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Üniversite Öğrencilerinin Uyku Tercihlerinde Sağlığın Sosyal Belirleyicilerinin Rolü: Kesitsel Bir Çalışma

The Role of Social Determinants of Health in Chronotypes Among College Students: A Cross-Sectional Study

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ÖZ

Amaç: Üniversite öğrencilerinde uyku sağlığı bir halk sağlığı sorunudur. Üniversite öğrencileri genellikle yetersiz uyku kalitesine sahiptir ve özellikle akşam tipi (E-tipi) uykuyu tercih etmektedirler. Bu çalışmanın amacı, yurtlarda yaşayan üniversite öğrencilerinin (n= 380) uyku tercihleri ile sağlığın sosyal belirleyicileri arasındaki ilişkiyi araştırmaktır.
Yöntem: Bu çalışma tanımlayıcı-ilişkisel bir çalışmadır. Veri toplama araçları Kişisel Bilgi Formu, Üniversite Öğrencileri için Sağlığın Sosyal Belirleyicileri Ölçeği ve Sabah-Akşam Uyku Ölçeği'dir.
Bulgular: Bu çalışma, sağlığın sosyal belirleyicileri ile uyku tercihleri arasında istatistiksel olarak anlamlı bir ilişki olduğunu ortaya koymuştur (p<0,05). Üniversite öğrencilerinin sosyal sağlık ihtiyaçları azaldıkça sabah uykusunu (r: -0,628) ve sosyal sağlık ihtiyaçları arttıkça akşam uykusunu (r:0,673) tercih ettikleri görüldü.
Sonuç: E-tipi üniversite öğrencilerinin uyku kalitelerini artırmak için sosyal sağlık ihtiyaçlarının karşılanması gerekmektedir. Sağlık profesyonelleri, halk sağlığı hemşireleri ve ya sosyal hizmet uzmanları sağlığın sosyal belirleyicilerini tespit edebilir ve sosyal sağlık ihtiyaçları olan üniversite öğrencileri için müdahale stratejileri uygulayabilir.

Anahtar Kelimeler: Uyku sağlığı, Sağlığın sosyal belirleyicileri, Kronotipler, Üniversite öğrencileri.

ABSTRACT

Objective: Sleep health in college students is a public health concern. College students are commonly described as having poor sleep quality, especially those who prefer evening-type (E-type) sleep. Identifying the social determinants of chronotypes may facilitate a better understanding of why such students prefer E-type sleep. The current study aimed to investigate the relationship between social determinants and the sleep preferences of college students living in dormitories (n= 380).
Method: This is descriptive-relational research. The data collection tools included Personal information form, Social Determinants of Health Scale for University Students, and Morningness-Eveningness Stability Scale.
Results: This study revealing a statistically significant relationship between social determinants of health and sleep preferences (p< .05). The study found that college students seemed to prefer morning sleep as their social health needs decreased (r: -0.628) and evening sleep (r: 0.673) as their social health needs increased, concluding that the social health needs of E-type college students should be met in order to improve their sleep quality.
Conclusion: Health professionals, public health nurses, and social workers may identify social determinants of health and employ intervention strategies for college students with social health needs.

Key words: Sleep health, Social determinants of health, Chronotypes, College students.

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1. INTRODUCTION

Because sleep health in college students is a public health concern (1), its affecting factors should be closely examined. The causes of poor sleep quality among university students may be related to multiple factors such as lecture schedules, academic commitments, stress/anxiety, lifestyle, social life, mental health disorders, obesity, financial and parental factors, and overall inappropriate sleep hygiene (2–4). In addition, sleep-wake patterns, often referred to as chronotypes, can affect sleep quality (5). Morning-type (M-type) individuals prefer to be active in the early hours of the day, while evening-type (E-type) individuals prefer to be active during the latter hours of the day. College students are commonly described as having poor sleep quality, especially those who are Evening-type (E-type) individuals (6). In addition to M-type and E-type individuals, there are also so-called morning-evening non-preferentials, or neither-type (N-type) subjects.

Sleep is inherently sensitive to one's external environment (e.g., ambient sounds, light, air quality, and contextual features around the sleep space), and undesirable physical and social environmental conditions may worsen sleep health, potentially leading to sleep pathologies such as insomnia, circadian rhythm disturbances, sleep apnea, and chronic insufficient sleep (7, 8). In addition to these symptoms, a negative social environment may cause a preference for going to bed late in the evening and waking up late in the morning, which can lead to poor health behaviors (9) and pose risks to physiological, academic, and mental health (10). Defined as the environment in which individuals are born, live, learn, work, play, worship, and age, Social Determinants of Health (SDOH) are integral to a wide range of disease outcomes/risks (11) and may also affect sleep health (12). Because SDOH involve the economic, political, social, environmental, and cultural conditions in which people live (13), they may also affect sleep preferences.

