

SLEEP DISORDER: A FACTOR TOWARDS DEPRESSION AMONG CHILDREN

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Abstract

Traditionally depression was not considered as a problem of children. Views on adolescent depression have changed significantly even since the 1970's where childhood depression was thought to be masked by other conditions. Today, childhood depression is widely recognized and health professionals as a serious condition effecting both adolescents and young children. There are several different types of sleep disorders that affect youth; each disorder can have a significant impact on daytime functioning and development, including learning, growth, behavior, and emotion regulation. Recently researchers have started to uncover the interaction between sleep and psychiatric disorders in children, including depression, attention-deficit/hyperactivity disorder, and autism. The interplay of sleep disturbance among children with psychiatric disorders has not been studied comprehensively; it is noticeable that children with significant emotional and behavioral problems are more likely to experience sleep difficulties. The present research is focused to understand sleeping patterns of children. Sample, in the present study consist of 115 children selected from schools in Karachi. Results have revealed various personality problems found in the sample. Correlations have also been made with selected sub categories of depression variable with sleeping disorder, which have also shown positive association.

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Back ground of the study

Sleep is a blessing, sleep provides rest to the body, but when we sleep our brain does not rest. Brain remains active and almost performs all the essential functions of the body such as consolidation of memories, learning, cognitive development, psychiatric health, health immune function and body growth and repair.¹

Sleep researchers distinguish two important dimensions of sleep accuracy; the sleep quantity (total sleep time) and sleep quality. These dimensions cover various attributes of sleep (a) total sleep time [adversely affected by late bed time], (b) early waking, and (c) sleep onset latency [delay between bedtime and falling asleep, and (d) sleep quality [including nighttime waking, nightmares, disturbed sleep-wake transitions, and irregular bedtimes.²

The Normal Sleep Patterns

Broadly speaking normal sleep patterns are divided into two types, (a) REM it means Rapid Eye Movement and (b) NREM which means Non Rapid Eye Movement. Further sleep consists various sub stages. These stages range from drowsiness to deep sleep.

REM sleep is more active. Breathing and heart rate become irregular, your eyes move rapidly back and forth under your eyelids, and control of your body temperature is impaired so that you do not sweat when you are hot or shiver when you are cold. In the early stages (Stages I and II) you awake easily and may not even realize that you have been sleeping. In the deeper stages (Stages III and IV) it is very difficult to wake up, and if you are aroused you are likely to find yourself disoriented and confused. In NREM sleep your muscles are more relaxed than when you are awake but you are able to move (although you do not because the brain is not sending signals to the muscles to move).³

Sleep Disorders

Sleep disorders have been characterized, as night terrors. Night terrors are abrupt, partial stimulation coupled with emotional outbursts and fear. It occurs mostly to children ages 4–8 during NREM sleep, the child has no memory of night terrors once fully awake.

Sleep walking is most common among 8–12 year-olds. **Nighttime bedwetting** is a common sleep problem in children ages 6–12, occurring only during NREM sleep. **Sleep-onset anxiety** refers to trouble falling asleep because of excessive fears or worries.

Obstructive sleep apnea is more common in adults, 1–3% of children experience difficulty breathing because of obstructed air passages. Symptoms include snoring,

¹ Bates JE, Viken RJ, Alexander DB, Beyers J, Stockton L. "Sleep and adjustment in preschool children: sleep diaries reports by Mothers relate behavior reports by teachers ." *Child Development*, January-February 2002: 62-74.

² Zimmerman, Frederick J. "Research Brief ." *Children's Media Use and Sleep Problems: Issues and Unanswered Questions*. June 2008. <http://www.kff.org/entmedia/upload/7674.pdf> (accessed January 3, 2012).

