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Prevalence Rates of Sleep Paralysis among the AUC Undergraduate Students: An Investigation
of A Hypothesized Relation Between Sleep Paralysis Occurrence Rates and Exam Days and The
Effect of Sleep Paralysis on Academic Performance

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Abstract

This study aimed at finding the prevalence rates of sleep paralysis among the undergraduates of the American University in Cairo. In addition, it tested a hypothesis that the AUC undergraduates will be more likely to experience sleep paralysis during exam days compared to normal days. Furthermore, it investigated whether there is a relation between sleep paralysis and academic performance or not. An online Google form survey was conducted and 170 undergraduate students from the AUC participated in the survey. It was found that 35% of the participants experienced sleep paralysis at least once in their lives. Moreover, even though some participants did report experiencing sleep paralysis more often during or around exam days, sleep paralysis was in general not frequently occurring during exam days as hypothesized. Also, no correlation was found between sleep paralysis and academic performance. This study added to the knowledge available on sleep paralysis among college undergraduates which provides an increased understanding of the nature of sleep paralysis among university undergraduates. Further, it is one of the few studies which investigated the possibility of a correlation between sleep paralysis and academic performance.

Prevalence Rates of Sleep Paralysis among AUC Undergraduate Students

Imagine waking up and feeling that there is something in your room. Then, out of nowhere, a horrific creature with bloody face and fangs appears next to your bedroom. You try to move but your body is completely paralyzed. After that, you find yourself floating in the air while looking at your body sleeping down there. Salma, a student at the American University in Cairo (AUC) and the owner of this experience, described this episode of sleep paralysis (SP) that she encountered as the most horrifying one among the rest of her sleep paralysis episodes (Jalal [Baland], Simons-Rudolph, Jalal [Bamo], & Hinton, 2014).

Sleep paralysis is a condition that occurs when going to sleep or waking up where most of the body or all of it becomes paralyzed and often those who experience sleep paralysis refer to it as “unable to move the body”. In a research that showed the prevalence of sleep paralysis among a sample of 86 Canadian and 149 Japanese college students, from those who experienced sleep paralysis, 80% of Canadian college students and 87.9% of Japanese college students reported being unable to move the body during their sleep paralysis episodes (Fukuda, Ogilvie, Chilcott, Vendittelli, & Takeuchi, 1998). In addition, sleep paralysis may be associated with visual and auditory hallucinations that are terrifying most of the time. One study by Spanos, McNulty, DuBreuil, Pires, & Burgess (1995) showed that 63% of those who reported having sleep paralysis felt the presence of something while 33.3% reported seeing a person or a creature. Furthermore, some reported hearing footsteps (24.5%), hearing their names (18.3%), and hearing other unusual noises (30%). Moreover, sleep paralysis is considered as a gateway to the out of body experience (OBE); a condition where one feels detached from the physical body and in many cases the experimenter of OBE is able to see the physical body and float around in the physical world. In Spanos et al. (1995) study, 27.1% reported feeling floating during their sleep

paralysis episodes and in another study 28 out of 208 (13.5%) reported that they occasionally saw their own bodies during their sleep paralysis episodes (Paradis et al., 2009).

Sleep paralysis is believed to happen when someone wakes up during the Rapid Eye Movement (REM) stage of sleep where the muscles of the body are paralyzed. The REM stage is associated with dreams; thus, the brain paralyzes the muscles of the body during the REM so that the body cannot move in accordance with the actions that happen in dreams. When someone wakes up during the REM stage, the body is still paralyzed and an overlap happens between the dream world and the real world where the figures and voices that we are likely to see in the dream world appear in the real world. Sleep paralysis is still a subject under investigation and many researches are done to reveal more information about it.

In some studies, sleep paralysis is termed isolated sleep paralysis (ISP) and to clarify this when sleep paralysis occurs in subjects who do not have narcolepsy, a sleep disorder, it is termed isolated sleep paralysis (Santomauro & French, 2009). In addition, some cultures have local names for sleep paralysis; for example, it is known as the *old hag* in Newfoundland, *ghost oppression* in Hong Kong, *kanashibari* in Japan and *ha-wi-nulita* in Korea (Ness, 1978, Wing et al., 1994, Fukuda et al., 1987, & Dahlitz & Parkes, 1993, as cited in Santomauro & French, 2009). In this study, the researcher is not going to differentiate between sleep paralysis and isolated sleep paralysis. With that being said, the term sleep paralysis will be used to include both SP and ISP and no local names will be used.

Sleep paralysis has a varying prevalence rates that range from 11.4% in a sample of 74 American college students (Awadalla et al., 2004) to 41.9% in a sample of 86 Canadian college students (Fukuda et al., 1998). One study by Kotorii et al. (2001) that involved 8162 citizens reported that 39.6% had at least one episode of sleep paralysis while only 21% from a sample of

1798 university undergraduates of another study reported having at least one sleep paralysis episode (Spanos et al., 1995). So, even with large sample sizes the prevalence rates of sleep paralysis are still varying.

