



**Maryland State Chapter**  
health, safety and equity in education

## ***Professional Sleepiness Assessment Tools And Assessment Tool for Delayed Sleep Phase Disorder***

If there are any concerns with an adolescent's sleep patterns after reviewing these assessment tools, it is recommended that families consult pediatric sleep specialists for a professional evaluation and assistance.

From: *Snooze...or Lose! 10 "No-War Ways" to Improve your Teen's Sleep Habits*  
Dr. Helene Emsellem with Carol Whiteley (2006)  
Joseph Henry Press, Washington, DC

"To give you a better picture of what a sleep-deprived teen might look like, the following list names the top 13 symptoms my adolescent patients exhibit:

- Yawning
- Falling asleep at inappropriate times
- Trouble getting out of bed in the morning
- Taking more than 20 minutes to fall asleep at night
- Frequent headaches
- Sallow skin
- Bags under the eyes
- Irritability bordering on hostility
- Clumsiness
- Lack of verbal output (doesn't talk very much)
- Doesn't respond to question (I have to repeat them)
- Sullenness
- Has a low mood or is depressed (occasionally the opposite giddiness, can be seen)

In addition, many adolescent patients' grades deteriorate, and they're also often tardy or absent from school." (page 95)



**Adolescent Sleepiness Scale**

“The Adolescent Sleepiness Scale is a 10-point subjective assessment of alertness. It’s particularly useful because it ask teens to determine how hard it is to stay awake while doing typical activities such as reading and talking with friends or teachers.” (page 97)

During the past two weeks, have you struggled to stay awake (fought sleep) or fallen asleep in the following situations?”

(Mark one answer for every item).

- 1=No
- 2=Struggled to stay awake
- 3=Fallen Asleep
- 4=Both struggled to stay awake and have fallen asleep

1.	In a face-to-face conversation with another person?	
2.	Traveling in a bus, train, plane, or car?	
3.	Attending a performance (movie, concert, or play)?	
4.	Watching television or listening to the radio or stereo?	
5.	Reading , studying, or doing homework?	
6.	During a test?	
7.	In a class at school?	
8.	While doing work on a computer?	
9.	Playing video games?	
10.	Driving a car?	
a.	Do you drive?	

Source: Wolfson, AR, Carskadon, MA, et al. *Evidence for the validity of a sleep habits survey for adolescents.* Sleep 26(2):213:-216, 2003. See [www.sleepforscience.org](http://www.sleepforscience.org) for entire Sleep Habits Survey.

**Scoring:** “A total score over 10 should be reviewed carefully with all positive responses evaluated. A score between 15 and 20 signals a significant degree of daytime sleepiness and should alert you and your teen that they need to get more sleep.” (page 98)



**Stanford Sleepiness Scale**

“...this test checks how alert or tired you feel every few hours during the day.” The test can be taken by both adults and adolescents...” (page 101)

Using the scale below, indicated the single number that best describes your level of alertness or sleepiness at each time of day

- 1=Feeling active, vital, alert, or wide awake
- 2=Functioning at high levels, but not at peak; able to concentrate
- 3=Relaxed, awake, but not fully alert; responsive
- 4=A little foggy
- 5=Foggy, beginning to lose track; having difficulty staying awake
- 6=Sleepy, woozy, fighting sleep; prefer to lie down
- 7=Cannot stay awake, sleep onset appears imminent

5:30 a.m.	
7:30 a.m.	
9:30 a.m.	
11:30 a.m.	
1:30 p.m.	
3:30 p.m.	
5:30 p.m.	
7:30 p.m.	
9:30 p.m.	
11:30 p.m.	

Source: Hoddes E, Smithe H, et al *Quantification of sleepiness: A new approach.* Psychophysiology 10:431-436, 1973

Scoring: “...People entrained to the normal day-night cycle typically feel less alert in the mid- to late afternoon. Any score higher than 3 indicates that you may be seriously sleepy.”



