RESEARCH ARTICLE

FACTORS THAT AFFECT MEDICAL STUDENTS' ATTENTION IN CLASS AT AL-IMAM MUHAMMAD IBN SAUD ISLAMIC UNIVERSITY IN THE PRE-CLINICAL PHASE DURING 2013.

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Manuscript Info	Abstract

In this study, we focused on medical students at Al-Imam Muhammad Bin Saud Islamic University in the pre-clinical phase during 2013 as a study population. We conducted a convenience sample cross sectional study design among 362 students. The questionnaire was sent electronically. 1st, 2nd and 3rd year medical students were included in the study. Response rate was 33.7%. 50% of the participants were first year students. 51.6% of students estimated that their attention ability is from 41%-70% of the lecture. 74.9% sleep 3-6 hours at night. As for breakfast, they were divide into 35.2% eat their breakfast before classes, 29.5% eat during breaks, and 35.2% eat brunch instead. Pearson correlation shows GPA to be significant (0.00), Social networking in class as well (0.00), Social networking during the day(0.025) which is very near to (0.00). Witch proves association between these confounders and attention in class. GPA to be positive relationship, Social networking in class and during the day to be inverse relationship. Using regression and 95% confidence interval, GPA was significant for (<0.001) and Social networking during day was significant for (0.003) and Social networking in class had significance of (0.061) which is very near to (0.05) which could be considered significant. As for CI, it did not cross in GPA nor social networking during class but did for sleeping, breakfast, and Social networking in class. Surprisingly, sleeping and breakfast had not significance in any of the tests used. This could be correlated with the low response rate.

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Introduction:-
Constantly paying attention in class is a struggle for many students. Decreased attention in class is linked to weakened learning abilities anddecreased academic performance.[12]

University students are under a lot of pressure due to academic demands. Thus, the sleep-wake cycle of the students is characterized by delayed onset, insufficient duration, and occurrence and resistance of napping throughout the day. Sleep deprivation can be harmful to students. A highcorrelation has been shown between sleep duration and performance in some activities.[1]

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Breakfast is acknowledged worldwide to be the most important meal of the day.[13]Glucose is essential in the formation oftryptophan, a precursor protein in the synthesis ofserotonin, which regulates mood and memory.[2]The conclusion from most of studies is that eating breakfast regularlyis associated with an improved mental health status.[2]Missing breakfast however has been associated with adverse effects on cognitive function, academic performance and attendance, psychosocial function, and mood in children and youngpeople.[3]

Mobile phones have become a modern life necessity; ithas spared worldwide. Subscribers of mobile phones increased from12.4 million in 1990 to 500 million in 2000 to 3.3 billion in2008 and 5.3 billion at the endof 2010.[4]Estimationsshow that the prevalence of mobile use will be increasedto 95% by 2013.[4]Recently, a psychological problem results from the excessiveuse of mobile phones called "Ringxiety" has beenreported. "It is a condition where individuals hear the phone ringingwhen it actually hasn't, which is also called "phantom ringing".[5]

In the present study, we investigated these factors (sleep, breakfast time, social networking during class and day) in medical students in class at Al-Imam Muhammad Ibn Saud Islamic University in the pre-clinical phase during 2013 and how much they affect their attention in class and their subsequent GPA.

We formalized a question to be answered at the end of the study which was "What are the factors that affect medical students' attention in class in the pre-clinical phase at Al-Imam Muhammad Ibn Saud Islamic University (IMSIU)?"

Material and Methods:-

Assessing attention in class was a challenge. We searched for an accurate and reliable method and we found some, such as The Test of Sustained Selective Attention (TOSSA), The Test of Variables of Attention (TOVA), The Trail Making Test, and Brick-enkamp's attention-concentration endurance test.[11][12]However, these tests were either inaccessible, or time consuming. Thus, we conducted across sectional convenience sample study.The questionnaire was designed on Google Documents and then distributed among the targeted population via the university's official email. Response Rate was 33.7% (n=122) the responds were then transferred using Microsoft Excel to SPSS. Using SPSS v.17, we analyzed the responds. Our Exposure wasAttention. Outcome of interestwas GPA. Possible Confounders include sleep duration, breakfast time, social networking in class, social networking during the day. Frequency Tables were used. Pearson Correlation was used to determine the presence of a relationship, then to determine its nature (positive or inverse). Regression was used to determine whether the variables have any significant effect on the main variable or not. As well as Confidence Intervalto determine the degree of uncertainty.

