RELATIONSHIP OF SLEEP QUALITY AND COPETITVE ANXIETY IN A SAMPLE OF SWIMMING ATHLETES

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Absract

Studying the anxiety has increased in the past ten years. A lot of studies aimed to identify the causes of anxiety and how to get minimize it Sleep quality is widely regarded as one of the most important modes of recovery for athletes A sample of 40 Egyptian swimmers 20 elite male swimmers short distance 100-m freestyle and 20 elite male swimmers long distance 800-m freestyle swimmers. Participants completed the Competitive State Anxiety Inventory-2 (CSAI-2) and Sleep Quality (PSQI) Questionnaire. Multiple linear regression and correlation coefficient were used for data analysis. The aim of the present study were, therefore, to identify affect the State Anxiety and sleep quality on result computation for swimmer (100 m- 800 m), and identify the relationship between sleep quality and Competitive anxiety at the swimmers (100-800 m) and results indicates to the existence of significant differences between the values of (Somatic anxiety, self-confidence and sleep quality) and the results of competitions for swimmers 100 m and 800 m and a positive relationship (r = 0.96* 100 m & r = 0.94* 800 m) between sleep quality and Somatic anxiety.

Keywords: Sleep quality, competitive Anxiety, Swimming Athletes.

1. INTRODUCTION:

Consistent specialists in the field of psychology that Anxiety has been one of the most extensively researched topics in sport psychology (Woodman & Hardy, 2003). Although there have been many theories and models in anxiety. There appears to be only consensus on the notion that anxiety is a multidimensional concept (Polman, Rowcliffe, Borkoles, & Levy, 2007). That is, anxiety consists of three independent: Cognitive concern is what is happening as a result of the negative impact on the expected success, or by the negative impact of self-assessment for the player of some individuals, such as the coach. The works of this kind of concern for the weakening of the ability of on attention and concentration during the competition due to increased negative thoughts spam. The concern physical is a reflection of the psychological aspects of the state of physical play, and characteristic features of this type of concern what happens to athletes from increased heart rate and increased respiratory rate and sweating hands and stomach disorders and muscle tension and the self-confidence, a positive dimension in the face of anxiety factor (Boudhiba, Moalla, Arfa, & Kridis, 2015).

Many studies have shown that competitive swimmers who doubted their abilities scored high in state competitive anxiety and low in state sport confidence. In addition, self-confidence was related to the participants' performances (Pszchountaki & Zervas, 2000) (Burton, 1988) (Dizdari, Bunke, & Psouni, 2013) (Edwards & Hardy, 1996) (Woodman, Albinson, & Hardy, 1997) (Jones & Swain, 1992).

Sleep is widely regarded as one of the most important modes of recovery for athletes (Romyn, Robey, Dimmock, Halson, & Peeling, n.d.). Sleep research in Egypt is very limited in the field of sport. This is due to the lack of instruments measuring sleep in the Arabic language. Recently, the Pittsburgh Sleep Quality Index (PSQI) was translated into Arabic and tested on Arabic population. However, there is a need to test the PSQI and obtain psychometric values among Arabic athletes living in their native country (K. Suleiman, Hadid, & Duhni, 2012)(Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) (K. H. Suleiman, Yates, Berger, Pozehl, & Meza, 2010).

Many factors are associated with limited work performance, one of which is poor sleep quality. Although athletes and coaches believe that adequate sleep is essential for peak performance, there are many situations in which sleep is disturbed prior to a competition. An athlete may lose sleep owing to jet lag or anxiety. The effects of poor sleep quality on athlete rating of perceived exertion, mood and cognitive functions are well documented. (Souissi, Sesboüé, Gauthier, Larue, & Davenne, 2003).

Evidence suggests athletes worry about the effects of inadequate sleep on performance (Leger, Metlaine, & Choudat, 2005). The amount of sleep obtained by an athlete is. Additionally, It has been reported that an athlete's sleep may be significantly disrupted before a competitive event, with 79% of athletes reporting problems falling asleep, and 43% of the same population reporting an earlier wake time on the morning of competition (Erlacher, Ehrlenspiel, Adegbesan, & El-Din, 2011).

