

Effect of Cyclic Meditation on Quality of Life and Sleep Quality in Adolescents: A 21-Day Intervention Study

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Abstract

Background: Adolescence is an important stage of growth marked by physical, psychological, and social changes. These changes often disturb sleep patterns and overall quality of life. Cyclic Meditation (CM), a yoga practice that combines physical activity and relaxation, may help regulate the autonomic nervous system. However, there is limited research on its effects in adolescents.

Objective: To study the impact of a 21-day Cyclic Meditation program (45 minutes daily) on the World Health Organization Quality of Life scale (WHOQOL-BREF) and the Pittsburgh Sleep Quality Index (PSQI) among adolescents aged 13–18 years.

Methods: A randomized controlled trial was conducted with 80 healthy adolescents. They were divided into two groups: intervention (n=40) and control (n=40). The intervention group practiced Cyclic Meditation daily for 21 days, while the control group continued their normal routine. Assessments were done at baseline (Day 0) and after the program (Day 21).

Results: After 21 days, the meditation group showed significant improvement ($p < 0.001$) in all four WHOQOL-BREF domains (physical, psychological, social, and environmental) and a large reduction in PSQI scores, showing better sleep quality compared to the control group.

Conclusion: A 21-day Cyclic Meditation program is an effective, drug-free, and school-friendly way to improve sleep and overall quality of life in adolescents.

Keywords: Cyclic Meditation, Yoga, Adolescents, Sleep Quality, Quality of Life, WHOQOL-BREF, PSQI

I. Introduction

Adolescence is a period of biological, cognitive, and emotional development. During this stage, academic demands, screen exposure, irregular routines, and lifestyle challenges may affect sleep and psychological well-being. Inadequate sleep is associated with attention difficulties, emotional disturbances, impaired functioning, and poorer academic performance; promoting sleep and psychological well-being is a public health concern.

Although psychological and pharmacological approaches may address sleep and stress-related difficulties, interest in non-pharmacological mind-body approaches promoting adolescent well-being is increasing. Yoga-based practices show psychophysiological effects.

Cyclic Meditation (CM), developed at S-VYASA and derived from principles described in traditional yoga texts, combines slow, deliberate yoga postures with periods of deep relaxation in Shavasana (Nagendra & Nagarathna, 2006). Unlike practices involving predominantly static meditation, CM incorporates alternating phases of physical stimulation and relaxation, which may contribute to psychophysiological balance and reductions in stress and anxiety (Sarang & Telles, 2009; Ningthoujam et al., 2021). Previous research on yoga-based interventions has also reported beneficial effects on physiological markers of stress, including cortisol regulation (Raghavendra et al., 2009). However, evidence specifically examining the effects of structured Cyclic Meditation on sleep quality and quality of life among adolescents remains limited.

Earlier studies suggest Cyclic Meditation may benefit psychological and quality-of-life outcomes in adolescents. Kumari and Ghosh (2015), studying adolescent girls, reported improvements in quality of life and reduced perceived stress after a one-month Cyclic Meditation programme. However, investigation of structured, short-duration CM programmes and their effects on sleep and quality of life in adolescents is needed. Therefore, the study examined a 21-day Cyclic Meditation programme's effects on sleep quality and quality of life among adolescents.

II. Materials and Methods

In the current study pre-test-post- test-controlled group design used with purposive sampling method. Total sample of Eighty school-going adolescents (N=80) were selected from secondary schools those who fulfilled the inclusion criteria of: age range 13-18 years, of both genders, given their written assent, whose parents given their consent, students scored ≥ 3 on GHQ, comprehends Hindi and English, and willing to participate Samples were excluded based on criteria severe mental/neurological disorders, regular practice of yoga/meditation in past 6 months, physical injuries preventing yoga. Participants were randomly divided into two groups: including intervention group (n=40) which has received Cyclic Meditation as intervention for 45 minutes for 21 days and the Control Group (n=40) who continued normal routine.

Psychometric Tools

- **General Health Questionnaire (GHQ-12)**- In 1972, David Goldberg created a 12-item version to identify distress or issues among adolescents. Scoring followed the 0-0-1-1 method, with a cut-off of 3; adolescents below threshold were included. (Gautam, Nijhawan, & Kamal, 1987).
- **World Health Organisation Quality of Life BREF(WHOQOL-BREF)** - The WHOQOL-BREF, a 26-question tool by WHO, assesses quality of life across four domains. It takes 5 to 10 minutes, uses 5-point responses, and adjusts scores to a 0 to 100 scale (The WHOQOL Group, 1998; World Health Organization, 1996).
- **Pittsburgh Sleep Quality Index-Hindi Version (PSQI-H)**- The Pittsburgh Sleep Quality Index–Hindi (PSQI-H) adapts the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality and month-long disturbances. Developed in 1989, seven 0–3-rated components yield a 0–21 global score; administration takes 5 to 10 minutes (Buysse et al., 1989; Kumar et al., 2021).

Intervention Package Description

The intervention was conducted daily from 6:00–7:00 AM with participants of intervention group. Total 12-15 session were carried for 21 days. The session was modified and planned in following ways:

1. Centering and prayer (5 min)
2. Slow stretching and postures (20 min) — e.g., Ardhakatchakrasana, Padahasthasana, Trikonasana, Vrikshasana
3. Deep relaxation in Shavasana with guided imagery (20 min).

Statistical Analysis

Data was analysed using SPSS v26. The Shapiro-Wilk test was used to check the normality of data. Thereafter, Independent t-test was used to compare pre-intervention and post-intervention data. The data were then analysed at significance level: $p \leq 0.05$.

