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The Impact of Sleep-Wake Routine on Psychological and Physical Health

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Abstract: **The sleep wake routine recommended in Islam coincides well with modern scientific research. This paper explores its impact on psychological and physical health. Regression analysis was performed on data collected through a questionnaire that assessed sleep-wake timings as well as psychological and physical health scores of the respondents, on validated scales (GHQ, PWBS & SWLS). The results showed significant relationship between sleep wake timings and mental and physical health specifically sleeping and waking early. By integrating the Islamic teachings and contemporary sleep science, this paper offers practical recommendations for improving wellbeing, productivity and health through optimized sleep routines.**

Keywords: **Sleep-Wake Routines, Circadian Rhythms, Empirical Study on Sleep, Productivity, Holistic Health, Psychological Wellbeing, Mental Health, Physical Health, Islamic Teachings.**

I. INTRODUCTION

Sleep plays a fundamental role in physical, psychological, and emotional wellbeing. It is widely recognized as a cornerstone of mental health, cognitive performance, and overall life satisfaction [1]. However, the modern lifestyle has disrupted natural sleep-wake patterns, leading to significant public health concerns [2]. While research has extensively covered the scientific aspects of sleep, there is a gap in exploring its alignment with religious teachings, particularly in Islam. Islamic principles emphasize sleep regularity and balance as a means to achieve spiritual and physical productivity, as evidenced in Quranic verses and Hadiths [3].

This paper bridges the gap between Islamic wisdom and modern sleep science, providing actionable insights into the role of sleep-wake routines in achieving holistic wellbeing. The aim of this research is to investigate how sleep-wake routines impact psychological and physical wellbeing, with a focus on integrating Islamic guidelines and scientific evidence. It offers a comprehensive framework for improving holistic health and productivity.

Prior studies have established a robust link between sleep quality and psychological health [4],[5]. Sleep regularity has been shown to enhance cognitive performance and emotional regulation [2]. Islamic teachings, such as waking early [6] and offering *Tahajjud* (mid-night voluntary prayer) and *Fajr* (morning obligatory prayer), provide a structured routine that aligns with circadian rhythms, though this has received limited empirical attention. This paper builds on these findings by examining the relationship between sleep-wake patterns and validated psychological scales. By analysing questionnaire data, this study identifies specific sleep behaviours that contribute to mental health, offering a unique contribution to the field of psychology and Islamic studies.

II. LITERATURE REVIEW

A. Circadian Rhythm and Light-Dark Cycle:

The circadian rhythm is the body's natural 24-hour internal clock that regulates sleep-wake cycles, hormone release, body temperature, and other physiological processes [7]. It is influenced by external cues like light and darkness. Light exposure in the morning triggers the production of cortisol, promoting wakefulness while darkness in the evening stimulates the release of melatonin, signalling sleep-time [8]. Disruptions in circadian rhythms and inadequate rest can influence

metabolic, cardiovascular, and immune functions [1]. Furthermore, sleeping after sun rise is also hazardous to health as it disturbs the natural body clock thus exhausts the body instead of refreshing it and may lead to insomnia, fatigue, and even chronic conditions like diabetes or depression [9].

It is mentioned in the Qur'an that the day has been fixed for working and night for rest [10]. Hadiths encourage **early sleeping** as "*Prophet SAW disliked sleeping before the Isha prayer and indulging in conversation after it.*" [11] and **early rising** as Prophet SAW said, "*Blessed is the early morning for my Ummah*" [6]. These teachings align with modern recommendations for synchronizing activities with natural light cycles.

B. Napping during the day:

Short naps (10-30 minutes) primarily involve light sleep (Stages 1 and 2 of the sleep cycle), which improves alertness, mood, and cognitive performance without causing sleep inertia (grogginess) while longer naps (30 - 90 minutes) should be avoided as they involve waking up from deep sleep (Stage 3 of sleep cycle) causing crankiness and exhaustion due to sleep inertia. Naps longer than 90 minutes may be beneficial if more recovery is needed but should be so timed to avoid late-afternoon sleep inertia and interference with nighttime sleep [12].

