Medical students perception of factors disrupt their concentration during lectures at King Saud University, Saudi Arabia

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Abstract

*Objectives:To determine the factors perceived by male medical students disrupting their concentration during lectures . **Methods:** Cross sectional design has been used .The study included first, second and third year's medical students in KSU. A self administered questionnaire was used to collect data.It was designed of four sections including the characteristics of the student, lecturer, lecture hall and student demographics. **Results:** Of 369 , **80 %** completed the questionnaires. Students believed that lack of sleep(89.9%) ,side talks of the students (85.9%), Long lecture (87.9%), sickness (87.6%) and lecturer's poor knowledge (86.9%) reduce their concentration.Enthusiatic lecturer motivates students attention and concentration (74.8%).**Conclusion:**Students perceived lack of enough sleep as a factor led to concentration disruption and the enthusiastic lecturer as enhancing one.*

Key words: *Disrupting the concentration,medical students,lectures.*

INTRODUCTION

Lectures are still necessary in the twenty one century as in the early years of undergradute medical education students attend mor lectures than they see patients. By the end of their clinical years they may have attended over a thouthand lectures. Attention and arousal are factors in studentsand understanding the lecture (Brown B, 2001). Medical students are under a lot of stress, which can negatively affect their performance (Stewart SM, 1999). Cognitive, non-cognitive and demographic factors also play a role in the success of medical students during their study(Ferguson E, 2002). One of the essential requirements for a student during a lecture is his cognitive attention, but concentration of students tends to decrease as the lecture progresses(Stuart J, 1978).

Literature shows that there are many factors that play a role in disrupting the interest and concentration of the students during lectures. Concentration loss could be linked to either the student, lecturer or the lecture hall, for

example: it is known that language barriers has made student lose their interest in the subject and made them not fully concentrated with the lecturer (Risko EF, 2012) and loss of concentration will add up when the lecture is overloaded with information(Bamosa AO, 2000)and has a long time period (Staurt J, 1987). Also the students sleeping habits has a direct role in disrupting their concentration (Perez-Olmos I, 2014).

Literature review shows that there is lack of studies about students perception of the factors that negatively affect their cognitive attention during their lectures in Saudi Arabia. Identifying what makes their concentration decrease and disrupting the concentration from the students point of view will help in solving this problem and increase their concentration during the lectures. Also perceptionof factors that enhance and motivate the student concentration and have a positive effect in their studies. The objective of the current study is to assess medical students perception of factors affecting their cognitive attenation and concentration during lectures in College of Medicine, King Saud University. The college was established as the first medical college in kingdom of Saudi Arabia in 1967. King Saud University has beed ranked 97th in the world in the Times QS ranking of the world in the field of medical and biological sciences in the year 2009. The teaching staff of the university includes different nationalities namely Americans, British, Pakestani, Indians, Australians , Egyptians and Sudanese in addition to the natives (King Saud University, 2016)

METHODS

The research was conducted by using Cross sectional approach.The study included the first, second and third year male medical students in their lecture halls in King Saud University, Riyadh, Saudi Arabia from January to March 2015.They were selected because they were available, reachable as group and their schedule is full of lectures. Fourth and Fifth year male medical students were excluded because they were mostly in the clinics and don't have many lectures. As for the Female medical students they were excluded because of the cultural limitation as it is not allowed to enter female halls. The study was ethically approved by IRB committte of College of Medicine.

The sample size was estimated based on previous study (Risko EF, 2012) where prevalence of loss of concentration among students during lecture was 40%, the estimated sample size was 369 students. However all student attended the lecture halls during data collection were included in the study.

A self-administered questionnaire distributed to the participants. The questionnaire was designed in four sections which were: student demographic variables, characteristics and behavior of the lecturer (10 Questions), the characteristics of students (19 Questions), and the place of the lecture (10 Questions). Response to each question include three choices enhance, decrease or no effect on their concentration. The questionnaire was designed based on multiples and different conducted studies about factors that disrupt concentration of peoples. It was tested for validity and reliability.Also, it was categorized into sections based on the research questions and objectives.

A pilot study was conducted where questionnaires were distributed to fifteen students from third year in KSU to explore the feasibility of data collection. Accordingly the questionnaire has been revised and edited. The questionnaire was distributed to the students manually on papers by the leader of each class to get the highest possible number of responses among students of each year .Participants were requested to sign an informed consent. The informed consent which contain the purpose of the study, why they were selected, benefits of the study and their right to participate or withdraw from the study. There were no incentives or rewards given to the participants. After that the data collection, it was converted into an electronic version by using google form. The data were

downloaded from google form as excel workbook so it can be coded in microsoft office excel to become compatiblewith SPSS.

