

Study of Sleep Behaviour of Adolescent Athletes Sports School Malaysia Sabah

Hafizah Binti Abd Rahim¹, Mohd Khairi Zawi^{2*}

¹Faculty of Education, Universiti Kebangsaan Malaysia (UKM), 43600, Bangi, Selangor, Malaysia.
Email: zeif.zf@gmail.com

²Faculty of Education, Universiti Kebangsaan Malaysia (UKM), 43600, Bangi, Selangor, Malaysia.
Email: khariz@ukm.edu.my

ABSTRACT

CORRESPONDING

AUTHOR (*):

Mohd Khairi Zawi
(khariz@ukm.edu.my)

KEYWORDS:

ASBQ
Sleep behavior
Performance

CITATION:

Hafizah Abd Rahim & Mohd Khairi Zawi.
(2022). Study of Sleep Behaviour of
Adolescent Athletes Sports School Malaysia
Sabah. *Malaysian Journal of Social Sciences
and Humanities (MJSSH)*, 7(3), e001382.
<https://doi.org/10.47405/mjssh.v7i3.1382>

Many athletes do not realize that sleep is one of the necessary elements in their daily routine as athletes. For this reason, most athletes often neglect and do not practice good sleep behaviors in helping athletes to get quality sleep. This study was conducted to identify the sleep behavior of SSMS athletes and look at the differences in the sleep behavior of athletes based on age and also the level of athlete involvement and performance in sports. A total of 152 respondents were involved in this study. This study used the Athlete Sleep Behavior Questionnaire (ASBQ) which is a survey specifically designed to survey and evaluate the sleep behavioral characteristics of athletes. Significant difference $F(2, 149) = 6.148, p = .003$. Tukey HSD showed a significant mean score difference between the group of 13 to 15 years ($M = 2.07, SP = 0.489$) and the group of 18 years and above ($M = 2.39, SP = 0.382$) with a p value of .002.

Contribution/Originality: This study has contributed to the existing literature as most of the previous studies were only conducted abroad. The study was also able to provide exposure and awareness to adolescent athletes about the importance of sleep behavior management in their daily routines.

1. Introduction

Sleep is not just eye closing. Generally, sleep is the phase of an individual in a state of relaxation and body in a state of unconsciousness. It is a therapy in helping to make the activities that athletes will do when playing in a sport. An athlete needs sleep more than those who are not athletes that only need bedtime 7 to 8 hours a day (Zaki, 2010). Important for an athlete to identify their sleep behavior as this is one of the important aspects of their routine as an athlete regardless of gender as well as age. As individual sports practitioners especially athletes, sports psychologists, physiologists and parties involved, it is necessary for them to know what the characteristics of sleep behavior should be practiced by athletes as this factor affects the performance of athletes.

Although it has been exposed to the importance of the right sleep behavior, there is still an athlete who still ignores and some who take indifference. Therefore, this study was

made to give a clearer picture to athletes about the importance of good sleep behavior and further encouraged athletes to adopt the right sleep behavior. The gap in this study is not much of a study on sleep behavior made in Malaysia, especially for adolescents or secondary schools. Many athletes who are unaware of sleep behavior can affect them. Identify what are the characteristics of SSMS athlete sleep behavior based on gender and age. In addition, researchers will also see whether there is a difference in sleep behavior in terms of gender and athlete's age.

2. Literature Review

According to [Samuels \(2008\)](#), sleep gives a variety of benefits to athletes. Sleep can help in the process of physical and psychological recovery. In addition, sleep is also able to stimulate brain growth and improve the immune system of an athlete.

[Nadler et al. \(2003\)](#), think sleep is very important for physical and emotional health. It also plays an important role in the recovery of injury and illness. As athletes, sleep lacks will cause performance decrease ([Davenne, 2009](#)). Sufficient sleep is important to health and behavior, including controlling the immune system, cardio health, respiratory system, and preventing fatigue ([Tobaldini et al., 2017](#); [Vyazovskiy, 2015](#)).

