

The Relationship Between Big Five Personality Traits and Sleep Patterns: A Systematic Review

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Abstract: Sleep, an intrinsic aspect of human life, is experienced by individuals differently which may be influenced by personality traits and characteristics. Exploring how these traits influence behaviors and sleep routines could be used to inform more personalized and effective interventions to promote better sleep. Our objective was to summarize the existing literature on the relationship between personality traits and sleep patterns through a systematic review. An abstract and keyword search was conducted in PsycINFO, Cochrane and PubMed, collecting relevant literature, published between January 1980 and June 2024. A total of 1713 records were found, of which 18 studies were analyzed in the descriptive synthesis. Relevant studies covered populations in 11 different countries, Australia, China, Estonia, Finland, Germany, Italy, Japan, Poland, Turkey, the United Kingdom, and the United States, comprising a total of 58,812 subjects. All studies reported an association between a sleep pattern with at least one of the Big Five personality traits (agreeableness, conscientiousness, extraversion, neuroticism, openness to experience). Ten studies found associations between personality and sleep quality, all of which reported a link between neuroticism and sleep quality (effect sizes 0.183-0.40). Five studies found an association between conscientiousness and morningness (effect sizes 0.16-0.35). Other sleep patterns linked to personality traits included sleep duration, nightmare frequency and distress, sleep deficiency, sleep continuity, insomnia severity and sleep problems, sleep hygiene, sleep latency and daytime sleepiness. This novel systematic review confirms that sleep and personality traits are related, suggesting that those traits should be considered when trying to understand or change one's sleep behavior.

Keywords: personality traits, sleep patterns, big five, sleep quality, chronotype

Introduction

Sleep, an integral component of human health, plays a pivotal role in determining a wide range of health outcomes.¹ Alongside exercise and diet, it forms the triad of essential health determinants. The complex relationship between sleep and both physical and mental health has been well-documented, with numerous studies highlighting its association with memory, creativity, obesity, and a plethora of health conditions ranging from common colds to chronic diseases such as cancer,² dementia,³ diabetes,⁴ and cardiovascular ailments.⁵ Furthermore, robust sleep routines have been empirically linked to enhanced well-being and reduced rates of mental health disorders like depression and anxiety. Walker⁶ summarized the shift in the significance of sleep from pondering about its benefits to realizing there may not be any biological functions that do not benefit from good sleep.

The growing significance of sleep has gained attention, especially with the rise of consumer sleep monitoring technologies. These tools not only offer individuals insights into their sleep patterns but also pave the way for interventions aimed at sleep enhancement.⁷ Digital tools, particularly digital Cognitive Behavioral Therapy (dCBT), have shown promise in addressing insomnia and bolstering sleep quality, duration, and overall well-being. However, despite the rapid increase in development and popularity of digital interventions, a persistent challenge remains – the low engagement rates observed across digital health interventions.⁸

Personalization of digital technologies has been recognised as crucial for enhancing engagement and efficacy,⁹ yet most digital technologies, including sleep interventions, adopt a generic “one-size-fits-all” approach, limited in its ability

to adapt to individual differences, including variations in personality. Tailoring interventions based on personality traits has shown increased effectiveness not only in influencing behaviors, preferences and responses in ways that are more aligned with individual predispositions but also in enhancing user experience in digital health solutions.^{10,11}

Given the profound impact of sleep on health, understanding the interplay between personality traits and sleep patterns can significantly improve the delivery of sleep interventions. The Big Five model of personality, which encompasses Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, serves as a robust framework for this exploration. Its widespread use, availability in numerous languages, stability over an individual's lifetime, and its validation as a predictor of various mental health outcomes¹² make it an appropriate choice to gain a nuanced understanding of how personality might intersect with sleep patterns. In this context, we consider sleep as a multifaceted phenomenon – namely, to understand a holistic view of an individual's sleep health, we focus on various parameters such as sleep quality, duration, and chronotype. Each of these parameters offers unique insights: while duration might indicate the amount of rest, quality provides information on the restorative nature of sleep, and chronotype provides information on an individual's natural sleep-wake cycle.

Despite the significance of exploring the link between personality traits and sleep patterns, no systematic review has addressed this connection to date. This work aims to bridge this gap, offering a comprehensive analysis of existing literature on the subject. By shedding light on the potential associations between personality traits and diverse sleep parameters, we aspire to lay the groundwork for future research in sleep and personality research, ultimately aiding the development of tailored sleep interventions.

Materials and Methods

The systematic review was conducted in alignment with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.¹³ The review process was registered on PROSPERO (registration identifier 392631).

