

AGE

GENETICS

LIFESTYLE

→ACTIVITY 2: EFFECTS OF PARTIAL SLEEP DEPRIVATION

Read the scenarios below and determine if each case is presenting psychological or physiological effects of partial sleep deprivation.

SCENARIO (IN EACH SCENARIO THE PERSON IS SLEEP DEPRIVED)	PSYCHOLOGICAL (IDENTIFY COGNITIVE, AFFECTIVE OR BEHAVIOURAL)	PHYSIOLOGICAL
Stuart deciding to smoke drugs		
Callan forgetting where he left his keys		
Lin having blurry vision		
Jollie being confused about her day		
Sophia constantly tripping or banging her arms into things		
Paulo daydreaming and struggling to focus in class		
Farouk having severe headaches		
Jimmy not being bothered about going to cricket practice		

→ACTIVITY 3: ISSUES RELATED TO SLEEP

Use your Student Book and the words below to fill the gaps in the sentences that follow.

chronic	melatonin	microsleep	partial sleep deprivation
psychological	REM rebound	sleep debt	teenagers

- 1 _____ is having some sleep in a 24-hour period but not getting enough to meet your needs.
- 2 Memory problems and impaired creativity are examples of _____ effects of sleep deprivation.
- 3 Diabetes, heart disease, hypertension and depression can be caused by _____ sleep deprivation.
- 4 _____ is the difference between the amount of sleep you should be getting and the amount you actually get.
- 5 When we sleep after being deprived of REM sleep, we experience a significantly larger amount of time in REM sleep. This is known as _____.
- 6 A _____ is a brief, involuntary period of sleep that occurs in the midst of a wakeful activity. We tend to drift off and stop concentrating on what we are doing.
- 7 _____ need up to 9–10 hours of sleep per night.
- 8 _____ causes sleepiness in humans.

→ACTIVITY 4: MEDIA RESPONSE ON SLEEP DEPRIVATION

AWAKE, ONLINE AND SLEEP-DEPRIVED – THE RISE OF THE TEENAGE ‘VAMPER’

Elizabeth Englander, *The Conversation*,
10 December 2014

About three years ago, a teenage girl was talking with me and other students about using her cell phone late at night. She told us how she waited until her parents were asleep, then spent at least four hours every night texting with her friends. Her parents thought she was asleep in bed. ‘I’d sleep a few hours, then get up at 6am,’ she told me. ‘My parents always thought I had slept through the night and was just the first one up.’ The kicker? She reported doing this *virtually every night*.

I was sure she was an outlier – not at all typical, perhaps someone addicted to online interactions, and someone who obviously didn’t need much sleep.

This late-night, online socializing is called ‘vamping’ (as in vampires). Danah boyd [sic] describes ‘vamping’ as a time when kids can socialize together, free from structure and adults’ prying eyes. That rings true. So many of the teens I study and work with are so over-scheduled that they literally have no time to hang out with each other.

VAMPING THE NIGHT AWAY

I decided to study vamping to see how common it is and what it’s associated with. I did a study of 642 college freshman, focusing in particular on teens who were ‘frequent vampers’, and compared them with their peers who didn’t report vamping as often. Frequent vampers were those stayed up three or more nights per week. I presented my preliminary findings at the Annual Conference for the American Academy of Child and Adolescent Psychiatry in October.

Most kids appear to vamp at one time or another. An astonishing 80% of both boys and girls admitted to being frequent vamps at least sometime during high school. They spent an average of 1–2 hours per night awake while their parents thought they were asleep. Gender differences weren't large, and vamping didn't appear to be related to grades, behavior in school, or to connections with teachers. But there were some differences that distinguished frequent and infrequent vamps.

First, the type of high school the teenager attended mattered. Teens who attended public and private schools had higher rates of frequent vamping, compared to teens who went to parochial schools. Suburban teens were the least likely to be frequent vamps (although 77% of them still admitted to it).

Forty-two percent of frequent vamps reported having struggled with depression, compared to about 25% of all other kids. Sixty-one percent reported being victims of bullying, compared to 42% of non-vamps. It may be that kids with social problems vamp to try to improve their social standing. Perhaps vamping itself, or the associated sleep loss, has a negative effect on social skills.

Frequent vamps also revealed more digital risk-taking. These teens were more likely to admit that they had sexted before age 18, more likely to report that they had texted or messaged someone when it would have been better to talk face-to-face, and more likely to report having used Facebook prior to age 13, its official minimum age.

Does this mean that every child who vamps has serious problems? Definitely not. Although it may be common, not all kids who vamped showed

serious problems. It's just that the likelihood of some problems was elevated above that of their peers.