When a person wakes up very early in the night, napping is naturally required to function well and retain focus and attention. Prophet SAW used to take a nap between his mid-night prayer and the early morning prayer [13]. Provided that both the prayers are performed within their prescribed time limits, his nap duration seems to follow the latest recommendation. The Prophet (PBUH) also recommended **mid-day nap** to energize oneself [14]. It has been verified through neuroscientific study that midday napping improves memory, enhances alertness, boosts wakefulness and performance, and recovers certain qualities of lost night sleep [15].

Moreover, the Prophet (PBUH) highly encouraged *dhikr* and *tasbih* during sunrise [16] from which it can be deduced that it is **discouraged to sleep during sunrise**. Research portrays the natural sleepiness cycle throughout the 24-hour period of a day [17] which largely coincides with recommended nap timings in Sunnah.

C. Ideal sleep-wake routine:

It can be concluded from the above discussion that it would be ideal to sleep early (ideally within two hours after *Isha* Prayer), wake up early (ideally before *Fajr* prayer). It is also mentioned in hadith that the ideal routine most beloved to Allah SWT was Prophet David's routine, he would "*sleep for first half of the night, wake up in the middle of the night then pray for 1/3rd of the night and sleep for the last 1/6th*" [18], then recovering this lost sleep by short naps during the day as suggested by the neuroscientific study [15].

D. Gap in Literature:

Despite overlapping principles, limited research explores the integration of Islamic teachings on sleep with scientific findings. This study addresses this gap by empirically examining sleep timings and their health outcomes.

III. METHODOLOGY

A. Data Collection:

This study utilized a cross-sectional design to assess the impact of sleep-wake routines on psychological wellbeing. Data were collected through an online questionnaire that included four items related to sleep-wake routines as deduced from the above literature review which included sleeping early, waking early, avoiding sleeping during sunrise and taking mid-day nap. The item wordings, options offered, and their response distributions are portrayed in the next section in figs. 1,2,3 & 4.

Three standardized, validated and widely used scales were used to assess psychological health:

- GHQ (General Health Questionnaire): Assesses overall mental health.
- PWBS (Psychological Wellbeing Scales): Evaluates psychological wellbeing.
- SWLS (Satisfaction with Life Scale): Evaluates overall satisfaction with life status.

The GHQ scale has two items relating to physical health. Since the sleep wake routine can naturally be hypothesized to have an impact on physical health too in addition to the psychological health, the physical subscale score was also taken as a dependent variable.

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B. Participants:

The sample, collected through convenient and snowball sampling techniques, consisted of 327 participants from diverse demographics, including various age groups, financial statuses, and localities. Inclusion criteria ensured participants were adults capable of providing informed consent. Apart from that, there was no other restriction making it open for all ages, genders, localities and classes.

C. Data Analysis:

Regression analyses were conducted to examine the relationship between the four sleep-wake items and the psychological scales. Each scale served as a dependent variable in separate models, while the sleep-wake items were independent variables. The significance threshold was set at $p < 0.05$. Analyses were performed using PSPP software.

D. Ethical Considerations:

Ethical approval was obtained prior to data collection. Participants were assured of confidentiality, and informed consent was obtained online.

IV. RESULTS

A. Response Distribution for Sleep-Wake Items.

Figs 1,2,3 & 4 depict the four items tested, the question posed, options offered as well as their response distributions.