Search Strategy

A literature search was conducted by examining the databases of PsycINFO, Cochrane, and PubMed (MEDLINE) for published papers containing human data broadly relating to interpersonal differences in personality traits associated with sleep patterns and outcomes. Peer reviewed articles published in English after 1980 (until June 2024) were included if they matched with the search query below in the title, abstract or keywords:

(personality OR personal traits OR BIG5 OR BIG-5 OR BIG FIVE OR BIG-FIVE OR extraversion OR extroversion OR agreeableness OR openness OR intellect OR neuroticism OR emotional stability OR conscientiousness)

AND (sleep OR insomnia OR circadian rhythm)

NOT

(personality disorder OR depression OR anxiety OR bipolar OR cancer OR covid OR anorexia OR bulimia OR PTSD OR veteran OR pediatric OR paediatric OR pregnancy OR postnatal OR obsessive compulsive disorder OR OCD)

The final studies included in the synthesis were identified based on the assessed quality and the relevance to the association between personality traits and sleep characteristics following the PRISMA guidelines (Figure 1).

Selection Criteria

Studies were excluded if they: (1) did not contain results; (2) contained a majority of subjects that were under the age of 18; (3) examined disorders, such as neurological, psychiatric, or personality disorders; (4) examined pregnant or postpartum populations; (5) examined sleep apnea or narcolepsy; (6) relied on a personality model that was not the Big Five; or (7) evaluated psychometric properties of a new instrument.

Firstly, to isolate the relationship between personality and sleep without confounding factors, we excluded studies involving individuals with sleep disorders or mental health issues, which impact sleep (some mental health disorders may even impact both sleep and personality). We also excluded subjects under 18, as sleep patterns differ significantly between adolescents and adults, and pregnant or postpartum populations, due to physiological and hormonal changes affecting sleep patterns. Secondly, it was important to include only studies providing tangible and quantitative results about the explored association. For this reason, we excluded studies without empirical data or those evaluating