Results:-

In the present study, we found that 47.6% were First year students, 25.4% were second, and 27% were third year students.

(Table 1) shows that more than half the students (51.6%) believe they pay attention in 41 - 70% of the class. While 40.2% believe they pay attention in 71-90% of the class. And only 8.2% believe they pay attention for less than 40% of the class.

(Table 2) shows Pearson correlation to be significant in GPA (0.00), Social networking in class (0.00), and Social networking during the day(0.025) which is very near to (0.00). This proves association between these confounders and attention in class. Furthermore, GPA to have a positive relationship, however, social networking in class and during the day to have an inverse relationship.

(Table 3) Using regression and 95% confidence interval, GPA was significant for (<0.001) and Social networking during the day was significant for (0.003) and Social networking in class had significance of (0.061) which is very near to (0.05) which could be considered significant. As for CI, it did not cross in GPA nor social networking during the day but did for sleeping, breakfast time, and Social networking in class. Sleeping and breakfast time had no significance in any of the tests used.

Table 1:-

Attention in class	Frequency	Percent (%)
40% and less	10	8.2
41% - 70%	63	51.6
71% - 90%	49	40.2
Total	122	100

Table 2:-

Attention in class		
GPA	Pearson Correlation	00.359**
	Significant	0.00
Breakfast time	Pearson Correlation	-0.158
	Significant	0.082
Sleep hours	Pearson Correlation	0.069
	Significant	0.447
Social networking in class	Pearson Correlation	-0.216**
	Significant	0.00
Social networking during day	Pearson Correlation	-0.203**
	Significant	0.025

Table 3:-

Model	Sig.	95.0% Confidence Interval for B
(Constant)	0.00*	(1.695) - (3.220)
GPA	<0.001*	(0.075) - (0.308)
Sleep hours	0.715	(-0.184) - (0.268)
Breakfast time	0.171	(-0.206) - (0.037)
Social networking in class	0.061	(-0.225) - (0.005)
Social networking during day	0.003*	(-0.302) - (-0.063)

Discussion:-

Wang et al found that attention in class significantly decreases with poor sleep in children from China.[7]Furthermore, Abdulghani et al at KSU found that abnormal Epworth Sleepiness Scale (ESS) scores were associated with lower academic achievement in medical students ($p = 0.002$).[6]On the other hand, when comparing our study to Wang et al's, we find thatour study focused on adults rather than children, and students in Saudi Arabia rather than China. Furthermore, Abdulghani et al has focused on sleeping habits among a similar population (medical students in Saudi Arabia) which is very good for comparison. However, the low response rate of the study has probably affected the results concluding that sleeping had no effect on attention in class yet statistically insignificant($p = 0.715$).

Gajre et al used the Letter Cancelation test (LC), and found that children in the breakfast group achieved the highest mean scores compared to the no breakfast group (P< 0.05).[10] Furthermore, DR. Lien studied junior high studentsand found that eating breakfast regularly is greatly associated with less mental distress and improved academic performance.[9] The present study, however, found that breakfast time had no effect on attention in class (p = 0.171). However, this result is statistically insignificant and can be correlated with the low response rate.

Subba et al at Kasturba Medical College, south India, found that 34.5% had "Ringxiety" (phantom ringing), 99% of those used their phones in class.[5]This demonstrates how much students' are obsessed with their phones! To the extent that a third of a medical college have Ringxiety!The present study found that social networking in classhas an inverse relationship with attention in class (p = 0.00) and that it does affect attention in class(p = 0.061).Up to our knowledge, there were no previous studies that studied the association between attention in class and social networking in class!

Perez et al who studied teenagers in Argentina used the d2 test (Brick-enkamp's attention-concentration endurance test) and Wechsler Intelligence Scale for Children (WISC-IV scale) found that high attention scores correlated positively with academic results (p < 0.01).[12] Furthermore, poor academic achievements correlated with reduced attention.[12]In the present study, GPA has a positive relationship with attention in class (p = 0.00). Furthermore, GPA has an effect on attention in class(<0.001). Perez et al's study has the advantage of measuring children's attention using well renowned tests.

Conclusion:-
Both breakfast time and sleeping hours had no effect on attention in class in this sample. This is probably due to the low Response rate. On the other hand, social networking in class does affect attention in class in this sample.

Recommendations:-
We recommend conducting the present study on larger population and higher response rates. A way of expanding this study would be assessing other factors that draw attention to tutor such as body language, appropriate classroom size and student number, pictures and videos, and slide simplicity.

Acknowledgments:-

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