16	Group discussion	No
	17	Use of case vignettes	No
	18	Statistical procedure for item retention	Yes
	19	Modifications made after validation	Yes
	20	Feasibility phase done	Yes
Yoga module feasibility	21	Measurement of intervention fidelity	Yes
	22	Feedback from participants	Yes
	23	Outcome domain	Yes
Total (Quality)			18 (High Quality)

2.4 Assessment and statistical analysis

The quality of the research was assessed based on the Yoga Module Development and Validation Checklist⁽¹¹⁾ (Table 1). Participants' blood pressure, Body Mass Index (BMI), respiratory rate, and brhamari time (exhalation with bee-sound) were taken. All assessments were implemented in French, as all participants were French speakers. The Vedic Personality of participants was assessed using the Gita Inventory of guna Personality, a standardised psychological tool that measures the three Gunas with a test-retest reliability of 0.60.⁽¹²⁾ The Questionnaire de motivation au traitement des toxicomanies (QMTT) (Motivation to seek treatment questionnaire)⁽¹³⁾ assesses amotivation, external motivation, introjected motivation, and identified motivation. It has satisfactory psychometric properties with alpha ranging from 0.62-0.75.⁽¹³⁾ The World Health Organization Quality of Life BREF (WHOQoL-BREF) which assesses physical, psychological, social relationships and the environment health was administered. The French version of this scale has an internal consistency ranging from alpha=0.59 to 0.74.⁽¹⁴⁾ All these measures were administered at baseline, and all but QMTT were taken at post-intervention.

The module development involved the use of an inductive thematic approach to summarise the interviews of experts. The first author, A.R., did a preliminary open coding of the transcript, and common themes and subthemes were established. For the module validation, a CVR cut-off score of 0.99 based on the number of experts was computed for each item of the yoga module: CVR was 0.99 for 5 and 6 numbers of experts⁽¹⁵⁾. For the feasibility study, since the data was normally distributed, the Student's t-test was carried out. The demographic data and drug history were analyzed with descriptive statistics.

3 Results and Discussion

3.1 Phase 1: Development of YBC for SUD

Twenty-four articles were assessed in the systematic review and five themes on YBC emerged: the theoretical foundation of YBC, integrating yogic counselling in psychotherapy, stages of counselling, ethical consideration, and precautions to be followed during YBC sessions. These formed the basis for the interview of experts to develop the YBC module for SUD.

After the interview with the experts, another set of themes emerged, namely: the practical application of YBC for SUD, yoga theory sessions for SUD, relevant Indian literature anecdotes of YBC and SUD, practices to include and exclude in the YBC for SUD, possible ethical issues, integrated approach of yoga and SUD. Based on the expert's input, eight sessions were designed to incorporate YBC techniques for SUD rehabilitation. These eight sessions were divided into the theoretical explanation of the YBC technique and its corresponding activities (**Appendix 1**-please refer supplementary document).

All experts interviewed had more than ten years of experience in yoga therapy. They belonged to diverse schools of yoga, namely Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), National Institute of Mental Health and Neuroscience, Art of Living, and Krishnamacharya Yoga Mandiram. Five out of the six experts had a Ph.D. doctorate in the field of yoga, psychology, or philosophy and one interviewee had more than twenty-five years of experience in teaching yoga philosophy.