Statistical analyses were performed using SPSS, version 22.0 (SPSS Inc., ChicagIL, USA).Results were presented as numbers and percentages Mean and standard deviation. Chi square test was used academic level and factors affecting concentration. Level of siginificance was set $P<0.05$.

RSULTS

Out of 396 distributed questionnaires the collected completed questionnaires were 298 which represent 80 % of the distributed questionneres. All the participants were male medical students, mostly between 20-22 years old with a mean of 20.7 ± 1.0 years. The sample consisted of 116,101,81from 3rd, 2nd and 1st years medical students respectively. Only 4.4% of sample lived alone while the vast majority (75.2%) lived with five or more households. More than one third of the sample (35.2%).Only four students were married. (table1).

Table 1. Demographic characteristics of the studied male medical students in College of Medicine, King Saud University, Saudi Arabia.

Characteristic	Number	%
Age		
<20	33	11.1
20-22	237	79.5
>22	28	9.4
Mean ± SD	**20.7± 1.0**	
Academic Year		
1st year	81	27.2
2nd year	101	33.9
3rd year	116	38.9
Person lives In the house		
I live alone	13	4.4
1 -2 persons	15	5.0
3- 4 persons	46	15.4
≥ 5 persons	224	75.2
Family incomein SR		
< 10000	22	7.4
10000 to < 20000	43	14.4
20000 to <30000	53	17.8
≥30000 riyals	75	25.2
Do not know	105	35.2
Marital status		
Single	293	98.3
Married	4	1.4
Divorced	1	0.3

Regarding students perception of factors decreasing their concentration during lecture time, Table 2 shows that they considered insufficient sleeping is the major factor (89.9%) followed by the side talks of their colleagues creating noise (85.9%) then long time lecturing (87.9%) as the second one and students' illness was the fourth one (88.2%). Some characteristics of the lecturer were considered as concentration decreasing factors including poor knowledge of the subject (87.9%) , unclear accent (86.2%) and low pitch voice (85.8%).Regarding the lecture hall,

bad smell in the class distract the concentration of the students (85.5%). Only side talks of the students is statistically significant associated with the level of academic level (p<0.05).

Table 2. Medical students' perception of concentration decreasing Factors in College of Medicine, King Saud University, Saudi Arabia.

Factor	First n=81 n (%)	Second n=101 n (%)	Third n=114 n (%)	Total n=296 n (%)
Lack of enough sleeping	72(88.9)	91(90.1)	105(92.1)	268 (90.5)
Students talking with each other*	71(87.7)	92(91.1)	93(81.6)	253(85.5)
Too long lecture	70(86.4)	87(86.1)	105(92.1)	262(88.5)
Student's illness	71(87.7)	89(88.1)	101(88.6)	261(88.2)
Poor knowledge lecturer	67(82.7)	91(90.1)	101 (88.6)	259 (87.5)
Unclear accent lecturer	69 (85.2)	88 (87.1)	99 (86.8)	256 (86.2)
Low voice lecturer	67 (82.7)	87 (86.1)	100 (87.7)	254 (85.8)
Class odor (Bad smell)	65 (80.2)	86 (85.1)	102 (89.5)	253 (85.5)

- * P<0.05
- Two questionnaires were incomplete

On the other hand table 3 displays that students perceived Lecturer enthiaisim and high voice and his repeatation of the information more than once as attention and concentration increasing factors (74.8% and 71.3% respectively). Only near half of the students considered good lecture room illumination (49.7%) as concentration increasing factor. This factor is significantly associated with academic level.

Table 3. Medical students' perception of concentration increasing factors in College of Medicine, King Saud University, Saudi Arabia.

Factor	Academic Year			Total 296 n (%)
	First 81 n (%)	Second 101 n(%)	Third 114 n (%)	
Lecturer high voice	56 (69.1)	78 (77.2)	98 (78.1)	223 (75.3)
Lecturer repeating the information more than once	32 (39.5)	73 (72.3)	106 (93.0)	211 (71.3)
Good hall illumination*	39 (48.1)	49 (48.5))	59 (51.8)	147 (49.7)

- *P<0.5

Students perceived some factors as not related to their concentration during lecture time. From table 4 it appears that these factors include drinking coffee in class (48%), eating in class (48.3%), other students playing video games (45.6%), moving of the students in and out of lecture room (50%)and lecturer exihibition repetitive or unusual movements (43.6%).

Table 4. Medical students' perception of factors do not affect their concentration in King Saud University, Saudi Arabia.

