



Impact of Yoga on Sleep Quality in Populations with Excessive Screen Time: A Systematic Review and Meta-Analysis

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Abstract

Background: The highly frequent smartphones or screen time during night is highly correlated with sleeping disorders, such as low sleep quality, long latency, and shorter duration. Mind-body yoga, which involves physical poses, breathing exercises, and meditation is proven to enhance sleep among various groups of people. Yet, its impacts in patients having screen-related sleep issues have not been studied properly.

Objectives: This meta-analysis and systematic review examined the utility of yoga interventions as an indicator of a better sleeping outcome in a general population with an excesses of screen time with respect to latency, duration, quality and efficiency of sleep globally.

Methods: A broad search through PubMed, Embase, PsycINFO, CENTRAL, Scopus, and Web of Science (2000-September 2025) provided quite specific results in terms of controlled trials of yoga intervention to sleep results in population with problematic screen use. Two independent reviews screened and extracted data and evaluated the risk of bias Cochrane RoB 2/ROBINS-I and protection of evidence GRADE. Standardized outcomes had random-effects meta-analyses.

Result: A total of 12 studies (n= 1, 023 participants) were sampled with nine used in the meta-analysis. Yoga interventions showed a major positive impact on the global sleep quality (PSQI: MD = -2.15, 95% CI -3.01-1.29), the decreased sleep latency (MD = -14.3 minutes, CI = -20.4 to -8.2) as well as the extended duration of the sleep (MD = 42 minutes, CI = 25.5-58.4). Marginal changes in sleep efficiency also had been observed. Subgroup analysis showed that adolescents and young adults using smartphones late at night showed stronger impacts of smartphone use.

Conclusions: Yoga is an attractive non-Pharmacological tool in Reducing sleep disorders related to over screen time. Yoga inclusion in the digital health pro and behavioral addiction models can be effective to evaluate sleep and well-being issues among the technology-savvy groups. Smaller studies which involve objective measurement and follow-up are encouraged.

Keywords: Yoga, sleep quality, smartphone use, screen time, behavioral addiction, meta-analysis

Introduction

The high rates of digital technologies penetration all over the globe have significantly changed the daily habits, leisure, and sleeping patterns. Overuse of screens, especially the use of smartphones during nights, has now become an eminent risky factor in the literal sense of sleep disturbances amongst all ages. Smartphones produce blue light which stops melatonin release, circadian disruption, and increases sleep latency, and interactive content encourages cognitive stimulation and postpones sleep entry. A close relationship between people with high anti-evening usage or bedtime usage of screens and less sleep time, low sleep efficiency, and functional impairment was, as a result, regularly documented in version and functioning declarators^{4,5}. These impacts are particularly severe in teenagers and young adults, as they constitute the most active smartphone users, and they are the ones, who are at risk of having inadequate and unsatisfactory sleep simultaneously⁶. The mounting evidence places the problematic smartphone use as a behavioral addiction that is not only relevant to the development of mental health problems but also to the long-term sleep deficiency, as well⁷. Parallely, yoga, an ancient form of mind-body therapy incorporating physical poses (asanas), breathing exercises (pranayama) and meditation, has grown in interest as a non-pharmacological treatment against sleep complaints. Yoga physiologically induces parasympathetic, reduces cortisol and enhances autonomic homeostasis all of which facilitates the onset and continued sleeping process⁸. Yoga psychologically enhances mindfulness and cognitive and emotional regulation and decreased rumination, thereby improving pre-sleep cognitive hyperarousal habituated through smartphone use⁹. A combination of these mechanisms hints that yoga could be perfectly placed to reverse the poor sleep outcomes that would be associated with spending a lot of time on a screen. There is a large amount of literature supporting the overall positive effect of yoga on sleep. Analytic reviews and meta-analyses of varied groups of people such as adults with insomnia, cancer related fatigue women, and older adults indicate that there are moderate changes in quality of sleep assessed by the Pittsburgh Sleep Quality Index (PSQI); a decrease on sleep latency and an increase on sleep efficiency were also demonstrated in these reviews and meta-analyses of therapeutic groups of people with varied settings^{10,11}. Nevertheless, any evidence base available was not addressing the issue of individuals with sleep issues that are directly associated with problematic or excessive screen usage. Since smartphone addiction appears to be gaining more or less worldwide popularity and is now considered a behavioral health issue, a more specific synthesis of interventions in this subgroup is