³ Dawson, Peg. "Sleep and Sleep Disorders in Children and Adolescents: Information for Parents and Educators." *NASP Resources; Helping Children to Achieve their Best*, 2004: http://www.nasponline.org/resources/health_wellness/sleepdisorders_ho.aspx

difficulty breathing during sleep, mouth breathing during sleep, or excessive daytime sleepiness. **Delayed sleep-phase syndrome** is a disorder of sleep (circadian) rhythm that results in an inability to fall asleep at a normal hour (e.g., sleep onset may be delayed until 2–4 a.m.) and results in difficulty waking up in the morning. Symptoms among children include excessive daytime sleepiness, sleeping until early afternoon on weekends, truancy and tardiness, and poor school performance.⁴

Historically, children were not considered candidates for depression.⁵ Mostly because of Freudian notions about the unconscious, depression had been viewed as a condition which only affected adults. Today, childhood depression is widely recognized and health professionals see depression as a serious condition effecting both adolescents and young children.⁶

Many children experience some type of sleep problem. These problems are often not long lasting. But in some cases, sleep problems may considerably impact on functioning and well-being. More strictly sleep disorders in children can be classified into two major categories. Dyssomnias include those disorders that result in difficulty either initiating or maintaining sleeps or involves excessive sleepiness. Parasomnias are disorders that disrupt sleep after it has been initiated but do not result in complaints of insomnia or excessive sleepiness. Even though sleep disorders in children are common, not enough is known.⁷

Sleep problems, primarily settling problems and frequent night wakings, are experienced by about 20–30% of children aged 1–5 years, but cultural differences would seem to play at least some role.⁸ 40–80% of children displaying sleep problems when aged 15–48 months were found to have persistent sleep disorders 2–3 years later.⁹

A second peak in sleep problems occurs in adolescence, where sleep-timing problems including delayed sleep phase syndrome occur. Such children have difficulty getting off to sleep, and then problems getting up in the morning for school. Across the age range, sleep-related breathing problems occur at rates about 2%.¹⁰

Prevalence of sleep disorders tends to be even greater in children with physical or learning disabilities: about 86% of children aged up to 6 years, 81% of children aged 6–11

⁴ Dawson, Peg. "Sleep and Sleep Disorders in Children and Adolescents: Information for Parents and Educators." *NASP Resources; Helping Children to Achieve their Best*, 2004: http://www.nasponline.org/resources/health_wellness/sleepdisorders_ho.aspx.

⁵ Whitley, G. *The seductive diagnosis*. *D Magazine*, March 1996: 84–99.

⁶ Lamarine, R. "Child and adolescent depression. ." *Journal of School Health*, (1995): 390–394.

⁷ Mindell, Jodi A. "Sleep disorders in children." *Health Psychology*, Vol 12(2), , Mar 1993,: 151–162.

⁸ Kataria S, Swanson MS, Trevathon GE. Persistence of sleep disturbances in preschool children. *J Pediatr* 1987;110:642–646

⁹ Carroll JL, McColley SA, Marcus CL, et al. Inability of clinical history to distinguish primary snoring from obstructive sleep apnea syndrome in children. *Chest* 1995;108:610–618

¹⁰ Quine L. Severity of sleep problems in children with severe learning difficulties: description and correlates. *J Community Appl Soc Psychol* 1992;2:247–268.

years, and 77% of children aged 12-16 years with physical or learning disabilities suffer from severe sleep problems.¹¹

The average total sleep time per day ranged from 11.38 hours among 2-year-olds down to 9.34 hours among 12-year-olds. The overall prevalence of sleep disorders was 21.2% and included parasomnia symptoms (bruxism [6.5%], sleep talking [4.9%], enuresis [1.0%], sleepwalking [0.6%], restless sleep [5.0%], and leg movements [1.9%]) and symptoms of sleep-disordered breathing (frequent snoring [5.6%], mouth breathing [4.1%], choking/gasping [0.9%], and breathing pauses [0.2%]).¹²