Factor	Academic Year			Total
	First 81	Second 101	Third 114	296
Drinking coffee in class	35 (43.2)	50 (49.5))	57 (50.0)	142 (48.0)
Eating in class	45 (55.6)	42 (41.6)	56 (49.1)	143 (48.3)
Other students playing video games	37 (45.7)	45 (44.6)	53 (46.5)	135 (45.6)
Students' entering or leaving the hall	42 (51.9)	53 (52.5)	53 (46.5)	148 (50.0)
Lecturer exhibiting repetitive or unusual movements	38 (46.9)	42 (41.6)	49 (43.0)	129 (43.6)

(%)

DISCUSSION

Lectures are one of the primary means of knowledge transmission. Concentration during lectures and sessions, is essential for medical students to acquire the knowledge and skills required for medical practice (Farley J, 2013). Concentration during lectures and sessions, is essential for medical students to acquire the knowledge and skills requeird for medical practice.

In the present study the vast majority of the students perceived lack of enough hours of sleep as the most significant factor contributing to concentration disruption (89.9%). Literature supports this finding, Azad MC reported that there is a known relationship between sleep and mental health (Azad MC, 2015 & Kim EJ, 2007). Also sleep depriviation experiments conducted in humans approved that sleep depriviation causes impairment of concentration, attention, vigilance and memory (Walker MP, 2009). Tesch et. al. in their study reported the same role of sleep depriviation on the concentration of students (Tesch F, 2011). Also many authors have emphasized that sleep is important for optimal cognitive and emotional performance, learning, memory consolidation, affective regulation, attention and concentration (Djonlagic I, 2012 &Mander BA, 2008).

Students talking with each other irrelevant to the lecture materials creates noise was perceived by the students as the second concentration distractor. Boman and colleagues concluded that irrilivant speech and incompatible environment disrupt attention from tasks negatively (Boman E, 2005). On the same line Beaman et. al. reported that the presence of novel sounds in the environment causes shifts in attention that hinder performance of ongoing cognitive tasks (Beaman CP, 2005).

Lecture duration is an important factor in determination of degree of attention and concentration of the students in lecture materials. The current study revealed that long duration lecture decreased their concentrartion. Farley and his colleagues mentioned that when lecture devided into early and late time two periods, reports of mind wandering increased and memory for the lecture materials decreased from early into late periods (Risko EF, 2012). Concentration and attension falctuate throughout the 60 minutes lecture. After 20 minutes there is a marked decline in attention followed by a peak of attention just before the lectures end (Bligh DA, 2000).

Students in the present study perceived class odor as one of the distractors of their attention in lectures. This finding is in agreement with similar studies conducted outside the kingdom (Tesch F, 2011 & Bati AH, 2012) they reported that class odor causes distraction of concentration during lecture. Another distractor of students attention in lectures perceived by the students in the current study was the unclear accent of the lecturer. This result

is consistent with Carpenter et. al. where they reported that the disfluent teacher distracts students concentration and attention (Carpenter SK, 2013).

Lecturer with poor knowledge about his lecture materials was perceived by the students as distractor of their concentration and attention. In literature there is a high correlation between what instructors know and what they teach (Abediwura A, 2007). Also Singh et. al. reported that good knowledge of the subject was rated the highest characteristic of the good medical teacher (Singh S, 2013).

This study revealed that that high voice teacher motivate the attention and concentration of the students.This may be known since 1975 with Dr. Fox experiment where the enthusiastic teacher increased the attention of the students and they rated the lecturer high compared to the monotone and inexpressive voice one (Ware JE, 1975). Also enthusiasm was reported to be the second most important parameter of an effective teacher (Singh S, 2013). Yilmaz A. noted that enthusiastic, excited dynamic teacher motivates students concentration and learning (Yilmaz A, 2011). The lecturer should convey his enthusiasm for the materials and the students. He should speak clearly and use a conversational tone where lecture is considered as opportunity to speak with the students , not at them (Centre for Teaching Excellence, 2016).

The present study revealed that around half (48%) of medical students perceived no effect of drinking coffee in the class on attention and concentration. In contrast Peeling and Dawson reported that caffeine can enhance astudent perception of specific behavioral functions amd mood which are vital to learning. Students feel significantly more awake, clear minded, energetic, alert, concentrated and arouse during lecture (Peeling P, 2007). The inconsistency may be attributed to deference in dose of caffeine and the prevalences of drinking coffee between the students in the current study and their study.

CONCLUSION

From the results of the present work it appears that medical students perceived lack of enough sleep , side talk of students in class and long duration lecture were the main distracters of their attention and concentration during lectures. Lecturer's enthusiaism and high voice volume were perceived as enhancing attention and concentration of medical students. Drinking coffee or eating during the lecture in addition to students movement in or out of the class were perceived by students neither distracters nor motivating ttention or concentration.

Recommendations:
Based on students perception it is recommended that students should sleep enough hours and stop talking with each other during the lecture. Also, College of Medicine should set ligalizations for the time of lecture and to decrease noise. The lecturer should be interested in his subject and his voice should be loud and clear.

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