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Sleep Habits and Behavioral Problems among Children with Attention Deficit Hyperactivity Disorder

Sajjad Mohammad. Tagi[1*], Zeki Sabah. Musihb[2]

1 Academic Nurse, Pediatric Nursing Department, College of Nursing, University of Kerbala, Iraq.
2 Assistant Professor, Pediatric Nursing Department, College of Nursing, University of Kerbala, Iraq.

Corresponding author email address:
sajjad.mohammed@s.uokerbala.edu.iq

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ABSTRACT

Objective: To explore the relationship between behavioral problems and sleep habits in children with ADHD.

Methods and Materials: A descriptive correlational study was conducted from October 30, 2024, to June 30, 2025, at two specialized centers in Kerbala. A convenience sample of 100 parents of children with ADHD aged 3–12 years completed the CSHQ and the SDQ. Data were analyzed in SPSS 25 using descriptive statistics, Pearson correlations, group comparisons, and multivariable linear regression.

Findings: The sample was predominantly male (78%). The mean total CSHQ score was 68.17±4.67; 80% screened positive for sleep problems. Subscale means included bedtime resistance 12.02±1.51, sleep onset delay 2.15±0.45, sleep anxiety 10.44±1.27, and daytime sleepiness 15.54±1.63. Bedtime resistance correlated with conduct problems, hyperactivity, and total difficulties (p=0.002, <0.001, <0.001). Sleep onset delay correlated with emotional problems (p=0.027). Sleep duration correlated with conduct problems and total difficulties (p=0.041, 0.005). Night waking correlated with emotional and peer problems (p=0.015, 0.007). Daytime sleepiness correlated with hyperactivity (p=0.001). Total CSHQ correlated with emotional problems, conduct problems, hyperactivity, and total difficulties (p=0.001, 0.008, 0.005, 0.012). In regression, lower parental income and kindergarten attendance were associated with higher SDQ scores; combined ADHD type predicted higher difficulties.

Conclusion: Sleep disturbances are highly prevalent in children with ADHD and show domain-specific associations with behavioral difficulties. Routine sleep screening and integrated behavioral–sleep interventions are warranted in clinical and educational settings.

Keywords: Attention-Deficit/Hyperactivity Disorder, Sleep Disturbances, Behavioral Problems.

Introduction

Hyperkinetic disorder, often known as attention deficit/hyperactivity disorder (ADHD), is a prevalent neurodevelopmental disorder among children and adolescents. Inattention, hyperactivity, and impulsivity are the main signs of this disorder (Sampedro Baena et al., 2021). The DSM-IV has classified ADHD into three subtypes: inattentive (ADHD- I), hyperactive-impulsive (ADHD- HI), and combination (ADHD- C) (Gharebaghy et al., 2015). One of the most prevalent mental disorders diagnosed in childhood is ADHD. It is more prevalent in males than in girls. In addition, children with ADHD are at a greater probability of developing comorbid mental health issues, including anxiety, depression, sleep disorders, and oppositionality and aggression (Sanabra et al., 2021). In children, ADHD ranks second among chronic illnesses and most common behavioral disorders. According to 2016 national survey statistics, 8.4% of American children are now diagnosed with ADHD. It continues to be one of the most researched and controversial health issues Wolraich et al., (2019). Sleep is crucial for physical and mental recovery, as enhancing memory and learning, also motivate creative reflecting. Sleep disturbances may intensify stress, weaken immunity, and disrupt daily functioning. Sleep problems adversely impact their quality of life, academic performance, social interactions, daily activities, and development (MUSIHB et al., 2024). ADHD is particularly prevalent in young children and teenagers. Psychiatric disorders often continue throughout adulthood, causing social and financial hardships for both the person and the community (Popit et al., 2024). However, if symptoms are not recognized and treated appropriately, ADHD may lead to negative outcomes such as poor performance in school or the workplace, unemployment, lower income, delinquency, drug misuse, unintentional accidents, hospitalizations, and difficulties for the family (Valdez, 2022). Both biological and environmental factors are proposed as potential causes of ADHD. Genetics and brain structure are two basic biological factors that affect neuropsychology. Others factors like problems during and after delivery, exposure to toxic substances, parenting styles, and food (Singh et al., 2015). Five percent of children globally are affected by ADHD. The prevalence of 5.29% in North America, South America (12.3%), Africa (8.9%), Asia (4.2%), Australia (4.8%), and the Middle East (2.5%) (Hamidzadeh et al., 2021). Estimated the average yearly additional expenses of ADHD to be between $143 to $266 billion in the United States, and these figures are also high in other countries (Faraone et al., 2021). Pharmacological therapies, such as stimulants (amphetamines, methylphenidate) and non-stimulants (atomoxetine, guanfacine, clonidine), help restore neurotransmitter levels in the prefrontal cortex. While 80% of patients respond well, nearly 20% experience negative side effects from psychostimulant medications (Kessi et al., 2022). Behavioural therapy is to help children alter their behavior by introducing more of the behaviors they want and less of the undesirable ones through teaching oneself new words to solve problems or improve one's social skills (Catalá-López et al., 2017). Play enhances self-actualization, communication, relationships, emotional regulation, stress management, ego growth, and life readiness. It benefits individuals of all ages, serving as an effective means for learning and development while also fostering strong relationships and reducing stress (Knell, 2015).