There are different signs of depression found among the children. These signs include (1) Irritability or anger (2) Continuous feelings of sadness, hopelessness (3) Social withdrawal (4) Increased sensitivity to rejection (5) Changes in appetite -- either increased or decreased (6) Changes in sleep -- sleeplessness or excessive sleep (7) Vocal outbursts or crying (8) Difficulty concentrating (9) Fatigue and low energy (10) Physical complaints (such as stomachaches, headaches) that do not respond to treatment (11) Reduced ability to function during events and activities at home or with friends, in school, extracurricular activities, and in other hobbies or interests (12) Feelings of worthlessness or guilt Impaired (13) Increased risk-taking behaviors (14) Substance abuse (15) Focus on morbid and negative themes (16) Talk about death and dying (17) Increased crying or reduced emotional expression and (18) Giving away possessions Depression in adolescents is associated with an increased risk of suicidal behaviors. Over the last several decades, the suicide rate in young people has increased dramatically. In 2009, suicide was the third leading cause of death in 12-19 year olds and the fourth leading cause among 10-14 year olds. Statistics of teenage depression and the available data show that about 20% of the teenagers suffer from depression before they attain the age of 18. Almost 5% of teenagers are sufferers of major depression at any given time. The worst thing about this is that the numbers are rising year by year. This inclination is a cause for worry as well as alarm according to teenage depression statistics.¹³

According to Lamarine (1995) one of the factors that make depression so difficult to diagnose in adolescents is the common behavior changes that are normally associated with the hormonal changes of this period. Lamarine considers that in children, depression may often be mistaken for other conditions such as attention deficit disorder, aggressiveness, physical illness, sleep and eating disorders and hyperactivity.¹⁴ Depression in children may be confused with attention deficit hyperactivity disorder (ADHD), ADHD must begin before the age of 7.¹⁵

¹¹ Xicheng Liu, MD, Yuyan Ma, #Yizhuo Wang, *Brief Report: An Epidemiologic Survey of the Prevalence of Sleep Disorders Among Children 2 to 12 Years Old in Beijing, China*. 2002.

http://pediatrics.aappublications.org/content/115/Supplement_1/266.short (accessed January 3, 2012).

¹² Lamarine, R. "Child and adolescent depression. ." *Journal of School Health*, (1995): 390-394.

Whitley, G. *The seductive diagnosis. D Magazine*, March 1996: 84.

¹³ Ibid p.99

¹⁴ Lamarine, R. "Child and adolescent depression. ." *Journal of School Health*, (1995): 390-394.

¹⁵ Burford, S. "What's wrong with this 12-year-old boy?" *Patient Care* 29, (1995): 85-88

Of all the psychiatric disorders associated with insomnia, depression is the most common. It has been estimated that 90% of patients with depression complain about sleep quality.¹⁶

Literature Review

Depressives typically manifest shortened sleep and frequent awakening, with variations across patients and nights in amount of REM sleep, decreases in percentage of phasic activity and onset latency of REM sleep, and decrease or absence of Stage 4 sleep.¹⁷ Estimates from primary care settings indicate that 10–30% of children experience significant sleep disturbances.¹⁸ Deficient sleeping leads to unstable moods, impaired cognition, and eventually death. Sleep deprivation elevates the body's production of stress hormones, raises blood pressure and boosts blood levels of substances that cause inflammation. It is linked to serious diseases such as heart disease, psychosis, anxiety disorders and depression. Recent research even showed that people, who don't sleep enough, become more obese. A fascinating link exists between sleep and depression. It is evident depressed people don't sleep well. But sleep and the neural procedure going on in the brain during sleep can actually cause depression.¹⁹

In the depression management, the role of sleep and sleep disturbances is significant for several grounds. The same neurotransmitter systems that regulate mood, interest, energy, and other functions that may be disturbed in depression also regulate sleep.²⁰

A community survey (Blader, Koplewicz, Abikoff, & Foley, 1997) of 987 parents of elementary school-aged children reported the subsequent troubles related to children's sleep behaviors: Bedtime resistance (27%), difficulty with morning waking (17%), complaints of fatigue (17%), delayed sleep onset (11%), and nighttime waking. (7%). Sleep disturbances have been found to co-occur with a number of psychiatric disorders, including anxiety and depression. Clinical lore suggests that disturbed sleep is a secondary and direct consequence of primary psychiatric disorders such as anxiety or depression.²¹