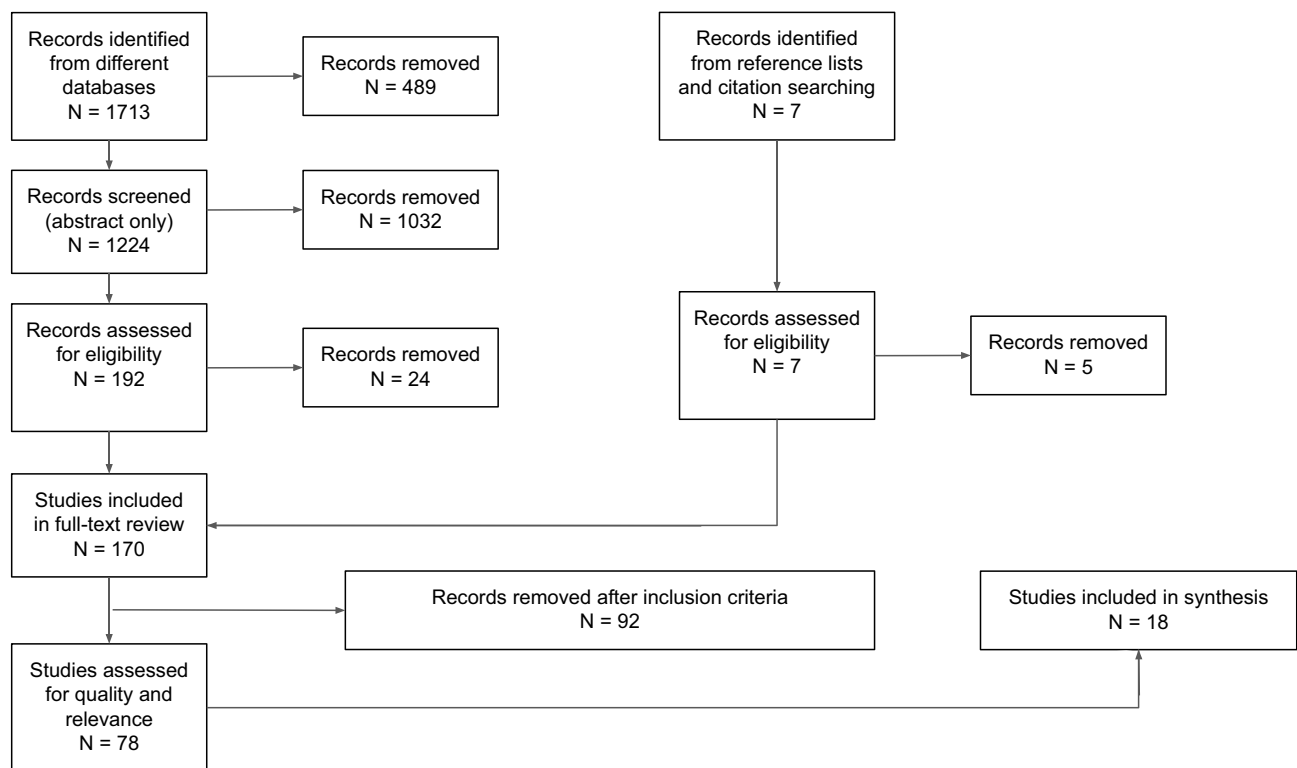


Figure 1 PRISMA flow diagram detailing the number of records retrieved, the number of abstracts screened, and the full texts assessed for inclusion in the synthesis of the systematic review.

psychometric properties of different personality scales, as these do not align with the scope of our systematic review. Thirdly, for consistency, we focused only on the Big Five personality model to ensure comparability across studies, given that even the same constructs (such as extraversion) can differ across various personality scales.¹⁴

Two reviewers independently screened records' abstracts for inclusion, blinded to each other's decisions until the step was completed, with interrater reliability of 85%. Reasons for exclusion of an article were provided by reviewers. Disagreements between individual judgements were reconciled by consensus review.

Data Extraction and Quality Assessment

For the data extraction phase, two reviewers independently extracted data including study design, methodology, study population and relevant results, while assessing the studies' quality using the Critical Appraisal Skills Programme checklists.¹⁵ Both reviewers also assessed the results for relevance as low, medium or high, with interrater reliability of 80%. Disagreements between individual judgements were reconciled by consensus review.

Summary and Synthesis

The results of the included studies were summarized following the SWiM method.¹⁶ Studies were grouped based on the outcome measures that were used to characterize sleep patterns (eg sleep quality, sleep duration, chronotype). A minimum of 3 studies were required for each outcome measure to be considered as a group.

For each group of studies, associated with an outcome measure, the data was synthesized into a table containing: personality trait, measures used (for personality and outcome), effect size, p-value, and descriptors of the study population. Confidence intervals of effect sizes were also included, where available. A study may appear more than once in the data synthesis table if it contained more than one outcome of interest. The effect sizes and p-values of the associations between personality traits with sleep outcome measures were also visually represented using scatter plots.

Results

Baseline Characteristics

Sixteen articles^{17–34} were included in the final sample, including 12 cross-sectional studies and 6 longitudinal cohort studies. Studies were conducted in 11 countries: 4 in the United States, 3 in Germany, 2 in Italy, 3 in China, and one each in Australia, Estonia, Finland, Japan, Poland, Turkey, the United Kingdom. The smallest sample was $N=172$ ²¹ and the largest was $N=22,728$.³² The aggregated sample size across all studies considered was 58,182.

Descriptive Synthesis

Selected studies were grouped by the sleep characteristics that they examined. Of all the studies, sleep quality, chronotype (or morningness), and sleep duration were the most frequent characteristics examined, with at least three studies reporting on each of them. The results from the studies in each group are summarized in Tables 1–3. Visualizations of the effect size and p-values of the associations between traits with sleep quality and chronotype can be found in Figures 2 and 3, respectively, providing a concise overview of the results collected in Tables 1 and 2.

Table 1 Summary of Studies Examining Associations Between Personality Traits and Poor Sleep Quality