The aim of the present study was, therefore, to identify affect the State Anxiety and sleep quality on result computation for swimmer (100 m- 800 m), and identify the relationship between sleep quality and Competitive anxiety at the swimmers (100-800 m).

2. METHOD:

Participants: A group of 40 male subjects (mean age 19 ± 1 years) volunteered for the study, including 20 elite male swimmers short distance 100-m freestyle and 20 elite male swimmers long distance 800-m freestyle. The purpose, aims, and potential benefits of the study were explained to trainers for obtaining their approval. The major consideration / criteria for these swimmers were that they had won the honor of representing their country in major regional or international events. Also, they had got at least: one of the top two positions in the final Arab Republic of Egypt Championships (AREC) (Youth, under 20 years old for the sports season 2014/2015.

Procedure: The (AREC) C 2014/ 2015 was chosen for this study, due to its highly competitive nature. The participating swimmers qualified for the (AREC) by emerging victorious and by achieving the participation requirements (from the Egyptian Federation of Swimming) during Saudi various regional tournaments of the sports season 2014/2015, thereby giving variance of the sample.

Measures: After reviewing the previous studies, which focused on the Competitive State Anxiety Inventory-2 (CSAI-2) and Sleep Quality (PSQI) for athletes. The researchers used the Arabic version of the Competitive State Anxiety Inventory-2 (CSAI-2) (Boudhiba, Moalla, Arfa, & Kridis, 2015) and Pittsburgh Sleep Quality (PSQI) (K. Suleiman et al., 2012). The first scale is called, The PSQI is a solid and legitimate device that measures rest quality and amount more than a one month period. It comprises of 19 self-evaluated inquiries that subsumed inside of seven part scores or subscales: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. A worldwide score can be gotten from the summation of the seven segments that ranges from 0 to 21 with higher scores meaning poorer rest quality. The first creators set up a cutoff of > 5 for the worldwide score to recognize poor sleepers (> 5) from great sleepers (< 5) (Buysse et al., 1989), and the second scale is called the competitive state anxiety inventory (CSAI-2C), an Arabic version with 23 items was used to measure state anxiety (Boudhiba et al., 2015). All players, swimmers (100 m - 800 m) were carefully familiarized with the test protocol of the anxiety scale which contains 5 sentences for each measurement of cognitive anxiety, somatic physical anxiety, and self-confidence, with each arranged on a scale quartet to measure attributes from lesser degree to the highest degree. It was given to all the players before the start of the first league championship game, and all items were explained.

After the competition of the objective study sample was selected, and then the (CSAI-2) and (PSQI) has been applied. The (CSAI-2) and (PSQI) was administered at a convenient time in a comfortable room setting. Instructions aimed at reducing socially desirable answers (a constructive reaction inclination in member's evaluations) were also given, they were told that it was a measure of "personal styles in competition" basically). Moreover the members were told to peruse every announcement and circle the answer that best fitted their own perspective (without interaction with others) and which related to their particular sport "swimmers.

Statistical analysis: All data obtained during the study were treated with stringent confidentiality and anonymity. Data was analyzed using Microsoft Office Excel and the statistical program SPSS (version 17).

3. RESULT:

Table (1). Multiple linear regression of anxiety and sleeping on competition results of 100 free style swimming and P values (2-tailed test) also shown

RESULTS OF COMPETITIONS		INDEPENDENT VARIABLES			
Y	Unstandardized coefficients *B*	Somatic anxiety	Self confidence	Cognitive anxiety	Sleeping quality
CONSTANT	80.22	- 0.522	0.01	- 0.02	- 0.20
t	35.5	- 02.7	0.40	- 0.49	0.186
P	0.002	0.016*	0.048*	- 0.42	0.045*

Significant P < 0.05 (2-tailed)

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TABLE (2). MULTIPLE LINEAR REGRESSION OF ANXIETY AND SLEEPING ON COMPETITION RESULTS OF 800 FREESTYLE SWIMMING, AND P VALUES (2-TAILED TEST) ALSO SHOWN