Having troubles while sleeping is directly associated with depression and poor sleep quality. It may be insomnia or hypersomnia, both the cases lead to depression. Journal of the American Psychiatric Nurses Association conducted a research and revealed that persons who are depressed have poor sleep quality and higher fatigue than non-depressed persons and depressed participants had significantly worse sleep quality. Further this

¹⁶ Tsuno, Norifumi, Alain Besset, and Karen Ritchie. "Sleep and Depression." *Journal of Clinical Psychiatry*, Vol 66(10), , Oct 2005, : 1254-1269

¹⁷ Hawkins, David R. "Sleep and Depression." *Psychiatric Annals*, Vol 9(8),, Aug 1979: 13-28.

¹⁸ Lozoff B, Stein MA, Mendelsohn J, Obermeyer WH, Amromin J, Benca R. " Sleep and behavior problems in school-aged children." *Pediatrics* , 2001: 107.

¹⁹ (verhaalhalen.nl. n.d.) verhaalhalen.nl., B Delange -. <http://www.verhaalhalen.nl/paper9a.pdf>. (accessed January 2, 2012)

²⁰ Thase, Michael E. "Journal of Clinical Psychiatry, Vol 61(Suppl11), ." *Sleep and Depression*, 2000, : 46-50.

²¹ Blader JC, Koplewicz HS, Abikoff H, Foley C. " Sleep problems of elementary school children: A community survey. ." *Archives of Pediatric and Adolescent Medicine* , 1997: 151:473-480

worst sleep quality often included troubles like having bad dreams, even in more troublesome situations a depressed adolescent may scream during dreaming; definitely these symptoms call for a depression screening because prolonged avoidance may turn the scenario even worse. **Major findings** of the research concluded that a betterment in the sleep quality and proper sleeping duration contribute to a high extent in relaxing the adolescent depression.²²

In a study conducted in University of Michigan found sleeping problems are related to depression and revealed that the effect of sleep on depression severity disturbs up to 70% of the adolescents. 40 adolescents were provided with the 1 night recovery sleep and other 40 were kept uncalled-for. The findings showed that the subjects with the recovery sleep plan had a clearly low level of depression than that of those who were not provided the recovery sleep plan.²³

In a study of N=550 out of total sample,” 72.7% had sleep disturbance: 53.5% had insomnia alone, 9.0% had hypersomnia alone, and 10.1% had both disturbances. Depressed girls were more likely to have sleep disturbance than boys (77.0% vs 69.2%, $p < .05$), but age had no significant effects. Compared with children without sleep disturbance, sleep-disturbed children were more severely depressed and had more depressive symptoms and comorbid anxiety disorders. Across sleep-disturbed children, those with both insomnia and hypersomnia had a longer history of illness, were more severely depressed, and were more likely to have anhedonia, weight loss, psychomotor retardation, and fatigue than were those with either insomnia or hypersomnia.”²⁴ According to Daily Nation, Karachi, in a US study of 12 to 18-year-olds found those with bedtimes after midnight was 24% more likely to have depression than those who went to bed before 2200. And those who slept fewer than five hours a night had a 71% higher risk of depression than those who slept eight hours, the journal Sleep reports. It is estimated 80,000 UK children and young people have depression.²⁵

Methodology

The present research is designed from the quantitative methodology. Through deductive approach hypotheses have been developed and data has been collected through a comprehensive questionnaire is prepared. Questionnaire was divided into two component i.e., component one and component two. First component comprises on Analysis of Sleep Quality” and the later on “Depression Analysis”. Pittsburgh sleep quality Index, Patient Sleep questionnaire and The Epworth sleepiness scale provided the researcher

²² Sarah J.Ratcliffe., Darleen Chien., & Norma G. Cuellar, Vol. (12). Childhood personality influences on social-cognitive development: A longitudinal study. *Journal of the American Psychiatric Nurses association*, 5262-271.

