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Research Article

## Sleeping Habits, Classroom Behaviour and Academic Performance of Senior High School Students

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### ABSTRACT

Being sleepy in class can have a vital impact on the academic performance of a student. Lack of sufficient and adequate sleep can be harmful and even deadly. It is a basic necessity of life and important part of learning. This study utilized descriptive and correlational design to examine 119 senior high Electrical Installation and Maintenance (EIM) students who were selected through simple random sampling. Findings revealed that 88 percent of the students were sleep deprived and they usually sleep for less than 6 hours only. Two of the reasons of sleeping late were using of Facebook and Messenger account and playing mobile games. The third reason was making assignments and homework. The most prevalent classroom behaviours were: students were sleepy during class discussions and they slept in class during vacant periods and the third prevalent behavior was they felt tired during classes. Sixty-one percent of the students have a general average of 75-79 which is only fairly satisfactory and 29 percent have 80-84 grade which is only satisfactory in the K-12 grading system. There was a significant negative relationship ( $cc = -0.420$  and  $p = 0.000$ ) between number of hours of night sleep and sleepiness classroom behavior. This suggested that the less number of hours of night sleep is correlated to high occurrence of sleepiness classroom behavior. There was a significant positive relationship ( $cc = 0.627$  and  $p = 0.000$ ) between number of hours of night sleep and academic performance. This suggested that the high number of hours of night sleep is associated to high academic performance. On the other hand, students with less sleep had low academic performance. There was a significant negative relationship ( $cc = -0.544$  and  $p = 0.000$ ) between sleepiness classroom behavior and the academic performance. This implied that high occurrence of sleepiness classroom behavior is associated to low academic performance. The implications may serve as basis for policy makers, school administrators and teachers to educate students including the parents on the proper use of mobile phones and other gadgets. The parents need to set sleeping time or lights-off rules and regulate the use of mobile phones. Sleeping time or routine shall be imposed. School administrators and teachers need to craft a well-planned and well-designed policy on giving assignments and homework to attain high scholastic achievement.

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*Keywords: Sleeping habits and duration, Classroom behavior, Academic performance, Descriptive, correlation*

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## **Introduction**

Sleep deprivation is a growing problem in schools, with students struggling to concentrate in lessons due to the lack of sleep. Lack of sleep has been linked to children's use of mobile phones and tablets late into the night (Weale, 2017). When students do not get the optimal 8 to 10 hours of sleep that they need, they lose their ability to succeed academically. Students have trouble retaining information, coping with stress, and staying focused (Persky, 2018).

Sleep is a complex process that we all experience every day. Without proper sleep we cannot function properly and the risk of several different health problems increases. The lack of sleep effects on our social and work life. Learning becomes challenging and we become forgetful. Thousands of students around the globe are at risk of sleep deprivation which contributes to lower academic outcomes (Henna, 2018).

The researchers of this study came up with this research topic because it was observed that numerous students were sleepy during classes and they tend to sleep during vacant periods. It was also observed that many students came to school late.

The purpose of the researchers in conducting this study were to identify sleeping habits and reasons of sleeping late and to determine the relationship of sleeping habits and classroom behavior and the relationship between sleeping habits and academic performance of senior high school students.

## **Literature Review**

### ***Sleeping habits and duration***

Sleeping habits are the practiced number of hours of night sleep for a long period of time. These includes the time of night sleep and bedroom rest. Sleeping is not only something that feels good but also something necessary. When you are a student, your habits concerning sleep may be different than before. This may be so for various reasons, but it is common that students

tend to study a great deal before an exam or a deadline for an assignment, and therefore might need to work late at night. However, you are not so efficient if you are tired when studying. Both sleep and rest are required in order for your body to be healthy and for your brain to be able to digest what it absorbs. Between six to nine hours sleep per night is recommended to give the body the recovery it needs (Mid Sweden University, 2019).

According to National Sleep Foundation (2015) and World Health Organization (WHO) (2004), teenagers aging 14-17 years old need 8-10 hours of sleep, while young adults aging 18-25 years old need 7-9 hours of sleep. Sleep has an important function for learning. To sleep badly – the one who sleeps badly may develop physical as well as mental symptoms. It is likely that you have experienced a night's sleep with disturbances, which may be unpleasant, but it is not worse than being without food for a short time. However, if the difficulties reappear during a longer period of time, it is advisable that you contact a person with medical knowledge for counselling.