The present study aims to assess the sleep habits and behavioral problems among children with ADHD, investigate the relationship between sleep habits and behavioral problems in children with ADHD, and find out the association between sleep habits and behavioral problems with sociodemographic characteristics of children with ADHD.

Methods and Materials

A descriptive study utilizing a correlational design was performed to evaluate the association between sleep habits and behavioral issues in children with attention deficit hyperactivity disorder at the Imam-Hussein Institute and Al-Sibtain Foundation for Autism and Developmental Disorders in Holy Kerbala City, Iraq, that extend from 30th October 2024 to 30th June 2025.

A convenience sample of 100 parents of children out of 130 in total, non-probability in order to gather information about the disease, children aged 3 to 12 years, a questionnaire was given to parents based on their availability. The questionnaire was filled out by the parents using self-reports style that were distributed to

them, and all information was kept completely private. The goal was to determine the relationship between variables based on The sleep habits questionnaire, the behavioral problems questionnaire, and the once all parents gave their agreement to participate in the study, the records of children with ADHD were reviewed. The institution provided the essential statistics on ADHD in both males and girls.

Inclusion Criteria: Parents of children with ADHD aged 3 to 12 who attended Al-Sibtain Academy and Imam Hussein Institute provided verbal consent to participate in the study. Exclusion Criteria: The pilot study sample and parents of children over 12 years old. Participants with co-occurring developmental conditions, such as global developmental delay and autism spectrum disorder, were excluded to maintain a focused sample. Informed consent was obtained from all caregivers to ensure ethical compliance.

Instruments

The questionnaire is based on the opinions of the experts as well as a thorough examination of relevant literature and past studies Wannapaschaiyong et al., (2024). A questionnaire format was including three parts:

Part I: Socio-demographic Characteristic of the parents and their children: Characteristics of the studied parents such as age, residency, level of education, occupational and economic status. Characteristics of the studied children such as age, gender, level of education for child, number of sibling and child order in the family.

Part II: parents Information's about sleep habits among children with ADHD used Children's Sleep Habits Questionnaire (CSHQ): Parental reports are one method of evaluating children's sleeping patterns. The 33-item CSHQ questionnaire, was filled out by the parents. When filling out the CSHQ, the parent is asked to recall the past week of typical sleep. The CSHQ's items addressed children's sleeping patterns and daytime and nighttime behaviors. A 3-point Likert scale was used to rate each item, with "always" (five to seven times per week) equaling 3, "sometimes" (two to four times per week) equaling 2, and "never" (0 to one times per week) equaling 1. An overall score of more than 41 points is regarded as a sign of sleep problems such as sleep-onset delay, Sleep duration, Bedtime resistance, sleep anxiety, nighttime awakenings, sleep-disordered breathing, parasomnias and daytime sleepiness, and are among the various elements of sleep that can be measured using the subscales in this evaluation (Owens et al., 2000).