²³ Naylor M.Woodsworth., Lindsay K.Adams., & Evans T. Armelagas, Vol (4). Sleep deprivation in depressed adolescents and psychiatric controls: A cross-sectional study. *Journal of the American Academy of child and adolescent psychiatry*, 753-9.

²⁴ Xicheng Liu, MD, Yuyan Ma., #Yizhuo Wang., *Brief Report: An Epidemiologic Survey of the Prevalence of Sleep Disorders Among Children 2 to 12 Years Old in Beijing, China*. 2002.
http://pediatrics.aappublications.org/content/115/Supplement_1/266.short (accessed January 3, 2012)

²⁵ Reporter, Staff. *The Nation* . January 03, 2010 . | <http://www.nation.com.pk/pakistan-news->

with the necessary aspects. The sleep quality analysis ranges from the questions from the time taken to fall asleep each night to the factors that contribute to restlessness during sleep. On the other hand Beck Depression Inventory provided the researcher with the factors for the determination of depression. It includes changes in sleeping pattern, self-dislikeliness, suicidal thoughts and other relevant concerns. A sample of 150 students from schools was selected but only 115 questionnaires happened to be correct fully filled up, therefore the sample comprises on 115 students.

Data Analysis

Descriptive Statistics

Data reveals that 57.39 percent of the sample having difficulty of fallen asleep. Accompanied with the problem 82.60 percent of the sample children have been found of having bad dreams during the sleep, 79.13 percent of the sample children have been found of having difficulty of breathing during the sleep, and 82.60 percent of the sample children have been found with difficulty of getting up in the morning.

This in turn is affecting some of the quality of life these of children. 20 percent of the sample children have been found getting pleasure from the life), 21.73 percent of the sample children have been found feeling guilty, and 15.65 percent of the sample children have been found problems related to concentration in their daily routine work. (These are important symptom of depression variable)

Table 1	Time in (min)		
Time taken to Fall Asleep	Less than 10	11 +	
	49	66	N=115

Table 2	Time in (hrs)		
Hours of Actual Sleep	Less than 7	8 +	
	46	69	N=115

Frequency of Symptoms of Depression^x

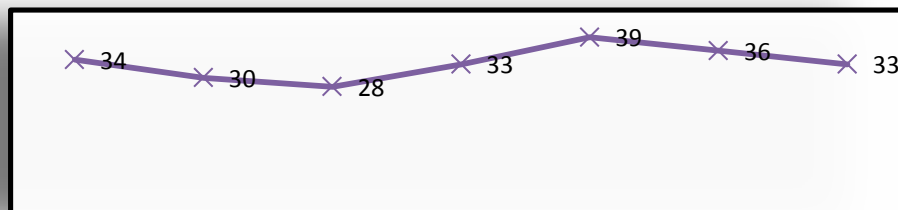
Table 3	No	More than thrice a week	
Trouble sleeping Due to having bad dreams	20	95	N=115
Problem of Breathing During Sleeping	24	91	
Difficulty in getting up in the morning	20	95	