Study	Trait	Measure (P)	Measure (S)	Effect size (r)	p-value	Sample (N)	Country	Age
Allen et al, 2016 ¹⁶	A	Mini markers	PSQI	-0.05	<0.001	Other (14,317)	Australia	42.7 ± 18.59
	C	Mini markers	PSQI	-0.12	<0.001	Other (14,317)	Australia	42.7 ± 18.59
	E	Mini markers	PSQI	-0.10	<0.001	Other (14,317)	Australia	42.7 ± 18.59
	N	Mini markers	PSQI	0.22	<0.001	Other (14,317)	Australia	42.7 ± 18.59
Cellini et al, 2017 ¹⁷	A	BFI	PSQI	-0.17	<0.001	Other (498)	Italy	26.6 ± 7.4
	C	BFI	PSQI	-0.12	<0.001	Other (498)	Italy	26.6 ± 7.4
	E	BFI	PSQI	-0.15	<0.001	Other (498)	Italy	26.6 ± 7.4
	N	BFI	PSQI	0.34	<0.001	Other (498)	Italy	26.6 ± 7.4
Duggan et al, 2014 ¹⁸	C	BFI	PSQI	-0.17	<0.001	Students (436)	US	19.88 ± 1.50
	N	BFI	PSQI	0.40	<0.001	Students (436)	US	19.88 ± 1.50
Fang et al, 2019 ²⁰	E	BFI	PSQI	-0.152	<0.05	Nurses (172)	China	32.22 ± 7.36
	N	BFI	PSQI	0.249	<0.01	Nurses (172)	China	32.22 ± 7.36
	O	BFI	PSQI	-0.165	<0.05	Nurses (172)	China	32.22 ± 7.36
Hao et al, 2024 ²¹	A	BFI	Brief PSQI	-0.061	<0.01	Other (6,651)	China	Not reported
	C	BFI	Brief PSQI	-0.129	<0.01	Other (6,651)	China	Not reported
	E	BFI	Brief PSQI	-0.113	<0.01	Other (6,651)	China	Not reported
	N	BFI	Brief PSQI	0.197	<0.01	Other (6,651)	China	Not reported
Križan et al, 2019 ²³	A	Adjective based	Self-report	-0.10	<0.05	Other (382)	US	53.11
	C	Adjective based	Self-report	-0.28	<0.001	Other (382)	US	53.11
	E	Adjective based	Self-report	-0.25	<0.001	Other (382)	US	53.11
	N	Adjective based	Self-report	0.32	<0.001	Other (382)	US	53.11
	O	Adjective based	Self-report	-0.12	<0.05	Other (382)	US	53.11
Lau et al, 2021 ²⁴	N	IPIP	PSQI (5 years later)	0.124 [0.04, 0.19]	<0.001	Other (1276)	China	24.86 ± 7.75

(Continued)

Table 1 (Continued).

Study	Trait	Measure (P)	Measure (S)	Effect size (r)	p-value	Sample (N)	Country	Age
Muzni et al, 2021 ²⁷	A	BFI	ISI/PSQI/KSD	-0.165	<0.0001	Other (671)	UK	25.47 ± 4.16
	C	BFI	ISI/PSQI/KSD	-0.100	0.015	Other (671)	UK	25.47 ± 4.16
	E	BFI	ISI/PSQI/KSD	-0.104	0.013	Other (671)	UK	25.47 ± 4.16
	N	BFI	ISI/PSQI/KSD	0.234	<0.0001	Other (671)	UK	25.47 ± 4.16
Önder et al, 2014 ²⁸	C	Adjective based	PSQI	-0.095	<0.01	Students (1343)	Turkey	21.01 ± 1.78
	E	Adjective based	PSQI	-0.059	<0.05	Students (1343)	Turkey	21.01 ± 1.78
	N	Adjective based	PSQI	0.183	<0.01	Students (1343)	Turkey	21.01 ± 1.78
Stephan et al, 2018 ³¹	E	BFI/MIDI	Self-report	-0.06 [-0.085, -0.029]	<0.001	Other (22,728)	US/Japan	62.03
	N	BFI/MIDI	Self-report	0.23 [0.197, 0.263]	<0.001	Other (22,728)	US/Japan	62.03

Note: A, Agreeableness; C, Conscientiousness, E, Extraversion, N, Neuroticism, O, Openness to experience; PSQI, Pittsburgh Sleep Quality Index; BFI, Big Five Inventory; IPIP, International Personality Item Pool; ISI, Insomnia Severity Index; KSD, Karolinska Sleep Diary; MIDI, Midlife Development Inventory; Measure (P): method used to measure personality traits; Measure (S): method used to measure sleep quality. Effect sizes reported using Cohen's f^2 were derived via $r^2 = \frac{f^2}{1+f^2}$.

Table 2 Summary of Studies Examining Associations Between Personality Traits and Morningness