III. Results

After the analysis of results, it was observed that at baseline level, no statistically significant difference was observed between the intervention and control groups, indicating comparability of the groups before the intervention ($p > 0.05$). After completion of 21 days of intervention using Cyclic Meditation, the intervention group showed statistically significant improvements across all four the domains of the WHOQOL-BREF following the intervention. The mean score increased from 52.40 to 68.85 in physical health domain, from 49.80 to 66.79 in the psychological health domain, from 55.60 to 71.20 in the social relationship domain and from 58.10 to 70.50 in environment domain ($p < 0.001$) at post- intervention. These findings indicate significant improvements in physical health, psychological health, social relationship, and environmental quality of life following the intervention. Also, there was statistically significant changes in sleep quality of the intervention group, with the mean PSQI score decreasing from 8.95 at baseline to 4.10 following the intervention ($p < 0.001$), indicating an improvement in sleep quality. In contrast, the control group did not demonstrate statistically significant changes in quality of life or sleep quality during the study period.

Table 1. Comparison of WHOQOL-BREF Domain Scores Between Intervention and Control Groups at Baseline and Post-Intervention

WHOQOL-BREF Domain	Intervention Baseline Mean $\pm$ SD	Control Baseline Mean $\pm$ SD	Baseline t	df	p	Intervention Post Mean $\pm$ SD	Control Post Mean $\pm$ SD	Post t	df	p
Physical Health	52.40 $\pm$ 6.12	53.10 $\pm$ 5.94	-0.52	78	.605	68.85 $\pm$ 5.43	54.02 $\pm$ 6.10	11.48	78	<.001*
Psychological Health	49.80 $\pm$ 7.15	50.25 $\pm$ 6.80	-0.29	78	.774	66.40 $\pm$ 6.22	51.10 $\pm$ 6.95	10.37	78	<.001*
Social Relationships	55.60 $\pm$ 8.20	54.90 $\pm$ 7.95	0.39	78	.699	71.20 $\pm$ 6.45	55.30 $\pm$ 8.12	9.70	78	<.001*

Environmental	58.10 ± 6.40	57.95 ± 6.65	0.10	78	.918	70.50 ± 5.80	58.40 ± 6.50	8.78	78	<.001*
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Note. Values are presented as Mean ± SD. Independent-samples *t*-test was used to compare the intervention and control groups at baseline and post-intervention. *p* < .05 was considered statistically significant. **p* < .001.

Table 2. Comparison of PSQI Scores Between Intervention and Control Groups at Baseline and Post-Intervention

Measure	Intervention Group Baseline (Mean ± SD)	Control Group Baseline (Mean ± SD)	Baseline <i>t</i>	df	Baseline <i>p</i>	Intervention Group Post-Intervention (Mean ± SD)	Control Group Post-Intervention (Mean ± SD)	Post-Intervention <i>t</i>	df	Post-Intervention <i>p</i>
PSQI	8.95 ± 1.82	8.80 ± 1.75	0.38	78	0.708	4.10 ± 1.15	8.65 ± 1.80	-13.47	78	<0.001*

Note. Values are presented as Mean ± SD. Independent-samples *t*-test was used to compare the intervention and control groups at baseline and post-intervention. *p* < .05 was considered statistically significant. *PSQI = Pittsburgh Sleep Quality Index. A lower PSQI score indicates better sleep quality.

IV. Discussion

The present findings suggest that Cyclic Meditation may positively influence sleep quality and perceived quality of life among adolescents. The unique method of “stimulation followed by relaxation” helps release physical tension, calm the nervous system, and lower stress hormones. Better sleep leads to improved physical health (less fatigue, more energy), better psychological health (less anxiety, better mood), stronger social relationships, and a more positive outlook on the environment. The improvement across the four domains of WHOQOL-BREF may be related to the combined nature of Cyclic Meditation, which integrates physical stimulation with periods of relaxation and may support both physical and psychological well-being. These findings are consistent with previous evidence indicating beneficial effects of Cyclic Meditation on sleep quality. Boopalan et al. (2024), in a review of five studies, reported that Cyclic Meditation was associated with improved sleep quality. Similarly, Paranthatta et al. (2024) reported significant improvement in sleep quality following 45 minutes of daily Cyclic Meditation for three weeks, with no comparable improvement in the control group. The present findings are therefore broadly consistent with earlier research and suggest that regular practice of Cyclic Meditation may contribute to better sleep and overall perceived well-being.

V. Implications and Future Directions

Future studies may examine the long-term effect of cyclic meditation in improvement on sleep quality and quality of life using extended follow-up periods, such as 6 months or 1 year, to determine the sustainability of the observed benefits. Regular follow-up assessments may also help to determine whether continued practice is required to maintain these effects. Future research incorporating physiological and neurological measures, such as cortisol levels, autonomic functioning, and brain activity, may help clarify the underlying mechanism through which cyclic meditation may influence sleep and overall well-being.

VI. Limitations

The research was conducted with a particular group of school-going adolescents, which might constrain the generalizability of the study's results to a broader population. Furthermore, the limited scope of the intervention and the lack of follow-up periods hinder conclusions about the long-term sustainability of Cyclic Meditation. The use of self-report measures could have led to response bias. Additionally, elements such as family environment, lifestyle, and social support were not completely controlled and might have also impacted the outcomes of this study.

VII. Conclusion

The present study suggests that a 21-day Cyclic Meditation program can bring clear benefits to adolescents. It may be effective in improving sleep quality, and perceived quality of life among adolescents. Significant improvements across the physical, psychological, social and environmental domains indicate a positive effect on multiple aspects of well-being. These findings support the potential of cyclic Meditation as a simple, feasible, and easy to practice in schools, and promoting adolescents' health and well-being.

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