

# Study Relating Dementia to that of Sleeping Practices that restrict air flow near the mouth and nose

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The following study is the result of an online survey relating various sleeping practices to that of the occurrence of dementia.

## *The Theory*

Alzheimer's disease and dementia are often considered to be the end result of an episode of hypoxia (lack of oxygen), which can occur through a stroke or concussion earlier in life. This hypoxia is considered to result in an increase of A-beta proteins, the accumulation of which is considered as the significant marker of Alzheimer's disease. This study looks at the possibility that episodes of hypoxia can occur when individuals sleep in any microenvironment that becomes increasingly short of oxygen due to rebreathing. Rebreathing can occur when any individual inhales air that they have just exhaled. If this occurs in a restricted space, the result would be the depletion of oxygen over time accompanied by an increase in carbon dioxide. These microenvironments can occur when any individual sleeps with their head partially or completely covered by bedding, such as blankets, sheets, or pillows.

## **The Study**

In this study six sleeping practices are compared to four stages of dementia.

The six sleeping practices reflect different levels of head covering are:

- a) Always sleeps with head **completely uncovered**. May even prefer window open.
- b) **Occasionally** sleeps with covers drawn above eye level, completely covering the mouth and nose.
- c) **Often** sleeps with covers drawn above eye level, completely covering the mouth and nose.
- d) **Occasionally** sleeps with covers drawn completely over their head.
- e) **Often** sleeps with covers drawn completely over their head.
- f) **Often** sleeps with either the head covered or partially covered at or about eye level.

The four stages of dementia are:

- **Lucid** with no dementia: very aware, clear thinking, good memory.
- **Early Stage**; independent but with mild memory loss and/or mild communication difficulties. May have changes in mood and behavior.
- **Middle Stage**: some cognitive, memory and functional abilities declining, needing some assistance with daily tasks.
- **Late Stage**; severe cognitive, memory and functional disabilities, requiring 24 hour care.

## **Survey results:**

### **Gender:**

The survey investigated the submissions of 443 individuals. Of these 65% were for women, while 35% were for that of men.

### **Age Groups (Percentages, rounded):**

20 – 39: 4.7%  
40 – 49: 8.4%  
50 – 59: 21.9%  
60 – 69: 24.5%  
70 – 79: 19.6%  
80 – 89: 18.7%  
90 – older: 2.3%

### **Sleeping Practices (Percentages, rounded):**

- a) 70.3% always sleep with head completely uncovered. May even prefer window open.
- b) 12.6% occasionally sleep with covers drawn above eye level, completely covering the mouth and nose.
- c) 3.2% often sleep with covers drawn above eye level, completely covering the mouth and nose.
- d) 3.4% occasionally sleep with covers drawn completely over their head.
- e) 2.3% often sleep with covers drawn completely over their head.
- f) 8.3% often sleep with either the head covered or partially covered at or about eye level.

In comparing those who never cover their head during sleep to those that practice some level of covering:

- a: those that never cover their head: 70.3%
- b, c, d, e, f: those that practice some level of covering: 29.7%.

**Note:** In reading most of the following results, reading across horizontally will add to approximately 100 %.

### **Stages of Dementia vs. Age groups (Percentages, rounded):**

Age Group	Lucid	Early	Middle	Late
50 and older	46.2	24.9	14.5	14.3
60 and older	36.7	26.3	18.7	18.3
70 and older	20.6	26.1	27.8	25.6
80 and older	9.7	20.4	34.4	35.5

**Note:** In comparing sleeping practices to dementia, only the groups 50 and older were taken into consideration, of which there were 385 submissions.

**For the following, percentages of each sleeping practice to that of the stages of dementia are calculated;**

**Ages 50 and older: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	55.0	24.2	10.4	10.4
b) Occasionally covered to eye level	29.2	31.2	16.7	22.9
f) A mix of covered at or above eye level	28.1	12.5	41.6	18.7
c) Often covered to eye level	27.3	9.1	18.2	45.4
d) Occasionally covered above head	20.0	40.0	20.0	20.0
e) Often covered above head	10.0	50.0	20.0	20.0

**Ages 50 and older with covered practices grouped: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	55.0	24.2	10.4	10.4
a,b,c,d,e,f) all covered practices grouped	25.9	26.7	24.1	23.3