Part III: parents Information's about Behavioral problems among children with ADHD used Strength and Difficulties Questionnaire (SDQ): The 25 traits that make up the SDQ are arranged into five scales. There are three possible ratings for each of the 25 items: Never (0), Sometimes (1), or Always (2). Additionally, there are five items on each of the SDQ scales, with scores ranging from 0 to 10. The fifth scale assesses prosocial activities, while the first four measure emotional symptoms, behavioral issues, hyperactivity–inattention, and issues with peer relationships. A total difficulty score is then produced by adding the scales, which include both positively and negatively phrased items. Five sub-scales are intended to be created from the 25 components. There are five questions on each of the five subscales. Except for the pro-social behavior sub-scale, higher scores indicate greater difficulties. The overall problems score, which can vary from 0 to 40, was produced by adding the scores for every scale except the pro-social scale (Goodman, 1997).

The instrument validity: A panel of 15 experts in the study's fields reviewed the instrument to improve its validity. The study's instruments were reviewed by professionals, who added and removed items. After considering experts' opinions and recommendations, the instrument is valid.

Reliability: Ten parents of children were subjected to reliability testing as a statistical analysis technique to ascertain the concordance of the questionnaire items through the use of the reliability coefficient. Cronbach's alpha indicated that the scale maintained an acceptable level of internal consistency, as demonstrated below: Sleep habits 33 item value is 0.832, Behavioral problems 30 item value is 0.862 . According to the alpha Cronbach test, the questionnaire was successfully designed and is reliable for studying the assess sleep habits and behavioral problems among children with ADHD.

Procedeure

Formally, the current research must start with a legal request filed to the appropriate institutions in this area of study. The title, objectives and constructed questionnaire was presented to the College of Nursing's Scientific Research Ethics Committee, which reviewed the study instruments (questionnaire) and approved the study's conduct.

Data were obtained through self-reports given to parents, and a questionnaire was filled by parents. The period from 30th October 2024 to 30th February 2025. conversation was conducted with parents who were attended to the Al-Sibtain Academy and Imam Hussein Institute for Children with Autism and Developmental Disorders and given the questionnaire after agreement of parents to participate in the research, then the examiner clarifying the purpose of the investigation in simple way. Data gathered from parents who brought their children at childcare centers and picked them up at the end of the workday, with each parent spending an average of fifteen to twenty minutes filling out the questionnaire.

The study protocol and official authorization have undergone independent review and received approval from the College of Nursing at the University of Karbala to proceed with the research (Code: IRB: CON-2024-052). The title, objectives, and finished questionnaire were submitted to the College of Nursing's Scientific Research Ethics Committee, which evaluated the study instruments (questionnaire) and granted approval for the study's running. Parents gave the researcher their explicit written consent. Before the participant's parents take part in the study, the researcher informs them of its purpose. the researcher further assured them that participation in the study was voluntary and that the data would be kept private and confidential during and after the study.

Data Analysis

The gathered data of the research was analyzed using Microsoft Excel (2010) and the SPSS (Statistical Package of Social Sciences) version 25. Descriptive approach: Frequency (N), Percentage (%), Mean (M), Standard deviation (Catalá-López et al.), Mean of scores (M.s.). Inferential approach: First: Independent sample (t) test: To evaluate the significance differences in children's sleep Habits and Behavioral Problems according to their socio-demographic variables that divided into two categories. Second: One Way ANOVA test: To evaluate the significance differences in children' Sleep Habits and Behavioral Problems according to their socio-demographic variables, that divided into three categories or more. Third: Pearson Correlation Test: to find out how strong and in what direction two continuous variables are linearly connected.