Fukuda et al. (1998) attributed the use of local terms for sleep paralysis and even the term sleep paralysis itself instead of solely identifying the condition as a reason for the variations in the prevalence rates of sleep paralysis as they noticed that when such terms are removed, the majority of the variations between the reports of their Japanese and Canadian college students sample disappeared. Paradis et al. (2009) also show that some studies may not take into consideration that some survey participants may not be able to distinguish between sleep paralysis episodes and dreams. This is supported by the results of Fukuda et al. (1998) as it showed that 55.6% of the Canadian participants reported that the sleep paralysis episodes was a kind of dream to them compared to 15.2% only in the Japanese sample. Furthermore, Spanos et al. (1995) suggests that varying prevalence rates of sleep paralysis are related to whether the culture openly discusses it or not; for example, in cultures that openly discuss sleep paralysis, people are more aware of its symptoms; thus, have a higher chance of realizing a sleep paralysis when it happens. On the other hand, in cultures where sleep paralysis isn't commonly discussed, it is likely that the prevalence rates will be lower since they are less likely to observe that they are having a sleep paralysis episode. In addition, Spanos et al. (1995) also suggests that sleep paralysis prevalence rates are likely to be higher than reported in many studies because some participants may not try to move during a sleep paralysis; thus, they won't recognize that they had a sleep paralysis episode. It is crucial during this study to consider all these factors so that the accuracy of the collected data can be increased.

Stress, fatigue, and sleep deprivation are considered to be three factors that are related to sleep paralysis. Salma, an AUC student, reports that her sleep paralysis episodes usually happened when she was very tired and didn't have enough sleep hours; likewise, Sulaiman, an Egyptian citizen who was tortured in the prisons of the toppled Egyptian president Honsy Mubarak, states that he suffered from an enormous rate of sleep paralysis episodes during the time he spent in prison and most of these episodes happened when he was frightened or distressed (Jalal et al., 2014). Furthermore, Ahmed, a former AUC student, noticed that most of his sleep paralysis episodes occurred during exam days when he suffered from anxiety and a distorted sleep patterns (Jalal et al., 2014). These examples and specially the last one are important in the investigations of the proposed hypothesis that AUC undergraduate students will have a higher chance of having a sleep paralysis episodes during exam days compared to normal days.

The results of Jalal et al. (2014) study further shows that 39% of the AUC undergraduate students attributed stress and fatigue as causes of sleep paralysis compared to 4% only in the general Egyptian population sample and 11% in the sample from Denmark and that several survey subjects reported having sleep paralysis episodes only when they were very tired. Similarly, Fukuda et al. (1998) showed that the majority of their survey subjects who experienced sleep paralysis associated it with tiredness (44.4% for the Canadian sample and 56.1% for the Japanese sample).

The correlation between sleep paralysis and stress and fatigue may be indirect as Spanos et al. (1995) suggests that stress and fatigue alter our sleep patterns which in turn increase the probability of having a sleep paralysis. In Kotorii et al. (2001), those who have more than one work shift scored higher (48%) than those who have only one (36%); as well, nurses scored

higher (50.2%) than those who have other occupations (38.4%); thus, the researchers suggest that irregularity in sleep patterns along with stress may increase the likelihood of having sleep paralysis. This can be supported by the results of another study that surveyed 461 Japanese students as it showed that students who used to go late to bed and have short sleep hours were more likely to have sleep paralysis episodes than others (Harada, Tanoue, & Takeuchi, 2006). Since stress, tiredness, distorted sleep patterns, short sleep hours, and going late to bed are all associated with sleep paralysis and they occur during exam days, the proposed hypothesis gains support from previous researches and this study aims to further investigate it.

Previous researches showed that the prevalence rates of sleep paralysis varied from one study to another. The different terms used to refer to sleep paralysis may be a reason for this variation (Fukuda et al., 1998). Another possible reason is that some people may not be able to differentiate between dreams and sleep paralysis (Paradis et al., 2009). A third explanation for the varying prevalence rates is related to whether sleep paralysis is openly discussed by the community or not (Spanos et al., 1995). The studies also showed a connection between stress, exhaustion, and distorted sleep patterns and the rate at which sleep paralysis occurred. The aim of this study is to find the prevalence rates of sleep paralysis among AUC undergraduate students. In addition, a proposed hypothesis that AUC undergraduate students will have a higher chance of having sleep paralysis episodes during exam days compared to normal days is to be investigated. Furthermore, none of the previous researches on sleep paralysis tried to find a correlation between sleep paralysis and academic performance among university students; thus, in this study, the possibility of sleep paralysis to have an effect on the academic performance of AUC undergraduate students is examined.

Method

Participants

One hundred and seventy undergraduate students from the American University in Cairo participated in the online survey. The AUC is a private nonprofit liberal arts university located in Cairo, Egypt. It depends mainly on English as a language of instruction. The majority of students at the AUC are from the middle and upper socioeconomic class. Even though, most of the students are Egyptians, the university is considered as a cross-cultural platform as it joins students from 113 countries with diverse religious, cultural, and political backgrounds (About AUC, n.d.).