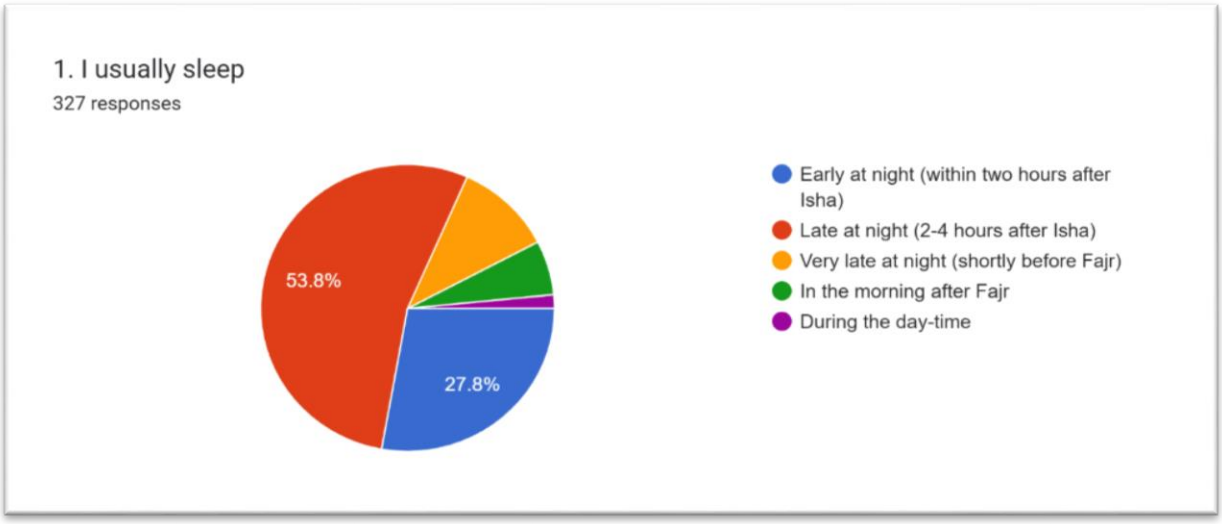

Fig. 1 The distribution of responses for Item assessing sleeping time.

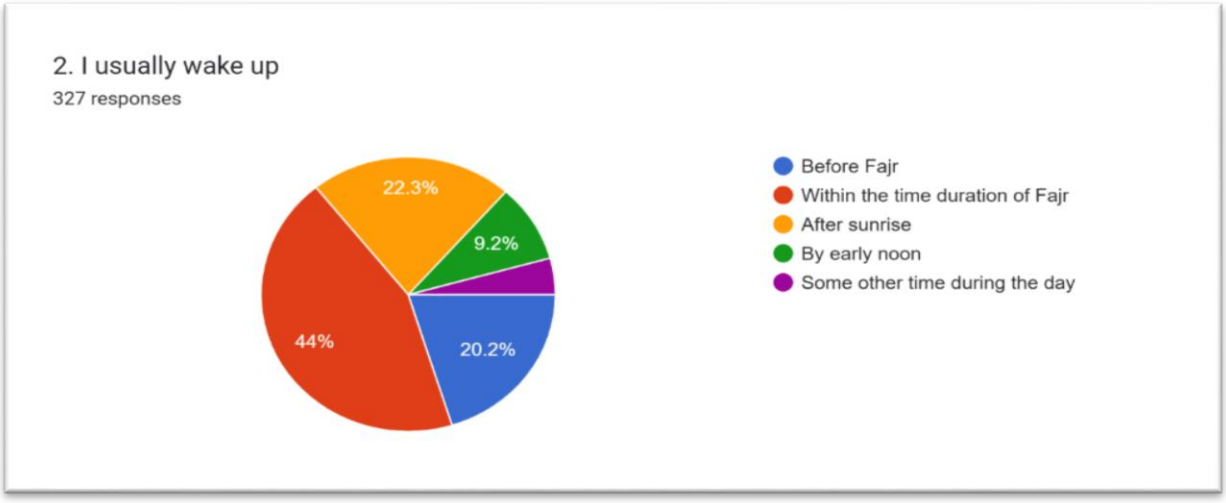

Fig. 2 The distribution of responses for Item assessing waking time.