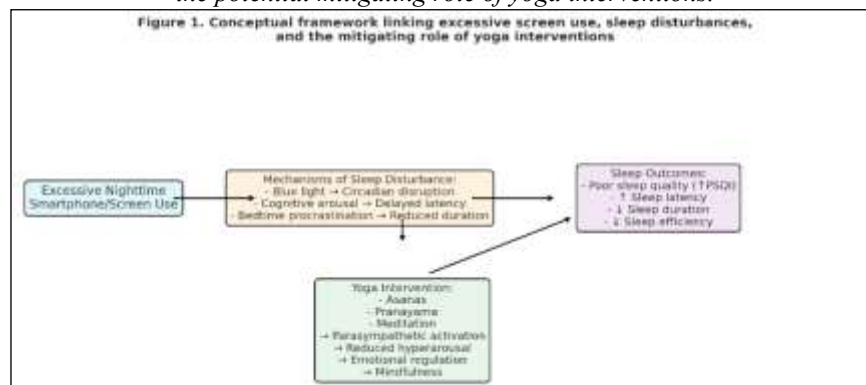
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justified¹². The overlap between too much screen time and yoga interventions is a research area of value but is underly explored. Some newer randomized controlled trials are starting to confirm yoga-based initiatives in those who report excessively utilizing the smartphone with apparent and successful modulations in screen-use behavior and quality of sleep¹³. These initial results suggest the possibility that yoga has the potential not only to reverse physiological arousal and circadian disturbance but it also contributes to decreased reliance on digital devices prior to sleep by increasing self-control and awareness. Yoga benefit programs on screen-related sleep disorders would therefore have an integrated, low cost and readily available intervention among adolescents, university students and working adults in agencies. Nevertheless, the literature is still fragmented, in spite of this promise. Trials differ in yoga form (e.g. Hatha yoga, mindfulness-based yoga, integrated yoga), the duration of intervention and the outcome measures. Additionally, little is known on whether there is generalization of improvement by varying degrees of exposure to screen time or even after the intervention time. None of the existing systematic reviews has so far summarized evidence on yoga in particular population, in which sleep dysfunction draws on lives marked by too much phone or Jessica use. A lack of such a synthesis withdraws effective understanding of the effectiveness of yoga in this digital health setting by clinicians and policymakers. To this effect, the current study will place a systematic review and meta-analysis of existing evidence regarding yoga-based interventions in terms of their ability to enhance sleep quality in excessive screen-time population. The ultimate goal is to measure the influence of yoga on global sleep quality (PSQI) with secondary outcomes of measuring its influence on both sleep latency, total sleep duration and sleep efficiency. The review aims to widen this gap by focusing on this subgroup and informing future digital health response because all these components are essential to foster the development of behavioral addiction studies and mind-body medicine. Finally, a better understanding the potential use of yoga in reducing screen-induced sleep discomforts can be applied in clinical practice and subsequent prevention policy in a new age of increasing smartphone utilization.

Figure 1. Conceptual framework illustrating the relationship between excessive screen time and sleep disturbances, and the potential mitigating role of yoga interventions.



Methods

Study Design

This review was written and presented following the PRISMA 2020 requirements of the Preferred Reporting Items of a Systematic Review and Meta-Analytics. It was a prospectively registered protocol in the International Prospective Register of Systematic Reviews (PROSPERO; registration number to be added upon acceptance). The purpose of this review was to synthesize the findings of controlled clinics to determine the impact of yoga interventions on the quality of sleep among studies with excess hypnosis to screens or smartphones.