Materials

A survey was used to collect data. The online Google Forms survey consisted of 28 questions (18 multiple choice questions, 4 checkboxes questions that allow the participant to choose more than one answer, 4 short answer close-ended questions, and 2 open-ended questions). The questionnaire constructed by Paradis et al. (2009) was used as a basis for constructing the survey of this study. Modifications were made to the original questionnaire in such a way to achieve the objectives of this study (see Appendix A for the full survey). Since the survey was directed to the AUC undergraduates only, one Yes or No question was added at the beginning of the online survey asking the participants “Are you an AUC undergraduate student?”. If the participant answered “Yes”, he or she was allowed to continue the survey; otherwise, the participant was taken to the last page of the survey showing “End of Survey” message. Based on the suggestion of Fukuda et al. (1998), the term “sleep paralysis” and any local terms associated with the condition of sleep paralysis were not used in this survey; instead,

a brief description of sleep paralysis was only provided and participants who had sleep paralysis were then asked whether they heard a name for this condition or not and if they did hear a name for it, an optional question was provided asking them to write the name. After the description of the condition of sleep paralysis, participants were asked “Have you ever had this experience?”. If the participant answered “Yes”, he or she was allowed to continue the survey; otherwise, the participant was taken to the last page of the survey showing “End of Survey” message.

Procedure

The link of the online survey was published on a Facebook group called “Rate AUC Professors”. This is a closed group that has over eight thousand members (AUC undergraduates and Alumni). Members of the group were asked to participate in the survey noting them that it is for AUC undergraduates only. Eighty four participated in the survey during the first two days. A second post was posted on the group thanking those who participated and asking those who did not participate to do so expressing that the target of at least 100 participants was not met. After another two days, a total of 170 participated in the survey and the Google Form was closed.

A pilot testing was conducted a day before publishing the survey on the Facebook group. Students in a Research writing class (RHET1020) at the AUC were asked via email to participate in the survey. The number of open-ended questions were reduced by replacing it with either multiple choice or checkboxes questions. In addition, the description of sleep paralysis was modified to make it clearer for the participants to understand the condition. Furthermore, the field for entering the GPA was restricted to be a number between 0 and 4.

Results

Among the 170 AUC undergraduates who participated in the online survey, only 60 (35%) reported experiencing sleep paralysis. Of the 60 who reported having sleep paralysis, the distribution of lifetime episodes was as follows: 12%, one episode; 47%, 2-5 episodes; 13%, 6-10 episodes; 12%, 11-20 episodes; 10%, 21-30 episodes; 2%, 31-40 episodes; 5%, more than 50 episodes; and no one reported having from 41-50 sleep paralysis episodes during their lifetime (Figure 1). Fifty nine out of 60 successfully answered the question about the time of the last occurrence of sleep paralysis. The answer of one participant was removed because of submitting two time ranges. The majority of the participants (42%) reported that they don't remember when was the last time they experienced sleep paralysis; while, 17% estimated the last occurrence to be in the last 2-3 weeks, 10% during the last 2-11 months, 8% during the week in which they conducted the survey, 8% 4 weeks ago, 7% a year ago, and 7% more than a year ago (Figure 2). Furthermore, 52% of those who had sleep paralysis reported that it usually happened when falling asleep; on the other hand, 48% reported that SP usually occurred when waking up.

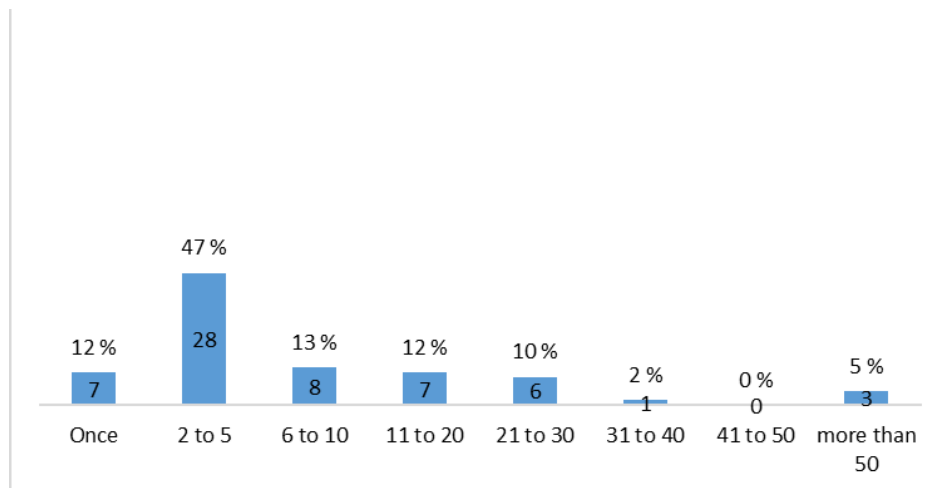


Figure 1: How many times participants experienced SP during their lifetime.