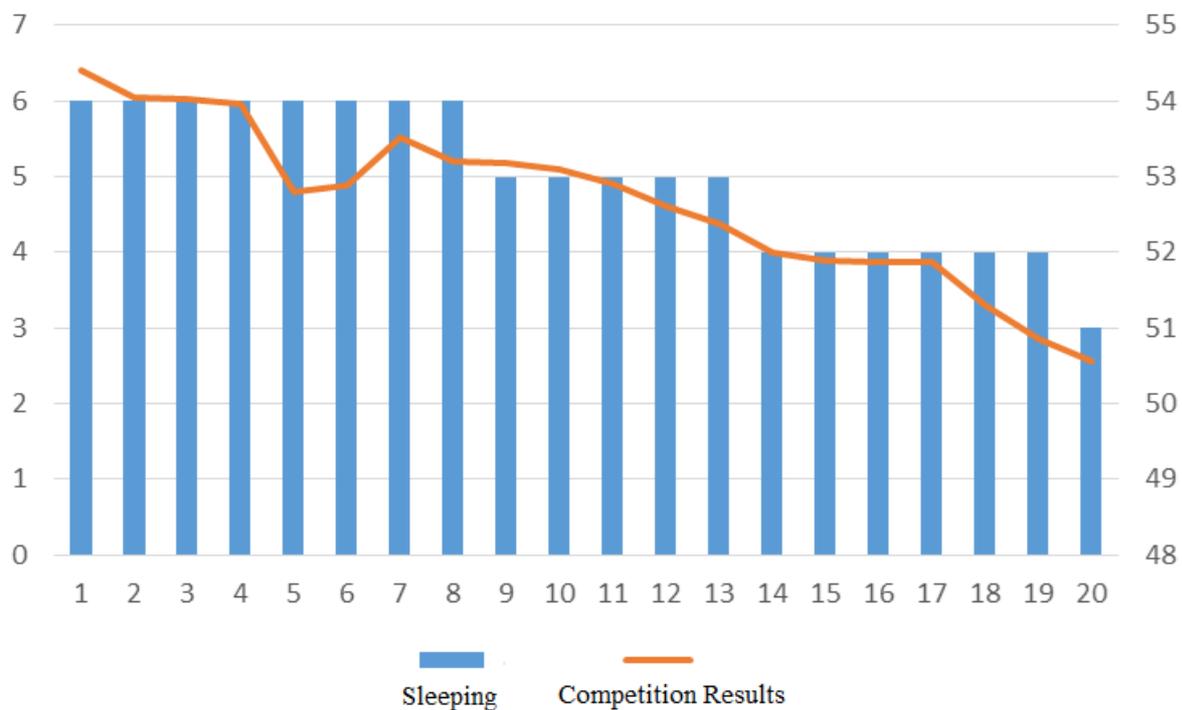| RESULTS OF COMPETITIONS		INDEPENDENT VARIABLES			
Y	Unstandardized coefficients *B*	Somatic anxiety	Self confidence	Cognitive anxiety	Sleeping quality
CONSTANT	75.18	- 0.42	0.09	- 0.08	- 0.30
t	22.5	- 03.4	0.39	- 0.37	0.19
P	0.03	0.019*	0.040*	- 0.49	0.048*

Significant P < 0.05 (2-tailed)

Figure 1.   The relation between sleeping and competition results for 100 m swimmers

Table 3. Means, standard deviations and correlation with Somatic physical anxiety and Sleep Quality between short distance 100-m freestyle and long distance 800-m freestyle.

Tests	Sleep Quality		Somatic anxiety		
	M	±SD	M	±SD	R
100 m	5.0	0.97	18.2	2.2	0.96*
800 m	5.1	1. 7	17.35	1.6	0.94*

Correlation is highly significant at the level 0.01 (2-tailed)

Table 4. Means, standard deviations and correlation with Cognitive anxiety and Sleep Quality between short distance 100-m freestyle and long distance 800-m freestyle.

