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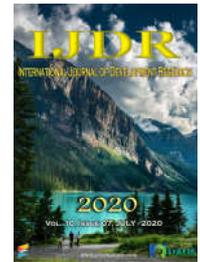
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RESEARCH ARTICLE

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INDISCRIMINATED USE OF METHYLPHENIDATE AMONG ACADEMICS AT THE UNIVERSITY CENTER PRESIDENTE ANTÔNIO CARLOS - UNITPAC IN ARAGUAÍNA TOCANTINS

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ABSTRACT

Regarded as the most widely used psycho stimulant in the world, methylphenidate is the drug of choice for the treatment of Attention Deficit Hyperactivity Disorder (ADHD), a disorder currently very much addressed because it is present in children in school. The good performance of the drug in a behavioral relationship paved the way for its misuse by academics, university students, student for public tenders and people with an interest in better development in activities that require a certain concentration. The survey carried out a survey of the use of methylphenidate in the academic environment of the institution, with the main purpose of analyzing the data obtained and comparing them with similar studies. We used a sample of 208 students, where we applied a self-explanatory questionnaire among academics from all courses of the institution for the knowledge of users and others related to the use, obtaining a result of 17.3% of users of the drug, corresponding to 36 academics, where 94.4% of these users use it in an evaluation period, and 50% of them have been influenced by friends and / or family, numbers corresponding to the statistics given by studies based on the use of the drug for the purpose of educational performance. Thus finding a high prevalence among academics, starting to use it under the influence of friends and with doubtful access to the medicine by prescription or purchase from a pharmacy as the largest number, followed by purchase from friends, with the presence of side effects after use of the medication, but proving to be effective since a large part of the academics say they feel the need to use it again, which can also be indicative of dependence, one of the effects caused by the constant use of the medication.

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INTRODUCTION

Methylphenidate hydrochloride, marketed as Ritalin® (Novartis) and/or Concerta® (Janssen), is a neurostimulant with chemical formula C₁₄H₁₉NO₂ that has structural characteristics similar to

amphetamine. Its mechanism of action is related to the direct stimulation of alpha and beta adrenergic receptors or to the release, indirectly, of dopamine and norepinephrine in the synaptic terminals, thus resulting in a higher production of neurotransmitters of fundamental function for memory, attention and humoral regulation

(PASTIUM; MATTOS, 2004). The molecule was synthesized in Switzerland in 1944 and arrived in Brazil at the end of the 20th century, during this same period its use for the treatment of Attention Deficit Hyperactivity Disorder (ADHD) was approved. Due to its excellent action in the treatment, methylphenidate is one of the most commercially active ingredients in the world, thus having global reports of annual increases in production, going from 70 tons in 2013. Methylphenidate is a prescription drug used in diagnosed cases of Attention Deficit Hyperactivity Disorder (ADHD) and Narcolepsy, in which there are episodes of drowsiness at various times of the day. The present drug is contraindicated for people with cardiovascular disorders, such as hypertension, and for patients with psychiatric disorders (COLL, ACM, SILVA, MPS, NAKASU, MVP, 2016). Methylphenidate plays an important role in regulating attention, inhibiting responses to distracting stimuli, suppressing irrelevant thoughts, decreasing the feeling of tiredness, increasing focus and attention, and can produce the same effects in a healthy organism (BARROS, D.; ORTEGA, F., 2011). However, this undue use among healthy people can bring health risks by causing a disorder throughout the functioning of the body affecting cardiovascular functioning even in people without predisposition, and can lead to arrhythmia when used in exaggerated doses. It is a drug that requires medical prescription specifies, because its abusive use because it affects the excessive disposition of catecholamines, makes the brain prone to create a strategy to regulate the amount of these neurotransmitters, leading to dependence on the drug. Attention Deficit Hyperactivity Disorder (ADHD) is a subject that is very addressed nowadays because it is very present in everyday life, methylphenidate is the medicine used for treatment, requiring a diagnosis and medical prescription, for its good performance during treatment and supposedly promising to improve attention and concentration the drug has attracted healthy people, especially students. Thus, the study seeks to estimate the use of methylphenidate prescribed and not prescribed among students of the University Center President Antônio Carlos – UNITPAC.