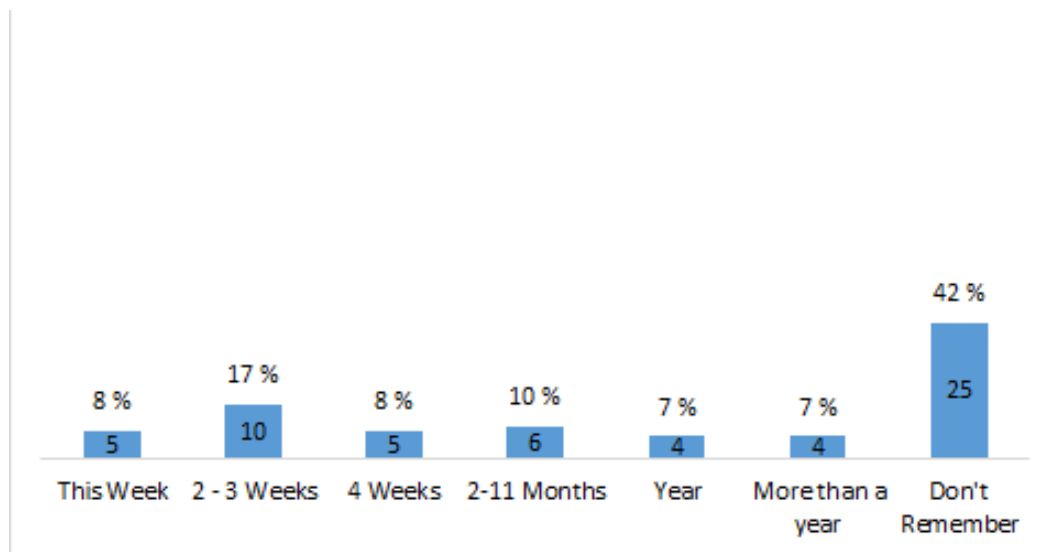


Figure 2: The Last Occurrence of SP.

Being unable to speak or shout is one of the common symptoms of sleep paralysis. Almost half of those who experienced sleep paralysis (52%) reported that they were always unable to speak or shout during their episodes compared to 38%, sometimes; and 10%, never. The majority (80%) reported not seeing any creatures during their sleep paralysis episodes. Only 17% reported seeing a creature on their chests. But 58% reported hearing sounds and/or voices during their sleep paralysis episodes and 40% reported seeing shadows and/or shapes. When the participants were asked if they felt the presence of something or someone, 33% answered always, 35% sometimes, and 32% never felt the presence of something or someone in their rooms during their sleep paralysis episodes. Even though, the majority reported not experiencing an out of body experience (OBE), an experience where the person is able to see the physical body while floating in the air as if he or she is somehow detached from the physical body, 16 participants (27%) reported experiencing OBE during their SP episodes. Most of the participants (73%) did not experience sensing odors during their SP episodes compared to 22% who said that they sometimes sensed odors and only 3% who said that they always sensed odors during their sleep paralysis episodes.

Most of the participants (42%) reported that during their sleep paralysis episodes they sometimes felt that they might die. Other participants (23%) reported that they only felt they might die during their first episode. Furthermore, 12% reported that they always felt they might die during their sleep paralysis episodes and 23% reported that they never had that feeling. When the participants were asked what kind of fear did they experience during their first episode, 45% reported being afraid of death, 28% being possessed or harmed by Jin (a creature that Muslims believe to exist but are unable to see them and they have the ability to harm humans) or the Demon, 15% going crazy, 25% already knew what was happening, and 18% answered “other” without giving any further details (Figure 3).

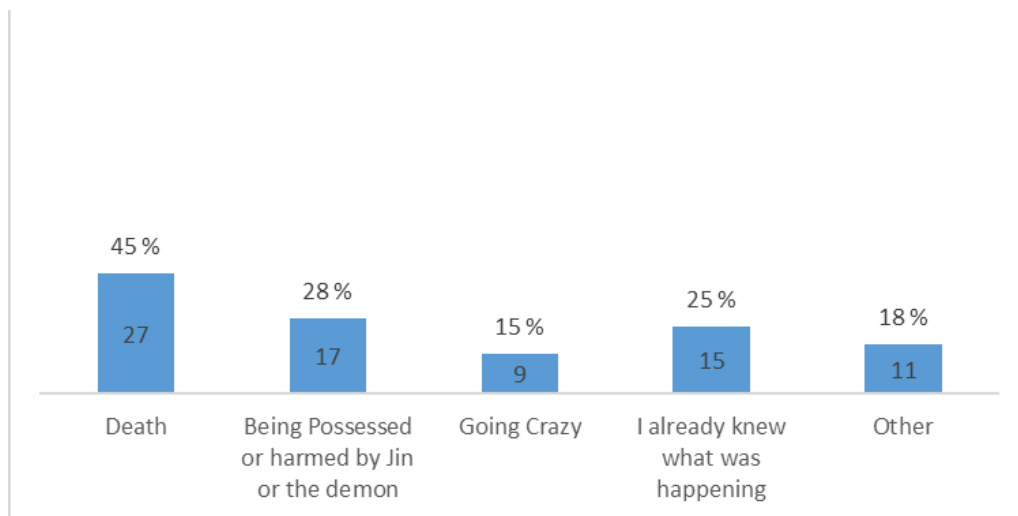


Figure 3: Type of Fear Felt During the First Episode.