Some good advices for a good night's sleep: Plan your time so you need not spend late nights studying; Make sure you have "slow down time" in the evening. Stop physical as well as mental activity an hour before going to bed; Try to find a regular twenty-four hours rhythm. Try to have the same rhythm weekdays as well as weekends. Avoid substances that disturb sleep, such as caffeine in various forms, as well as nicotine and alcohol. Regular physical activity during the day or in the early evening may have a positive effect on your sleep. See to it that you are sufficiently satisfied as concerns food – do not eat right before you go to bed. If you do that, your body cannot relax satisfactorily. See to it that your sleeping environment is satisfactorily arranged (a good bed, pleasant temperature, and silence). If you cannot sleep, do not just stay in bed. Get up and do something until you feel tired. You may also consider using music for relaxation or just use

calm and relaxing music (Mid Sweden University, 2019).

According to Colten & Altevogt (2006), sleep deprivation describes the cumulative effect of a person not having sufficient sleep. Insufficient sleep adversely affects the body, brain, mood and cognitive function. All aspects of health can be impacted by sleep deprivation. Sleep deprivation is defined also as not obtaining adequate total sleep. When someone is in a chronic sleep-restricted state they will notice excessive daytime sleepiness, fatigue, clumsiness, and weight gain or weight loss. In addition, being sleep-deprived affects both the brain and cognitive functions.

Brigham and Women's Hospital (2017) studied 61 full-time undergraduates from Harvard University for 30 days using sleep diaries. They quantified sleep regularity using the Sleep Regularity Index (SRI), a newly devised metric. Researchers examined the relationship between the SRI, sleep duration, distribution of sleep across the day, and academic performance during one semester.

According to Phillips et al. (2017), research results indicate that going to sleep and waking up at approximately the same time is as important as the number of hours. Sleep regularity is a potentially important and modifiable factor independent from sleep duration. Students with more regular sleep patterns had better school grades on average. Researchers found no significant difference in average sleep duration between most students with irregular sleep patterns and most regular sleepers.

The body clock was shifted nearly three hours later in students with irregular schedules as compared to those who slept at more consistent times each night. For the students whose sleep and wake times were inconsistent, classes and exams that were scheduled for 9 a.m. were therefore occurring at 6 am according to their body clock, at a time when performance is impaired. Ironically, they didn't save any time because in the end they slept just as much as those on a more regular schedule (Phillips, 2017).

### ***Classroom behavior and academic performance***

Teens and adolescents often face difficulties at school if sleep-deprived. School can be demanding and sometimes one needs to stay up late for doing homework or other assignments. They stay up late finishing mandatory assignments and wake up early to go to school. The average amount of sleep they may get during the week can be as little as 4-5 hours per night. They feel tired during the lessons and nothing seems to be staying in mind. They just want to go home and take a nap which leads later to the late-night studying. This is not so uncommon cycle among the students. School is now more demanding than ever before and it contributes to the sleep deprivation. The problem is not only in poor performance at school but also outside of school; on the roads (drowsy driving), at home, with friends, etc. School related sleep deprivation contributes to several mental and physical health problems (Richter, 2015) as cited by (Henna, 2018).

Poor grades at school are linked to sleepiness and sleep deprivation. When a child does not get to sleep eight to nine hours per night, alertness and school performance become significantly impaired. According to the study those students who did not succeed at school, those who had low school enjoyment and many absences slept less and had high levels of daytime sleepiness compared to those who succeeded at school. In many surveys and studies it has been concluded that those students who succeed at school sleep significantly longer and go to bed earlier than those who succeed at school poorly (Wolfson & Carskadon, 2003).

According to Duval (2010), only about 8 percent of high school students get enough sleep on an average school night, a large new study finds. The others are living with borderline-to-serious sleep deficits that could lead to daytime drowsiness, depression, headaches and poor performance at school.