3.2 Phase 2: Validation of YBC for SUD

To assess the validity of the module, 36 experts from the fields of psychology, psychiatry, rehabilitation, and yoga therapy were contacted, out of which, 17 completed the module validation. They had on average 18.2 (\pm 9.3) years of experience. Five experts participated in the first iteration and six in the second and third iterations respectively. Items with a CVR score lower than 0.99 were modified based on the comments of the experts. During the first iteration sessions, 5 items scored a CVR Score of less than 0.99 and were modified. During the second iteration sessions, 3 items had a CVR score of 0.67 and were modified for the next iteration. In the third round of iteration, saturation was reached with all items scoring a CVR of 1. The duration of a session ranged from 60 mins to 90 mins and experts suggested not to have more than one session per week. This allows ample time to reflect upon what has been discussed and apply the changes. Most experts suggested the practice of asanas, pranayama, and meditation as a separate session, before the counselling sessions. Daily diary writing, follow-up after rehabilitation with monthly meetings, and family support and counselling were suggested by the experts. Another suggestion was to divide the YBC sessions into 12 shorter sessions instead of the original 8 sessions. The experts suggested that the physical and psychological practice (YBC) sessions should be carried out on separate days to avoid physical and mental strain. This study scored 18 out of 23 on the checklist for assessing yoga module quality, indicating the high quality of the module Table 1.⁽¹¹⁾

3.3 Phase 3: Feasibility testing of IYMSUD

The feasibility of the module was assessed with 12 participants with an average of 11.8 (\pm 6.6) years of substance use. According to the psychiatrist's diagnosis, all participants suffered from severe SUD. Participant's socio-demographic details and history of addiction Table 2 showed that 66.7% of participants from poly-substance use, and had one primary substance of abuse which was heroin (91.7%). All participants were yoga naïve.

Table 2. Demographic details of 12 male participants in the feasibility study

Age	Marital Status	Duration of addiction	Prior Treatment for addiction	Primary Drug Use	Polysubstance use (excluding cigarettes)
18-29 years- 66.7%	Married-8.3%	6 months – 10 years 41.70%	Government Institution- 8.30%	Opioid-91.7%	66.70%
30-40 years- 25%	Unmarried- 66.7%	11-20 years 50%	Private Institution – 33.30%	Synthetic Drug- 8.30%	
>41 years 8.3%	Divorced- 16.7%	21-30 years 8.30%	Same Rehabilitation Center-8.30%		
	Separated-8.3%	31 years > 0%	None- 50%		

The IYMSUD was well-received by participants having SUD and there were no dropouts. The module was shown to be feasible as most of the participants rated the intervention as 5 (Mean 4.79) on a feasibility feedback scale of 1 to 5, where five is the most feasible. None of the participants reported any adverse effects caused by the practice of the module and found the

module safe and culturally appropriate.

The scores on the Gita Inventory of Personality showed that the dominant personality before the IYMSUD intervention was *tamas* (lethargic) predominant with a mean and SD of 23.2 ± 4.5 . Post-intervention, the dominant personality was *rajas* (active) with a mean and SD of 26.3 ± 3 . The percentage change in dominant personality pre and post-intervention is 13.25% and with a statistical significance of ($p=0.014$). On the WHOQoL-BREF score, statistically significant differences between the two timestamps were noted in psychological ($p=0.002$), environmental ($p=0.011$), global quality of life ($p<0.001$), and global health ($p=0.008$) domains. No statistical significance was noted in physical and social health. Participants rated the sessions on a scale of 1-5, with 1 being the least doable and 5 the most doable with a mean and SD of 4.8 ± 0.4 . The mean \pm SD for BMI was 19.9 ± 2.9 at the baseline and 21.5 ± 3.3 after the intervention with a statistical difference of $p<0.001$, suggesting potential improvement in physical health. Table 3 participants also reported that the module was culturally appropriate to them and that they were comfortable with the practices. They reported the feasibility of the yoga intervention and reported no adverse effects. They all expressed their willingness to continue yoga practices at home.