Study	Trait	Measure (P)	Measure (S)	Effect size	p-value	Sample (N)	Country	Age
Duggan et al, 2014 ¹⁸	A	BFI	MEQ	0.15	0.002	Students (436)	US	19.88 ± 1.50
	C	BFI	MEQ	0.35	<0.001	Students (436)	US	19.88 ± 1.50
	N	BFI	MEQ	-0.18	<0.001	Students (436)	US	19.88 ± 1.50
	O	BFI	MEQ	0.15	0.003	Students (436)	US	19.88 ± 1.50
Lenneis et al, 2021 ²⁶	A	NEO-PI-3	MCTQ	0.16 (0.11, 0.20)	<0.001	Other (2,515)	Estonia	45.22 ± 16.70
	C	NEO-PI-3	MCTQ	0.16 (0.12, 0.20)	<0.001	Other (2,515)	Estonia	45.22 ± 16.70
	E	NEO-PI-3	MCTQ	-0.25 (-0.29, -0.21)	<0.001	Other (2,515)	Estonia	45.22 ± 16.70
	O	NEO-PI-3	MCTQ	-0.33 (-0.37, -0.29)	<0.001	Other (2,515)	Estonia	45.22 ± 16.70
Muzni et al, 2021 ²⁷	A	BFI	MEQ	0.162	0.002	Other (671)	UK	25.47 ± 4.16
	C	BFI	MEQ	0.336	<0.0001	Other (671)	UK	25.47 ± 4.16
	E	BFI	MEQ	0.083	0.011	Other (671)	UK	25.47 ± 4.16
	N	BFI	MEQ	-0.156	<0.0001	Other (671)	UK	25.47 ± 4.16
Önder et al, 2014 ²⁸	A	Adjective based	MEQ	0.128	<0.01	Students (1343)	Turkey	21.01 ± 1.78
	C	Adjective based	MEQ	0.190	<0.01	Students (1343)	Turkey	21.01 ± 1.78
	N	Adjective based	MEQ	-0.071	<0.05	Students (1343)	Turkey	21.01 ± 1.78
	O	Adjective based	MEQ	0.065	<0.05	Students (1343)	Turkey	21.01 ± 1.78

(Continued)

Table 2 (Continued).

Study	Trait	Measure (P)	Measure (S)	Effect size	p-value	Sample (N)	Country	Age
Zajenkowski et al, 2019 ³³	C	IPIP	CSM	0.26	<0.001	Other (504)	Poland	38.19 ± 14.99
	N	IPIP	CSM	-0.20	<0.001	Other (504)	Poland	38.19 ± 14.99
	O	IPIP	CSM	-0.21	<0.001	Other (504)	Poland	38.19 ± 14.99

Notes: Measure (P): method used to measure personality traits; Measure (S): method used to measure chronotype. Effect sizes reported using Cohen's f^2 were derived via $r^2 = \frac{f^2}{1+f^2}$.
Abbreviations: A, Agreeableness; C, Conscientiousness, E, Extraversion, N, Neuroticism, O, Openness to experience; BFI, Big Five Inventory; MEQ, Horne-Östberg Morningness-Eveningness Questionnaire; NEO-PI-3, NEO Personality Inventory (Third Edition); MCTQ, Munich Chronotype Questionnaire; IPIP, International Personality Item Pool; CSM, Composite Scale of Morningness.

Table 3 Summary of Studies Examining Associations Between Personality Traits and Sleep Duration

Study	Trait	Measure (P)	Measure (S)	Effect size	p-value	Sample (N)	Country	Age
Allen et al, 2016 ¹⁶	N	Mini markers	PSQI	0.08	<0.001	Other (14,317)	Australia	42.7 ± 18.59
Duggan et al, 2014 ¹⁸	N	BFI	PSQI	0.18	<0.001	Students (436)	US	19.88 ± 1.50
Hintsanen et al, 2014 ²²	A	NEO-FFI	Self-report	0.091 ± 0.21	<0.001	Other (1,623)	Finland	37.7 ± 5.0
Križan et al, 2019 ²³	O	Adjective based	Mini Mitter Actiwatch-64	-0.11	<0.05	Other (382)	US	53.11

Notes: Measure (P): method used to measure personality traits; Measure (S): method used to measure sleep quality.
Abbreviations: A, Agreeableness; N, Neuroticism, O, Openness to experience; PSQI, Pittsburgh Sleep Quality Index; BFI, Big Five Inventory; NEO-FFI, NEO Five-Factor Inventory.