When college students leave home to attend university, many may want to live in dormitories because they are less expensive, offer a greater sense of security, and are often preferred by parents. However, college dormitories are less likely to meet students' needs (14). Yet the literature contains no studies focusing on social determinants of health in college students who live in dormitories and have high social health needs. Based on a SDOH lens, our research recognizes that the circumstances of college students living in dormitories affect their sleep preferences and therefore sleep health.

2. METHOD

Participants and Design

This study aimed to investigate the social determinants of health in the sleep preferences of college students living in dormitories. This is descriptive-relational research. Its population consisted of students attending college in the spring semester of 2022-2023. The minimum required sample size for the study was determined using the formula for a known population ($n=N\cdot t^2\cdot p\cdot q \,/\, d^2\cdot(N-1) + t^2\cdot p\cdot q$) at the 95% confidence interval (d=0.05), t= 1.96, p=0.5, q=0.5. The minimum number of individuals to be included in the sample was found to be 377. The study included 380 college students who were at least 18 years old, had no verbal communication difficulties, and consented to participate in the study. In the post hoc power

analysis conducted in line with the results obtained from 380 participants, the power of our study was calculated to be 99% at the medium effect size at a 95% confidence level (15).

The average age of the study's participants was 21.68±1.65 years. More than half (60.5%) of the participants were female, 39.7% were in their fourth year (or higher) of study, and 40% were studying in the faculty/school of health sciences. Approximately one quarter (26.3%) of the students experienced insomnia, 10.3% had been medically diagnosed with insomnia, and 7.9% were taking insomnia medication.

Data Collection Tools

The study's data were collected using a personal information form containing socio-demographic data, the Social Determinants of Health Scale for University Students, and the Morningness-Eveningness Stability Scale (MESSi). Face-to-face interviews (lasting between 10 and 15 minutes) were conducted between 09:00-17:00 on weekdays, after the participants' class hours.

Personal information form: The personal information form was created by the researchers and included seven questions regarding college students' demographics (age, gender, education level, and department) and experiences of insomnia (7,16,17).

Social Determinants of Health Scale for University Students: Developed by Johnson et al., (2022) (18) and adapted into Turkish by Karatana (2024) (19), the scale is consisting of 18 items and three subscales (general social health needs, social health needs, and promotive social health) and 2-point likert type. Items belonging to promotive social health factors were reverse scored. The raw score that can be obtained from the scale ranges between 0 and 15, with a high score indicating that students have a high need for social health. The Cronbach's alpha internal consistency coefficient of the original scale was 0.71 for the total scale, 0.74 for the general social health subscale, 0.74 for the social health needs subscale, and 0.61 for the promotive social health subscale. In this study, 0.95 for the total scale, 0.94 for the general social health subscale, 0.94 for the social health needs subscale, and 0.72 for the promotive social health subscale.

Morningness-Eveningness Stability Scale (MESSi): Developed by Demirhan et al. (2019) (20), the MESSi is used to define the morning-evening sleep preferences of participants and is a 5-point Likert-type scale consisting of 15 items and three subscales (morningness, eveningness, and distinctness). Items 1, 2, 3*, 4, 5, 6*, 7, 8, 9, 10, 11*, 12*, 13, 14, and 15* are reverse-scored items. The raw score that can be obtained from the scale ranges between 15 and 75. The higher the total score obtained from items 1, 2, 3*, 4, and 6*, the higher the morningness preference; the higher the total score obtained from items 5, 7, 13, 14, and 15, the higher the eveningness preference; and the higher the total score obtained from items 8, 9, 10, 11*, and 12*, the higher the distinctness preference. The Cronbach's alpha for the subscales morningness, eveningness, and distinctness were 0.84, 0.81, and 0.58. In this study, 0.95 for the total scale, 0.93, 0.94 for the morningness subscale, 0.87 for the eveningness subscale, and 0.83 for the distinctness subscale.