The findings of this study were consistent with those reported from the National Sleep Foundation (2015) Sleep in America Poll, the authors said that although no formally accepted sleep guidelines exist, the foundation

defines nine hours a night as optimal for adolescents, eight hours as borderline and anything under eight hours as not enough. As students' progress through high school, demands on their time from hectic social activities, jobs, homework and family obligations increase and they sleep less to fit them in, as the study shows. Compounded with their delayed sleep-wake pattern, many students are getting up for school when their bodies tell them it is still the middle of the night.

National Sleep Foundation (2015) research shows that delaying school start times by an hour or more increases the amount of sleep adolescents get and improves their performance in school. However, to promote optimal sleep, Short et al. (2011) said that adolescents should have set bedtimes before 10 p.m. on school nights and consistent wake-sleep times every night.

This lead to the inference that, school children may be sleep deprived during weekdays and had significant sleep debt. The sleepiness in day time during school and poor academic grades depicted that inadequate sleep can be the reason behind poor academic performance of a child. This concurs with the findings of the previous studies. It was observed that the differences between sleep-wake patterns during the weekdays and weekends completely disappear during holidays, indicating that school going children are sleep deprived. Sleep problem could be a sleep pattern that is not acceptable or unsatisfactory to parents, child or clinician. The perception of sleep problem may vary from one society to another as the sleeping pattern appearing problematic to one group may appear normal to another. Parents might have been unaware or overlooking the behavioral problems and considering it as a normal phenomenon. The ongoing trends of urbanization and modernization have been consistently linked to sleep problems. The increase in nucleation of family, working of both the parents has altered the common childhood behavior problems including sleep (Mishra et al., 2017).

Every interviewed student mentioned feeling tired almost all the time, especially during

the week. During weekends they could catch up with sleep and they felt themselves a little less tired, however, still tired. Early school time, irregular work hours and stress were the most contributing factors to the bad night of sleep and therefore to the tiredness (Henna, 2018).

According to an article in Patrick et al. (2017), sleep deprivation is common among students whom live in a culture that promotes reduced sleep, due to the burden of academic work and social pursuits. The reasons for poor sleep hygiene include alcohol and caffeine intake, stimulants, and technology, which prevent students achieving sufficient sleep time and quality. A cross-sectional survey found that 71 percent of students did not achieve the recommended 8 hours of sleep, with 60 percent classified as poor sleepers. An average of 5.7 hours of sleep has been reported for students studying architecture, and sleepless nights due to academic work throughout the night—defined by the Oxford English Dictionary as an all-nighter—occurred, on average, 2.7 days a month.

### ***Theoretical Support***

The main theory used was the Information Consolidation Theory of Sleep as cited by Cherry (2019), that stated the function of sleep is to process information that has been acquired during the day, so people are better prepared for the day to come. Students need to revitalize and restore their energy to keep body and mind functional. Sleep deprivation is the common problem of today's youth. It increases the likelihood of teens to suffer myriad negative consequences, including an inability to concentrate, poor grade, anxiety, depression, thoughts of suicide and even suicide attempts.

### ***Conceptual Framework***

Figure 1 shows the conceptual framework of the study. In this framework, the independent variable is the sleeping habits, the number of hours of night sleep. The dependent variables are the classroom behavior and academic performance of the students.

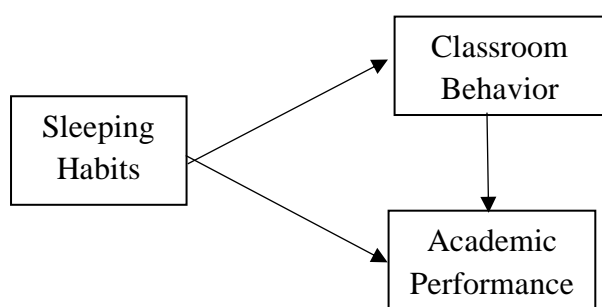


Figure 1. Students' classroom behavior and academic performance and its correlation to sleeping habits

### Research Questions

This study sought to answer the following questions:

1. What is the profile of the respondents in terms of:
  - 1.1 Age;
  - 1.2 Sex;
  - 1.3 Academic Performance?
2. What are the sleeping habits and duration of the respondents in terms of:
  - 2.1 Time to Sleep
  - 2.2 Time to Wake Up;
  - 2.3 Number of Hours of Night Sleep;
  - 2.4 Reasons of Sleeping Late;
3. What are the sleepiness classroom behaviors of the respondents?
4. Is there a significant relationship between the number of hours of night sleep and the sleepiness classroom behavior of the respondents?
5. Is there a significant relationship between the number of hours of night sleep and the academic performance of the respondents?
6. Is there a significant relationship between the sleepiness classroom behavior and the academic performance of the respondents?