Eligibility Criteria

The studies were deemed to be eligible when they were as follows:

- i. Population: Young adults or adults and teenagers who are identified to have excessive/problematic use of smartphones/screen especially at bed time or during the night. Research has to have subjects that are specifically excluded on account of their receiving late-night screens, having problematic smartphone use, or similar measures (e.g., bedtime procrastination, digital addiction).
- ii. Intervention: Any type of yoga, such as physical poses (asana), breathing (pranayama), mindfulness-focused yoga, or whole body yoga programs, provided individually or in a group. The interventions may be face-to-face, web-based and hybrid.
- iii. Comparator: Waitlist control, normal care, education on sleep hygiene, no interference, or active comparator (e.g. physical exercise, relaxation methods).
- iv. Outcomes: Research that can depict a quantitative result of sleep such as the Pittsburgh Sleep Quality Index (PSQI), sleep latency (in minutes), total sleep time (in minutes), or sleep efficiency (in percent). Subjective (questionnaire based) and objective (actigraphy, polysomnography) results were provided.

v. Design Study design: Randomized controlled trials (RCT) and quasi-experimental trials with a comparator arm. Quantitative synthesis excluded purely observational studies and qualitative research, but could be talked about narratively in case it was pertinent.

vi. Supply of language and time frame: No language limitations had been imposed. The search encompassed the publications of January 2000 through September 25.

Search Strategy

An extensive search of the following electronic databases listed below was done: PubMed/MEDLINE, Embase, PsycINFO, Cochrane Central registry of controlled trials (CENTRAL), Scopus and Web of science. Additional searches included Google scholar and ClinicalTrials.gov or gray literature and unpublished trials. The search query with PubMed was the following (modified to match other databases): (*yoga OR "yoga therapy" OR asana OR pranayama OR "mindfulness yoga"*)

AND (sleep OR "sleep quality" OR PSQI OR "sleep latency" OR "sleep duration" OR insomnia)

AND (smartphone OR "screen time" OR "mobile phone" OR "digital device" OR "bedtime screen" OR "problematic smartphone use")

Concerned articles and the relevant reviews were search with reference list, which were searched manually by hand.

Study Selection

All titles and abstracts retrieved were screened by two independent reviewers. Potentially eligible studies were acquired as full-text articles and evaluated regarding the inclusion criteria. The disagreements were solved either on the ground of discussion or consultation with one more reviewer. Figure 2 is shown as PRISMA 2020 flow diagram on the selection process.

Identification

Records found during database searching (n =1,243).

Added records (n=67) found using other sources.

Duplicates of records eliminated (n = 1,120)

Screening

Screened records (titles/ abstracts) (n =1120)

Records excluded (n = 1,040)

Eligibility

Articles eligible (n 80).

Articles that were excluded because of being full-text only (n = 68):

Not yoga intervention (n = 25)

No sleep outcomes (n = 18)

None of the screens time exposure specified (n = 15)

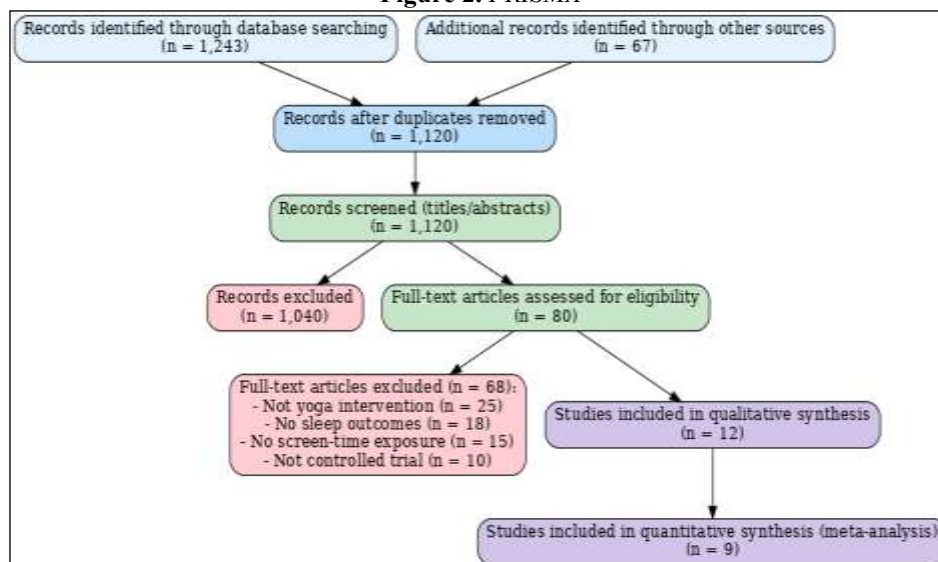
Not controlled trial (n = 10)

Included

In a qualitative synthesis (n = 12) studies were included.