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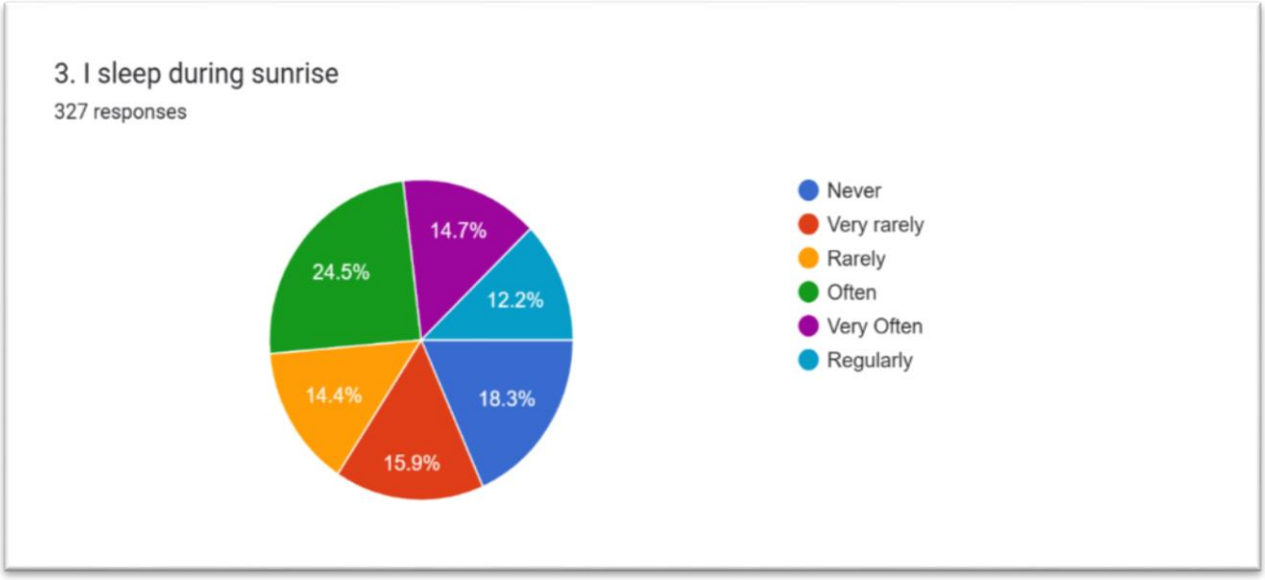

Fig. 3 The distribution of responses for Item assessing if participant sleeps during sunrise.

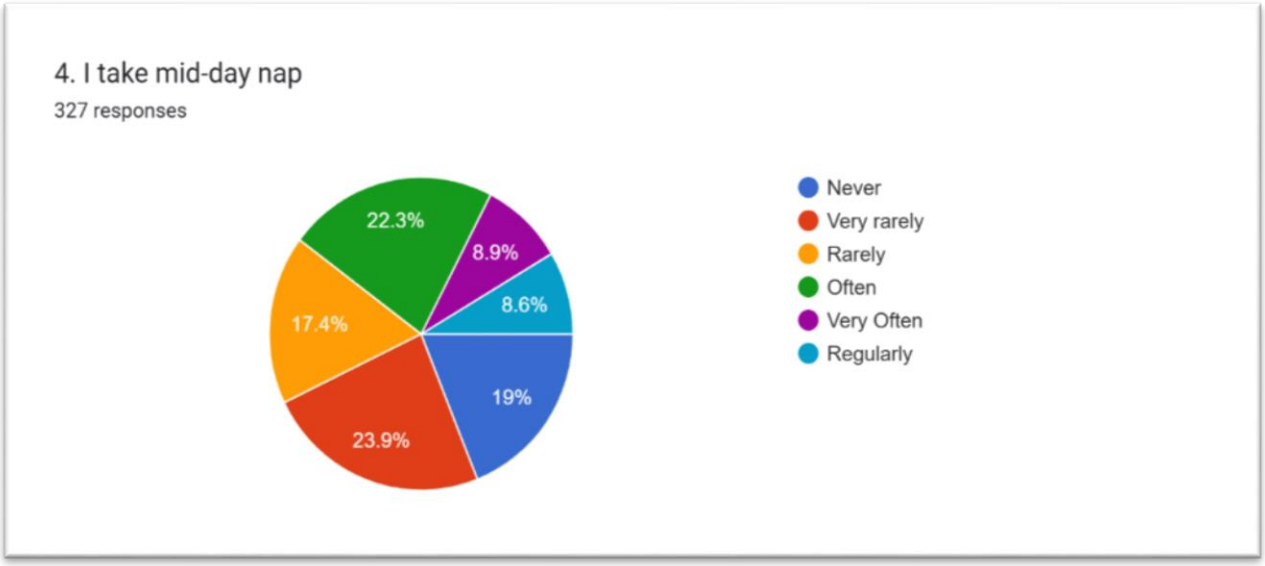

Fig. 4 The distribution of responses for Item assessing if participant takes mid-day nap.