Findings and Results

Table 1

Distribution of parents in the sample according to their demographic data (N100)

Demographic data		Mother N(%)	Father N(%)
Age (years)	<30	27(27%)	15(15%)
	30-35	41(41%)	25(25%)
	>35	32(32)	60(60%)
Educational level	Illiterate	0(0%)	0(0%)
	Primary	25(25%)	13(13%)
	Intermediate	23(23%)	24(24%)
	Secondary	16(16%)	12(12%)
	Institute	8(8%)	16(16%)
	University	28(28%)	35(35%)
Occupation status	Employed	29(29%)	47(47%)
	Unemployed	71(71%)	53(53%)
Place of residence	Urban	82(82%)	82(82%)
	Rural	18(18%)	18(18%)
Monthly Income	Enough	28(28%)	37(37%)
	Barely enough	54(54%)	45(45%)
	Not enough	18(18%)	18(18%)

Table 1 presents the demographic distribution of mothers and fathers in the sample. For mothers, the majority are aged between 30-35 years (41%), hold a university degree (28%), and are primarily unemployed (71%). Most reside in urban areas (82%) and report an income that is barely sufficient (54%). Conversely, for fathers, the highest percentage is over 35 years old (60%), with 35% holding a university education. A significant proportion are unemployed (53%), also reside in urban areas (82%), and report an income that is barely sufficient (45%).

Table 2

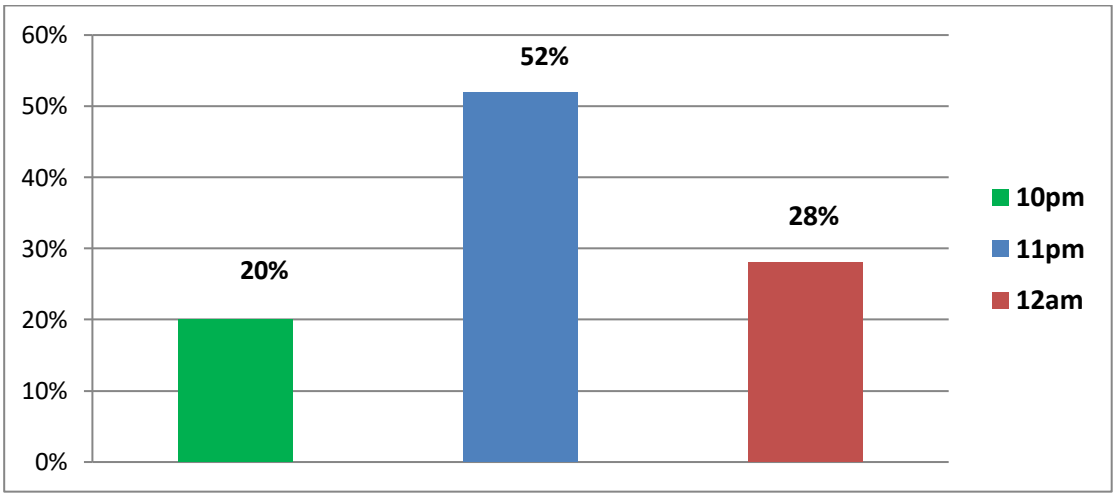
Distribution of children in the sample according to their demographic data (N100)

Demographic data		N(%)
Gender	Male	78(78%)
	Female	22(22%)
Age (years)	3-6	52(52%)
	6-9	31(31%)
	9-12	17(17%)
Number of brothers	No	15(15%)
	One or two	45(45%)
	Three or four	23(23%)
	Five or more	17(17%)
Ranking	First	28(28%)
	Second	20(20%)
	Third and above	52(52%)
educational level	Kindergarten	83(83%)
	Primary	17(17%)
Type of disorder	Hyperactivity-impulsive	16(16%)
	Inattention	17(17%)
	Both	67(67%)

Table 2 shows the distribution of children in the sample according to their demographic data. It shows that the highest percentage of participating children are males (78%), the highest percentage of them are under six years old, most of them have one or two brothers (45%), the highest percentage of them are third or above (52%), and most of them are (in foster care) (83%).