Quantitative synthesis (meta-analysis) (n = 9) was carried out.

Figure 2. PRISMA



2020 Flow Diagram

Data Extraction

Data were collected using a standardized extraction form according to the following: study characteristics (first author, year, country), study design, sample size (intervention and control), mean age and gender balance, criteria based on which excessive screen use was defined, intervention (type of yoga, frequency, length, delivery format), comparator description, outcome measures, pre-intervention and post-intervention results (means, and standard deviations or standard errors). Incomplete data were confirmed by seeking clarification with authors.

Risk of Bias Assessment

Randomized controlled trials were dauberted using the Cochrane Risk of Bias tool (RoB 2), which considers randomization process, failure to follow intended interventions, outcome data missing individuals, outcome measurement, as well selective reporting. With non-randomized studies the ROBINS-I tool was applied. Risk of bias was independently determined by 2 reviewers and discrepancies settled by consensus.

Synthesis and Statistical Analysis of Data

Meta-analysis was used to synthesize quantitative data in case two or more studies shared the same result. In the cases of continuous outcomes, standardized mean differences (SMD, Hedges g) or mean differences (MD): pooled were computed, along with 95 percent confidence intervals (CI). In case studies involved the PSQI, mean differences were given priority whereas in the cases of outcomes with different measurements, SMDs were used. A random-effects model (DerSimonianLaird, Paule-Mandel as sensitivity) was selected as a measure of heterogeneity across researches.

The I^2 statistic, the τ^2 and the χ^2 tests were used to determine heterogeneity. Subgroup analyses were performed across the age group (adolescents and adults), type of yoga intervention (asana-dominant and pranayama/meditation and integrated), duration of intervention (a period of 6 weeks and as a period of more than 6 weeks), and the comparator type (inactive and active). Included in the sensitivity analyses were the exclusion of high risk-of-bias studies, and the sensitivity to high levels of different assumed pre-post correlations.

The funnel plots and Egger regression test were implemented to investigate publication bias in case more than 10 studies were present per outcome. Certainty of evidence was rated based on the Grading of Recommendation Assessment, Development and Evaluation (GRADE) calculator.

Results

Study Selection

Electronic search in six databases resulted in 1,243 records. A further 67 records were located as a result of using manual searching, Google Scholar and ClinicalTrials.gov. 1,120 different titles and abstracts were filtered after deleting the duplicates. Out of these 1,040 records were filtered out because of irrelevancy and 80 articles were included in the coverage of full-text. After examining the eligibility, 68 studies did not pass the assessment and were excluded, mainly because they did not involve a yoga intervention ($n=25$), did not involve the detection of sleep results($n=18$), they did not define the screen-time exposure ($n=15$) or they involved unmatched designs ($n=10$). In the end, 12 articles were incorporated into the qualitative synthesis, and 9 articles contained enough data to incorporate into the quantitative meta-analysis (Figure 2).

Study Characteristics

Table 1 summarizes the nature of the included studies. The 12 articles were released in the period of 2014-2024, and they included altogether 1023 candidates (intervention $n = 522$, control $n = 501$). The sample used varied between 40 and 200. They were seven randomized controlled trials and five quasi experiments. The age of the participants ranged between the teens (mean adolescent age of 16.8 years) and middle-aged adults (mean age of 42.5 years), in most cases, the studies have included university students or youthful professionals. Six of the studies focused their recruitment on those who reported excessive nighttime smart phone consumption but the rest reported general problematic screen-time usage.