Data Analysis

The Statistical Package for Social Sciences Version 26.0 (SPSS) and Analysis of Moment Structures Version 24.0 (AMOS) programs were used to analyze the study's data. Normality of distribution of the data was evaluated with the Kolmogorov-Smirnov test, which determined that the data was not normally distributed (21). Participants' sociodemographic and insomnia characteristics and distribution of scale scores were analyzed using percentage and mean tests, independent sample t-tests, one-way analysis of variance, and post hoc Tukey test in order to determine the differences between groups. Using the bootstrapping (5.000 bootstrap samples) method, the confidence interval was determined to be 95%. Interpretation of the analysis resulted in an acceptable statistical significance level of $p< .05$.

3. RESULTS

This study found that students preferred M-type (n=106) and E-type (n=154). A statistically significant difference was found between M-type college students and gender, age, grade, and faculty ($p< .05$). M-type college students' mean score was significantly higher in males, those between 18-21 years of age, those in their fourth (or more) year of study, and those studying in the faculty/school of health sciences ($p< .05$). A statistically significant difference was found between E-type college students; gender, age, grade, and faculty; and medical diagnosis for insomnia ($p< .05$). E-type college students' mean score was significantly higher in males, those between 18-21 years of age, third year students, medical faculty students, and those not having been medically diagnosed with insomnia ($p< .05$). A statistically significant difference was found between N-type college students; gender, age, grade, and faculty; insomnia; and an insomnia medical diagnosis ($p< .05$). N-type college students' mean score was significantly higher in males, those between 18-21 years of age, second year students, medical faculty students, those experiencing insomnia, and those not having been medically diagnosed with insomnia ($p< .05$) (Table 1).

The mean score of the Social Determinants of Health Scale was found to be significantly higher in males, second year students, medical faculty students, those experiencing insomnia, those having been medically diagnosed with insomnia, and those who used medication for insomnia ($p< .05$). No significant difference was found between social determinants of health and age ($p> .05$) (Table 1).

The mean social determinants of health score of college students was 6.86±6.42, the social health needs score was 1.29±1.73, the social health needs score was 4.56±4.23, and the promotive social health needs score was 1.00±1.11. Participants' average M/E-type score was 44.62±6.52, the M-type mean score was 15.43±6.53, the E-type mean score was 15.00±4.92, and the N-type mean score was 14.18±4.28 (Table 2).

This study found that social health needs (r: -.628), general social health needs (r: -.663), and promotive social health (r: -.671) had a statistically significant and negative effect on M-type preference. Social health needs (r: .673; r: .478), general social health needs (r: .643; r: .485), and promotive social health (r: -.649; r: .513) had a statistically significant and positive effect on E-type and N-type preferences (Table 3).

Table 1. Comparison of Socio-demographic and Sleeplessness Characteristics of College Students SDOH and MESSI Scale Mean Scores

Characteristics	N	%	SDOH	M-type	E-type	N-type
Gender						
Female	230	60.5	6.26±6.33	14.38±6.52	14.16±4.72	13.41±3.91
Male	150	39.5	7.77±6.47	16.12±6.46	16.28±4.95	15.36±4.55
Test value			t:-2.250	t:-2.558	t:-4.175	t:-4.426
P value			p:0.025*	p:0.011*	p:0.000*	p:0.000*
Age (year) 21.68±1.65						
18-21	121	31.8	7.65±6.89	15.99±6.45	16.20±4.86	15.37±4.10
22-25	259	68.2	6.49±6.27	14.23±6.57	14.44±4.85	13.62±4.25
Test value			t:1.648	t:2.469	t:3.303	t:3.757
P value			p:0.100	p:0.014*	p:0.001*	p:0.000*
Grade						
1st grade [1]	68	17.9	7.14±6.19	14.42±6.07	15.05±4.82	14.13±4.11
2nd grade [2]	80	21.1	8.02±6.78	14.22±6.70	16.32±5.00	15.58±4.17
3rd grade [3]	81	21.3	7.80±6.56	14.20±5.74	16.67±4.59	15.32±4.38
4th grade and above [4]	151	39.7	5.60±6.07	17.19±6.69	13.38±4.61	12.85±3.98
Test value			f:3.481	f:6.318	f:11.324	f:10.322
P value			p:0.016*	p:0.000*	p:0.000*	p:0.000*
Difference between groups			2>4	4>1	3>4	2>4
Faculty						
Faculty/School of Health Sciences [1]	152	40	5.93±6.38	16.92±7.08	13.35±4.70	12.80±3.78
Vocational School [2]	44	11.6	8.77±6.47	13.04±5.58	17.11±4.76	15.56±4.13
Faculty of Arts and Sciences [3]	32	8.4	7.50±6.56	14.92±6.16	15.90±5.08	14.78±4.91
Faculty of Law [4]	39	10.3	5.79±5.20	16.23±5.80	14.25±4.17	13.58±3.91
Faculty of Engineering [5]	51	13.4	6.37±6.44	15.01±6.30	14.86±5.10	14.49±4.26
Faculty of Medicine [6]	22	5.8	9.95±6.41	11.90±4.47	17.83±4.17	17.03±4.35
Faculty of Dentistry [7]	28	7.4	7.57±6.46	14.93±6.12	17.78±3.94	16.04±4.11
Faculty of Art and Design [8]	12	3.2	8.08±7.54	13.41±6.21	17.40±4.28	15.50±4.48
Test value			f:2.135	f:3.355	f:7.223	f:6.196
P value			p:0.039*	p:0.002*	p:0.000*	p:0.000*
Difference between groups			6>1	1>6	6>1	6>1
Insomnia						
Yes	100	26.3	8.10±6.34	14.80±6.26	14.77±4.97	14.98±4.26
No	280	73.7	6.41±6.40	15.66±6.62	15.63±4.73	13.90±4.26
Test value			t:2.261	t:-1.131	t:-1.488	t:2.175
P value			p:0.024*	p:0.259	p:0.138	p:0.030*
Medical diagnosis for insomnia						
Yes	39	10.3	9.10±6.43	15.51±6.58	14.81±4.93	15.66±4.45
No	341	89.7	6.60±6.37	14.71±6.13	16.61±4.56	14.01±4.23
Test value			t:2.315	t:-0.722	t:2.171	t:2.294
P value			p:0.021*	p:0.471	p:0.031*	p:0.022*
Use medication for insomnia						
Yes	30	7.9	9.36±5.92	15.43±5.81	14.97±4.93	13.66±4.49
No	350	92.1	6.64±6.42	15.42±6.59	15.30±4.85	14.22±4.26
Test value			t:2.239	t:-0.002	t:0.345	t:-0.689
P value			p:0.026*	p:0.998	p:0.731	p:0.491