Immediately after the first episode, 40% thought that what happened was a dream, 2% alien abduction, 20% the act of a ghost, Jin, or other demonic activity, 28% thought something was physically wrong with them, 23% thought something was mentally wrong with them, 5% believed it has something to do with drugs/alcohol, 35% had no idea what had happened to them, 5% did not think about it, and 8% answered “other” without elaborating (Figure 4). Not all participants successfully answered the question asking them how can they explain the experience today. Some participants described one of their episodes instead of providing an explanation while others mentioned that it was scary and weird. Such results were excluded and the answers of 39 participants only were taken into consideration. The explanations were given as follows: Two explained it as a result of disturbing the sleep cycle (waking up during REM stage of sleep), 3 due to the mind being half awake, 7 due to stress, 5 due to tiredness, 4 as a result of something physically or mentally wrong with the person, 2 explained it as just a dream, 2 said it is just hallucinations, 2 associated it with OBE, 1 due to possession by some entity, 1 as a result of a harm by Jin due to a weak relationship with God, 1 explained it by saying that sleeping on a limb

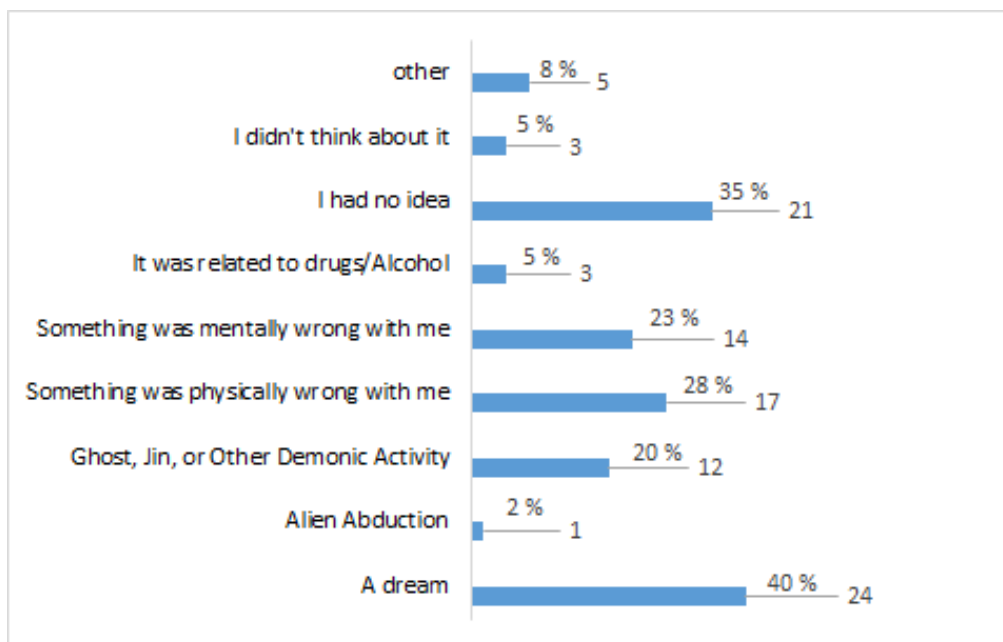


Figure 4: What the participant thought after the first sleep paralysis episode.

in a wrong way will cause it to become numb causing the feeling of being paralyzed, and 9 reported that they still don't know an explanation for it.

Most participants associated exhaustion and tiredness (65%) and stress (53%) as precedents to sleep paralysis. The percentages of the remaining precedents offered as answers in the question were as follows: 43%, lack of sleep; 35%, distortion in sleep patterns; 12%, changes in lifestyle; and 17% answered "other" without elaborating on their answers (Figure 5). When participants were asked about what they did to prevent future episodes, 68% said that they did not do anything at all compared to only 13% who reported consulting a family member or a friend, 18% who consulted the Internet, and 18% who answered "other" without any elaboration. None of the participants reported consulting a doctor or a spiritual healer.

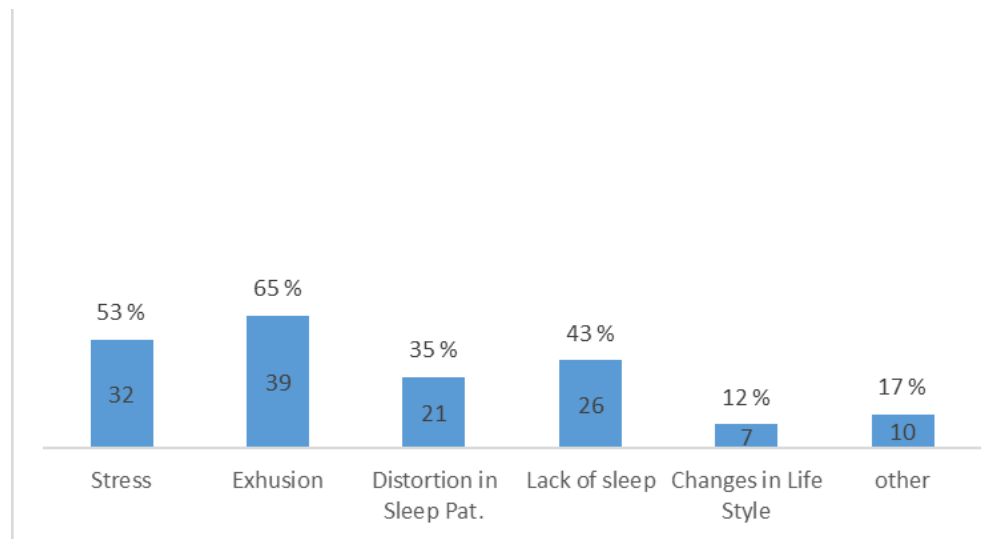


Figure 5: Precedents of SP.