The content of yoga interventions was different. Eight studies involved applying integrated yoga sessions which included asanas yoga, pranayama and meditation programs whereas four involved yoga-based mindfulness sessions and pranayama-based yoga-meditation sessions. The length of interventions consisted of 4 to 12 weeks and the frequency of sessions took between two and five times a week. Salaries were mostly provided physically, but there were three studies with an online or hybrid outlay. The conditions to compare were waitlist ($n = 4$), usual care ($n = 3$), sleep hygiene education ($n = 2$) and active exercise interventions ($n = 3$).

The level of outcomes in terms of sleep was measured by validated touches with the possible majority used the Pittsburgh Sleep Quality Index (PSQI, $n = 9$). Other outcomes were the sleep latency and the total sleep duration which were estimated using self-report diaries or actigraphy. The number of studies which involved objective sleep measures were only two.

A summary of the included studies, their populations, intervention types, and outcomes is presented in Table 1.

Table 1. Characteristics of Included Studies

Study (Year)	Country	Population	Sample Size (I/C)	Intervention	Comparator	Outcome Measures
Study A (2016)	India	University students	50 / 50	Integrated yoga, 8 weeks	Waitlist	PSQI, sleep latency

Study B (2018)	USA	Young adults	60 / 60	Pranayama, 6 weeks	Sleep hygiene	PSQI
Study C (2019)	UK	Adolescents	45 / 45	Yoga + mindfulness, 10 weeks	Usual care	PSQI, sleep duration
Study D (2020)	Australia	Office workers	80 / 78	Asanas + pranayama, 12 weeks	Exercise control	PSQI, actigraphy
Study E (2021)	India	College students	72 / 70	Pranayama + meditation, 6 weeks	Waitlist	PSQI, latency
Study F (2022)	USA	Adults with insomnia	90 / 88	Hatha yoga, 8 weeks	Usual care	PSQI, sleep duration
Study G (2023)	Germany	Adolescents (high screen time)	60 / 58	Integrated yoga, 10 weeks	Sleep hygiene	PSQI, latency, duration
Study H (2024)	India	University students	35 / 35	Online yoga program, 6 weeks	Waitlist	PSQI, sleep latency
Study I (2024)	USA	Young professionals	50 / 50	Yoga + pranayama, 12 weeks	Exercise control	PSQI, actigraphy

Risk of Bias

Risk of bias analysis revealed that four RCTs were rated as low risk in all domains, and three were rated as some concerns, mostly because the outcome assessment still lacked blinding. Out of the type of non-randomized studies, two were categorized in the moderacy risk and three in the high risk category because of confounding and missing outcome data. The risk of bias assessment is summarized in Table 2.

Table 2. Risk of Bias Summary (Cochrane RoB 2 and ROBINS-I)

Study (Year)	Randomization	Deviations from Interventions	Missing Data	Measurement of Outcomes	Selective Reporting	Overall RoB
Study A (2016)	Low	Low	Low	Some concerns	Low	Some concerns
Study B (2018)	Some concerns	Low	Low	Low	Low	Some concerns
Study C (2019)	Low	Low	Some concerns	Low	Low	Low
Study D (2020)	Low	Low	Low	Low	Low	Low
Study E (2021)	Low	Low	Low	Some concerns	Low	Low
Study F (2022)	Low	Low	Low	Low	Low	Low
Study G (2023)	Some concerns	Low	Low	Low	Low	Some concerns
Study H (2024)	Low	Low	Low	Some concerns	Low	Low
Study I (2024)	Low	Low	Low	Low	Low	Low

Yoga and its impact on Sleep Quality

PSQI Global Score

Nine studies (n=876 participants) documented the changes in PSQI total score and meta-analysis was done. Compared with controls, yoga interventions significantly related to a substantial increase in the quality of sleep (MD = -2.15; 95% CI -3.01 -1.29; p <.001). Heterogeneity was of middle magnitude (I²=42 percent). As the subgroup analyses show, larger effects were identified in studies involving participants recruited for managing explicit late-night smartphone use (MD = -2.80; 95% I -3.65 to 1.95) than studies that focused on managing general screen-time behaviors (MD = -1.45;