*p<0.05; T: Independent sample t test F: One-way analysis of variance (ANOVA) was applied.

Table 2. Distribution of College Students' SDOH, and M/E-types Scale Mean Scores

Scales	Min-max	Mean	Std. Deviation	Skewness	Kurtosis	Cronbach's alpha
Social Determinants of Health	0-15	6.86	6.42	.717	-.919	.955
General social health needs	0-4	1.29	1.73	.797	-1.205	.947
Social health needs	0-11	4.56	4.23	.586	-1.203	.946
Promotive social health factors	0-3	1.00	1.11	.677	-.970	.720
M/E-Type	15-75	44.62	6.52	-.453	-.237	.935
M-type	5-25	15.43	6.53	.181	-1.037	.947
E-type	5-25	15.00	4.92	.155	-.271	.878
N-type	5-25	14.18	4.28	.480	.873	.837

Min: Minimum, Max: Maksimum

Table 3: Pearson Correlation Analysis Results of the Social Determinants of Health Scale for College Students and the M/E- types Scale

Variables		SHN	GSHN	PSH	M-type	E-type	N-type
SHN	r	1	.699**	.651**	-.628**	.673**	.478**
	p		.000	.000	.000	.000	.000
GSHN	r	.699**	1	.664**	-.663**	.643**	.485**
	p	.000		.000	.000	.000	.000
PSH	r	.651**	.664**	1	-.671**	.639**	.513**
	p	.000	.000		.000	.000	.000
M-type	r	-.628**	-.663**	-.671**	1	-.647**	-.569**
	p	.000	.000	.000		.000	.000
E-type	r	.673**	.643**	.639**	-.647**	1	.746**
	p	.000	.000	.000	.000		.000
N--type	r	.478**	.485**	.513**	-.569**	.746**	1
	p	.000	.000	.000	.000	.000	