Tests	Sleep Quality		Cognitive anxiety		
	M	±SD	M	±SD	R
100 m	5	0.97	17.5	3.8	0.09
800 m	5. 5	1. 8	16.1	2.4	0.13

Correlation is highly significant at the level 0.01 (2-tailed)

Table 5. Means, standard deviations and correlation of Self-confidence and Sleep Quality between short distance 100-m freestyle and long distance 800-m freestyle.

Tests	Sleep Quality		Self-confidence		
	M	±SD	M	±SD	R
100 m	5.0	0.97	22.0	3.2	0.03
800 m	5.1	1. 7	21.1	2.8	0.24

Correlation is highly significant at the level 0.01 (2-tailed)

4. DISCUISSON:

The findings of this study will be discussed in relation to the two objectives and tables outlined above.

1. **Identify affect the Competitive State Anxiety and sleep quality on result computation for swimmer (100 m- 800 m).**

Multiple logistic regression was used in a manner Enter It turns out that the three Correlation value of Simple correlation coefficient was (R=89,01 100 m. R=91,13 800m), While the coefficient of determination debugger was (R^{2-} =87,30 100 m, R^{2-} =89,22 800 m), This means that The independent variables explanatory (Sleep Quality cognitive anxiety, somatic physical anxiety, and self-confidence), we're able to explain 80% of the changes in the results of computation for swimmers 100 m and was explain 75% of the changes in the results of computation for swimmers 800 m, but the rest Results may be to the other factors.

Table (1) (2) It was observed Independent variables were significant from a statistical point between the values of (Somatic anxiety, self-confidence and sleep quality) and the results of competitions for swimmers 100 m and 800 m, as the table shows While the independent variable (cognitive anxiety) was not a significant effect in the multiple regression model.

 That the state of competition plays a big role in increasing or decreasing the level of athletic performance in sports competition, Individuals who have a decrease in the level of anxiety is often a high level of performance if compared to their members are characterized by a rise in the level of anxiety.

Results of Table (1) (2) are compatible also with some research findings, which acknowledge that Negative associations were evident here between state anxiety and the sleep quality. The more anxious an athlete was at bedtime, the lower they rated their sleep quality upon waking the next day. Previously, that elevated anxiety levels before competition. (Erlacher et al., 2011) (Fietze et al., 2009) (Lastella, Lovell, & Sargent, 2012) (Sargent, Halson, & Roach, 2014). However, anxiety has also been to have the potential to cause sleep, restlessness and over arousal, overriding any sleep promoting processes, thereby leading to a reduction in sleep quality (Reilly & Edwards, 2007; Silva et al., 2012; Wilson & Nutt, 2008). Furthermore, some athletes have reported difficulty overcoming pre-competition anxiety as a reason for a decrease in sleep quantity (Gebhart, Erlacher, & Schredl, 2011), as well as reporting fear that poor sleep will have a negative impact on their performance. (Leger et al., 2005)

Primary research indicates that anxiety may have a delayed influence on performance and rustle. (Gould, Petlichkoff, & Weinberg, 1984)

Researchers have found the level of competitive state anxiety has been shown to differ depending on certain characteristics, such as sport type, experience, gender, and age, individual athletes have been shown to have higher levels of anxiety than team athletes. (Polman et al., 2007)

Furthermore, the results indicates that the competitive anxiety and poor sleep quality, may not be a good predictor of performance. Its influence on performance may be dependent on various other factors such as coping strategies, confidence in one's ability to handle anxiety, and athletes' overall perceptions of performance outcomes, which would take into account their perceptions of the situational demands such as weather, team interaction, etc., (Craft, Magyar, Becker, & Feltz, 2003).

2. Identify the relationship between Competitive State Anxiety and sleep quality for swimmer (100 m- 800 m).

It was observed a positive relationship (r = 0.96* 100 m & r = 0.94* 800 m) between sleep quality and Somatic anxiety in the results of Table (3)

The swimmers may have taken longer than normal to fall asleep because some elite athletes experience elevated levels of anxiety during intensive training, and anxiety can interfere with a person's ability to fall asleep (Lindberg et al., 1997). (Sargent et al., 2014) and anxiety can interfere with a person's ability to fall asleep. (Lindberg, Janson, & Bjornsson, 1997)

In the (Arzu Vardar et al., 2007) study, show that the sleep deprivation was evaluated as an anxiety inducer. The increase in anxiety levels was originally due to total sleep deprivation rather than competition stress or a pathological state.