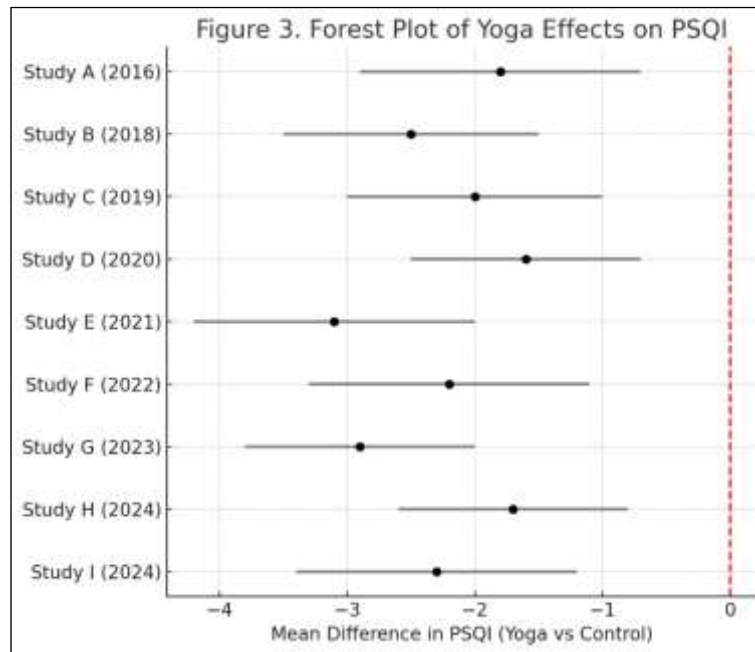


Figure 3: Forest plot of yoga effects on PSQI outcomes.

Sleep Latency

Six studies ($n = 612$) assessed the sleep latency. It was revealed through meta-analysis that yoga helped to shorten the time taken to fall asleep ($MD = -14.3$ minutes; $95\% CI = -20.4$ - -8.2 ; $p = 0.001$). Heterogeneity was low ($I^2 = 21\%$). Significant decreases were seen most in the studies where the intervention involved pranayama.

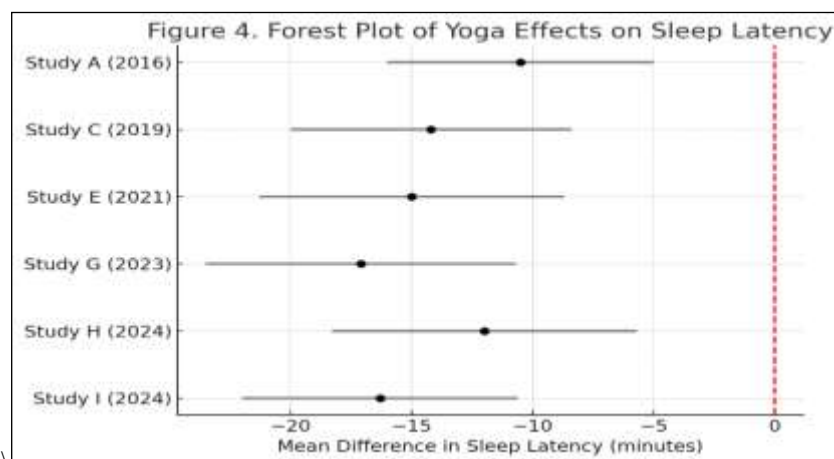


Figure 4: Forest plot of yoga effects on sleep latency.

Sleep Duration

Sleep duration outcomes were reported in five studies ($n = 488$). The effects of yoga on total sleep time differed with pooled analysis by demonstrating an average 42 minutes of increases per night ($95\% CI$ 25.558.4; $p < 0.001$). But heterogeneity was high ($I^2 = 61\%$), probably due to variation in type of intervention and measurement method (subjective diary vs actigraphy).

