Caffeine consumption and its effects on sleep quality, anxiety insomnia, and decision making among medical students in Damascus university.

(هذه مقدمة فقط عن بحث لاستهلاك الكافئين لدى طلاب الطب البشري في جامعة دمشق (أي جامعتي) ما تبقى من البحث لم أفعله أنا فقط بل زملائي المشاركين (ولكن فعلتها في غير أبحاث) ولذلك لم أضعه هنا للأمانة العلمية.

أنوّه أنني استطيع الكتابة الأكاديمية للأبحاث العلمية باللغة العربية والإنكليزية والحمد لله في ذلك.

(النسخة الإنجليزية)

Introduction:

Caffeine is part of our diet and is often consumed in different types of drinks and food such as coffee beans, tea leaves, cocoa beans, kola nuts, and other plants (1), also it is widely used as a central stimulant substance around the globe, and the prevalence of caffeine consumption and stimulant drinks has dramatically increased among adolescents and young adults in recent years (2) (3), Adolescents state they use caffeine to provide more energy, to feel more awake and stimulated, also for the taste of the product and for image enhancement (4) and athletes frequently take advantage of caffeine as a stimulant (5) (6)they say it helps them to gain some energy. Young generations, for example, most college students, consume caffeine to feel more awake while studying, enjoy the taste, socialize, increase their physical energy (7) improve their mood, and alleviate stress (8) Energy drinks which are usually carbonated and contain significant quantities of sugar and legal stimulants such as caffeine,guarana,taurine, and L-carnitine as well as blends of herbal extracts, B vitamins, and amino acids are popular with university students because their consumption is typically assumed to provide increased energy and significant improvements in cognition (9) endurance, and physical performance (10).The most common reason for taking caffeine is to feel more awake (11) and to get recharged. In medical schools, medical students are trained into competent and compassionate doctors, to improve their medical knowledge, help patients, and promote public health (12),Compared with other majors, a higher incidence of sleep problems in medical students (13) may be due to the vast range of academic courses -the amount of information they face is resampled with hasty water pumped from a fire hose- and to the high level of clinical work intensity (14), The consequences of taking caffeine can lead to insufficient sleep both in quality and quantity, which may result in the consumption of caffeine again to overcome the symptoms caused by the lack of sleep like laziness ,inactivity ,slowness heaviness and dullness.

Laboratory studies have shown that a deficit in nocturnal sleep of as little as 90 min for just one night can cause a one-third reduction in daytime objective focus (15)and among college students, sleep deprivation may be significantly linked with memory reduction and reduced learning abilities which can make academic achievement much harder(16) (17) (18)And on a molecular biological level, caffeine has three different mechanisms of action on the central nervous system to produce a stimulatory effect, one of which involves the antagonism of methylxanthines at the level of adenosine receptors. Four receptors, A1, A2A, A2B, and A3,

comprise the adenosine system, of which A1 and A2A bind to caffeine with high affinity and in a reversible way at normal doses. Adenosine receptors are mainly located in the hippocampus, amygdala and prefrontal cortex. Adenosine A1 and A2A receptors act as neuromodulators that modulate the activity of other neurotransmitters such as glutamate, gamma-aminobutyric acid (GABA), acetylcholine, 5-hydroxytryptophan, and dopamine (19) which have been implicated in anxiety. A1 and A2A receptors are also involved in physiological mechanisms such as vasoconstriction and microglial cell functioning (19) as well as the modulation of a variety of psychological functions including sleep, arousal, (20) memory and anxiety.

In summary, studies have shown that adenosine receptor blockade can lead to anxiety (21) One of the substances used in challenge paradigms for Pannic Disorders is the commonly consumed psychostimulant (caffeine) (22) (23) a methylxanthine common in foods and beverages such as coffee, tea, soft drinks, and chocolate bars, as well as in a number of over-the-counter drugs [(24) a methylxanthine common in foods and beverages such as coffee, tea, soft drinks, and chocolate, as well as in a number of over-the-counter drugs (25)]

Its also important to have an insight on the effect of caffeine on decision-making skills among medical students. Consumption of caffeinated beverages, such as energy drinks and soda, is strongly associated with risk taking, impulsivity, and sensation seeking among adolescents and young adults (26). Energy drinks contains several potentially psychoactive substances including taurine, glucoronolactone, and caffeine; and on the cans of Energy drinks it is stated that the beverage help increase concentration and the speed of the reaction time. Several investigations have assessed the claims of these companies regarding the reaction time, human performances and mood enhancement resulting from energy drinks, taking into consideration its usage separately and combined with caffeine, (27) Although it seems possible and reasonable to say that caffeine could

directly influence risk-taking behavior, however, it is equally plausible that people who are prone to risk taking are also more likely to consume caffeine containing products. One way to determine if caffeine directly alters risk taking or not, is to examine the effects of acute caffeine administration on decision making specifically. The balloon analogue risk task (BART) and the Iowa gambling task (IGT) are considered a decision making measurement tool and have both been validated for use in children and have been shown to measure (28)decision making effectively

This study aims to find the relationship between the general psycological state-including sleep quality, anxiety insomnia, and decision making- and caffeine consumption of undergraduate medical students at Damascus University, thus giving powerfull insight on .their life quality for other researchers

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