KIDS NEED SLEEPTIME AND DOWNTIME

Losing sleep is hard on adults, but it's even harder on children. Insufficient sleep during childhood and adolescence is associated with poorer academic performance, physical difficulties (such as weight gain), emotional difficulties, trouble with social relationships, and a slew of other problems. As a parent, I have terminated lingering homework projects, late-night phone calls, digital interactions, and even book-reading to enforce a decent night's sleep.

Parents teach their children to sleep through the night as infants, and teens may need a refresher course on how to sleep well, like keeping digital devices out of the bedroom. Ultimately, the goal is for teens to learn to control their digital device – and not the other way around.

Teens may vamp because they need some 'just hanging out' time with their friends. The fact is that children and teens benefit immeasurably from downtime with their peers. It's a time to relax, learn how to enjoy companionship, bond with friends, discuss common concerns and challenges, and practice critical social skills.

Some parents may feel guilty about letting their kids have time to hang out, instead of spending that time on boosting their academic, musical, scientific or linguistic skills. On the other hand, if they *don't* have hanging out time, their need for it may be compelling them to choose between socializing and sleep. Sleep may seem like the greater need, but the need for socializing shouldn't be discounted.

1 What is vamping?

2 Who were the participants of this study?

3 What is a frequent vumper?

4 What percentage of teenagers are vumpers? What was the average time of vamping behaviour?

5 What did the research discover regarding depression and bullying?

6 What may be the consequences of insufficient sleep during adolescence?

7 What may be reason for teenagers vamping?

→ACTIVITY 6: RESEARCH ANALYSIS

Read the research below and complete the flow chart that follows.

POOR SLEEP IN ADOLESCENTS MAY INCREASE RISK OF HEART DISEASE

Science Daily, 1 October 2012

Adolescents who sleep poorly may be at risk of cardiovascular disease in later life, according to a study in *CMAJ (Canadian Medical Association Journal)*. 'We found an association between sleep disturbance and cardiovascular risk in adolescents, as determined by high cholesterol levels, increased BMI [body mass index] and hypertension,' writes Dr. Indra Narang, director of sleep medicine at The Hospital for Sick Children (SickKids), Toronto, Ontario. 'These findings are important, given that sleep disturbance is highly prevalent in adolescence and that cardiovascular disease risk factors track from childhood into adulthood.'

Approximately 20% of adolescents have significant sleep problems, such as sleep disturbances or sleep deprivation. Sleep disturbances include frequent waking up during the night, early waking, inability to fall asleep within 30 minutes, restlessness and bad dreams.

The study involved 4104 adolescents in the Healthy Heart Schools' Program in the Niagara region of Ontario that screens and identifies teens at risk of coronary vascular disease. Researchers looked at the link between poor sleep and indicators of cardiovascular disease risk such as high cholesterol levels, high blood pressure, high BMI and poor diet.

Participants slept an average of 7.9 hours on weeknights and 9.4 hours on weekends. Almost 20% (19.6%) of students reported poor quality sleep

during the week, and 10.0% reported poor quality on weekends. Of the participants, 5.9% reported using medications to help them sleep.

Students recorded their sleep patterns and quality using the Pittsburgh Sleep Quality Index questionnaire. Trained staff collected data on BMI, cholesterol levels and blood pressure from participants and determined whether they had close relatives with a history of cardiovascular disease.

Students who consumed more fried foods, soft drinks, sweets and caffeinated drinks; exercised less; and had more screen time had higher sleep disturbance scores. A higher sleep disturbance score was associated with a higher cholesterol level, higher BMI, larger waist size, higher blood pressure and increased risk of hypertension. Shorter sleep duration was also associated with higher BMI and waist size but not increased cholesterol levels or blood pressure.

'In addition to these health risks, previous studies have shown that poor sleep also negatively impacts school performance. Parents should monitor caffeine intake, bedtimes and bedrooms overloaded with media,' says Dr. Brian McCrindle, senior author and cardiologist at SickKids.

There is emerging evidence that poor sleep quality or inadequate sleep in adults is associated with an increased risk of cardiovascular disease. These new findings show that sleep disturbance in adolescents may significantly impact their cardiovascular risk in adulthood. Efforts to improve sleep habits early in life could be important for the prevention of cardiovascular disease.