Among the factors that can contribute to or affect the quality of sleep at night is sleep behavior. Sleeping behavior is a set of guidelines for behavioral practices and environmental factors that promote the optimum sleep and quality of sleep ([Yang et al., 2010](#)). Sleep behavior refers to one's perception of the importance and the need to sleep compared to other activities ([Peach & Gaultney, 2017](#)). The previous study has found some findings in the study of sleep behavior. Among them, sleep behavior is associated with the consumption of different affordable drinks between the male and female youths ([Galland et al., 2017](#)). It also finds significant sex differences in stimulus behavior before bedtime, sleep time, time on the bed, and slow start of sleep.

Sleep behavior also varies by gender. Women prioritize sleep compared to other activities at night compared to men. Gender differences in sleep behavior indicate that gender can affect one's sleep behavior. Sleep behavior can indirectly predict the quality of one's sleep ([Ruggiero et al., 2020](#)).

3. Methodology

The research employs an ex post facto design which was conducted at Sabah Sports School of Sabah. The sampling method used is probability sampling and carried out according to the Random Sampling technique. This method is selected due to the current situation of the environment that is currently experiencing a pandemic. This method can save you time and data collection can be done more easily. This method also provides the opportunity for all SSMS populations to participate as a sample of the study.

3.1. Research participants

The sample of the study consisted of SSMS student-athletes comprising various levels of ages, lower secondary age 13 to 15 years old, secondary 16 years to 17 years, and pre-university 18 years old to above. A total of 152 samples were involved.

3.2. Instrument and data collection

This study used the Athlete Sleep Behavior Questionnaire (ASBQ) instrument which is a survey that has been specifically designed for evaluation in the current study. This instrument has been used and validated in previous studies. The ASBQ is an 18-item survey that includes questions on sleeping behavior and habits thought to be common areas of concern for elite athletes and was designed as a practical tool to identify areas where improvements in sleep behavior could be made. The survey asks participants how frequently they engage in specific behaviors (never, rarely, sometimes, frequently, always). Weightings for each response (1 = never, 2 = rarely, 3 = sometimes, 4 = frequently, 5 = always) were summed to provide an ASBQ global score. A higher global score is indicative of poor sleep behaviors.

The questionnaire was distributed to respondents through Google Form according to their respective sporting events. Instructions and procedures are clearly stated in the google form to make it easier for respondents to give a transparent response. The researcher gave a period of one week to collect data from the respondents.

3.3. Data analysis

The normality test is made to identify the study data distribution patterns obtained in the form of a normal distribution or vice versa. Additionally, the normality test is made to determine accurate and appropriate statistical tests for use. The researcher uses One-Way ANOVA analysis statistics at $\alpha = 0.05$ levels to study the comparison of sleep behavior according to age and the level of engagement in sports, and Correlation analysis at $\alpha = 0.05$ levels to study the relation between sleep behavior and gender.

4. Result

4.1. Respondent demographic analysis

Table 1 shows the respondents demographic of this study which is consisted of 96 (63.2%) male student-athletes (63.2%), and 56-person student-athletes (36.8%). In terms of the age of respondents, athletes aged between 13 and 15 years are the most respondents of 69 people (45.4%). Followed by the age of 16 to 17 years old (30.3%) and 37 (24.3%) respondents aged 18 years and over. For the level of performance in sports, the non-international level performance is the most level among respondents, which is 126 (82.9%), followed by international 26 (17.1%).

Table 1: Respondents Demographic

Demographic		Total	%
Gender	Male	96	63.2
	Female	56	36.8
Age	13-15	69	45.4
	16-17	46	30.3
	18 above	37	24.3
Level of performance in sports	Non-international	126	82.9
	International	26	17.1

4.2. Comparison of sleep behavior by age

ANOVA Analysis was conducted at $\alpha = 0.05$ level to study the difference in sleep behavior based on the three groups of 13 to 15 years, 16 to 17 years, and 18 years and over. Table 2 shows the results of a one-way ANOVA analysis for ASBQ scores by age. Analysis findings show that there is a significant major impact on the age of ASBQ scores; $F(2, 149) = 6.148$, $p = .003$. The value of P is lower than the value of Alpha, and then the null hypothesis can be rejected. This decision clarifies that there is a significant difference between the three age groups in terms of sleep behavior.