Most of the participants (58%) reported hearing someone in their community talking about similar experiences but less than half of the participants (48%) said that they heard a name for it. Participants who heard a name for it were asked to give the name they know for the experience. Three participants used the name of the survey "The Night Terror" as answers while one left the answer blank so the answers of 4 participants were excluded and the researcher ended up with only 25 out of 29 who reported hearing a name for it and the answers were as follows: 17, sleep

paralysis; 5, OBE; 1, possessed by Jin; 1, panic attack; 1, Jathoom (a local name for sleep paralysis); and 1, Qareen (In Islam, every human has a demon named Qareen that stays with him or her from the moment of birth till death and the job of this Qareen is to make the human do evil and deviate from the right path).

Participants were asked how often they experience sleep paralysis during or near exam days. Results were as follows: 0%, always; 17%, often; 23%, sometimes; 30%, rarely; and 30%, never (Figure 6). Then, participants were asked if they experienced sleep paralysis during exam days more than normal day and 73% reported negatively to this question. As an additional support for the collected data, the participants were asked to write when do they usually experience sleep paralysis and the answers were as follows: 28%, tired and exhausted; 17%, stress; 5% lack of sleep; 5%, during vacations; 13%, randomly; 2%, initiating it intentionally; 2%, distorted sleep pattern; 2%, drinking alcohol; 2%, consuming drugs; 2%, waking up and then going to sleep again; 2%, when thinking about something; 2%, when angry; 3%, used to occur mostly when they were younger; and 17%, during exams.

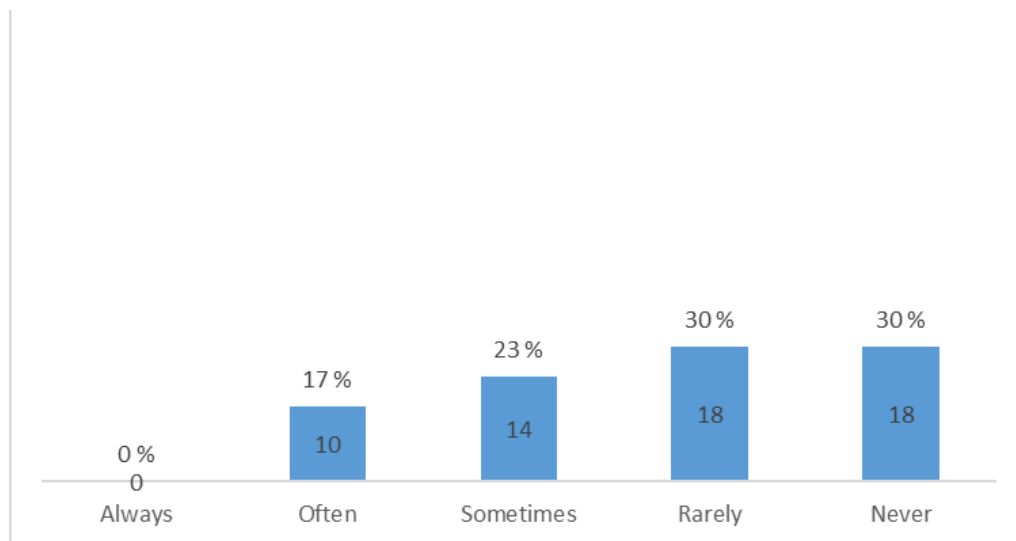


Figure 6: How often did the participants experience SP during or near exam days.

The majority of the participants (85%) did not think that their academic performance were affected by sleep paralysis while 13% reported that sometimes it had an effect and only one participant (2%) said that it always had an effect on the academic performance (Figure 7). To support this, participants were asked to report their GPA. Two GPA's were excluded from the results. One was reported as 0 and the other was reported to be fake by the participant because of being in first semester and no GPA was available. As a result, only the results of 58 were taken into consideration and the results were as follows: (0,2], 2%; (2, 3], 22%; (3, 3.5] 29%; and (3.5, 4], 47% (Figure 8).

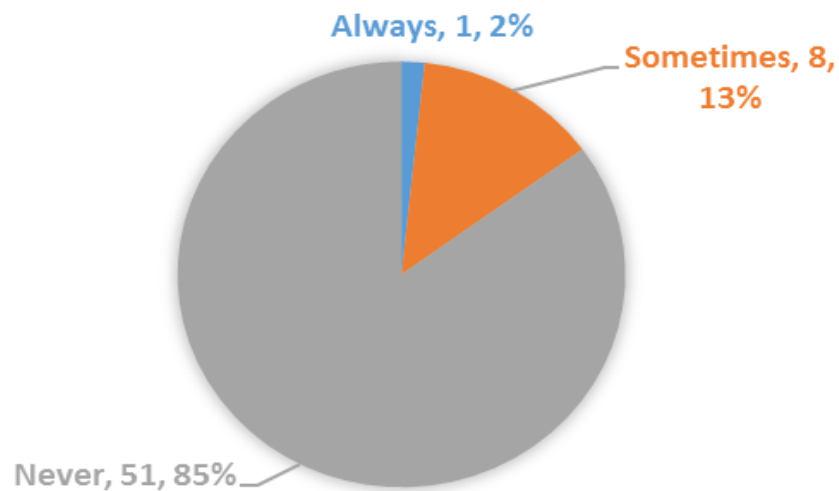


Figure 7: Students opinion on whether SP affects their academic performance or not.

