

# Sleep Apnea

## Introduction

If I am honest, I chose this particular topic because I joined the class late and there were only one or two topics left to write about. Out of the few options I had left to write about, this topic was the one that I knew least about and therefore I chose to research sleep apnea so I could learn all about it and increase my knowledge.

As it turns out I found this topic to be very interesting and informative. Unfortunately my Nana is currently having sleeping problems and has been very tired, and by learning this information out I hopefully can help her to see if she is experiencing this disorder and help to ensure she gets better sleep in the future.

I think that it is important to learn about different types of health problems as it gives you a wider knowledge about numerous topics. Learning numerous topics will allow a person to be able to spot any potential problems in their life that could leave them at risk for their future. Furthermore it will allow people to see problems that could be wrong with their family and friends and help them to diagnose the problem and thus get better.

## Section 1: Background and Problem Statement

- **Web site #1 Name:** Healthy People 2020
- **Web address:**  
<http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=38>
- **Background Information:**

Poor sleep health is a common problem in the U.S today with 25 percent of the adult population reporting the have insufficient sleep or rest 15 times every 30 days. Sleep-disordered breathing, including sleep apnea, is characterized by intermittent airway obstruction or pauses in breathing. As a result untreated cases are 2 to 4 times at risk of a heart attack or stroke. The severity of sleep-disordered breathing (SDB) is associated with obesity and the added pressure being obese puts on one's body. As a result weight loss brings upon a decrease in the severity of SDB.

African American children are at twice as likely to develop SDB as children of European decent. Low socioeconomic status independent of obesity and other risk factors are causes of SDB during childhood and if left untreated it can lead to difficulties in school, metabolic disorders and future heart disease risk. In comparison, 20 to 40 percent of older adults are affected by sleeping disorders which can lead to 2-to 3-fold increased risk of stroke and mortality.

Sleep health is very important on a par to nutrition and physical activity. Sleep is a critical determinant of health and well-being. It is extremely important to get a healthy sleeping amount to reduce fatigue and stop other mishaps to occur, such as medical injuries. Sleep loss and untreated sleep disorders influence basic patterns of behavior that negatively affect family health and interpersonal relationships. Other issues that can be caused by sleep disorders are heart attacks, strokes and depression.

- **Web site #2 Name:** National Heart Lung and Blood Institute
- **Web address:** <http://www.nhlbi.nih.gov/health/health-topics/topics/sleepapnea/>
- **Background Information:**

Sleep apnea is a sleeping disorder that involves having one or more pauses in breathing or shallow breathing during sleep. Usually being a chronic condition, sleep apnea results in poor sleep quality thus leading to excessive daytime sleepiness. Breathing during sleep is often disturbed through pauses that can last from a few seconds to minutes, often happening 5 to 30 times or more an hour. Obstructive sleep apnea is the most common type whereby the airway has collapsed or is blocked during sleep resulting in shallow breathing/ pauses during breathing. Loud snoring is usually an indicator of sleep apnea and it is most common with people who are overweight as there is added pressure placed on the airway. Central sleep apnea is the less common type of sleep apnea, and the problem occurs in the brain. The brain does not send the right information to your breathing muscles and as a result you are unable to breathe for brief periods of time. Central sleep apnea can occur in anybody but it is more common in people who have certain medical conditions or use certain medicines.

- **Web site #3 Name:** American Sleep Apnea Association
- **Web address:** <http://www.sleepapnea.org/learn/sleep-apnea.html>
- **Background Information:**

“Apnea” is a Greek word that’s literal meaning is “without breath”. Sleep apnea is a disorder that occurs when a patient experiences an involuntary cessation of breathing. During sleep people with untreated sleep apnea stop breathing repeatedly during their sleep, in some cases hundreds of times during the night for periods of a minute or longer. The sleeper is often unaware of such irregularities in their breathing and family members usually are the ones who diagnose there is a problem. If left untreated or un-diagnosed, sleep apnea can have serious consequences on the body and often times life-shortening ones. Heart disease, high blood pressure, diabetes and even car crashes due to people falling asleep at the wheel are some of many negative effects that can be caused by sleep apnea. There are three types of sleep apnea: obstructive sleep apnea, central sleep apnea, and mixed sleep apnea. Sleep apnea is very common, and affects more than 18 million Americans. Everybody is a potential target for having sleep apnea with many of them remaining undiagnosed and therefore untreated. However, with this said, you are more likely to have sleep apnea if you are male, overweight and over the age of 40. Sleep apnea is a serious sleep disorder that occurs when a person's breathing is interrupted during sleep. There are two types of sleep apnea: Obstructive sleep apnea and Central sleep apnea. Obstructive sleep apnea is the most common and is caused by a blockage of the airway caused by soft tissue in the back of the throat collapsing during sleep. Central sleep apnea differs from obstructive sleep apnea as it involves the brain failing to signal the muscles to breathe due to instability in the respiratory control center opposed to the collapsing soft tissue. People with sleep apnea have pauses in breathing and even stop for up to a minute causing a lack of oxygen getting to the brain and thus a poor level of sleep.