***p*<.01; SHN: Social health needs; GSHN: General social health needs; PSH: Promotive social health.

Structural equation modeling (SEM) was used to determine the relationship between social determinants of health and M/E-type preferences. The AMOS 24 program was used for SEM, and model fit index values were taken into consideration in the interpretation (21). Model fit values of 0.95≤ GFI; AGFI; NFI; IFI; TLI; CFI< 1.00; 0 ≤ RMSEA; RMR ≤ 0.05; and 0 ≤ χ^2/sd ≤ 2 were found to be a good fit, and model fit values of 0.90≤ GFI; AGFI; NFI; IFI; TLI; CFI< 0.95; 0.05 ≤ RMSEA; RMR ≤ 0.08; and 2 ≤ χ^2/sd ≤ 5 were found to be an acceptable fit. Four models have been developed to illustrate: a) the relationship between SDOH and M-type preference, b) the relationship between SDOH and E-type preference, c) the relationship between SDOH and N-type preference, and d) the relationship between SDOH and M/E-type preference (Figure 1). Examination of the models showed that Model I (χ^2/sd: 1.902; GFI: 0.981; AGFI; 0.955; NFI: 0.990; IFI: 0.995; TLI: 0.991; CFI: 0.995; RMSEA: 0.049; RMR: 0.016), Model II (χ^2/sd: 1.049; GFI: 0.990; AGFI; 0.975; NFI: 0.991; IFI: 1.00; TLI: 0.999; CFI: 1.00; RMSEA: 0.011; RMR: 0.014), Model III (χ^2/sd: 3.023; GFI: 0.974; AGFI; 0.937; NFI: 0.968; IFI: 0.979; TLI: 0.960; CFI: 0.978; RMSEA: 0.073; RMR: 0.025), and Model IV (χ^2/sd: 1.796; GFI: 0.992; AGFI; 0.967; NFI: 0.994; IFI: 0.997; TLI: 0.992; CFI: 0.997; RMSEA: 0.046; RMR: 0.004) were valid (Figure 1).

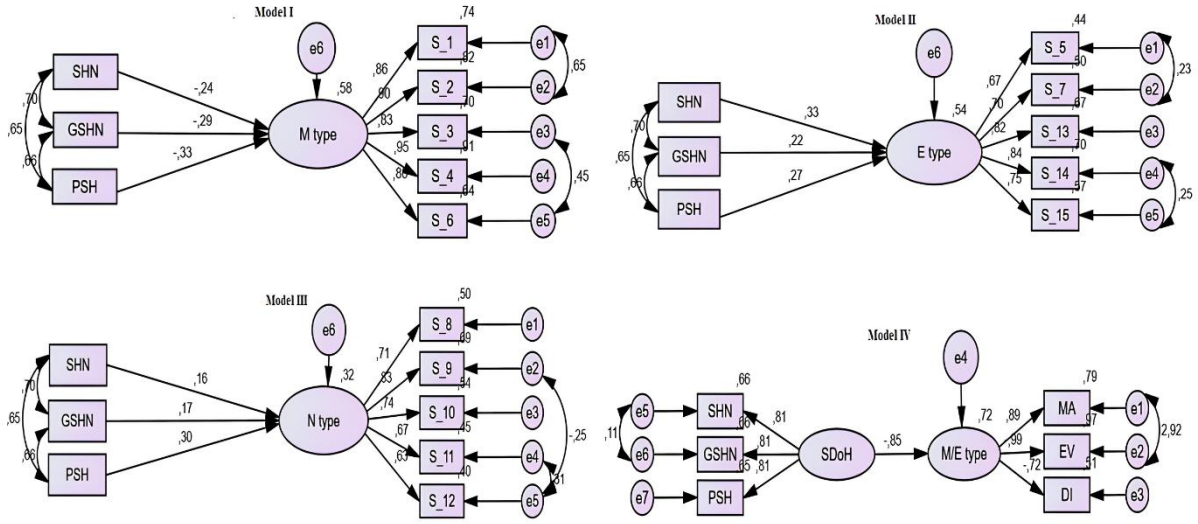

Figure 1: Results of The Research Model Analysis

This study found that social health needs (β: -.237), general social health needs (β: -.294), and promotive social health (β: -.328) had a statistically significant and negative effect on M-type individuals, with an explained variance value of 0.576. Social health needs (β: .332; β: .162), general social health needs (β: .225; β: .175), and promotive social health (β: .269; β: .303) had a statistically significant and positive effect on E/N-type individuals, with an explained variance value of 0.537 and 0.322. Social determinants of health (β: -.847) had a statistically significant and negative effect on M/E-type individuals, with an explained variance value of 0.718 (Table 4).