Figure 1

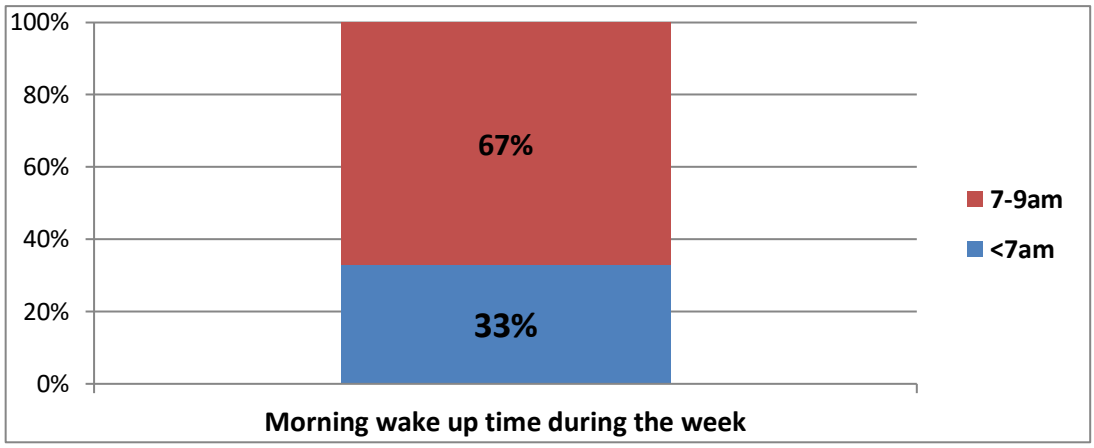
Distribution of sample children according to their sleep times during weeknights



The distribution of sample children according to their sleep times during weeknights; it shows that the highest percentage of them (52%) go to sleep during the weekdays at (11 pm) (Fig. 1).

Figure 2

Distribution of children in the sample according to their morning wake-up time during weekdays



The distribution of children in the sample according to their morning wake-up time during weekdays, it shows that the highest percentage of them (67%) wake-up (7-9 am) (Fig. 2).

Table 3

The children's sleep habits questionnaire (CSHQ) subscale scores and total scores in children with ADHD

CSHQ Score	Mean	SD
Bedtime resistance	12.02	1.51
Sleep onset delay	2.15	0.45
Sleep duration score	6.48	0.64
Sleep anxiety	10.44	1.27
Night waking	6.45	1.10
Parasomnias	11.38	1.97
Sleep disorder breathing	3.71	1.14
Daytime sleepiness	15.54	1.63
Total CSHQ score	68.17	4.67
Positive sleep problems, n (%)	80	80

The children's sleep habits questionnaire (CSHQ) subscale scores and total scores in children with ADHD, it explains that the mean of (Bedtime resistance :M± SD: 12.02±1.51), mean of sleep onset delay (M± SD: 2.15±0.45), mean of sleep duration score (M± SD: 6.48±0.64), mean of sleep anxiety (M± SD: 10.44±1.27), and mean of night waking (M± SD: 6.45±1.10), mean of parasomnias (M± SD: 11.38±1.97), mean of sleep disorder breathing ((M± SD: 3.71±1.14), mean of daytime sleepiness (M± SD: 15.54±1.63), and mean of total CSHQ score (M± SD: 68.17±4.67).

Table 4

The strengths and difficulties questionnaire (SDQ) subscale scores and total difficulties scores

SDQ domains	Mean	SD
Emotional problems	7.13	2.01
Conduct problems	5.56	1.38
Hyperactivity	8.63	1.09
Peer problems	4.69	1.05
Prosaically behavior	5.73	1.62
Total difficulties score	26.01	3.18

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The strengths and difficulties questionnaire (SDQ) subscale scores and total difficulties scores. It explains that mean of emotional problems is (M± SD: 7.13±2.01), mean of conduct problems is (M± SD: 5.56±1.38), mean of hyperactivity is (M± SD: 8.63±1.09), mean of peer problems is (M± SD: 4.69±1.05), mean of prosaically behavior is (M± SD: 5.73±1.62), and mean of total difficulties score is (M± SD: 26.01±3.18).

Table 5

Relationship between the CSHQ and SDQ domain, used pearson correlation.