For the interpretation of the associations between sleep characteristics and personality traits, we utilized behavioral science conventions where correlations of 0.1, 0.3 and 0.5 corresponded to weak, moderate, and high associations.³⁵

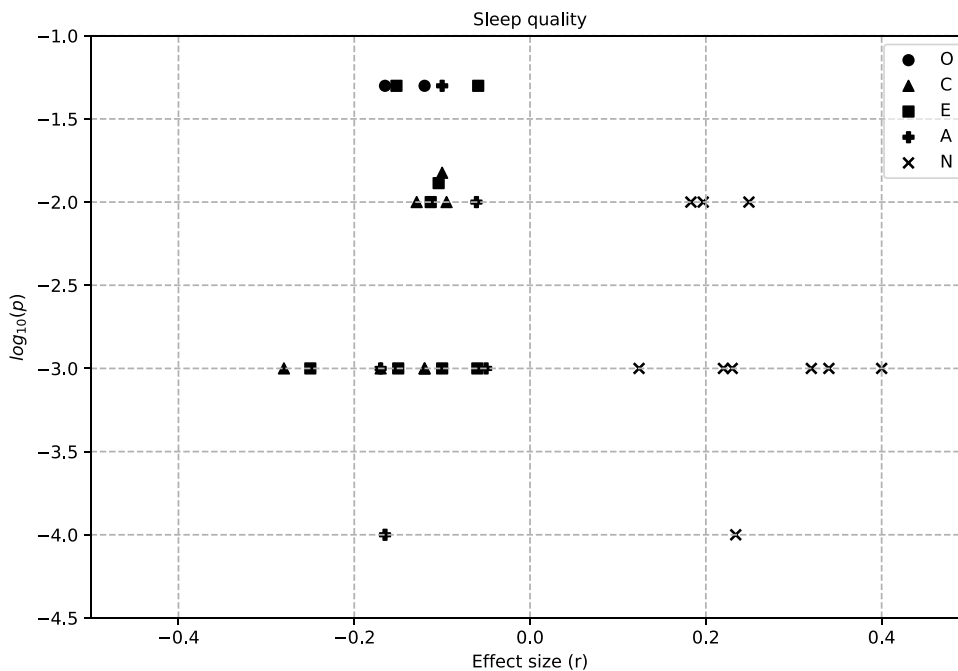


Figure 2 Scatter plot of the sleep quality data from Table 1 (p-value vs effect size), split by each of the five personality traits.
Abbreviations: A, Agreeableness; C, Conscientiousness, E, Extraversion, N, Neuroticism, O, Openness to experience.

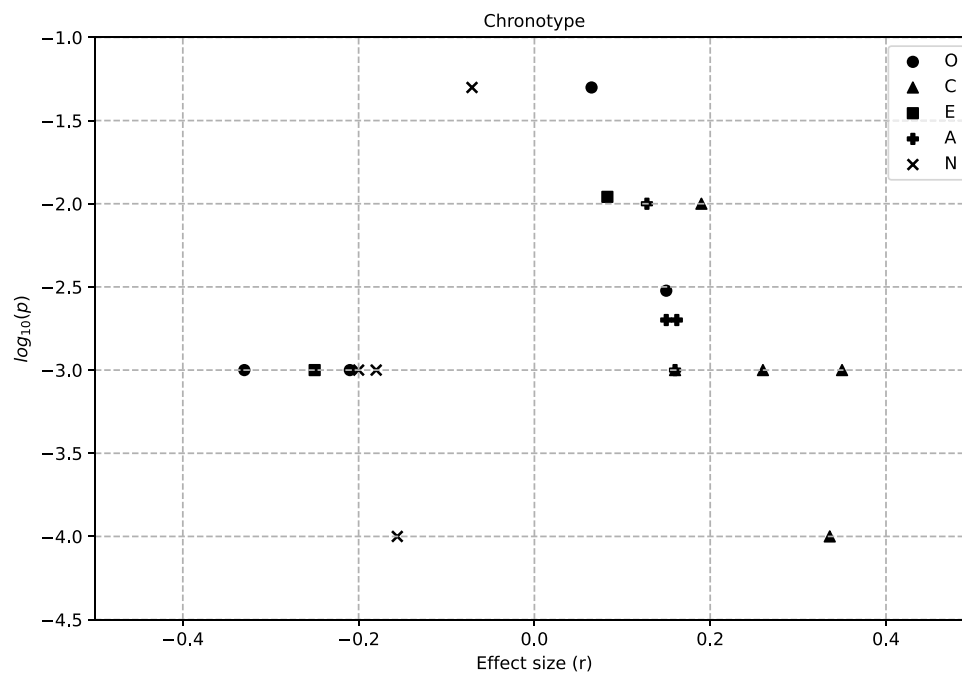


Figure 3 Scatter plot of the chronotype data from Table 2 (p-value vs effect size), split by each of the five personality traits. **Abbreviations:** A, Agreeableness; C, Conscientiousness, E, Extraversion, N, Neuroticism, O, Openness to experience.