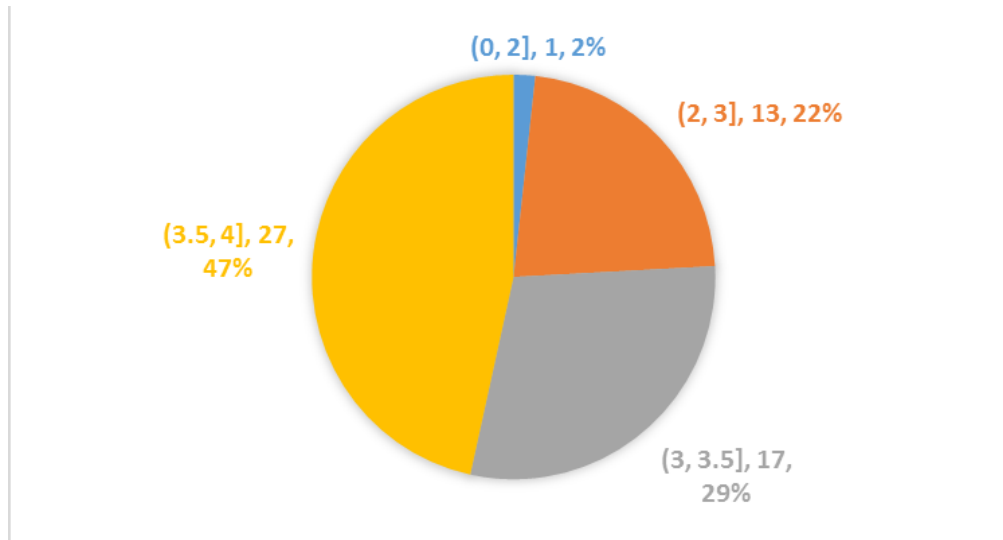


Figure 8: GPA distribution of participants who experienced SP.

Discussion

One of the objectives of this study was to find the prevalence rates of sleep paralysis among the undergraduates of the AUC. The results obtained showed that every seven out of twenty AUC undergraduates experienced sleep paralysis at least once in their lifetime. This result was not surprising because it falls within the range, 11.4% (Awadalla et al., 2004) to 41.9% (Fukuda et al., 1998), of the prevalence rates of sleep paralysis observed from previous literature. It is also close to the prevalence rate obtained by Kotorii et al. (2001) which included the largest sample among all the reviewed literature which adds to the reliability of the results obtained by the current study. It was also observed that the absence of the term sleep paralysis and any local terms associated with it did not have any noticeable effect on the prevalence rate obtained contradictory to what was suggested by Fukuda et al. (1998). Nevertheless, since most of those who experienced sleep paralysis reported not hearing a name for it, it is suggested that applying the suggestion of Fukuda et al. (1998) did have an effect on the results of the current study. To sum this up, avoiding mentioning “sleep paralysis” and any other names for it did not

affect the prevalence rate but had an effect on the answers of the participants. It was also observed that those who experienced sleep paralysis, did not experience it often. This suggests that sleep paralysis is a temporary condition that happens only under special circumstances and it stops as soon as the causations no longer exist.

The results of this study showed that stress, exhaustion, and tiredness were the major precedents of sleep paralysis consistent with previous literature (e.g. (Jalal et al., 2014) and (Fukuda et al., 1998)). Lack of sleep and distortion in sleep patterns were also observed to be common precedents to sleep paralysis. As a result, it is suggested that the treatment of these precedents will prevent the occurrence of sleep paralysis unless it was initiated on purpose.

It was noticeable that sleep paralysis is not likely to be in favor of happening neither when waking up nor falling asleep as sleep paralysis was equally likely to happen in the two conditions. This study also showed that auditory hallucinations were more common than the rest of the hallucinations provided in the survey and sensing odors was the least common. Furthermore, feeling the presence of someone or something was more likely to occur than actually seeing a visual hallucination. It is recommended to investigate whether these hallucinations happen randomly or there are factors affecting the probability of its occurrence. This study further showed that more than a quarter of sleep paralysis experimenters experienced OBE during their episodes which is similar to the result obtained by Spanos et al. (1995). The inability to speak during sleep paralysis is one of its most common symptoms as almost half of the participants reported being unable to speak or shout during their episodes. This is one important factor in determining whether sleep paralysis is a lucid dream or not. If the participant was able to speak after imagining oneself speaking, it is more likely that it is a lucid dream since the content of lucid dreams can be controlled by imagination. If the participant wasn't able to

speak after imagining speaking, it is more likely that sleep paralysis is not a lucid dream. Further investigation on this hypothesis is proposed.

One of the interesting results is that most of those who experienced sleep paralysis felt that they might die and fear of death was the most common fear during the first episode of sleep paralysis. This raises a question of why do most of the participants associated a feeling of near death experience with sleep paralysis and whether this has a connection with the reported near-death experiences which also involve OBE.

Immediately after the first experience, many participants thought sleep paralysis was a dream. This supports Paradis et al. (2009) that some people may not be able to distinguish between dreams and sleep paralysis. Even when asked how they can explain it today, many said that they don't know an explanation for it. Add to that, most of the participants did not try to do anything to prevent future sleep paralysis episodes. So, even though the experience can be extremely terrifying, since it does not happen too often, those who experience it are not interested in finding a way to stop it or even find a true explanation for what happened.