SDQ domains		Emotional problem	Conduct problem	Hyperactivity	Peer problem	Prosocial behavior	Total difficulties score
CSHQ Domains							
Bedtime	R	0.105	-0.981	0.880	-0.123	0.031	0.912
resistance	P	0.299	0.002**	0.001**	0.224	0.760	0.001**
Sleep onset delay	R	0.871	-0.038	0.011	-0.007	-0.067	0.006
	P	0.027*	0.706	0.913	0.942	0.507	0.954
Sleep duration	R	0.084	0.205	-0.032	0.103	-0.049	0.280
	P	0.406	*0.041	0.752	0.309	0.631	*0.005
Sleep anxiety	R	0.143	-0.141	0.175	-0.139	-0.001	0.044
	P	0.156	0.162	0.081	0.169	0.995	0.666
Night waking	R	-0.684	0.025	0.047	-0.270	0.164	-0.116
	P	0.015*	0.805	0.642	0.007*	0.103	0.250
Parasomnias	R	-0.160	0.069	0.033	0.077	0.114	-0.034
	P	0.112	0.495	0.745	0.447	0.258	0.734
Sleep disorder	R	-0.005	0.109	-0.150	0.017	0.131	-0.002
breathing	P	0.958	0.279	0.136	0.868	0.195	0.985
Daytime	R	0.077	0.110	-0.788	-0.137	0.055	0.034
sleepiness	P	0.449	0.275	0.001**	0.175	0.584	0.738
Total CSHQ score	R	0.826	0.849	0.717	-0.139	0.135	0.915
	P	**0.001	*0.008	0.005*	0.167	0.181	0.012*

*p<0.05 **p<0.01

Table 5 shows the relationship between the CSHQ and SDQ domain. It shows that there is a statistical significant between (conduct problem domains, hyperactivity domain and total difficulties score) and bedtime resistance domain (p= 0.002, 0.000, 0.000) respectively. There are statistically significant differences between the emotional problem domain and the sleep onset delay domain (p = 0.027). Additionally, significant differences exist between the conduct problem domain and the total difficulties score in relation to the sleep duration domain (p = 0.041 and p = 0.005, respectively). Furthermore, significant differences were found between the emotional problem domain and the peer problem domain concerning the night waking domain (p = 0.015 and p = 0.007, respectively). Also there is a statistically significant difference between hyperactivity domain and daytime sleepiness domain (p=0.001), The table also shows that there are statistically significant differences between (Emotional problem, Conduct problem, hyperactivity domains, and total difficulties score) and total CSHQ score (p= 0.001, 0.008, 0.005, 0.012) respectively.

Table 6

Multivariate linear regression analysis for association between potential demographic characteristics and SDQ scores.

Demographic characteristics	SDQ scores		
	B	P. value	(CI:95%)
Monthly income of mother	-0.659	0.049*	0.383, 1.498
Monthly Income of father	-0.162	0.012*	-0.291, 1.466
Educational level of children	0.130	0.000*	-1.562, 1.821
Type of disorder	2.033	0.000*	1.134, 2.638

Table 6 shows multivariate linear regression analysis for association between potential demographic characteristics and SDQ scores. Some demographic variables were associated with significant predictors of the (SDQ) score, as children had a negative association with the (SDQ) score, those children whose parents had a low monthly income (B=-0.659, -0.162). (p=0.049, 0.012). While children had a positive association with the (SDQ) score, those children who attended to Kindergarten (B= 0.130, p=0.000). For the type of

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disorder, the multilinear analysis indicated that children had significant predictors of the (SDQ) score that were negatively associated with the type of disorder, especially in those with two types of disorder (Hyperactivity-Impulsivity+ Inattention) (B=2.033, p=0.000).

Table 7

Multivariate linear regression analysis for association between potential the Total CSHQ score and SDQ scores.

SDQ domains	Total CSHQ score		
	B	P. value	(CI:95%)
Emotional problems	0.059	0.801	-406, 0.525
Conduct problems	0.165	0.628	-0.509, 0.840
Hyperactivity	0.016	0.505	-0.031,0.063
Total difficulties score	0.010	0.884	-0.127, 0.147

Table 7 shows multivariate linear regression analysis for association between potential the total CSHQ score and SDQ scores. Multiple linear analysis showed that the (CSHQ) score was not associated with any significant predictors of the (SDQ) domain scores.