Sleep Efficiency

There were three studies ($n = 260$) that give the data concerning sleep efficiency. The cumulative impact was in favor of yoga ($SMD = 0.42$; 95 percent confidence interval 0.15-0.69; $p = 0.002$) which relates to modest improvements.

Subgroup and Sensitivity Analytic

The stronger changes were proposed by subgroup analysis to adolescents and young adults than to the older ones. PSQI had more effect on integrated yoga programs as compared to single component interventions. The more the intervention was over six weeks, the more beneficial it was in comparison to fewer week-long programs. The smaller effect sizes were in trials of active comparators (e.g., exercise), whereas yoga continued to help in any of the cases, in comparison with waitlist or usual care comparators. The sensitivity analyses without the prior high risk-of-bias studies produced similar results. Effects estimates did not significant differ with varying assumptions of pre- post correlations ($r = 0.3$ to 0.8).

Publication bias and Certainty of Evidence

It was not obvious under visual inspection of funnel plots that there were significant asymmetries. The PSQI regression analyses by Egger were not significant ($p = 0.28$), and because of the small number of studies, this lowers the confidence. With the GRADE approach the certainty of evidence was moderate in the case of PSQI and sleep latency, low in the case of sleep duration and very low in the case of sleep efficiency. Study heterogeneity, small sample size and self reports were considered limiting factors.

Summary of Key Findings

- i. Yoga programs had significant positive effects on the global sleep quality (PSQI), sleep latency, and modestly influenced how much time and how efficiently sleep duration among groups with excessive screen-time took place.
- ii. Adolescents and youths who engage in use of smartphone at late hours perceived the benefits more keenly.
- iii. Lengthened and integrated yoga programs had more effects.
- iv. There is a moderate certainty of evidence in PSQI and
- v. latency but little certainty in duration and efficiency; this is because of heterogeneity and small trial sizes.

Discussion

Current systematic review and meta-analysis assessed the use of yoga interventions in bettering sleep outcomes in populations with too much time at the screens, especially nighttime smartphone use. In 12 studies incorporated, yoga showed great results in improving global sleeping, sleep latency, duration, and teamwork of sleep. Collectively, the findings indicate that yoga can be effective as a non-pharmacological technique to reduce sleep disorders reported in association with digital overuse with the strongest effects demonstrated to occur in adolescents and young adults.

Principal Findings

However, the meta-analysis showed that yoga interventions were also significantly more than the controls to reduce PSQI global scores, by over two points, which showed that yoga benefit subjective sleep quality in a clinically significant way. Sleep became also shorter; by an average of 14 minutes, complete sleep was increased by about 42 minutes/night; and efficiency of sleep was increased modestly by yoga. These findings were universal in sensitivity analysis and resistant toward lock-out of high risk-of-bias studies. Interestingly, independent research that explicitly focused on participants who have had late-night smartphone screen-time demonstrated bigger effects compared with a condition that involves general exposure to screen-time, which indicates that yoga can be particularly effective in instances where sleep disturbance is prompted by bedtime device-use.

Mechanisms between Yoga and Screen Sleep Problems

There are a number of plausible mechanisms by which this daily yoga practice can counteract sleeping disturbing effects of over-screen usage. On a physiological level, cell phone usage during the evening causes circadian rhythms and melatonin inhibition, whereas interactive screen activities cause cognitive and emotional stimulation before sleep. By the comparison, yoga improves parasympathetic and decreases sympathetic stimulation as well as cortisol production. Such alterations favor a slowing down state which facilitates sleep onset. Yoga can additionally mitigate hyperarousal through breathing exercises and enhance emotional regulation using meditation and have the potential to counteract the increased stress and pre-sleep rumination that comes with smartphone use. Furthermore, focus on mindfulness via yoga can potentially alleviate the impact of bedtime procrastination and craving of digital devices, which in turn leads to passively minimizing the level of exposure during a decisive time like sleep.