Sleep Quality

Links between sleep quality, encompassing multiple aspects of sleep (subjective quality, latency, efficiency, etc), and personality traits were found in ten of the studies. Neuroticism was moderately associated (effect sizes 0.183-0.40) with poor sleep quality in all ten studies that examined the relationship. Extraversion, conscientiousness and agreeableness were also found to be weakly associated with good sleep quality with evidence from eight (effect sizes 0.059-0.25), seven (effect sizes 0.12-0.28) and five (effect sizes 0.05-0.17) studies, respectively. A weak association between openness to experience and good sleep quality was found in only two studies.

While only weak to moderate correlations were found, they were statistically significant and valuable in highlighting the relationship between sleep quality and personality traits in spite of the wide variations and myriad of external factors that exist to influence the complex, non-linear interplay between personal characteristics and sleep patterns.

Chronotype (Morningness)

Of the five personality traits, conscientiousness has the strongest link with morningness, with moderate associations found in all five studies (effect size 0.16-0.35). Agreeableness (effect size 0.03-0.162) and neuroticism (effect size 0.03-0.20) showed weak associations with morningness and eveningness, respectively, from evidence reported in four studies. The associations between morningness and extraversion, as well as openness to experience were inconsistent across the examined studies, with some studies showing associations of morningness with extraversion²⁸ and openness to experience^{19,29} while others associated eveningness with extraversion²⁷ and openness to experience.^{27,34}

Sleep Duration

All four relevant studies reported small, but statistically significant effect sizes for the relationships between neuroticism, agreeableness and openness with sleep duration. In fact, the relationship between neuroticism and sleep duration was supported in two studies.^{17,19} This suggests weak associations between sleep duration and the three above-mentioned personality traits.

Other Sleep Characteristics

We also included other noteworthy sleep outcome measures that were only examined in one or two studies; for example, greater nightmare frequency was linked to higher levels of neuroticism (effect size 0.40-0.43), openness to experience (effect size 0.14-0.16), and conscientiousness (effect size 0.06-0.11). Greater nightmare distress was associated with higher levels of neuroticism (effect size 0.30-0.33) but lower levels of agreeableness (effect size 0.11).^{30,31} Personality traits were also found to be significantly associated with sleep deficiency (neuroticism, p -value <0.001 ; agreeableness, p -value 0.016),²³ sleep continuity (neuroticism, effect size -0.21 ; conscientiousness, effect size 0.20),²⁴ insomnia severity (extraversion, effect size -0.26 ; conscientiousness, effect size -0.25 ; neuroticism, effect size 0.11),²⁰ sleep problems (neuroticism, effect size 0.31-0.46; extraversion, effect size -0.19 ; openness, effect size -0.17 ; conscientiousness, effect size -0.11),^{25,33} poor sleep hygiene (neuroticism, effect size 0.37; conscientiousness, effect size -0.29 ; agreeableness, effect size -0.17), sleep latency (neuroticism, effect size 0.25) and daytime sleepiness (neuroticism, effect size 0.23; conscientiousness, effect size -0.25 ; agreeableness, effect size -0.18).¹⁹

Discussion

The studies in this review show that several of the Big Five personality traits are associated with various sleep characteristics, most notably sleep quality and chronotype.

Sleep quality

The studies found that poor sleep quality is associated with high neuroticism scores. On the other hand, good sleep quality was found to be related to low extraversion, as well as high conscientiousness, and agreeableness. These insights can directly inform the development of digital solutions, particularly those that focus on improving well-being or sleep, by providing different features or personalized user pathways to promote better engagement.³⁶ For instance, supporting individuals who are high on extraversion to be able to mute notifications from social applications (eg, Instagram, Whatsapp messaging) at least one to two hours before they intend to sleep could be helpful in allowing sufficient time to wind down and prepare for sleep. Additionally, encouraging 10 to 20 minutes of guided meditations before sleep could be helpful for individuals who are high on neuroticism to achieve a calmer mental state in hope of promoting better sleep. However, for some individuals, the process by which they can achieve better sleep quality will require adopting trait-like behaviors that are inconsistent with their typical nature. For example, somebody who is low in conscientiousness will likely struggle to keep a sleep diary and schedule their sleep patterns consistently since such tasks require diligence and self-control, which do not come easily to them. In cases like these, change in trait level behaviors may be beneficial. When the suggested behavior is relatively dispositional a stronger mechanism may be required to increase motivation. As such, interventions designed to promote a change in trait level behaviors may need to break target behaviors down into smaller components that are introduced sequentially based on the needs and progress of each individual.³⁷