More than half of the participants who experienced sleep paralysis heard people in their community speaking about experiences similar to the ones associated with sleep paralysis and almost half heard a name for it. This may have an effect on the results as suggested by Spanos et al. (1995).

Another objective of this study was to test the hypothesis that AUC undergraduate students will have a higher chance of having sleep paralysis episodes during exam days compared to normal days. Even though some participants experienced sleep paralysis during exams more than normal days, most of the participants did not experience sleep paralysis more often during exams

compared to other days. So, sleep paralysis may have a higher occurrence probability during exam days for some people but it cannot be considered as a trend.

The last objective of this study was to examine whether sleep paralysis has an effect on the academic performance of the AUC undergraduates or not. No correlation was found between sleep paralysis and the academic performance of students. The majority of the participants who experienced sleep paralysis said that sleep paralysis never had an effect on their academic performance. In addition, almost half of the participants have a high GPA which may indicate that sleep paralysis maybe affects academic performance positively. But the remaining half who have lower GPAs showed that at least GPAs cannot be used as a way to find out whether there is a correlation between sleep paralysis and academic performance or not.

The prevalence rates of sleep paralysis among the AUC undergraduates was in accordance with the range observed from previous literature. In addition, the absence of the term sleep paralysis and any other names associated with it did not have any noticeable effect on the prevalence rates of sleep paralysis but it is probably affected the answers to the survey questions. Furthermore, it was found that the AUC undergraduates do not usually experience sleep paralysis more often during exams days compared to normal days. Moreover, no correlation was found between sleep paralysis and academic performance.

Limitations

Participants were not restricted from submitting multiple responses but it is unlikely that a student will attempt the same survey more than once. Also, due to time constraints the survey was closed before a large sample size, compared to the population size, could be collected.

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Appendix A

Note: This survey is adapted from the survey constructed by Paradis et al. (2009).

Start of Survey

This survey asks about common symptoms that you may have experienced.

* Required

1. Are you an AUC undergraduate student? *

Yes (Skip to question 2.)

No (Skip to "End of Survey.")

Some people have had the experience upon going to sleep or waking up when they were unable to move the body or parts of it and in some cases they were unable to speak even though they wanted to do so. They felt as if they were paralyzed.

2. Have you ever had this experience? *

Yes (Skip to question 3.)

No (Skip to "End of Survey.")

3. How many times in your life have you experienced this? *

Once

2-5 6-10

11-20 21-30

31-40 41-50

More than 50

4. When was the last time you had this experience? e.g., today, this week, last week, last month, last year...etc. You can also respond by "Don't remember". *

5. Does this usually happen when falling asleep or waking up? *

Falling Asleep

Waking Up

6. Some people report seeing a creature sitting on their chests. Did you experience this? *

Yes

No

7. Some people report hearing sounds and/or voices. Did you have this experience? *

Yes

No

8. Some people feel that they might die. Did you feel this way? *

Always

Sometimes

Never

Only the first time this happened to me

9. Some people report that they were floating in the air while looking at their own body sleeping on bed. Did this happen to you? *

Yes

No

10. Some people report sensing odors. Did this happen to you? *

Always

Sometimes

Never

11. Some people try to speak or shout but are unable to do so. Did this happen to you? *

Always

Sometimes

Never

12. Some people feel a presence in the room. Did this happen to you? A sense that there is something in the room with them even though they may not actually be able to see or hear anything. *

Always

Sometimes

Never

13. During the episode, did you see something like a shadow or shapes? *

Yes

No

14. During the episode, did you see any creatures? *

Yes

No

15. During your first or only episode were you afraid of: Check all that apply. *

Death

Being possessed or harmed by Jin or the Demon

Going Crazy

I already knew what was happening

Other:

16. Immediately after the first experience, what did you think had happened? How did you explain it? Check all that apply. *

A dream

Alien Abduction

Ghost, Jin, or other demonic activity

Something was physically wrong with me

Something was mentally wrong with me

It was related to Drugs/Alcohol

I had no idea I didn't think about it

Other:

17. How do you explain this experience today? *

18. What did you do to prevent future episodes? Check all that apply. *

I didn't do anything

I consulted a doctor

I consulted a spiritual healer (e.g. sheikh or priest)

I consulted a family member and/or a friend

I consulted the Internet

Other:

19. Did you hear anyone in your community or family speaking about similar experiences? *

Yes

No

20. Have you ever heard of a name for the experience? *

Yes

No

21. If yes, then what is it:

22. Do any of the following precede this experience? Check all that apply. *

Stress

Exhaustion and Tiredness

Distortion in sleep patterns

Lack of sleep

Changes in lifestyle

Other:

23. How frequently do you experience this during or near exam days? *

Always

Often

Sometimes

Rarely

Never

24. Does this experience happen to you during exam days more than normal days? *

Yes

No

25. When do you usually have this experience? (e.g., when I am too tired and exhausted, during exams, in vacation..etc) *

26. What is your cumulative GPA? *

27. Do you think these experiences affected your academic performance? *

Always

Sometimes

Never

28. If you are willing to further participate in this study please provide us with your AUC email?

(Optional)

End of Survey

Thank you for your time

End of Survey