**Pediatric Daytime Sleepiness Scale (PDSS)**

“The Pediatric Daytime Sleepiness Scale (PDSS) was created to meet the need for a sleepiness measurement for elementary and middle school children. Students between the ages of 11 and 15 were first studied to determine the relationship between daytime sleepiness and school performance, and the scale is now widely used to question sixth, seventh, and eighth graders about their sleep habits. While the scale has not been validated for older teens and students in their early twenty, it is a good way to see how sleep younger students are.” (page 101)

	Always	Frequently	Sometimes	Seldom	Never
1. How often do you fall asleep or get drowsy during class periods	4	3	2	1	0
2. How often do you get sleepy or drowsy while doing your homework?	4	3	2	1	0
3. Are you usually alert most of the day?	0	1	2	3	4
4. How often are you ever tired and grumpy during the day?	4	3	2	1	0
5. How often do you have trouble getting out of bed in the morning?	4	3	2	1	0
6. How often do you fall back to sleep after being awakened in the morning?	4	3	2	1	0
7. How often do you need someone to awaken you in the morning?	4	3	2	1	0
	Very Often	Often	Sometimes	Seldom	Never
8. How often do you think that you need more sleep?	4	3	2	1	0

Source: Drake, C, Nickel, C; Burduvali, E. *The Pediatric Daytime Sleepiness Scale (PDSS): Sleep habits and school outcomes in middle-school children.* Sleep 26(4):455-458, 2003.

Scoring: “When the PDSS test was first given to sixth through 8<sup>th</sup> graders, there was a clear correlation between higher scores and worse academic performance, worse mood, and especially anger and more frequent illness. In the sample, sixth graders had an average scale of 11.8, seventh graders 12.9, and eight graders 13.8. Scores above these averages signal that a younger teen may have a sleep problem. A score of 16 or higher is likely to be associated with a negative impact on daily functioning.” (page 101)



### **Delayed Sleep Phase Disorder (DSPD)**

The majority of adolescents experience a shift in natural sleep-wake times. Those with Delayed Sleep Phase Disorder (DSPD) have an additional biologically-induced delay in sleep, such that they typically cannot fall asleep until at least 1 or 2 a.m. (or even as late as 4 or 5 .m.), meaning they will experience even less sleep than their chronically sleep-deprived peers when forced to attend school or work early in the morning. Delayed Sleep Phase Disorder is a diagnosable medical condition and disability that qualifies for accomodation.

From: Rajaratnam, SMW, Licamele, L, and Birznieks, G. *Delayed Sleep Phase Disorder Risk Is Associated With Absenteeism And Impaired Functioning*. Sleep Health. 2015 Jun;1(2):121-127. [https://www.sleephealthjournal.org/article/S2352-7218\(15\)00056-X/abstract](https://www.sleephealthjournal.org/article/S2352-7218(15)00056-X/abstract)

“We compiled a questionnaire to assess DSPD symptoms based on diagnostic criteria (see Supplemental materials for full questionnaire [next page]) to identify those at high risk for the disorder who would likely warrant follow-up clinical assessment. Questions from the Composite Morningness-Eveningness Scale were used to assess bed time and wake time according to each participant's reported “feeling best rhythm.” In addition to this question related to the morningness- eveningness trait, we developed questions specifically assessing frequency of difficulty with getting out of bed in the morning, difference between the time the participant reports needing to go to bed on the night before school or work to feel fully rested in the morning (‘needed’ bedtime) and the actual time of going to bed before work or school, and latency to sleep onset when attempting to go to bed at the “needed” bedtime. Although the diagnostic criteria refer to “desired” clock time and the more recent criteria refer to “desired or required sleep time and wake-up time,” we asked the participant about their needed or required bedtime and wake-up time because this variable takes into account the need to schedule adequate amount of sleep considering study and work commitments. Initiating sleep at the desired bedtime would not necessarily result in adequate sleep duration.

...To be classified as high risk for DSPD, in addition to questionnaire participation not being terminated based on responses to the above questions, the following criteria were met:

1. Difference between needed bed time before school/work and actual sleep onset time  $\geq 30$  minutes, to address the DSPD diagnostic criterion requiring “a delay in the phase of the major sleep period in relation to the desired sleep time” ;
2. Sleep onset latency when attempting to sleep at needed bed time before school/work  $\geq 30$  minutes, based on established quantitative criteria for sleep onset latency in insomnia, to address the diagnostic criterion requiring “inability to fall asleep at a desired conventional clock time” ; and
3. Frequent difficulty getting out of bed on school/work days—always (almost every school or work day), usually (several times per school or work week), or often (once per school or work week), which aims to address the diagnostic criterion requiring “inability to awaken at a desired and socially acceptable time.”