Table 4: The Relationship Between SDOH And M/E-Types Scale in line with The Established Models

	Variables			USE	SE (β)	S.E.	C.R.	*p*	R^2	%95 bootstrapping		
										LB	UB	*p* value
Model (I)	SHN	→	M-type	-.767	-.237	.174	-4.415	***	.576	-.315	-.138	.010*
	GSHN	→	M-type	-.846	-.294	.157	-5.375	***		-.410	-.112	.010*
	PSH	→	M-type	-1.117	-.328	.177	-6.322	***		-387	.130	.010*
Model (II)	SHN	→	E-type	.723	.332	.137	5.281	***	.537	.160	.356	.010*
	GSHN	→	E-type	.431	.225	.120	3.591	***		.126	.332	.010*
	PSH	→	E-type	.610	.269	.136	4.490	***		.243	.322	.010*
Model (III)	SHN	→	N-type	.316	.162	.138	2.286	.022*	.322	.175	.393	.010*
	GSHN	→	N-type	.302	.175	.125	2.427	.015*		.054	.316	.023*
	PSH	→	N-type	.622	.303	.142	4.385	***		.035	.265	.019*
Model (IV)	SDOH	→	M/E-type	-1.424	-.847	.247	-15.745	***	.718	-.958	-.845	.010*

*p<.05; ***p<.001 USE: Unstandardized Estimate SE(β): Standardized Estimate LB: Lower Bounds; UB: Upper Bounds; SDOH: Social Determinants of Health; SHN: Social health needs; GSHN: General social health needs; PSH: Promotive social health.

4. DISCUSSION

Characteristics of one's physical and social environment can affect sleep health, play a role in the development of sleep disorders, and influence sleep preferences. The aim of this study was to examine the combined effect of social determinants of health on the sleep preferences of college students living in dormitories. This study's results show that among students living in dormitories, had insomnia, were medically diagnosed with insomnia, and used medication for insomnia. Sleep health is especially important for college students, as those who experience good sleep tend to achieve higher academic performance (22). Therefore, future studies examining the environmental factors that cause insomnia are recommended.

In their study conducted in California universities, Martinez-Cardoso et al. (2020) reported that most college students experienced problems with housing/food insecurity and transportation (23). In the current study, the fact that social determinants of health was significantly higher in those who were males, second year students, medical faculty students, those experiencing insomnia, those who had been medically diagnosed with insomnia, and those who used medication for insomnia reveals a relationship between social determinants of health and sleep health, suggesting that sleep problems may be prevented by meeting the social health needs of college students.

Poor sleep health has been associated with food insecurity, serious psychological distress, and poorer self-rated mental and physical health (1). In this study, the mean score of social determinants of health of college students living in dormitories was found to be at a moderate level, pointing to the need for their improved social health. Obligations associated with life as a college student may disrupt circadian phases, contributing to irregular sleep patterns (24). According to the results of the current study, M-type preference occurs more frequently in those with decreased social health needs, and E/N-type preference occurs more frequently in those with increased social health needs. A study conducted by Acar (2018) found that college students living in student housing or dormitories have poorer sleep quality due to crowded or unfavorable conditions such as excessive lighting and noise (25). Therefore, student housing-related problems, which are among the social determinants of health, may affect circadian preferences.

College students, especially those who are inactive or E-type individuals, are commonly described as having poor sleep health (6). A study conducted with Turkish college students reported that they preferenced M-type (n=54), E-type (n=44), and N-type (n=157) (26). According to the current study's results, college students had low M-type and moderate E-type preferences. Since M-type preference has a positive effect on physical well-being, health (27), and academic success (28), college students should be encouraged to adopt M-type sleep.

According to the literature, gender does not significantly affect M/E-type preferences (29–31). While Hasan et al. (2022) claimed that men preferred M-type sleep, the current study found that they preferred both M-type and E-type sleep (27). The intensity of education in health faculties may cause students to sacrifice their sleep hours, resulting in E-type sleep preferences. Ekenler & Altınel (2021) found that the majority of nursing students have poor sleep quality, and Arifuddin et al. (2021) revealed that medical students show a greater tendency towards E-type sleep (16, 17). The current study also found that medical students preferred E-type sleep, while health sciences students preferred M-type sleep. While Wu and Yang (2023) reported

that students in their later years of study preferred E-type sleep (32), the current study found that they preferred M-type sleep, perhaps because medical students transfer to intern practice in their final year of study.

5. CONCLUSION

This study found that college students living in dormitories preferred E/N-type sleep due to their social health needs. Because E-type preference affects college students' productivity and efficiency, E-type individuals should be provided with a healthy environment in which they can adopt better sleep habits. Further multidisciplinary studies focusing on the social health needs and adaptation problems of college students living in dormitories are recommended. In addition, public health nurses can articulate the needs of the individuals, families, and communities they serve to administrators who enact policies in higher education institutions. It is recommended that the accommodation problems of university students should be eliminated, and the rooms should be arranged in a way that is suitable for sleep health.