Discussion and Conclusion

By assessing the sociodemographic features of the subjects, it was found that the age at which the symptoms of the condition first appeared in over 50% of the children surveyed was between 3 and 6 years old (52%). A research conducted by Abdelaziz Afifi Mohamed et al., (2023) is consistent with the results of this investigation. This study found that in addition to age, other characteristics including gender, ethnicity and socioeconomic status are significant when determining the prevalence of ADHD. ADHD mostly affects boys in childhood and adolescence, with a male to female ratio of 4:1. ADHD was shown to be more likely in families with lower incomes, These findings are consistent with a research conducted by (Frank, 2025). The results showed the prevalence of ADHD was greater in children who were the last in their family. According to the present study's findings, the risk of ADHD rises with the age of the mother and the likelihood of complications during being pregnant, which in turn raises the risk of ADHD in subsequent children, These results are in line with that study conducted by (Abdelaziz Afifi Mohamed et al., 2023). Regarding the residency the finding shows, the majority of parents (82%) reside in urban areas, while only18% live in rural areas. These results agree with a research done by (El-Monshed et al., 2020). The current results reported behavioral problems of ADHD linked to low sleep duration. Furthermore, poor sleep in children causes neurocognitive, neurobehavioral, functional and attentional effects resembling the fundamental characteristics of ADHD, which consistent with a research by (Esmaeilpour et al., 2017). Based on the study results, A child's life is profoundly affected by ADHD, a neurodevelopmental disease. Reduced quality of life results when this is accompanied by sleep issues, emotional problems, and behavioral problems. Children with attention deficit hyperactivity disorder (ADHD) and sleep problems reported poor overall functioning, including emotional, social, and academic aspects. which constant with a study by (Shah & Dani, 2023). The study's findings showed that sleep in children with ADHD has demonstrated that 68% of this group had trouble falling asleep, staying asleep or waking up easily when they were asleep, having trouble starting to fall asleep, and having trouble falling asleep and staying asleep. this study agree with result of our study (Mai et al., 2024). The results of the current study showed that children had a high level of sleep disorder breathing related to sleep disturbance, with (M± SD: 3.71±1.14). sleep-disordered breathing, which includes conditions like snoring or obstructive sleep apnea, disrupts airflow during sleep and often leads to fragmented or poor-quality sleep. The neurological and behavioral characteristics of ADHD may exacerbate or interact with SDB, creating a cycle of disrupted sleep and heightened ADHD symptoms, which consistent with a research by (Esmaeilpour et al., 2017). The results of the current study showed that most prevalent sleep issues were "afraid to sleep in the dark," "afraid of sleeping alone," and "seeking parent in room to sleep", These results are in line with a research results, it seems that children with