### Methodology

#### Research design

This study utilized descriptive and correlational design. Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses

more on the “what” of the research subject rather than the “why” of the research subject (Bhat, 2018).

Descriptive and correlational studies examine variables in their natural environments and do not include researcher-imposed treatments. Correlational studies display the relationships among variables by such techniques as cross-tabulation and correlations. Correlational studies are also known as ex post facto studies. This literally means from after the fact. The term is used to identify that the research has been conducted after the phenomenon of interest has occurred naturally (Simon, 2018).

### Sampling

Using Krejcie & Morgan (1970) in determining sample size, this study examined 119 (70%) senior high school Electrical Installation and Maintenance (EIM) students of Gregorio C. Catenza National High School in Tunga, Leyte who were selected through simple random sampling by fishball method from the population of 171 students.

### Research instrument

The survey questionnaire was divided into three parts. The first part was the respondent's profile questionnaire that asked about the age, sex and the academic performance or the first grading general average of the respondents. The researchers also asked the general average of the respondents from the class advisers with the approval from the school principal. Parents' consent were also secured for ethical practice.

The second part of the research instrument was the sleeping habits and duration which was adapted from Pittsburgh Sleep Quality Index (PSQI). It gathered data about time of sleep, time of waking-up, number of hours of night sleep and reasons of sleeping late. It also underwent content validity. The average of Item-Content Validity Index (I-CVI) is 1.00. All questions were interpreted as excellent and appropriate. The PSQI has internal consistency and a reliability coefficient (Cronbach's alpha) of 0.83. Numerous studies using the PSQI in a variety of populations internationally have supported

high validity and reliability. To avoid plagiarism, the researchers asked permission to use the instrument and it was granted.

The third part of the instrument was the classroom behavior and participation. It was a researcher-made 10-item five-point Likert-scale questionnaire that underwent rigorous validity procedures by the seven language critics, research critics and guidance counselor. Item-Content Validity Index (I-CVI) for items 2-10 were all 1.00 while for item 1 is 0.857. All items are interpreted as excellent and appropriate. The average of I-CVI was 0.928. For the pilot testing of the instrument, 50 senior high school EIM students participated to test the validity and reliability of the questionnaires. Researchers conducted the pilot testing at Carigara National High School, Carigara, Leyte because the said school was considered a mega-school which has same characteristics with the locale of this study. The said school is offering EIM which is the target sample of the study. Cronbach's Alpha is 0.8681.

### Data Analysis

The respondent's profiles and sleeping habits and duration were tallied and interpreted using frequency and percentage. Classroom behavior and participation were interpreted using mean and standard deviation.

Pearson's *r* correlation was used to test the significant relationship of the following: between number of hours of night sleep and classroom behavior; between number of hours of night sleep and academic performance; between classroom behavior and academic performance.

The IBM – SPSS version 22 was used for data analysis. All tests were tested in 5% level of significance.

### Ethical Considerations

The students who were part in this study were randomly selected and informed about the research process. Letter and parental consent were sent and secured to inform the parents or guardians that their children were part of a research study. The researchers asked permission from the superintendent and school principal to gather and conduct the study. Re-

searchers asked permission to use other instruments from other researchers. Proper ethics in research were followed by the researchers.

## Results and Discussion

### Profile of the respondents

As to the students' respondent profile, it is presented in Table 1 that 87 percent of the respondents are ages 16-18 years old and are dominated by males at 88 percent. Sixty-one percent of the students have a general average of 75-79 which is only fairly satisfactory and 29 percent have 80-84 grade which is only satisfactory in the K-12 grading system.