Chronotype

Regarding the chronotype findings, individuals rated higher on morningness were also suggested to be greater on conscientiousness/agreeableness, whereas individuals who rated higher on eveningness were more likely to be greater on neuroticism. These results suggest that sleep recommendations could be tailored to optimize productivity in a way that is aligned with individuals' natural body rhythms, since both earlier and later bedtimes can be equally beneficial for health. For example, individuals with high conscientiousness and agreeableness scores may benefit more from morning-oriented suggestions, such as morning relaxation activities, while those with high neuroticism scores could be encouraged to engage in more sleep-promoting activities in the evening, such as quiet reading. In cases in which achieving healthier sleep routines implies adopting trait-like behaviors that are inconsistent with their typical nature, the intervention can concentrate on addressing the fluctuating aspects of these behaviors and assisting individuals in adapting to behaviors that may not naturally align with their traits. For instance, one approach could involve initially establishing a weekly sleep schedule, gradually transitioning to a daily routine to facilitate smoother adoption. This incremental strategy can alleviate the challenges faced by individuals who typically find it difficult to embrace routine-like behaviors.

Sleep duration

Finally, our findings indicate that sleep duration has little or no direct link with any of the personality traits. At first glance, this might suggest that interventions aimed at affecting sleep duration can be agnostic to personality traits. However, it is essential to interpret these results with caution. Several reasons could explain this. Firstly, while there might not be a direct link between sleep duration and personality traits, there could be indirect or mediation effects. For instance, a particular personality trait might not influence sleep duration directly but could affect another factor (eg, stress levels³⁸) that, in turn, impacts sleep duration.³⁹ Secondly, sleep duration might be influenced by a combination of personality traits rather than a single trait. The interaction of multiple traits could neutralize the effect of one trait, leading to an apparent lack of association when viewed in isolation. Thirdly, external factors such as environmental conditions, work schedules, or health conditions might play a more dominant role in determining sleep duration, overshadowing the potential subtle influences of personality traits. Nonetheless, future research could consider further exploration into potential personality traits that may influence sleep duration.

Takeaways

To a certain extent, it was expected that individuals high in neuroticism would experience poorer sleep quality and have a preference for eveningness. This may be due to their tendency to experience anxiety and worry, which interfere with falling and staying asleep. Those high in conscientiousness generally have better sleep quality, likely due to their adherence to regular sleep routines and a good sleep hygiene, such as consistent sleep schedules and avoiding caffeine before bedtime. On the other hand, extraversion may have a mixed relationship with sleep — while extraverts might benefit from positive social interactions, their active lifestyles and social activities can lead to irregular sleep patterns, contributing to lower sleep quality that we eventually witnessed in the literature. Agreeable individuals, who typically experience fewer conflicts and stressors, may enjoy more restful sleep, although this relationship was not as strongly reported as for neuroticism and conscientiousness. Finally, openness has a complex relationship with sleep; while creative and irregular thought patterns can disrupt sleep, an open-mind to different intervention techniques (such as relaxation) can improve sleep quality. Our findings did not show strong links in this regard, indicating the need for further investigation.

Limitations

This study acknowledges several limitations. Firstly, the study populations comprised self-selected individuals, as participation in the chosen studies was voluntary which could have resulted in a selection bias.⁴⁰ Another noteworthy limitation is the almost exclusive use of self report measures in all except one study.²⁴ Self report measures may introduce a degree of bias, particularly an increase in social desirability in responses, and respondents may not provide the most accurate estimate of their sleep habits. However, individuals' perceptions of their sleep experiences wield significant influence over health and psychological outcomes, even when assessed independently of objective measurements.⁴¹ Furthermore, it is worth noting that subjective sleep reports exhibit a substantial degree of correlation with objective sleep measures.⁴² As such, the results of these studies provide valuable insights into the associations between personality traits and sleep characteristics and its implications for health and psychology in spite of these limitations.

Conclusion

The results of this systematic review provide evidence for the relationship between personality traits and sleep patterns, including sleep quality and chronotype, which can be used to inform the personalization of interventions for behavior change in sleep. The most significant results, by both amount of evidence and effect sizes, are the link between neuroticism and poor sleep quality and the connection between conscientiousness and morningness. On the other hand, little evidence exists to support a relationship between other sleep outcomes, such as sleep duration or insomnia severity, and any of the traits examined. Further investigation is required to unpack how individuals with different personality traits interact with different interventions, such as which types of content they prefer, what interventions mechanisms suit them the best to change different kinds of sleep-related habits, and ultimately how effective sleep interventions tailored by personality traits are.

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Disclosure

The authors declared that no competing interests exist.

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