Table 2: One-way ANOVA test for ASBQ scores by age

Model	SS	df	MS	F	p
Between Groups	2.402	2	1.201	6.148	.003
Within Groups	29.104	149	0.195		
Total	31.506	151			

The main impact shows a significant value, and then further analysis for post hoc tests is required to determine the comparison between significant groups in detail. Table 3 shows the post hoc test results according to each age group. Post HOC test results using the Turkey HSD method showed significant mean score differences between groups of 13 to 15 years ($m = 2.07$, $spa = 0.489$) and groups 18 years and above ($m = 2.39$, $spa = 0.382$) with a value of $P.002$. The findings show that respondents aged between 13 and 13 years have better sleep behavior than those aged 18 years and over. However, there is no significant difference in comparison between other groups.

Table 3: Post Hoc test using Turkey HSD according to age group

Age		Mean diff	SE	p
13 - 15	16 - 17 years old	-.148	.084	.188
	18 above	-.313*	.090	.002
16 - 17	13 - 15 years old	.148	.084	.188
	18 above	-.165	.098	.213
18 above	13 - 15 years	.313*	.090	.002
	16 - 17 years	.165	.098	.213

* Mean difference is significant at α level = 0.05

4.3. Comparison of sleep behavior according to the level of performance in sports

The non-dependent sample T-test has been used at $\alpha = 0.05$ level to see if there is a significant difference in mean score between non-international levels and international in the aspect of sleep behavior. Table 4 shows the results of test analysis based on the level of engagement for ASBQ scores. Based on Table 4, test results found that there was no significant difference in mean score between non-international groups ($m = 2.19$, $SP = 0.449$) and international groups ($m = 2.20$, $sp = 0.502$) in terms of sleep behavior; $t(150) = -.083$, $p = .934$. The value of P is greater than the value of alpha, then the null hypothesis can't be rejected. A score between non-international levels and international levels in terms of sleep behavior is not statistically different.

Table 4: Sample T-test does not depend on non-international levels and international levels for ASBQ scores.

Group	n	M	SP	t	df	p
Non-International Level	126	2.19	0.449	-.083	150	.934
International Level	26	2.20	0.502			

4.4. Correlation between sleep behavior and gender

The point-bare correlation analysis has been used at $\alpha = 0.05$ level to study the relationship between sleep and gender behavior. Table 5 shows the results of correlation analysis between sleep behaviors (based on ASBQ scores) with gender. There is no significant relationship between sleep and gender behavior; $r_{pb}(152) = .152$, $p = .061$. The value of P is greater than the value of alpha, then the null hypothesis cannot be rejected.

Table 5: Correlation between sleeping behavior and gender

V	N	r_{pb}	p
Sleep Behaviour	152	.152	.061
Gender			

5. Discussion

5.1. Correlation between sleep behavior and gender

Based on the findings, the SSMS student athlete's gender does not affect the sleeping behavior of the athlete. The findings are also supported by O'Donnell et al. (2018) where sleep disorders have no difference between athletic sexes. Behavioral sleep from psychological aspects is also experienced by male and female athletes when athletes are in a competition session. Physical problems that can influence athletic sleep behavior such as muscle pain or stiffness are also experienced by both male and female athletes (Claudino et al., 2019). Therefore, as an athlete regardless of women or men, good sleep behavior is indispensable to ensure their performance is always best.

5.2. SSMS athlete sleep behavior is based on age.

The results of ANOVA analysis showed a significant difference between the three age groups and athletes' sleep behavior. Therefore, further analysis for post hoc tests is performed to compare significant groups in detail.

The post-hoc test results using the Turkey HSD method show that athletes aged 13 years to 15 years have better sleep behavior than athletes aged 18 years and over. This finding is supported by Espiritu (2008) that says sleep changes as a function of age. Meanwhile according to Lastella et al. (2020) sleep time is influenced by age.