Table 3. Anthropometry, Vedic personality trait, and Quality of Life (pre and post-intervention) for the yoga participants (N=12) analyzed using the Student's t-test

Variables	Pre-intervention Mean \pm SD Pre	Post-intervention Mean \pm SD Post	t- value	p- value	Cohen's d (95% Confidence Interval)
BMI	19.9 ± 2.9	21.5 ± 3.3	5.417	<0.001	1.56 (0.69 to 2.41)
Respiration Rate	13.8 ± 3.8	11.6 ± 3.4	-1.431	0.18	-0.41 (-0.99 to 0.19)
Bhramari time	10.2 ± 3.7	11.2 ± 4.4	0.713	0.491	0.21 (-0.37 to 0.77)
GIN - Vedic Personality (Total Score)	23.2 ± 4.5	26.3 ± 3	2.923	0.014	0.84 (0.17 to 1.49)
WHOQOL-BREF Global QOL	2 ± 0.7	3.8 ± 0.6	8.848	<0.001	2.55 (1.35 to 3.73)
WHOQOL-BREF Global Health	3.1 ± 1.2	4.2 ± 0.6	3.223	0.008	0.93 (0.23 to 1.6)
WHOQOL-BREF Physical Health	70.5 ± 16.9	80.6 ± 13.9	2.148	0.55	0.62 (-0.01 to 1.23)
WHOQOL-BREF Psychological Health	54.2 ± 16.1	74 ± 10.7	3.96	0.002	1.14 (0.39 to 1.86)
WHOQOL-BREF Social Health	66.7 ± 23.9	74.8 ± 12.9	1.299	0.22	0.37 (-0.22 to 0.95)
WHOQOL-BREF Environmental Health	51.2 ± 19.8	70.8 ± 13.1	3.057	0.011	0.88 (0.19 to 1.54)

Integrated Yoga Module for Substance Use Disorder (IYMSUD)

This is the first study to take YBC a step further from theory by systematically developing a module based on YBC and empirically assessing its feasibility. IYMSUD is the proposed model used to manage SUD as an add-on treatment (**Appendix 1** - please refer supplementary document) consisting of 8-week-long sessions. In terms of developmental accuracy, when compared to previous yoga module studies, IYMSUD has a high methodological quality.⁽¹¹⁾ The methodology combines a thorough systematic review with expert interviews, providing a robust foundation for the development of our YBC module. This approach surpasses previous studies which either focus on the theoretical application of yogic counselling or the integration of conventional psychological techniques⁽⁹⁾. Moreover, the study integrates theoretical frameworks and practices to manage symptoms for a specific mental disorder, namely SUD, as compared to previous studies that generalize the application of yogic counselling. YBC literature highlights the relationship between the pancha kosha model and YBC⁽⁷⁾ and this study successfully integrates different advanced yoga techniques tailored specifically to SUD to target imbalances in pancha koshas. (Figure 1) Similar to a previous yoga module study⁽¹⁰⁾, therapists can modify IYMSUD as per the participants' needs while adhering to the core concept of the module.

In line with previous studies that assessed the practicality of a yoga module⁽¹¹⁾, IYMSUD has been proven to be feasible with majority of the participant's feedback at the end of the intervention, as well as with the lack of dropout and adverse effect of the module. Participants had no difficulty during the intervention and had the intention to further implement what was learned. Changes in participants' scores show the positive impact that the IYMSUD had in the management of SUD. All participants' baseline data showed that their motivation to seek treatment was positive. This may have influenced the positive outcome of