## Section 2: Research

- **Web site #1 Name:** The Journal of the American Medical Association
- **Web address:** <http://jama.ama-assn.org/content/283/14/1829.short>
- **Summary of the research:**

There is a relationship between sleep apnea and hypertension. Early studies in the early 1980's suggested that snoring was a surrogate for the presence of sleep apnea. However although some studies did suggest this was true, others found a relationship to be explained by the effects of age, sex or obesity. After these findings had been established, some studies looked at hypertension, independent of age, sex and body weight, finding an association between sleep apnea and hypertension.

The study was based on a baseline cross-sectional data from the Sleep Heart Health Study (SHHS). Numerous people aged 40 or older with no previous history of sleep apnea or relating problems were examined in a baseline SHHS study. A group of over 5000 were measured for hypertension and associations between sleep apnea and hypertension were present in all subgroups analyses.

- **Web site #2 Name:** Chest
- **Web address:** <http://chestjournal.chestpubs.org/content/94/1/9.short>
- **Summary of the research:**

This study looked into males with obstructive sleep apnea that had a apnea index (AI) greater than 20 saying that they had a much more greater mortality that those with AI less than 20. The difference in mortality related to AI was particularly true in patients less than 50 years of age with no other common causes of mortality. None of such patients treated with tracheotomy or nasal CPAP died. Data were gathered from the charts of all patients who underwent evaluation of sleep apnea of 1978 and 1986 and had five abnormal respiratory events per hour of sleep. All patients had to conduct numerous questionnaires such as a sleep health questionnaire. Patients with an AI of more than 20 have an increased mortality. Two of the commonly used treatments have an effect on prolonging survival: tracheotomy or nasal CPAP.

- **Web site #3 Name:** Circulation
- **Web address:** <http://circ.ahajournals.org/content/97/21/2154.abstract>
- **Summary of the research:**

The aim of this study was to see the prevalence, consequences and differences in various sleep-related breathing disorders in ambulatory male patients with stable heart failure. Ninety-two eligible patients were included in the study of which 40 were found to not have sleep apnea and 41 were said to have it. Forty percent of all patients had central sleep apnea, and eleven percent had obstructive sleep apnea. The patients with obstructive sleep apnea had significantly greater mean body weight and prevalence of habitual snoring. Patients with sleep apnea have a high prevalence of arterial fibrillation and ventricular arrhythmias.