Limitations

The main limitation of the current study is that it employed a cross-sectional design; thus, causality cannot be determined. Because the study was conducted with only college students selected through an online sampling technique, its results may not be generalized to other populations.

Ethical Consideration of the Study

Ethical approval was obtained from the research ethics committee of a university (no: 16.11.2022-160/15). The study was conducted in accordance with the tenets of the Declaration of Helsinki. Before the study began, its purpose was explained to the participants, and participants' written consent was obtained. Participants were also informed that they could exit the study at any time.

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Authorship criteria

All authors approved the final version for submission.

Informed consent statement

All participants were informed about the study's research purpose and procedure. Informed consent was obtained from those who agreed to participate in the study.

REFERENCES

1. Becerra, M. B., Bol, B. S., Granados, R., & Hassija, C. (2020). Sleepless in school: The role of social determinants of sleep health among college students. *Journal of American College Health*, *68*(2), 185–191. doi:10.1080/07448481.2018.1538148
2. Sivertsen, B., Harvey, A. G., Gradisar, M., Pallesen, S., & Hysing, M. (2021). Delayed sleep–wake phase disorder in young adults: prevalence and correlates from a national survey of Norwegian university students. *Sleep Medicine*, *77*, 184–191. doi:10.1016/j.sleep.2020.09.028.
3. Wang, F., & Bíró, É. (2021). Determinants of sleep quality in college students: A literature review. *Explore*, *17*(2), 170–177. doi:10.1016/j.explore.2020.11.003.
4. Silva, V. M., Magalhaes, J. E. de M., & Duarte, L. L. (2020). Quality of sleep and anxiety are related to circadian preference in university students. *Plos One*, *15*(9), e0238514. doi:10.1371/journal.pone.0238514
5. Montaruli, A., Castelli, L., Mulè, A., Scurati, R., Esposito, F., Galasso, L., & Roveda, E. (2021). Biological rhythm and chronotype: New perspectives in health. *Biomolecules*, *11*(4), 487. doi:10.3390/biom11040487
6. Castelli, L., Galasso, L., Mulè, A., Ciorciari, A., Esposito, F., Roveda, E., & Montaruli, A. (2023). Physical activity and morningness: A helpful combination in improving the sleep quality of active Italian university students. *Chronobiology International*, *40*(8), 1028–1038. doi:10.1080/07420528.2023.2241906
7. Billings, M. E., Hale, L., & Johnson, D. A. (2020). Physical and social environment relationship with sleep health and disorders. *Chest*, *157*(5), 1304–1312. doi:10.1016/j.chest.2019.12.002
8. Koo, D. L., Yang, K. I., Kim, J. H., Kim, D., Sunwoo, J., Hwangbo, Y., & Hong, S. B. (2021). Association between morningness-eveningness, sleep duration, weekend catch-up sleep and depression among Korean high-school students. *Journal of Sleep Research*, *30*(1). doi:10.1111/jsr.13063
9. Merikanto, I., Kortesoja, L., Benedict, C., Chung, F., Cedernaes, J., Espie, C. A., & Bjorvatn, B. (2022). Evening-types show highest increase of sleep and mental health problems during the COVID-19 pandemic multinational study on 19 267 adults. *Sleep*, *45*(2). doi:10.1093/sleep/zsab216
10. Norbury, R. (2021). Diurnal preference and depressive symptomatology: A meta-analysis. *Scientific Reports*, *11*(1), 12003. doi:10.1038/s41598-021-91205-3
11. Centers for Disease Control and Prevention. (2022). Social determinants of health. Retrieved from https://www.cdc.gov/about/sdoh/index.html
12. Kuriyama, K. (2024). Social determinants of sleep quality: association between sleep quality and living environment among older individuals. *Sleep and Biological Rhythms*, *22*(3), 301–302. doi:10.1007/s41105-024-00533-0
13. Marmot, M. (2020). Health equity in England: the marmot review 10 years on. *BMJ*, m693. doi:10.1136/bmj.m693
14. Daliri Dizaj, M., & Hatami Khanghahi, T. (2022). Students' residential preferences: a case study is dormitories of University of Mohaghegh Ardabili. *Journal of Asian Architecture and Building Engineering*, *21*(4), 1348–1363.

doi:10.1080/13467581.2021.1941987

15. Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, *1*(3), 98–101. doi:10.1111/1467-8721.ep10768783

16. Ekenler, G., & Altınel, B. (2021). Hemşirelik öğrencilerinde uyku kalitesi ile akademik başarı arasındaki ilişkinin incelenmesi. *Online Türk Sağlık Bilimleri Dergisi*, *6*(4), 575–582. doi:10.26453/otjhs.883544