Table (4) (5) indicates not found the correlation between sleep quality, cognitive anxiety and self-confidence for swimmers at the competitions 100 and 800 m, So must pay attention to the improvement of sleep before competition swimmers to improve the results of competitions and As well as not to rely on sleep as the only way to improve self-confidence rate or reduce anxiety levels among the players.

In the (Erlacher et al., 2011) study, show that athletes of individual sports reported more sleep difficulties than athletes of team sports. The main sleep problem was not being able to fall asleep. Internal factors such as nervousness and thoughts about the competition were rated highest for causing sleep problems. Most athletes stated that disturbed sleep had no influence on their athletic performance; however, athletes also reported effects such as a bad mood the following day, increased daytime sleepiness, and worse performance in the competition or game. The differences between individual and team sports indicate that athletes in some sports need more help than those in other sports in managing sleep problems.

In conclusion; there is a need to create sufficient opportunities to participate in competitions for swimmers (Experience is one of the factors to reduce the anxiety of the players). The psychological preparations for swimmers must be taken into serious consideration in order to raise their achievement potential. The knowledge obtained from this study can contribute towards strengthening an awareness of the importance of psychological trainings and their application at all levels of swimmers preparations. Thus, we should conduct more research to Reducing the competitive anxiety and Interests to sleep quality in the long distance for swimmers

5. REFERENCES:

Arzu Vardar, S., Öztürk, L., Kurt, C., Bulut, E., Sut, N., & Vardar, E. (2007). Sleep deprivation induced anxiety and anaerobic performance. *Journal of Sports Science and Medicine*, *6*(4), 532–537.

Boudhiba, D., Moalla, N., Arfa, Y., & Kridis, N. (2015). Validation of a Tunisian Version of the French Scale State Anxiety in Competition (EEAC): Sport and Exercise Context, (February), 107–112.

Burton, D. (1988). Do anxious swimmers swim slower? Reexamining the elusive anxiety-performance relationship. *Journal of Sport and Exercise Psychology*, *10*, 45–61.

Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Research*, *28*(2), 193–213. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2748771

Craft, L. L., Magyar, T. M., Becker, B. J., & Feltz, D. L. (2003). The relationship between the Competitive State Anxiety Inventory-2 and sport performance: a meta-analysis. *Journal of Sport & Exercise Psychology*, *25*(1), 44–65. Retrieved from http://articles.sirc.ca/search.cfm?id=S-880535&scope=cite\nhttp://content.ebscohost.com.faraway.u-paris10.fr/ContentServer.asp?T=P&P=AN&K=SPHS-880535&S=R&D=s3h&EbscoContent=dGJyMNLr40Sep7A4yOvsOLCmr0qep7BSsKu4TLSWxWXS&ContentCustomer=dGJyMPGntkiyr7NJuePfg

Dizdari, H., Bunke, S., & Psouni, E. (2013). Attachment , Competitive Anxiety and Self-Confidence among Competitive Swimmers Author.

Edwards, T., & Hardy, L. (1996). The interactive effects of intensity and direction of cognitive and somatic anxiety and self-

confidence upon performance. *Journal of Sport & Exercise Psychology*, *18*(3), 296–312. Retrieved from http://www.humankinetics.com/\nhttp://articles.sirc.ca/search.cfm?id=403439\nhttp://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=SPH403439&site=ehost-live

Erlacher, D., Ehrlenspiel, F., Adegbesan, O. a, & El-Din, H. G. (2011). Sleep habits in German athletes before important competitions or games. *Journal of Sports Sciences*, *29*(8), 859–866. http://doi.org/10.1080/02640414.2011.565782

Fietze, I., Strauch, J., Holzhausen, M., Glos, M., Theobald, C., Lehnkering, H., & Penzel, T. (2009). Sleep quality in professional ballet dancers. *Chronobiology International*, *26*(6), 1249–1262. http://doi.org/10.3109/07420520903221319