Table 1. Respondent's profile

Profile Variables	Frequency	Percentage (%)
<b>Age</b>		
16	30	25.2
17	39	32.8
18	33	27.7
19	7	5.9
20	6	5.0
21	1	0.8
23	1	0.8
24	2	1.7
Total	119	100.0
<b>Sex</b>		
Male	105	88.2
Female	14	11.8
Total	119	100.0
<b>Academic Performance</b>		
75-79	73	61.3
80-84	35	29.4
85-89	5	4.2
90-100	6	5.1
Total	119	100.0

### Sleeping habits and duration

As to the sleeping habits and sleep duration that is shown in Table 2, 74 percent of the students sleep after 11 p.m. and 72 percent of the students wake up before 6 a.m.

Eighty-eight percent (88%) of the students sleep less than 6 hours. Most of the students are deprived from adequate sleep. According to National Sleep Foundation (2015) and World Health Organization (2004), teenagers aging

14-17 years old need 8-10 hours of sleep, while young adults aging 18-25 years old need 7-9 hours of sleep. In this research 87% of the respondents are ages 16-18 years old. The needed sleep by a regular senior high school should be 8-10 hours but the results of this study revealed that students just took less than 6 hours of night sleep.

Two of the reasons of sleeping late were using of Facebook and Messenger account and playing mobile games. The third reason was

making assignments and homework. This findings are supported by Twenge (2017) that time spent online, however, was the one teen activity that both increased during the 2010s and was linked to shorter sleep, making it the most likely cause of teen sleep deprivation. Seventeen- and 18-year-olds – who spend more time online than younger teens – were also the most sleep-deprived: The majority, 51 percent, slept less than seven hours on most nights by 2015.

Table 2. *Sleeping habits and duration*

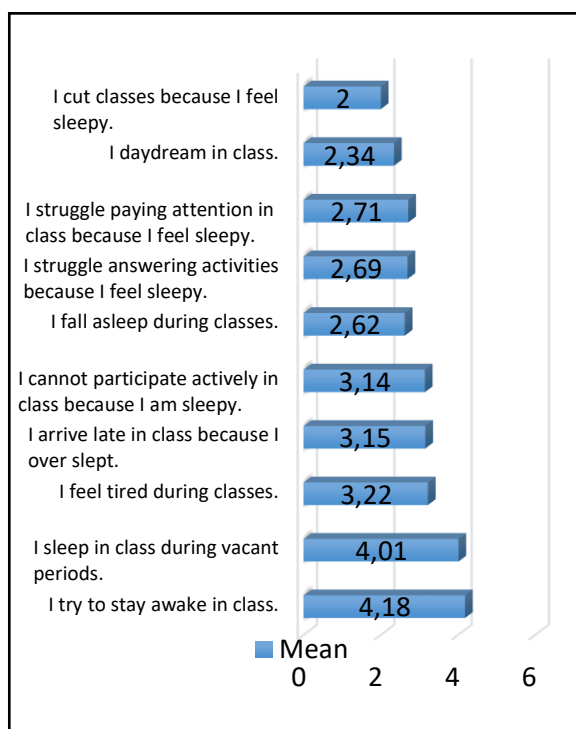
Variables	Frequency	Percentage (%)
Time of Sleep		
Before 11 p.m.	31	26.0
After 11 p.m.	88	74.0
Total	119	100.0
Time of Waking-up		
Before 6 a.m.	86	72.3
After 6 a.m.	33	27.7
Total	119	100.0
Number of Hours of Night Sleep		
6 hours or less	88	74.0
7 hours	10	8.4
8 hours or more	21	17.6
Total	119	100.0
Reasons of Sleeping Late		
Using FB and Messenger	36	30.3
Playing mobile games	29	24.4
Making assign/homework	18	15.1
Watching TV	8	6.7
Reading books	4	3.4
Studying lessons	3	2.5
Those who don't sleep late	21	17.6
Total	119	100.0

**Classroom behavior**

As to the classroom behavior and participation of the students, they are frequently *try to stay awake in class*, with a mean of 4.18 and followed by the indicator, *I sleep in class during vacant periods*, with a mean of 4.01. The indicator, *I feel tired during classes* has a mean of 3.22 and the indicator, *I arrive late in class because I overslept* has 3.15. The indicator, *I cannot participate actively in class* has 3.14 mean. On the other hand, the lowest mean for classroom behavior is *I cut classes because I feel sleepy* with a mean of 2.00.