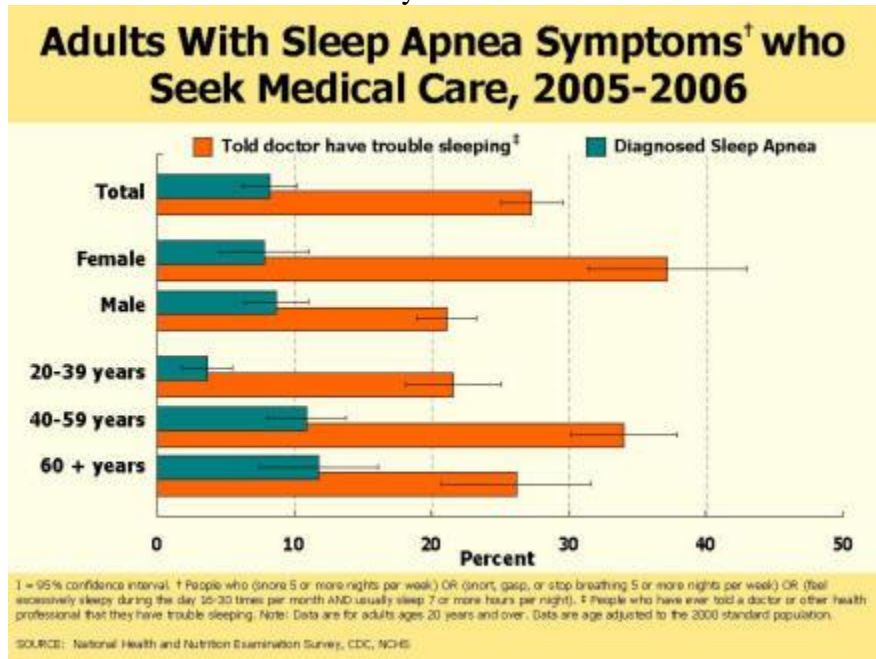
### Section 3: Statistics

- **Web site #1 Name:** Centers for Disease Control and Prevention
- **Web address:** <http://www.cdc.gov/Features/dsSleep/>
- **Summary of the statistics:**

18 million Americans have known cases of sleep apnea. The National Health and Nutrition Examination Survey (NHANES) introduced the Sleep Disorders Questionnaire in 2005 for participants 16 years of age and older. The information was carried out using data from 2005-2006 and 2006-2007 which included just fewer than 11,000 aged 20 or higher. This experiment showed that a short sleep duration was found to be more common among adults ages 20–39 years (37.0%) or 40–59 years (40.3%) than among adults aged  $\geq 60$  years (32.0%), and among non-Hispanic blacks (53.0%) compared to non-Hispanic whites (34.5%), Mexican-Americans (35.2%), or those of other race/ethnicity (41.7%). Adults who reported sleeping less than the recommended 7–9 hours per night were more likely to have difficulty performing many daily tasks.

- **Web site #2 Name:** Centers for Disease Control and Prevention : Health People 2010
- **Web address:** [http://www.cdc.gov/nchs/ppt/hp2010/focus\\_areas/fa24\\_2\\_ppt/fa24\\_rd2\\_ppt.htm](http://www.cdc.gov/nchs/ppt/hp2010/focus_areas/fa24_2_ppt/fa24_rd2_ppt.htm)
- **Summary of the statistics:**

This study looks into the adults aged 20 years or more that seek medical care. It finds that the majority of cases were found between 20-59 years and most were female.



- **Web site #3:**
- **Web address:** <http://www.sleepmed.md/page/1896>
- **Summary of the statistics:**

The Web site shows numerous statistics regarding sleep apnea in the United States. Over 18 millions of Americans suffer from sleep apnea or at least ones they have on file. There are an estimated 10 million Americans that remain undiagnosed from this disorder. Of the 18 million, over 50% of all the cases are diagnosed in people aged 40 and over of which there are more men prevalent with sleep apnea over women. Furthermore, there are four to nine percent of middle-aged men that suffer from apnea opposed to two to four percent of middle-aged women which suffer from apnea.

## Section 4: Consumer Information

- **Web site #1 Name:** MedlinePlus
- **Web address:** [http://www.nlm.nih.gov/medlineplus/news/fullstory\\_115189.html](http://www.nlm.nih.gov/medlineplus/news/fullstory_115189.html)
- **Summary of the information:**

Sleep apnea could potentially give elderly women, who have experienced sleep apnea, a higher risk of developing mild cognitive impairment or dementia. A study was conducted at Brigham and Women's hospital in Boston whereby elderly women who had 15 or more sleep apnea events per hour of sleep had a 85 percent higher chance of developing some form of dementia or mild cognitive impairment. The study was conducted on 298 women who did not have dementia at the start of the study with average ages of 82. Of which, 105 women were diagnosed of sleep-disordered breathing thus meaning the brain was deprived of oxygen for a period of time over a night sleep.

- **Web site #2 Name:** WebMD
- **Web address:** <http://www.webmd.com/sleep-disorders/sleep-apnea/news/20110711/sleep-apnea-affects-blood-vessels>
- **Summary of the information:**

A common sleep disorder such as sleep apnea can affect the blood vessels that are responsible for supplying blood to the heart, raising the risk of heart disease in otherwise healthy people. New studies have shown blood vessel abnormalities in otherwise healthy people with obstructive sleep apnea. Previous studies have linked sleep apnea to high blood pressure (hypertension) and other risk factors for heart disease where as new researchers have found that treating obstructive sleep apnea with continuous positive airway pressure (CPAP) to reduce breathing interruptions during sleep reversed the blood vessel abnormalities. CPAP provides a consistent airflow that holds the airway open to prevent breathing interruptions during sleep.