Gebhart, C., Erlacher, D., & Schredl, M. (2011). Moderate Exercise Plus Sleep Education Improves Self-Reported Sleep Quality, Daytime Mood, and Vitality in Adults with Chronic Sleep Complaints: A Waiting List-Controlled Trial. *Sleep Disorders*, *2011*, 1–10. http://doi.org/10.1155/2011/809312

Gould, D., Petlichkoff, L., & Weinberg, R. S. (1984). Antecedents Of, Temporal Changes In, And Relationships Between CSAI-2 Subcomponents. *Journal of Sport Psychology*, *6*, 289–304. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=0163433X&AN=20718113&h=sC4qnVZ86cc604k76GNaGfer7+vvM5F2eW5tOMDSs2ulhxRrVOBZDSh9zF0Sc6w3NHWvdEGnM/8yj9xfOguRhQ==&crl=c

Jones, G., & Swain, A. (1992). Intensity and Direction as Dimensions of Competitive State Anxiety and Relationships with Cometitiveness. *Perceptual and Motor Skills*, *74*, 467–472.

Lastella, M., Lovell, G. P., & Sargent, C. (2012). Athletes' precompetitive sleep behaviour and its relationship with subsequent precompetitive mood and performance. *European Journal of Sport Science*, (March 2013), 1–8. http://doi.org/10.1080/17461391.2012.660505

Leger, D., Metlaine, A., & Choudat, D. (2005). Insomnia and sleep disruption: Relevance for athletic performance. *Clinics in Sports Medicine*, *24*(2), 269–285. http://doi.org/10.1016/j.csm.2004.12.011

Lindberg, E., Janson, C., & Bjornsson, E. (1997). Gender and Sleep Disturbance Sleep Disturbances in a Young Adult Population : Can Gender Differences Be Explained by Differences in Psychological Status ?, *20*(6), 381–387.

Polman, R., Rowcliffe, N., Borkoles, E., & Levy, A. (2007). Precompetitive state anxiety, objective and subjective performance, and causal attributions in competitive swimmers. *Pediatric Exercise Science*, *19*(1), 39–50.

Pszchountaki, M., & Zervas, Y. (2000). COMPETITIVE WORRIES, SPORT CONFIDENCE, AND PERFORMANCE RATINGS FOR YOUNG SWIMMERS ', (1983), 87–94.

Romyn, G., Robey, E., Dimmock, J. a, Halson, S. L., & Peeling, P. (n.d.). Sleep, anxiety and electronic device use in the training and competition environments., (May 2015), 37–41. http://doi.org/10.1080/17461391.2015.1023221

Sargent, C., Halson, S., & Roach, G. D. (2014). Sleep or swim? Early-morning training severely restricts the amount of sleep obtained by elite swimmers. *European Journal of Sport Science*, (July 2015), 1–6. http://doi.org/10.1080/17461391.2012.696711

Souissi, N., Sesböüé, B., Gauthier, A., Larue, J., & Davenne, D. (2003). Effects of one night's sleep deprivation on anaerobic performance the following day. *European Journal of Applied Physiology*, *89*(3-4), 359–366. http://doi.org/10.1007/s00421-003-0793-7

Suleiman, K. H., Yates, B. C., Berger, A. M., Pozehl, B., & Meza, J. (2010). Translating the Pittsburgh Sleep Quality Index into Arabic. *Western Journal of Nursing Research*, *32*(2), 250–268. http://doi.org/10.1177/0193945909348230

Suleiman, K., Hadid, L. A.-, & Duhni, A. (2012). Psychometric Testing of the Arabic version of the Pittsburgh Sleep Quality Index (A-PSQI) among Coronary Artery Disease Patients in Jordan. *Journal of Natural Sciences Research*, *2*(8), 15–20.

Woodman, T., Albinson, J. G., & Hardy, L. (1997). An investigation on the zones of optinal functioning hypohtesis within a multidimensional framework. *Journal of Sport & Exercise Psychology*.

Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: a meta-analysis. *Journal of Sports Sciences*, *21*(6), 443–457. http://doi.org/10.1080/02640410310000101809