^x Tables have been merged

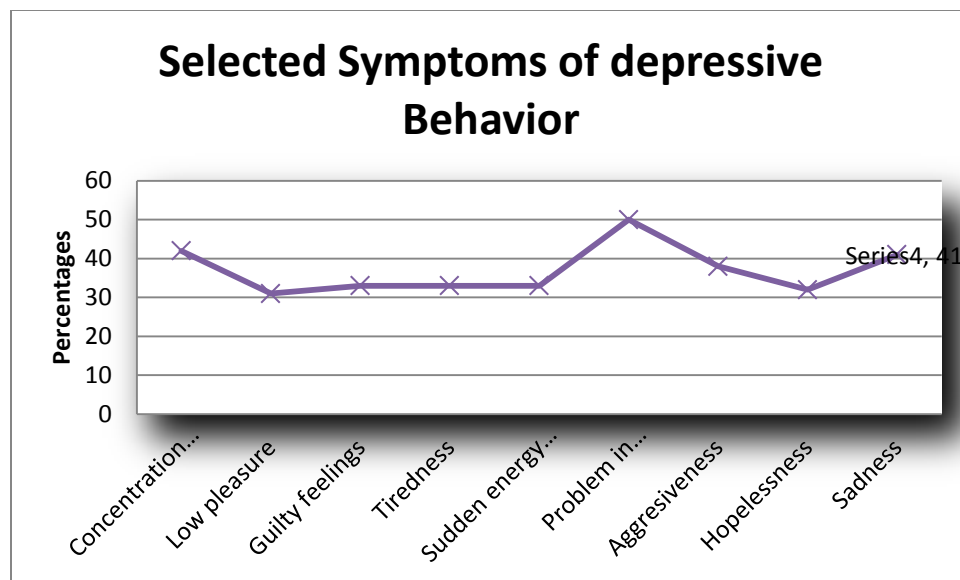
Table 4	Always	Sometime	Never	N
Problem Getting pleasure from Life	23	66	26	115
Feeling Guilty	25	68	22	115
Problem with Concentration	18	77	20	115
Table 5	Always	Moderate	Never	N
Feelings of self- Dislikeness	25	56	24	115
Feeling of Aggressiveness	11	81	43	115
Feelings of Hopelessness	20	72	23	115
Loss of Appetite	17	73	25	115
Feeling of Sadness	18	76	21	115

Problems in Sleeping Patterns

Series1 Series2 Series3 Series4



Problem in morning wakning Troubled Sleep Breathing problem in sleep Restless sleep No daytime sleep Caffinated drinks before sleep Over occupied brain before sleep



Inferential Statistics

Inferential Statistics also reveals strong correlation between restless sleep and level of fatigue and tiredness during the day hours.

Discussion

Table 4		H _A Restlessness during sleep is likely to be related with Tiredness/Fatigue			
df	Alpha	chi-square critical		chi-square Obtained	
1	0.05	3.841		26.17	N=115

Table 5		H _A Hours of actual sleep is likely to be related with Thoughts of committing suicide			
df	Alpha	chi-square critical		chi-square Obtained	
1	0.05	3.841		31.27	N=115

Table 6		H _A Sleepiness during the day time is likely to be related with Problems in decision making			
Df	Alpha	chi-square critical		chi-square Obtained	
1	0.05	3.841		12.78	N=115

Depression has been recognized as a major public health problem evidenced by its ranking of fourth position among the global burden of diseases. Many believe it will occupy second position by the year 2020. 340 million people above the age of 18 suffer from depressive disorders that contribute to a high suicide rate. 450 million people in the world suffer from a mental or behavioral disorder. W.H.O. (World Health Organization) global burden of diseases, 2001, states that 33% of the years lived with disability (YLD) are due to neuropsychiatric disorders, unipolar depressive disorders alone lead to 12–13% of years lived with disability and rank as the third leading contributor to the global burden of diseases.

Parents should have basic understanding of sleep dysfunction of their children. The amount of time of sleep decreases with the age increaser. Every child differs but as a rule of thumb:

Toddlers need about 12-14 hours sleep (including daytime naps)

Preschoolers (aged 3-5) need 11-12 hours sleep,

School-age children need 10-11 hours sleep,

Teenagers need 9-10 hours sleep.

Sleep problems and a lack of sleep can have negative effects on children's performance in school, during extracurricular activities, and in social relationships. Behavior problems Mood problems Memory, concentration, and learning problems Performance problems may occur due to the poor quality of sleep.

One of the very important issues which lead to sleep distortion among the children is letting young children watch violent TV programs which interfere with their sleep. Watching TV programs during the day that depict violence associates with increased sleep problems in children. In addition, researches also reveals that watching TV after 7:00 p.m by the children increase sleep problems, regardless of whether the shows were violent or not.