Sleep behavioral in terms of time and quality of sleep is a behavior that showed a significant difference. Changing sleep schedule is one of the normal sleep's behavior when age increases. To get used to the bedtime transition, a person needs a longer

recovery time to adapt to a drastic change. Night-waking up sleep behaviour also occurs frequently as age increases (Mander et al., 2017). Daytime sleep behavior will also change as age increase whereas nap time increases as age increases (Monk et al., 2001).

5.3. SSMS athlete sleep behavior based on the performance level of in sports.

The results showed that SSMS athletes' sleep behavior did not have a significant relationship with both groups of athlete's performance-level involvement. ANOVA Analysis also showed that there was no significant difference in SSMS athlete sleep behavior between international groups and non-international groups. This shows that SSMS athlete is concerned and aware the importance of having good sleep behavior within them. Having poor sleep behavior will have a negative impact on sleep (Mastin et al., 2006) while a study of Knufinke et al. (2018) good sleep behavior contributes to positive relationships with sleep quality among international athletes.

6. Conclusion

This study can help coaches and athletes to get exposure to the sleeping behavior of each athlete. The counselor also plays an important role. With this study, the student-athlete itself could evaluate and identify their sleep behavior. Do they practice good and right sleep behavior? Therefore, it is hoped that this study will help the SSMS student-athlete to change their sleep behavior to be better to maintain and improve their sports performance which according to Kellmann et al. (2018), giving exposure to athletes about the right sleep behavior such as the right time, training and additional sleep period to replace the shortened night's sleep during the competition season is one of the effective steps in additional physiological and psychological recovery.

It is suggested that athletes' sleep behavior studies could be continued with advanced studies by focusing on other elements more deeply to better understand the SSMS student athlete's sleep behavior and thus draft appropriate programs to improve their sleep behavior's level. This study was also recommended to be expanded to nearby schools around Kota Kinabalu, Sabah as the researcher conducted this study on one school only. This is especially suitable for the findings of the study to be used to represent all Kota Kinabalu athletes.

Acknowledgement

Thank you to Prof. Dr. Khairi Zawi who provided guidance and support in carrying out this study, and much gratitude to all respondents and coaches of Sekolah Sukan Malaysia Sabah who have cooperated.

Funding

This study received no funding.

Conflict of Interests

The authors declare no conflict of interest in this study.