Study title:

Aim:

Hypothesis:

Independent variable:

Dependent variable:

Participants:

Explain the procedure in this study:

Results:

Conclusions:

→ACTIVITY 7: MULTIPLE-CHOICE QUESTIONS

- 1 Zara had been sleep deprived after a night on the town. The next night she caught up on her sleep, but in the morning she reported having dreams that seemed so real she felt she was actually in them. She mentioned her dreams were exciting and intense. It is likely that Zara is experiencing:
 - a sleep debt
 - b REM rebound
 - c partial sleep deprivation
 - d microsleep.
- 2 Ethan has been struggling to sleep the last month and is suffering anxiety disorders. Ethan may be experiencing:
 - a partial sleep deprivation
 - b hallucinations
 - c chronic sleep deprivation
 - d all of the above.
- 3 After total sleep deprivation, Xenia noticed that she had trouble concentrating on _____ tasks.
 - a complex
 - b long
 - c short
 - d simple
- 4 Hand tremors are an example of a _____ effect from sleep deprivation.
 - a physiological
 - b psychological
 - c behavioural
 - d cognitive
- 5 The difference between the amount of sleep you should be getting and the amount you actually get is known as:
 - a REM rebound
 - b chronic sleep deprivation
 - c psychological effects
 - d sleep debt.
- 6 The hormone that causes sleepiness is called:
 - a cortisol
 - b adrenalin
 - c melatonin
 - d endorphins.
- 7 Surveys of twins in Australia and Finland found that identical twins
 - a tend to have more similar sleep patterns than fraternal (non-identical) twins
 - b tend to have different sleep patterns than fraternal twins
 - c tend to experience anxiety if they do not sleep together in the first 10 years of life
 - d can suffer from sleep deprivation if they do not sleep together in the first 10 years of life.

→ CHAPTER

16:

SLEEP DISORDERS & TREATMENT

→ ACTIVITY 1: PARASOMNIAS

Using your Student Book, determine if the following statements are true or false.

- 1 Parasomnias are characterised by unusual or abnormal sleep behaviours. _____
- 2 There is only type of parasomnia. _____
- 3 All parasomnias occur during REM sleep. _____
- 4 Parasomnias can have positive effects on daily life. _____
- 5 Sleep apnoea is a breathing disorder that occurs during sleep. _____
- 6 Sleep apnoea causes breathing to stop for two minutes. _____
- 7 The most common sleep apnoea is central sleep apnoea. _____
- 8 If sleep apnoea is left untreated it can cause heart disease, mood and memory problems. _____
- 9 Approximately two to three per cent of the population have sleep apnoea. _____
- 10 The removal of tonsils may help children who experience obstructive sleep apnoea. _____
- 11 People with small upper airways, large tongue, tonsils or who are over 40 years of age are more at risk of developing sleep apnoea. _____
- 12 Sleep laboratories are rarely used in the diagnosis of sleep apnoea. _____

→ACTIVITY 2: DYSOMNIAS

Use your Student Book and the words below to fill the gaps in the sentences that follow.

accident acute adolescents cataplexy comorbid driving
 dysomnias elderly hallucinations insomnia inventories muscle tone
 narcolepsy NREM REM sleep sleep diaries sleep-maintenance
 sleep-onset waking

- 1 Sleep disorders related to problems with falling asleep and staying asleep are known as _____.
- 2 Falling asleep in the middle of doing something such as talking is a condition called _____.
- 3 People with narcolepsy may fall into _____ and experience a loss of _____ and have REM _____.
- 4 People with narcolepsy may experience _____, where they remain conscious but physically paralysed.
- 5 People with narcolepsy may begin their night time sleep with REM _____, rather than the traditional _____ stages.
- 6 People with narcolepsy can be _____ prone which prevents them from participating in many everyday activities, such as _____.
- 7 Persistent trouble with sleep is called _____.
- 8 Trouble falling asleep at the start of the night is called _____ insomnia. Difficulty maintaining sleep is called _____ insomnia. Early morning awakening insomnia is characterised by trouble _____ up too early and not being able to go back to sleep.
- 9 Due to examinations and stress some people may experience _____ episodes of insomnia.
- 10 Insomnia can be _____; that is, it exists with other psychological or physiological conditions.
- 11 _____ are more likely to experience sleep-onset insomnia. While the _____ tend to experience more sleep-maintenance and early-morning awakening insomnia.
- 12 Diagnosis of insomnia can involve _____, _____ and blood tests.

→ACTIVITY 3: CIRCADIAN PHASE DISORDER

Using your Student Book, fill in the gaps below on circadian phase disorders.

Adolescent phase disorder

What is delayed sleep-wake phase disorder?

When do an adolescent's sleep patterns change to an adult's?

What may prevent teenagers from getting adequate sleep?

What is the role of melatonin and cortisol in a teenager's sleep-wake cycle?

