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Sleep Duration and Mortality - A Systematic Review

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Abstract

Aim

Relationship between sleep duration and mortality - a systematic review

Objective

To study presence of a relationship between duration of sleep and mortality.

Background

Sleep is a naturally recurring state of mind characterized by altered consciousness and inhibition of nearly all voluntary muscles, and reduced interactions with surroundings.Lack of sleep leads to fatigue , increased daytime sleepiness and also causes delarious effects on the endocrine and immune systems.

Reason

This study was undertaken to understand the relationship between sleep and mortality rates and understand the importance of sleep.

INTRODUCTION

Sleep is a primitive behavior that is shared by billions of people around the globe , still its long term effects and underlying mechanisms are poorly understood. In most industralised socities , there is a increasing trend of shorter hours of sleep due to increased work load and a greater allocation of time for leisure activities .[1,2] Lack of sleep causes detectable changes in metabolic, endocrine,[3,4] and immune systems.[5] Over the last few decades there has been growing evidence to suggest that too little sleep and too much sleep are associated with adverse health outcomes, including total mortality,[6,7]cardiovascular disease,[6,8-10]type 2 diabetes,[11]hypertension[12,13] and respiratory disorders,[14] obesity in both children and adults,[15,16] and poor self-rated health.[17] According to ayas et al[18] and Van cauter et al[19] , short sleepers who are generally defined as individuals who sleep less than 7 hours on average every night , are at higher risk for a wide range of health conditions such as coronary heart disease and diabetes when compared with average sleepers who sleep 7-8 hours on an average every night. Further studies have also shown that short sleep is associated with high risk of mortality.[6,20,21] On the contrary , long sleepers generally defined as individuals who sleep more than 9 hours on an average every night also show increased risk of mortality compared with average sleepers.[21-23] .

The purpose of this review was to systemmaticaly review the evidence on relationship between sleep and mortality .

METHODS

A pubmed search was done using the key words ; Sleep and mortality to investigate the relationship between them. Additional information was collected using the terms sleep durations and, motality rates from various sources. Studies were reviewed for relevant data to establish a connection between sleep duration and mortality.

DISCUSSION

In this systematic review ,23 cohort studies that examined the relationship between sleep duration and all cause mortality were selected. Discoveries show both male and female , short sleepers and long sleepers are at a higher risk of mortality on contrast to average sleepers who sleep around 7 – 7.9 hours .

Accumulated evidence suggests a strong association between sleep and mortality with relationship being U-shaped . Despite the strong evidence , there has been a lots of altercation in literature whether these increases in mortality among short and long sleepers when compared to average or medium sleepers are real. Most of the data indicates that some but not all of the excess mortality among the long and short sleepers is due to differences in the characteristics of the individuals who comprise these groups; for example, individuals who report shorter and longer sleep times are more likely to be in poorer overall health and to have been diagnosed with medical conditions, including depression, than average sleepers.[2,6,18,22] Further ,mortality is associated with short and long sleep due to socio- economic status . However , recent researches have taken into account socio economic status and lifestyle factors and have shown that these factors do not explain this association.[2,10]

A number of studies have shown that short sleep causes adverse affects on the endocrine , immune and metabolic systems of the body.[1,3,4] It has also been suggested that the mechanism behind the association between sleep duration and mortality could be chronic inflammation as clinical studies have reported elevated inflammatory markers, including high-sensitivity Creactive protein and interleukin-6, during sleep deprivation conditions .[24,25] It should be noted that in general short sleep is defined as short sleep depreviation and may differ from chronic sleep depreviation. However , strong evidences are proposed linking short sleep with adverse health conditions.[18,19].

Compared to short sleep , less research has been done on the mechanisms behind the association between long sleep and mortality. Unlike short sleep , long sleep has associated with obesity and stroke according to recent studies.[26,27]

Despite the stong evidence of a U-shaped association between sleep duration and mortality, it is difficult to characterize the number of hours of sleep associated with increased mortality risk due to certain limitations .First, all

of the studies included in this review measured sleep duration using a single self-reported survey item which may not five information regarding the quality of sleep per night. Second, the studies included in the systematic review varied in their initial exclusion criteria and their inclusion of adjustment factors in the analyses.Finally, in general, the studies included in this review used different category cut-points in their analyses, hence detering our ability to examine the relationships between sleep duration and mortality . As suggested by the results of individual studies, a strong association may exist between sleep duration and mortality with shorter (e.g., less than 5 h per night) and longer (e.g., greater than 10 h per night) sleep times.

CONCLUSION

Sleep is common unrecognized health issue among the common public. Evidences suggest that both short and long sleepers are at higher risk of mortality. From recent studies , it seen that there is increasing prevalence of sleep disorders and needs to be addressed by physicians in addition to management of factors known to increase mortality such as obesity.

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