Supplemental materials to “*Delayed Sleep Phase Disorder Risk Is Associated With Absenteeism And Impaired Functioning*”

**DSPD Screening Questionnaire**

1. Which of the following best describes your current employment status and schedule?
  - a. Employed, with all work hours falling between 7 am and 10 pm (includes paid, unpaid, volunteer work or training)
  - b. Employed, working overnight or early shifts, including any hours after 10 pm or before 7 am
  - c. Employed, working variable or rotating shifts (including at least 4 hours between 10 pm and 7 am)
  - d. Full-time student
  - e. Part-time student
  - f. Unemployed and not enrolled in school
  - g. Retired
  
2. How many combined hours do you work and/or go to school in a typical week?  
\_\_\_\_\_
  
3. What is your age? \_\_\_\_\_
  
4. One hears about "morning" and "evening" types of people. Which ONE of these types do you consider yourself to be?
  - a. Definitely a morning type
  - b. More a morning than an evening type
  - c. More an evening than a morning type
  - d. Definitely an evening type
  
5. Considering only your own "feeling best" rhythm, at what time would you get up if you were entirely free to plan your day?
  - a. 5:00-6:30 am
  - b. 6:30-7:45 am
  - c. 7:45-9:45 am
  - d. 9:45-11:00 am
  - e. 11:00 am-12:00 (noon)
  
6. Considering only your own "feeling best" rhythm, at what time would you go to bed if you were entirely free to plan your evening?
  - a. 8:00 pm-9:00 pm
  - b. 9:00 pm-10:15 pm
  - c. 10:15 pm-12:30 am
  - d. 12:30 am-1:45 am
  - e. 1:45 am-3:00 am



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7. On the night before school or work, what time do you usually go to bed with the intention of going to sleep? \_\_\_\_\_
8. When you go to bed at this time, how long does it typically take for you to fall asleep?
  - a. 0-30 minutes
  - b. 30-60 minutes
  - c. 1 to 2 hours
  - d. 2 to 3 hours
  - e. 3 hours or more
9. Before a school or work day, how often have you had difficulties with getting out of bed in the morning?
  - a. Always (almost every school or work day)
  - b. Usually (several times per school or work week)
  - c. Often (once per school or work week)
  - d. Rarely
  - e. Never
10. On the night before school or work, what time would you need to go to bed in order to feel fully rested in the morning? \_\_\_\_\_
11. If you tried to go to bed at this time, how long does it typically take for you to fall asleep?
  - a. 0-30 minutes
  - b. 30-60 minutes
  - c. 1 to 2 hours
  - d. 2 to 3 hours
  - e. 3 hours or more
12. On the night before a day off or vacation day, what time do you usually go to bed with the intention of going to sleep? \_\_\_\_\_
13. When you go to bed at this time, how long would it typically take for you to fall asleep?
  - a. 0-30 minutes
  - b. 30-60 minutes
  - c. 1 to 2 hours
  - d. 2 to 3 hours
  - e. 3 hours or more
14. When you are on vacation or before a day off, how often do you have difficulties with getting to sleep?
  - a. Always (almost every night)
  - b. Usually (several times per week)
  - c. Often (once per week)
  - d. Rarely
  - e. Never



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15. When you are on vacation or before a day off, how often do you have difficulties with maintaining sleep during the night?
- Always (almost every night)
  - Usually (several times per week)
  - Often (once per week)
  - Rarely
  - Never

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Questions 4, 5, and 6: Copyright © 1989 by the American Psychological Association. Reproduced with permission. The official citation that should be used in referencing this material is: Smith CS, Reilly C, Midkiff K. *Evaluation of three circadian rhythm questionnaires with suggestions for an improved measure of morningness*. J Appl Psychol 1989;74(5):728-38. The use of APA information does not imply endorsement by APA.

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