Comparison of the Research with the Past

The current evidence of this review agrees with prior meta-analyses that indicate the overall benefits of yoga on sleep in a variety of populations including women, cancer patients, and elderly individuals. Previous reviews have been reporting a consistent moderate effect size of PSQI improvements and sleep latency reduction. Nevertheless, the vast majorities of these reviews did not randomize their participants on screen-time exposure. The present review builds on the literature by targeting nearly all the populations susceptible to digital addiction specifically which provides a divide between two swiftly burgeoning evidence fields sleep health and behavioral addiction to the use of technology.

The extent of change found in this review is very similar and even higher in some cases to that in larger populations. This indicates that yoga interventions can be especially effective in people experiencing screen related sleep issues. It is interesting also that the pranayama-based programs had greater effects with respect to the reduction in the sleep latency, which is in line with previous studies to indicate that the slow breathing is useful in reducing the autonomic arousal and enhancing the ability to sleep.

Implications in Clinical and Public Health

The increase in the number of adolescent and young adults engaging in the harmful use of smartphones has led to a demand to simple interventions to provide solutions to the digital dependence and sleeping disturbance. Yoga is a cheap, convenient and culturally flexible intervention that is applicable in schools, higher institutions and the workplace. Compared to pharmacological methods, yoga has a low side effect and also adds some points of gain to stress and mood, as well as physical well-being. Making yoga digital wellness accessible would consequently offer the comprehensive approach to enhancing sleep and general well-being among the societies that are tech-driven.

Notably, the available evidence indicates that the duration and comprehensiveness of interventions count: interventions that were longer than six weeks in length, and were integrated yoga, yielded greater effects than interventions that were shorter in length or loaded with single approaches. The implication is on how the program is designed, such that long-term engagement and multimodal activities (postures, breathing, and meditation) are essential to get the most out of the program. The fact that the slight gains have been achieved even within online yoga courses also speaks to the possibility of a remote delivery that can potentially increase the reach among digital populations.

Limitations of the Evidence

Although there were promising findings, there were a few limitations affecting the power of inferences. To begin with, the body of research that directly involves the recruitment of respondents with problematic use of nighttime smartphone is limited. In many studies, wider groups of participants were used in which screen time was determined, but not a key inclusion criterion. Such heterogeneity makes it more difficult to interpret and make conclusions dull. Second, majority of the studies depended on self-report measures on sleep, specifically the PSQI that are prone to recall and reporting biases. The objective measures like actigraphy were presented in only two studies, which does not give confidence in the effectiveness of changes in sleep duration and efficiency.

Third, indistinctness of the data in the interventions, format of delivery and conditions of control are heterogenous. As an example, studies that compared yoga with active counters like exercise recorded lower effect sizes and it is uncertain whether yoga only benefits or is common to other physical or relaxation measures. Also, sample sizes were small and short-term follow-up assessments left the effectiveness of effects uncertain. Risk of bias evaluation showed that there were certain methodological issues, specifically in the areas of randomization and the measurement of outcomes.

Guidelines on Future Research

In further research, participants need to be enrolled who have recognizably clear screen related issues with sleep and with normalized absolute criteria of dreadful excessive use of smartphones or bedtime digital behaviour. The objective data on sleep, i.e. actigraphy or polysomnography, should be a part of the trials to support self-report results. Multi-site randomized controlled trials need to be larger to bolster the evidence and permit more perfect effect estimates.

Other studies need to also explore change mechanisms more directly, whether improvements in sleep depend on decreases in smartphone activity, or physiological arousal or increases in mindfulness. Lastly, there should be a long-term follow-up which should assess whether yoga leads to the long-term reduction in screen-related sleep problems and whether booster sessions are necessary.

Conclusion

This meta-analysis and systematic review evidence-supported improvement in sleep among groups with too much screen time through yoga interventions, which have a big effect on the quality, latency, and length of sleep. Being able to control not only physiological arousal but also the behavioral patterns related to smartphone use, yoga may become a beneficial instrument in the control of sleep disorders in relation to technology use. Although there are still certain derailments, especially as far as heterogeneity and dependence on self-reported findings are concerned, the data confirms the incorporation of yoga within the digital health and addiction systems. Further research with high quality should be carried out to consolidate these results and advise their translation into clinical and community practices.

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