B. Overall Model Results:

TABLE I: REGRESSION RESULTS (OVERALL MODELS) FOR PSYCHOLOGICAL SCALE

Psychological Scale	R^2	F-statistic	Sig.
GHQ	0.13	10.92	0.000
PWBS	0.08	6.15	0.000
SWLS	0.07	5.70	0.000
Physical Health	0.10	7.76	0.000

All the regression models predicting GHQ, PWBS, SWLS and physical health scores were statistically significant ($p < 0.05$), indicating that sleep-wake behaviours collectively influence psychological health, wellbeing, satisfaction with life status and physical health as seen in TABLE I. The model that showed best explanatory power and thus predicted most variance was for GHQ scale ($F = 10.92$, $R^2 = 0.13$) while that for physical health, PWBS and SWLS is lesser but is still significant ($F = 7.76, 6.15$ & 5.70; $R^2 = 0.10, 0.08$ & 0.07 respectively).

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C. Individual Item Effects:

TABLE II: REGRESSION RESULTS (INDIVIDUAL ITEM EFFECTS) FOR GHQ

Sleep-wake routine	B	SE	β	t-value	p-value
(Constant)	.49	.03	.00	17.40	.000
Sleeping early	-.02	.01	-.10	-1.68	.094
Waking early	-.05	.01	-.27	-4.61	.000
Sleeping during sunrise	-.01	.01	-.11	-1.92	.056
Mid-day nap	.01	.01	.03	.45	.651

TABLE III: REGRESSION RESULTS (INDIVIDUAL ITEM EFFECTS) FOR PWBS

Sleep-wake routine	B	SE	β	t-value	p-value
(Constant)	.68	.02	.00	28.23	.000
Sleeping early	.01	.01	.04	.61	.542
Waking early	.04	.01	.26	4.20	.000
Sleeping during sunrise	.00	.01	.03	.49	.626
Mid-day nap	.00	.01	.02	.31	.757

TABLE IV: REGRESSION RESULTS (INDIVIDUAL ITEM EFFECTS) FOR SWLS

Sleep-wake routine	B	SE	β	t-value	p-value
(Constant)	.55	.04	.00	15.00	.000
Sleeping early	.03	.02	.11	1.81	.072
Waking early	.05	.01	.21	3.46	.001
Sleeping during sunrise	.00	.01	.01	.21	.831
Mid-day nap	.01	.02	.04	.76	.450

TABLE V: REGRESSION RESULTS (INDIVIDUAL ITEM EFFECTS) FOR PHYSICAL HEALTH

Sleep-wake routine	B	SE	β	t-value	p-value
(Constant)	6.63	.51	.00	13.11	.000
Sleeping early	-.44	.22	-.12	-1.98	.048
Waking early	-.58	.18	-.19	-3.20	.002
Sleeping during sunrise	-.23	.11	-.12	-2.07	.039
Mid-day nap	-.11	.23	-.03	-.46	.644

Waking early showed significant effects across all the psychological scales ($|\beta| = 0.27, 0.26, 0.21$ & 0.19, $p < 0.05$) as seen in TABLES II, III, IV & V. Other items contributed to the over-all models but did not reach individual significance as depicted by their p-values ($p > 0.05$) except the physical health subscale. Each item showed significant individual impact on the physical health except mid-day napping ($|\beta| = 0.12, 0.19$ & 0.12, $p < 0.05$).

V. DISCUSSION

A. Interpretation of Results:

The significant impact of waking early highlights its critical role in psychological wellbeing. Consistent early rising may improve mental health by aligning with natural circadian rhythms and fostering a structured routine. This finding aligns with prior studies demonstrating the benefits of regular sleep patterns [1],[2].

The reasons for insignificance of other items despite their theoretical emphasis could be due to ambiguous item wordings though the items were face and content validated by laymen and experts prior to administering. It could also be due behavioural complexity i.e. sleep-wake behaviours often co-occur with other lifestyle factors (e.g., diet, exercise), making it difficult to isolate their individual effects or that participants may not consistently follow the reported behaviours, reducing their observable effects.