17. Arifuddin MK, Shashiraj HK, & Kavitha BS. (2021). Morningness- eveningness preferences among first year medical students. *Scholars International Journal of Anatomy and Physiology*, *4*(3), 32–34. doi:10.36348/sijap.2021.v04i03.003

18. Johnson, K. F., Brookover, D. L., & Bradbrook, K. (2022). Social health needs and promotive health factors scale for college students: Scale development and initial validation. *Journal of American College Health*, *70*(1), 74–83. doi:10.1080/07448481.2020.1725021

19. Karatana, Ö. (2024). Adaptation of the social determinants of health scale for university students to Turkish: A validity and reliability study. *İstanbul Gelişim Üniversitesi Sağlık Bilimleri Dergisi*, *21*, 769–779. doi:10.38079/igusabder.1224152

20. Demirhan, E., Önder, İ., Horzum, M. B., Masal, E., & Beşoluk, Ş. (2019). Adaptation of the morningness–eveningness stability scale improved (MESSi) into Turkish. *Chronobiology International*, *36*(3), 427–438. doi:10.1080/07420528.2018.1560307

21. Tabachnick, B. G., & Fidell, L. S. (2021). *Using multivariate statistics, 7th edition*. Pearson.

22. Driller, M., Suppiah, H., Gastin, P. B., & Beaven, C. M. (2021). Questionnaire-derived sleep habits and academic achievement in first year university students. *Clocks & Sleep*, *4*(1), 1–7. doi:10.3390/clockssleep4010001

23. Martinez-Cardoso, A., Jang, W., & Baig, A. A. (2020). Moving diabetes upstream: The social determinants of diabetes management and control among immigrants in the US. *Current Diabetes Reports*, *20*(10), 48. doi:10.1007/s11892-020-01332-w

24. Phillips, A. J. K., Clerx, W. M., O'Brien, C. S., Sano, A., Barger, L. K., Picard, R. W., & Czeisler, C. A. (2017). Irregular sleep/wake patterns are associated with poorer academic performance and delayed circadian and sleep/wake timing. *Scientific Reports*, *7*(1), 3216. doi:10.1038/s41598-017-03171-4

25. Acar, G. A. (2018). Sağlıkla ilgili eğitim veren fakültelerdeki öğrencilerin uyku kalitesinin belirlenmesi. *Pamukkale Medical Journal*. doi:10.31362/patd.399606

26. Yilbas, B., & Gunel Karadeniz, P. (2022). The relationship between chronotype and impulsivity, attention-deficit disorder, internet, social media, and smartphone addiction. *Alpha Psychiatry*, *23*(4), 203–209. doi:10.5152/alphapsychiatry.2022.21656

27. Hasan, M. M., Jankowski, K. S., & Khan, M. H. A. (2022). Morningness-eveningness preference and shift in chronotype during COVID-19 as predictors of mood and well-being in university students. *Personality and Individual Differences*, *191*, 111581. doi:10.1016/j.paid.2022.111581

28. Önder, İ. (2022). Association of happiness with morningness - eveningness preference, sleep-related variables and academic performance in university students. *Biological Rhythm Research*, *53*(6), 950–965. doi:10.1080/09291016.2020.1848266

29. Nouri, A., Esmaeili, F., Seyedi, H., Rezaeian, S., Panjeh, S., Cogo-Moreira, H., &

Pompeia, S. (2021). Factor structure and psychometric properties of the Persian versions of the pediatric daytime sleepiness scale and morningness–eveningness scale for children. *Journal of Education and Health Promotion*, *10*(1), 343. doi:10.4103/jehp.jehp_260_21

30. Lu, L., Dong, M., Jian, S., Gao, J., Ye, L., Chen, H., & Liu, S. (2021). Sex differences in the factors associated with sleep duration in university students: A cross-sectional study. *Journal of Affective Disorders*, *290*, 345–352. doi:10.1016/j.jad.2021.04.025

31. Arrona-Palacios, A., Díaz-Morales, J. F., & Adan, A. (2021). Sleep habits and circadian preferences in school-aged children attending a Mexican double-shift school system. *Sleep Medicine*, *81*, 116–119. doi:10.1016/j.sleep.2021.02.016

32. Wu, D., & Yang, T. (2023). Late bedtime, uncertainty stress among Chinese college students: impact on academic performance and self-rated health. *Psychology, Health & Medicine*, *28*(10), 2915–2926. doi:10.1080/13548506.2022.2067337