Should schools start later in the morning?

Shift work

What is shift work?

How may shift work impact a person's life?

What are the causes of shift work disorders?

How can chronic sleep deprivation occur in shift workers? What may be some problems with this?

Jet lag

What is the cause of jet lag?

What are some of the effects of jet lag?

What are some tips to minimise jet lag?

→ACTIVITY 4: RESEARCH ANALYSIS

BULLY VICTIMS MORE LIKELY TO SUFFER NIGHT TERRORS, NIGHTMARES BY AGE 12

Science Daily, 11 September 2014

Children who are bullied at ages 8–10 are more likely to suffer from sleep walking, night terrors or nightmares by the time they are 12 years old.

In a study published this week in *Pediatrics*, journal of the American Pediatric Association, Professor Dieter Wolke and Dr Suzet Tanya Lereya from the University of Warwick, found being bullied increases the risk for a category of sleep disorders known as parasomnias. These are sleep-related problems such as nightmares, night terrors or sleep walking.

A cohort of children from the Avon Longitudinal Study of Parents and Children (ALSPAC) were interviewed at elementary school age (8 and 10 years) about bullying experiences and then about parasomnias at secondary school age (12–13 years).

Professor Wolke, from Warwick Medical School and the Department of Psychology, said: 'We found children who were bullied at age 8 or 10 years were more likely to have nightmares, night terrors, or

sleepwalking at age 12 years. Moreover, those who were bullied and bullied others (bully/victims) were most likely to have any parasomnia.

'Consistent with previous studies, being a female, having persistent sleep problems, and emotional and behaviour problems in childhood additionally increased the risk for parasomnias at age 12 years.'

Dr Lereya, from the Department of Psychology, added that stress could be an important mechanism for the association between being bullied and parasomnias.

'Nightmares may occur when anxiety exceeds a threshold level and several studies have suggested that trait anxiety may be related to the frequency of parasomnias. However, even after controlling for pre-existing anxiety problems our results showed that being bullied may increase the risk for parasomnias.'

The authors suggest that: 'If a child is experiencing frequent parasomnias, parents, teachers, school counsellors, and clinicians may consider asking about bullying. This would allow detecting bullied children and providing the help they need at an early time to reduce the negative effects of being bullied.'

1 Write an aim for this study.

2 What was the method of this study?

3 What type of research design was used?

4 What were the findings from this study?

5 What were the results suggesting for females?

7 What ethics would need to be considered for this study?

6 What are the implications of this study?

→ACTIVITY 5: INTERVENTIONS FOR SLEEP DISORDERS

Using your Student Book, identify the type of intervention in the scenario below.

This is used to treat sleep apnoea.

This technique can take up to 6–8 weekly sessions for the client.

The psychologist will initially ask the client to complete a sleep questionnaire.

This technique helps treat people with circadian phase disorders.

Breathing masks are commonly used to treat this disorder.

This technique assumes that our behaviours and cognitions influence each other with regards to sleep.

A program is devised to change the habits and attitudes of the patient.

The psychologist will teach the patient good sleep behaviours.

This technique prevents airways being blocked by providing continuous flow of air.

This technique can occur in the evening to delay sleep.

The light used will go to the suprachiasmatic nucleus to signal daylight and adjust the body clock.

The effectiveness of this program is based on the psychologist targeting the problematic behaviours and cognitions of the patient, and their commitment to change.

→ACTIVITY 6: MULTIPLE-CHOICE QUESTIONS

- 1** Obstructive sleep apnoea is:
 - a** caused by the brain failing to adequately controlling breathing
 - b** when the breathing airways are blocked and fail to open
 - c** where sufferers walk and follow routine activities
 - d** characterised by abnormal behaviour.
- 2** It is best if people with narcolepsy:
 - a** try and stay awake
 - b** do not work
 - c** schedule naps during the day
 - d** drink lots of caffeine.
- 3** Jet lag occurs because:
 - a** people are not used to flying
 - b** people work alternating shifts
 - c** melatonin is released later
 - d** people fly across time zones.
- 4** CPAP is used to treat
 - a** narcolepsy
 - b** sleep apnoea
 - c** shift work
 - d** sleep walking.
- 5** A psychologist will attempt to cure insomnia by changing the behaviours and cognitions of a sufferer. This technique is called:
 - a** CBT-I
 - b** CPAP
 - c** sleep diary
 - d** bright light therapy.
- 6** Joe's psychologist is attempting to delay his sleep. He may be using:
 - a** CPAP mask
 - b** CBT-I
 - c** bright light therapy
 - d** cognitive techniques.