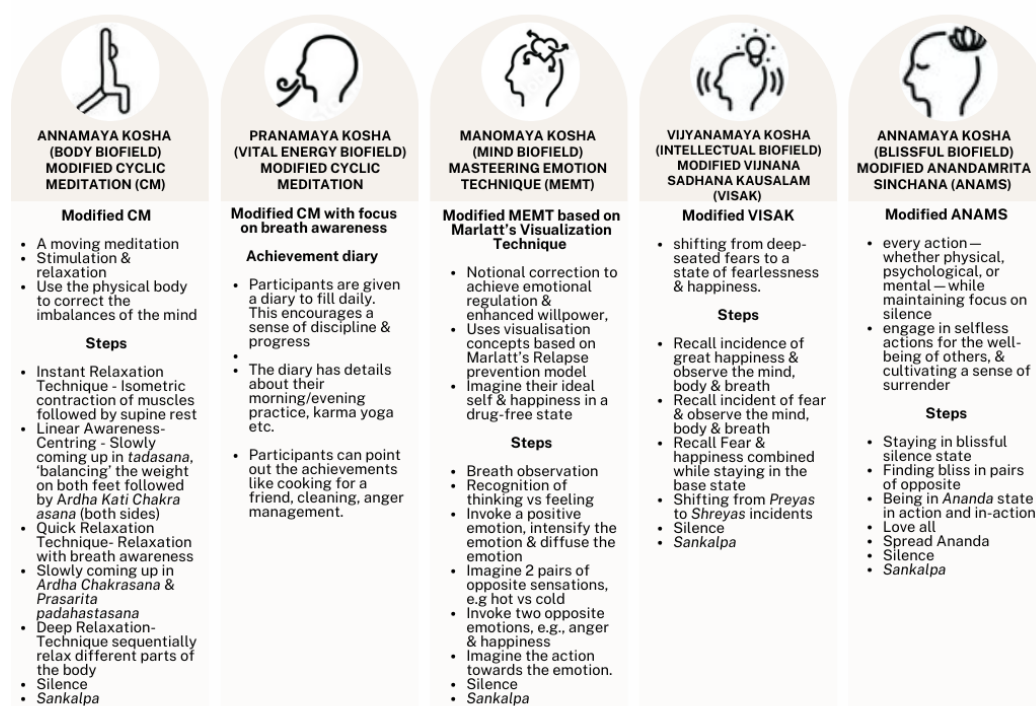


Fig 1. Advanced Yoga Technique for Substance Use Disorder

IYMSUD since a positive score indicates an internalized motivation whereas a negative score reflects externalized motivation or amotivation⁽¹³⁾. With the IYMSUD intervention, a shift from *tamas* to *rajas* was noted in the majority of participants. *Rajas* personality trait is related to an action-oriented attitude, passion, high energy, and drive.⁽¹⁶⁾ This can be associated with the drive to be drug-free. Based on the predominant personality trait of the participant, the YBC activities can be altered in order to reach the state of balanced *guna*⁽¹⁷⁾ Compared to previous studies which showed the relationship between *rajas* and low life satisfaction⁽¹⁷⁾, our study differs whereby IYMSUD created a shift from *tamas* to *rajas* as well as a positive shift in their global quality of life and psychological health. At the end of each session, most participants mentioned that they felt positive, relaxed, and optimistic about fighting the urge to take drugs. This can be associated with the change in their psychological well-being. This aligns with previous studies suggesting that yoga can serve as an effective adjunct intervention in managing SUD.^(6,18) The IYMSUD intervention underscores its favorable impact on participants' overall health which is consistent with prior research elucidating how integrated yoga interventions enhance mental well-being by improving mood regulation, cognitive function, and emotional resilience across diverse adult cohorts.⁽¹⁹⁾

4 Conclusion

This study validates an integrated yoga module, including standardized Yoga-Based Counselling (YBC), for patients with Substance Use Disorder (SUD). Results show safety, feasibility, participant interest in yoga, and improved quality of life. This highlights the potential of yoga-based approaches in enhancing SUD treatment. The study's limitations include a small sample size and reliance on self-reported abstinence, lacking tests to assess drug levels. Enhancements to the yoga module development could involve incorporating case vignettes, engaging stakeholders, and facilitating group discussions. Long-term follow-up post-discharge to evaluate behavior and relapse was not included. To address these limitations, a two-group randomized controlled trial with adequate sample size and long-term follow-up is planned. Future randomized clinical trials will assess the module's efficacy. Additionally, further research can delve into developing yoga-based counselling for various mental disabilities.

Ethical Approval

This study has received ethical approval from the Institutional Ethics Committee (IEC) of Swami Vivekananda Yoga Anusandhana Samsthana (Deemed-to-be University under Section 3 of UGC Act,1956) and The National Ethics Committee Decision – Republic of Mauritius, Ministry of Health and Wellness.

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