References

- Claudino, J. G., J Gabbet, T., de Sá Souza, H., Simim, M., Fowler, P., de Alcantara Borba, D., Melo, M., Bottino, A., Loturco, I., D'Almeida, V., Carlos Amadio, A., Cerca Serrão, J., & P Nassis, G. (2019). Which parameters to use for sleep quality monitoring in team sport athletes? A systematic review and meta-analysis. *BMJ open sport & exercise medicine*, 5(1), e000475. <https://doi.org/10.1136/bmjsem-2018-000475>
- Davenne, D. (2009). Sleep of athletes – problems and possible solutions. *Biological Rhythm Research*, 40, 45 - 52.
- Espiritu, J. R. (2008). Aging-related sleep changes. *Clinics in geriatric medicine*, 24(1), 1–v. <https://doi.org/10.1016/j.cger.2007.08.007>
- Galland, B. C., Gray, A. R., Penno, J., Smith, C., Lobb, C., & Taylor, R. W. (2017). Gender differences in sleep hygiene practices and sleep quality in New Zealand adolescents aged 15 to 17 years. *Sleep health*, 3(2), 77–83. <https://doi.org/10.1016/j.sleh.2017.02.001>
- Kellmann, M., Bertollo, M., Bosquet, L., Brink, M., Coutts, A. J., Duffield, R., Erlacher, D., Halson, S. L., Hecksteden, A., Heidari, J., Kallus, K. W., Meeusen, R., Mujika, I., Robazza, C., Skorski, S., Venter, R., & Beckmann, J. (2018). Recovery and Performance in Sport: Consensus Statement. *International journal of sports physiology and performance*, 13(2), 240–245. <https://doi.org/10.1123/ijsp.2017-0759>
- Knufinke, M., Nieuwenhuys, A., Geurts, S., Coenen, A., & Kompier, M. (2018). Self-reported sleep quantity, quality and sleep hygiene in elite athletes. *Journal of sleep research*, 27(1), 78–85. <https://doi.org/10.1111/jsr.12509>
- Lastella, M., Memon, A. R., & Vincent, G. E. (2020). Global Research Output on Sleep Research in Athletes from 1966 to 2019: A Bibliometric Analysis. *Clocks & sleep*, 2(2), 99–119. <https://doi.org/10.3390/clocksleep2020010>
- Mander, B. A., Winer, J. R., & Walker, M. P. (2017). Sleep and Human Aging. *Neuron*, 94(1), 19–36. <https://doi.org/10.1016/j.neuron.2017.02.004>
- Mastin, D. F., Bryson, J., & Corwyn, R. (2006). Assessment of sleep hygiene using the Sleep Hygiene Index. *Journal of behavioral medicine*, 29(3), 223–227. <https://doi.org/10.1007/s10865-006-9047-6>
- Monk, T. H., Buysse, D. J., Carrier, J., Billy, B. D., & Rose, L. R. (2001). Effects of afternoon "siesta" naps on sleep, alertness, performance, and circadian rhythms in the elderly. *Sleep*, 24(6), 680–687. <https://doi.org/10.1093/sleep/24.6.680>
- Nadler, S. F., Steiner, D. J., Petty, S. R., Erasala, G. N., Hengehold, D. A., & Weingand, K. W. (2003). Overnight use of continuous low-level heatwrap therapy for relief of low back pain. *Archives of physical medicine and rehabilitation*, 84(3), 335–342. <https://doi.org/10.1053/apmr.2003.50103>
- O'Donnell, S., Beaven, C. M., & Driller, M. W. (2018). From pillow to podium: a review on understanding sleep for elite athletes. *Nature and science of sleep*, 10, 243–253. <https://doi.org/10.2147/NSS.S158598>
- Peach, H., & Gaultney, J. F. (2017). Charlotte Attitudes Towards Sleep (CATS) Scale: A validated measurement tool for college students. *Journal of American college health : J of ACH*, 65(1), 22–31. <https://doi.org/10.1080/07448481.2016.1231688>
- Ruggiero, A. R., Peach, H. D., Zendels, P., & Gaultney, J. F. (2020). Sleep attitudes as a predictor of sleep outcomes: a secondary data analysis. *Health psychology and behavioral medicine*, 8(1), 623–635. <https://doi.org/10.1080/21642850.2020.1852939>
- Samuels C. (2008). Sleep, recovery, and performance: The new frontier in high-performance athletics. *Neurologic clinics*, 26(1), 169–x. <https://doi.org/10.1016/j.ncl.2007.11.012>

- Tobaldini, E., Costantino, G., Solbiati, M., Cogliati, C., Kara, T., Nobili, L., & Montano, N. (2017). Sleep, sleep deprivation, autonomic nervous system and cardiovascular diseases. *Neuroscience and biobehavioral reviews*, 74(Pt B), 321–329. <https://doi.org/10.1016/j.neubiorev.2016.07.004>
- Vyazovskiy, V. V. (2015). Sleep, recovery, and metaregulation: explaining the benefits of sleep. *Nature and science of sleep*, 7, 171–184. <https://doi.org/10.2147/NSS.S54036>
- Yang, C. M., Lin, S. C., Hsu, S. C., & Cheng, C. P. (2010). Maladaptive sleep hygiene practices in good sleepers and patients with insomnia. *Journal of health psychology*, 15(1), 147–155. <https://doi.org/10.1177/1359105309346342>
- Zaki Khan. (2010). *Masalah Tidur*. Strengthsifoo.com. <https://strengthsifoo.com/masalah-tidur/>