ADHD have trouble sleeping, which is linked to behavioral issues and may have an impact on everyday life in some way, this study consistent with a research by (Alavinezhad et al., 2015). The results of the present study agree with those of a study conducted by Abdelaziz Afifi Mohamed et al., (2023) that found that children with ADHD had more issues with sleep than their peers on several measures. These measures included resistance to going to bed, difficulty getting to sleep, severity of sleep-disordered breathing, frequency of awakenings during the night, and excessive somnolence during the day. These study findings are consistent with those of a study found that children with comorbid ADHD were more likely to have insomnia, which includes sleep terrors, talking while sleeping, sleepwalking, nightmares, and enuresis (Mai et al., 2024). The results of the current study indicated that children had a high level of Sleep onset delay related to sleep disturbance, with (M± SD: 2.15±0.457). A common challenge for children with ADHD is an overactive mind, characterized by racing thoughts or difficulty "shutting off" at night. This cognitive activity can prolong the time it takes for them to fall asleep, which is regular with a research by (Chiraphadhanakul et al., 2016). Most meta-analyses on the topic of ADHD and sleep issues have shown that children with ADHD are more likely to have trouble sleeping than typically developing children. These studies have relied heavily on reports from parents. Even after 18 months of clinical follow-up, 72.4% of children who had ADHD continued to report sleep difficulties in a prior research (Esmaeilpour et al., 2017). The results of the current study showed that emotionally and behavioral issues are more common in children with ADHD. Children with ADHD who receive adequate emotional and social support, such as counseling, parental guidance, or peer support, may be better equipped to handle emotional challenges, which is in line with our findings (Wannapaschaiyong et al., 2024). The results of the current study showed that the highest percentage of participating children suffer from a low level of behavioral problems related to the prosaically behavior dimension. Despite their ADHD diagnosis, these children may retain fundamental prosocial tendencies, suggesting they can engage in positive interactions when given the right support. These results agree with study conducted by (Chiraphadhanakul et al., 2016). The outcomes of this study found that among preschoolers with ADHD, hyperactivity is the most prevalent symptom, followed by emotional issues, and greater than preschoolers without ADHD. The results are in line with those of (Wannapaschaiyong et al., 2024). The results of the current study showed that there is a statistically significant difference between total difficulties SDQ score and total CSHQ score; A higher total CSHQ score, The total difficulties score encompasses multiple challenges such as hyperactivity, emotional problems, peer issues, and conduct problems. These challenges may collectively disrupt sleep routines, bedtime adherence, or the ability to maintain restful sleep, leading to poorer overall sleep quality, this finding agree previous research done by (Fulfs et al., 2024). The findings of the present investigation demonstrated statistically significant variance between the emotional problem domain and the sleep onset delay domain. Children with ADHD who face intensified emotional issues, such as anxiety, mood fluctuations, or severe worry, may struggle to relax and transition to sleep, resulting in delays in sleep onset. This outcome aligns with the research done by (Chiraphadhanakul et al., 2016). The results of the current study showed that there is a statistically significant differences between hyperactivity domain and daytime sleepiness domain. While hyperactivity is often associated with excessive energy, it can sometimes mask underlying fatigue caused by inadequate or disrupted sleep. Daytime sleepiness might then become apparent in situations where physical activity is reduced, like during classroom activities, the present research findings agree with (Fulfs et al., 2024). The results of the current study showed that there is a statistically significant difference between peer problem domain and night waking domain. Peer problems, such as difficulties forming friendships or negative interactions with peers, could increase emotional stress or anxiety, which might disrupt sleep and lead to night waking; on the other hand night waking could reduce overall sleep quality, impairing emotional regulation and social skills, which may, in turn, exacerbate peer problems, This results are consistent with study by (Wannapaschaiyong et al., 2024). The results of the current study showed that there is a statistically significant differences between conduct problem domains and bedtime resistance domain. bedtime resistance might exacerbate conduct problems due to the impact of poor sleep on mood and behavior

regulation, or that underlying factors contributing to ADHD and conduct problems (such as impulsivity or emotional dysregulation) may also influence bedtime resistance, this finding agree with a research by (Abdelaziz Afifi Mohamed et al., 2023).

Limited participant numbers and no polysomnography results to exclude main sleep disorders are major limitations of this research. Having parents describe their children's sleep issues increases the likelihood of scorer bias and error; hence, we want objective verification. There is a strong correlation between parental sleep patterns and their children's sleep issues, suggesting that these variables may also be confusing.

The results of the current study showed that there is a statistically significant relationship between total difficulties SDQ score and total CSHQ score; A higher total CSHQ score, The total difficulties SDQ score encompasses multiple challenges such as hyperactivity, emotional problems, peer issues, and conduct problems. These challenges may collectively disrupt sleep routines, bedtime adherence, or the ability to maintain restful sleep, leading to poorer overall sleep quality.

Children with ADHD should have their sleep habits monitored regularly by licensed professionals. It is important for nursing health programs to be focused on the child, their family, the school, and the community in general as they grow and develop. parent training programmes to learn how to control their children's behaviour and the significance of getting enough sleep. Children with psychological disorders need a team of experts in education, developmental-behavioural paediatrics, neurology, psychology, child psychiatrists, and other related fields to provide them with the best treatment possible. They aim to deliver all-encompassing medical care. Specialized classrooms with teachers who are qualified to assist students with ADHD on an academic and behavioral level. In order to ensure the child's safety, the school should be liable for providing transportation to and from the child's residence. Follow up on the development of a guidebook on how to manage cases.

Conflict of interest statement

The authors declare that they have no competing interests.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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