This findings are supported by Brown Medical School and Bradley Hospital Research (2005) and Henna (2018) that reducing the amount of sleep students get at night has a direct impact on their performance at school during the day. According to classroom teachers, students who stay up late exhibit more learning and attention problems.

Figure 2. Prevalent sleepiness classroom



behavior among respondents

**Relationship of sleeping habits, classroom behavior and academic performance**

Table 3 shows the relationship of sleeping habits (number of hours of night sleep), classroom behavior, and academic performance.

Results revealed that there was a significant negative relationship between number of hours of night sleep and classroom behavior. This suggested that the less number of hours of night sleep is correlated to high negative classroom behavior. The classroom behavior are categorized as negative sleepiness behavior.

There was a significant positive relationship between number of hours of night sleep and academic performance. This suggested that the high number of hours of night sleep is associated to high academic performance. On the other hand, students with less sleep had low academic performance.

There was a significant negative relationship between classroom behavior and the academic performance. This implied that high occurrence of negative classroom behavior is associated to low academic performance.

Table 3. Relationship of variables

Variables	cc	p-value
Number of Hours of Night Sleep and Classroom Behavior	-0.420*	0.000
Number of Hours of Night Sleep and Academic Performance	0.627*	0.000
Classroom Behavior and Academic Performance	-0.544*	0.000

\*Significant at p<0.05

The findings of this study are supported by Drake et al. (2003) and National Sleep Foundation (2015) that revealed that poor grades at school are linked to sleepiness and sleep deprivation. When a child does not get to sleep eight to nine hours per night, alertness and school performance become significantly impaired. According to the study those students who did not succeed at school, those who had low school enjoyment and many absences, slept less and had high levels of daytime sleepiness.

**Conclusion**

The results of the study enabled the researchers to arrive at the following significant findings and conclusions.

1. Eighty-eight percent of the students were sleep-deprived and they usually sleep for less than 6 hours only.
2. Sixty-one percent of the students have a general average of 75-79 which is only fairly satisfactory and 29 percent have 80-84 general average which is only a satisfactory rating in the K-12 grading system. Only five percent were outstanding.
3. The three main reasons of sleeping late among students were: using of Facebook and Messenger account, playing mobile games and assignments and homework.
4. The three prevalent classroom behaviors were: students were sleepy during class discussions, they slept in class during vacant periods and they felt tired during classes.
5. There was a significant negative relationship between number of hours of night sleep and classroom behavior. This suggested that the less number of hours of night sleep is



correlated to high occurrence of sleepiness in class and negative classroom behavior.

6. There was a significant positive relationship between number of hours of night sleep and academic performance. This suggested that the high number of hours of night sleep is connected to high academic performance. On the other hand, students with less sleep had low academic performance.
7. There was a significant negative relationship between classroom behavior and the academic performance. This implied that high occurrence of sleepiness in class and negative classroom behavior is connected to low academic performance.

### Recommendation

1. The main cause of sleep deprivation among students was the use of mobile phones. Solutions must start from home. Parents need to impose tight discipline on using mobile phones. The parents need to set sleeping time or lights-off rules and regulate the use of mobile phones. Sleeping time or routine shall be imposed.
2. School administrators and teachers need to educate students including the parents on the proper use of mobile phones and other gadgets. School must conduct information dissemination about the impact of sleep to students' academic performance and mental and physical health.
3. The third cause of sleep deprivation was school related activities like assignments and homework. School administrators and teachers need to craft a well-planned and well-designed policy on giving assignments and homework to attain high scholastic achievement.
4. The implications may serve as basis for DepEd Central Office, policymakers and educational leaders in adjusting classroom schedules and redirecting activities like implementing 8:30 am as the start of classes. The curriculum guide must be assessed in terms of its learning competencies quarter because the tendency is when the teacher cannot finish the competency inside the classroom, it was given as homework. Consider that students have 7-9 subjects or more if all

subjects' teachers will give assignment or homework. With that, higher office may issue memorandum or order about guidelines in giving assignments and homework.

5. Finally, further studies about the factors affecting sleep deprivation, the effect of assignments and homework to sleep pattern and a qualitative study about classroom behavior and sleeping habits are encouraged.

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