- **Web site #3 Name:** Medpage today
- **Web address:** <http://www.medpagetoday.com/PrimaryCare/SleepDisorders/27912>
- **Summary of the information:**

Compression stockings can help sleep apnea. During a study completed by Robert Jasmer, MD on average there was a 62% reduction in leg fluid volume, 60% reduction in overnight neck circumference, and a 36% reduction in episodes of apnea per hour of sleep. During this study they enrolled 12 non-obese participants that had both obstructive sleep apnea and chronic venous insufficiency and have them a one-week period without the stocking and then a one-week period with the stockings to find the results they did.

## Section 5: Solutions to the Problem (or Issue)

- **Web site #1 Name:** National Heart Lung and Blood Institute
- **Web address:** <http://www.nhlbi.nih.gov/health/health-topics/topics/sleepapnea/treatment.html>
- **Summary of the Information:**

In order to treat sleep apnea it is important to try and restore regular breathing during sleep and relieve symptoms such as loud snoring and daytime sleepiness. In order to try and restore and improve such problems it is important to try and make some lifestyle changes such as: avoid alcohol or medicines that make you sleepy; ensure you are of good body weight and no obese or overweight; sleep on your side and not your back as a way of trying to open your throat more; and keep open nasal passages with the use of nasal sprays and allergy medicines. There are other forms of trying to open the air passage such as a mouthpiece / oral appliance as it opens the mouth allowing more oxygen to get into the body that before.

- **Web site #2 Name:** University of California, San Francisco. Division of Sleep Surgery
- **Web address:** <http://sleepsurgery.ucsf.edu/research/>
- **Summary of the information:**

There has been successful surgical treatment of obstructive sleep apnea. The surgery is based on identifying the pattern of the airway obstruction and accurately targeting the obstructed area. Currently, several evaluation techniques are on hand to help guide huge guide decision-making tasks. This research explores the role of drug-induced sleep endoscopy, an evaluation procedure performed in the operating room. During this procedure sedation is used in order to look through the throat to observe the pattern of airway blockage. The research has evaluated important characteristics of this innovative technique with a comparison to other evaluation procedures and an examination of surgical results. Sleep Apnea surgical treatment is used to observe data patterns and help to change such sleeping and breathing patterns.

- **Web site #3 Name:** American Lung Association
- **Web address:** <http://www.lungusa.org/lung-disease/sleep-apnea/symptoms-diagnosis.html>

- **Summary of the information:**

Sleep apnea is a condition that is brought upon in some cases through obesity and smoking. As a result it is important to lose weight and improve your diet allowing less pressure to be placed on the trachea when sleeping and thus allowing a person to breathe easier during sleep. Furthermore, to stop smoking can improve cardiovascular ability allowing more oxygen to get into the blood and thus helping to prevent stops/ shortages in breath. If these two lifestyle factors do not bring a change in your sleeping habits, then a continuous positive airway pressure (CPAP) machine delivers a consistent level of pressure to your lungs while you sleep. This is done through wearing a mask that covers your nose and mouth while you are sleeping providing pressure which keeps your airways open to prevent pauses in breathing and snoring. Furthermore a computer-based device called an adaptive servo-ventilation machine which adjusts pressure while you sleep based upon your recorded breathing and sleeping patterns.

## **Conclusions**

Having completed this project I have finally understood what is meant by the term “sleep apnea”. It is really important to constantly check how tired you are during the day and how much sleep you are getting each night. If you or people around you are experiencing any of the problems that have been mentioned in the paper then it is important that you consult a doctor as soon as possible.

Furthermore, I feel that it is important that I start to take better care of my sleeping habits because I generally feel tired all the time despite aiming to improve my sleeping hours in my health diary. If the problem persists then I feel I should start to look in depth at my sleeping due to the fact that sleep apnea can have an effect on everybody despite being most prevalent in men over 50 who are overweight.

<b>Back to Betty C. Jung's Web site</b>	<a href="http://www.bettyjung.net">http://www.bettyjung.net</a>
<b>Back to Fact Sheet Directory</b>	<a href="http://www.bettyjung.net/Pch202fs.htm">http://www.bettyjung.net/Pch202fs.htm</a>