### **Ages 60 and older: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	45.9	25.8	14.4	13.9
b) Occasionally covered to eye level	21.6	29.7	21.6	27.0
f) A mix of covered at or above eye level	20.7	10.3	44.8	20.7
c) Often covered to eye level	22.2	11.1	11.1	55.6
d) Occasionally covered above head	8.3	50.0	16.7	25.0
e) Often covered above head	0	55.6	22.2	11.1

### **Ages 60 and older with covered practices grouped: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	45.9	25.8	14.4	13.9
a,b,c,d,e,f) all covered practices grouped	17.8	27.4	27.4	27.4
(c, d, e) highest level of head covering	10.0	40.0	16.7	33.3

### **Ages 70 and older: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	28.8	27.0	23.4	20.7
b) Occasionally covered to eye level	15.4	30.8	26.9	26.9
f) A mix of covered at or above eye level	4.8	9.5	57.1	28.6
c) Often covered to eye level	0	0	16.7	83.3
d) Occasionally covered above head	0	44.4	22.2	33.3
e) Often covered above head	0	42.8	28.6	28.6

### **Ages 70 and older with covered practices grouped: Sleeping Practices vs. Stages of Dementia**

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	28.8	27.0	23.4	20.7
(a,b,c,d,e,f) all covered practices grouped	7.2	24.7	34.8	33.3
(c, d, e) highest level of head covering	0	31.8	22.7	45.5

### **Ages 80 and older with covered practices grouped: Sleeping Practices vs. Stages of Dementia**

Because of the fewer numbers for this age group, only the grouped data is provided:

<b>Sleeping Practices</b>	<b>Lucid</b>	<b>Early Stage</b>	<b>Middle Stage</b>	<b>Late Stage</b>
a) uncovered	14.0	28.0	28.0	30.0
(a,b,c,d,e,f) all covered practices grouped	4.6	11.6	41.9	41.9
(c, d, e) highest level of head covering	0	7.7	38.5	53.8

## ***Conclusions:***

Given the results as submitted, there is strong indication that head covering while sleeping has a significant impact on the occurrence and advance of dementia.

- 92.8% of those who practiced any form of head covering while sleeping will suffer from either an early, middle or late stage of dementia at or after 70 years of age.
- 100% of those who practiced the most serious levels of head covering (c, d and e above) while sleeping will suffer from either an early, middle, or late stage of dementia at or after 70 years of age.

Head covering while sleeping may cause dementia to occur at an earlier age.

- When comparing uncovered to covered practices, the percentages of those in the middle and late stages of dementia are approximately doubled for those who practice any level of covering (but less so for those 80 and above).

What percentage of dementia overall could be attributed to head covering while sleeping? Considering those 60 years of age and older, comparing those who do not practice head covering and were at a middle or late stage of dementia (assuming these to have suffered dementia due to causes other than head covering) to those that practice any level of head covering and who were at a middle or late stage of dementia (causes other than head covering plus head covering), 23% were attributed solely to head covering. If we consider that this percentage could also be attributed to all levels or stages of dementia, we can assume that 23% of all cases of dementia are due to head covering while sleeping.

However, this percentage may be understated, because it can be assumed that there are other practices while sleeping which can create microenvironments other than just the position of bedding, such as blankets. How a person curls up in bed, how they cuddle next to their spouse, the lack of movement, and other considerations may also lead to temporary microenvironments whereby oxygen can be depleted due to rebreathing. Also any person might accidentally reposition blankets while sleeping such that they cover their spouse above their head.

The percentages of women practicing head covering was 47%, while for men it was 33%. This translates to a 42% increase of women as opposed to men practicing head covering while sleeping. This may account for a significant portion of the reason why women more than men suffer dementia and Alzheimer's.

These are important findings if the result of the avoidance of these practices was the reduction of dementia (or possibly delay of the onset of dementia) by as much as 23% overall. This would be a drug free, cost free benefit, which would be significant considering the current and future expected costs related to dementia, not to mention the improvement in the lives (and their families) of those who changed their sleeping practices.

However, this study was of a small sample. Only through a further, more comprehensive and scientific study under strict controls can the true impact of head covering while sleeping be fully recognized and quantified. This would be an important next step.

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Additional information:

- This study and any further changes will be made available on the author's site: <http://sites.google.com/site/rebreathingsite>.
- The author can be contacted directly at: [barrstan@gmail.com](mailto:barrstan@gmail.com).
- Comments or questions can be added to the [Rebreathing](#) page on Facebook.