It can also be observed that sleep-wake timings significantly influence physical health. Notably, sleeping early, waking early not sleeping during sunrise demonstrated robust effects on physical health outcomes. These findings align with previous research highlighting the role of circadian rhythm alignment and consistent sleep schedules in promoting metabolic, cardiovascular, and immune health [1],[2]. Furthermore, early rising may facilitate increased exposure to natural light, which is associated with better sleep quality and overall health [4]. From an Islamic perspective, the practice of sleeping early thus waking up fresh and energetic for Fajr prayer encourages an early start to the day, harmonizing with these scientific principles. Furthermore, not sleeping during sunrise and instead utilizing it for meditation not only guarantees immense rewards but also improves physical health.

Mid-day napping, while often recommended for its restorative benefits, did not show significant effects on physical health in this study. This finding could stem from variability in how and when napping is practiced, as well as differences in nap duration and individual needs. Research suggests that short naps (<30 minutes) are beneficial, while longer naps may disrupt nocturnal sleep and lead to grogginess, potentially negating health benefits [5]. Additionally, cultural and occupational differences in napping practices might explain the observed insignificance. Despite these results, Islamic teachings emphasize moderation in mid-day naps as a means of rejuvenation [15], suggesting that napping should be contextualized within broader sleep-wake routines for optimal impact.

B. Practical Implications:

These findings suggest actionable strategies for individuals and organizations. Promoting consistent sleep-wake routines, especially sleeping early, waking early and not sleeping during sunrise could enhance mental health and productivity. Faith-based interventions may offer additional motivational benefits for Muslim communities.

C. Limitations and Future Directions:

This study's cross-sectional design limits causal interpretations. Longitudinal studies could better establish causality between sleep behaviours and psychological health. Future research could explore cultural variations in sleep practices and their implications. The insignificance of items despite theoretical importance calls for further investigation into their role and potential interactions. Furthermore, future research could delve deeper into the physiological mechanisms linking sleep-wake behaviours and physical health, using objective health measures like biomarkers and clinical assessments.

VI. CONCLUSION

This study highlights the significant role of sleep-wake routines, particularly the practice of waking early, in promoting psychological & physical health, wellbeing, and life satisfaction. The findings reveal that waking early consistently predicts better health and life satisfaction across all scales (GHQ, PWBS, and SWLS), affirming its importance in achieving holistic wellbeing. These results align with both scientific evidence and Islamic teachings, demonstrating the timeless wisdom embedded in religious practices and its relevance to modern lifestyles.

The significance of waking early may stem from its alignment with natural circadian rhythms, its contribution to structured daily routines, and its potential to enhance spiritual connection through early morning prayers and reflection. This practice not only optimizes biological and psychological functioning but also fosters a sense of purpose and productivity, as emphasized in Islamic principles.

However, the lack of individual significance for other sleep-wake behaviours suggests the need for further exploration of their nuanced roles in psychological outcomes. The interplay of lifestyle factors, demographic diversity, and behavioural complexity warrants deeper investigation to uncover their collective impact on mental and emotional wellbeing.

The study also highlights the significant role of specific sleep-wake routines, particularly sleeping and rising early and not sleeping during sunrise, on physical health. These behaviors align with both scientific evidence and Islamic teachings, underscoring their potential for fostering holistic wellbeing. However, the insignificance of mid-day napping on physical health suggests the need for further exploration into how nap duration, timing, and cultural contexts influence health outcomes.

This paper bridges the gap between religious guidance and contemporary scientific findings, offering a unique perspective on optimizing sleep routines for holistic health. By integrating these insights, individuals and communities can develop actionable strategies to enhance productivity and life satisfaction while maintaining spiritual balance.

Future research should focus on longitudinal studies, intervention-based designs, and cultural adaptations to validate and expand these findings. By fostering awareness of the profound benefits of structured sleep-wake routines, particularly early rising, this study provides a pathway for individuals to achieve not only psychological resilience but also physical, spiritual and emotional fulfilment. Future research could delve deeper into the physiological mechanisms linking sleep-wake behaviours and physical health, using objective health measures like biomarkers and clinical assessments. Another important factor that should be explored is early breakfast. Not only waking early but also having first meal of the day as early as possible is also highly encouraged in Islam [19].

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