MATERIALS AND METHODS

The research was applied, quantitative and descriptive. For this study, the population considers that all students enrolled in the University Center President Antônio Carlos - UNITPAC in the first semester of 2019. The calculation of the sample took into account the total number of students enrolled in the 2019 school semester.1. The calculation was obtained through proportional stratified sampling, which is a particular case of stratified sampling, in which the proportionality of the size of each stratum of the population is maintained in the sample, as the difference of students enrolled per course should be considered and this proportion maintained. The sample calculation was obtained using the formula below according to Medronho (2009).

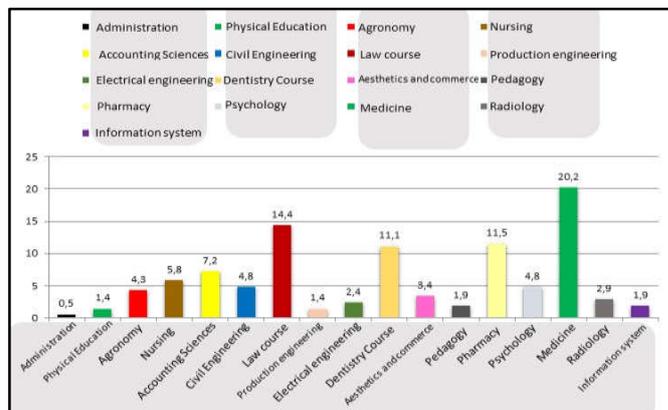
$$n_1 = f \cdot N_1 = \frac{n \cdot N_1}{N}, n_2 = f \cdot N_2 = \frac{n \cdot N_2}{N} \text{ e } n_h = f \cdot N_h = \frac{n \cdot N_h}{N}$$

The research was carried out through a quali-quantitative analysis of the cases of prescribed and non-prescribed use of methylphenidate among students of the University Center President Antônio Carlos - UNITPAC. The data were obtained through questionnaires made available to the target audience. The questionnaire contained questions about gender, age, course, frequency of use and whether it has medical indication for use. The results were analyzed and tabulated in spreadsheets and tables. The research complied with ethical principles and followed the requirements of Resolution No. 466 of 12/2002, being approved by the Research Ethics Committee (CEP) under opinion no. 3,207,012,(CAAE: 08314318.2.0000.0014) according to Annex III.

RESULTS AND DISCUSSION

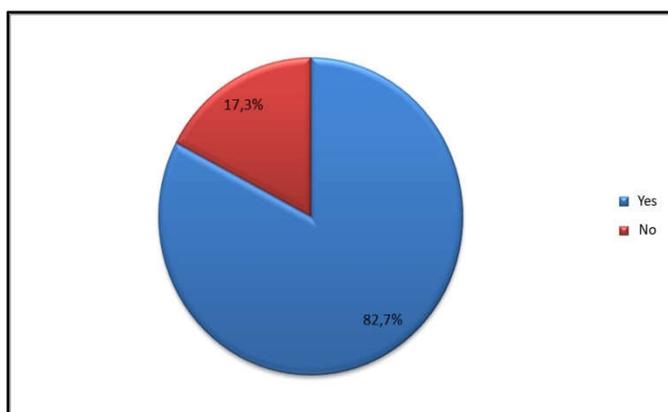
The present study had as main research field, to know the consumption of the medicine among the students of UNITPAC. The

study was approved by the IRB (Ethics Committee for Research), and the data collected during the month of April of the year 2019. It was estimated to number of academics of all courses offered by UNITPAC for there to be a balance between the values found, totaling in a sample of 188 students, however, the research was reaching 208 students. Figure 1 shows the courses that are part of the grade offered by the institution and the percentage of students reached with the predominant average age group of 20 and 25 years old, corresponding to 52.4% (109 academics).



Source: own authorship

Figure 1. Distribution of students participating in the research by course (208 students)

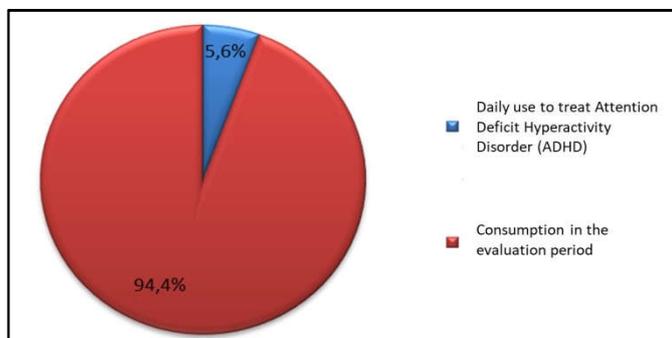


Source: own authorship

Figure 2. Percentage of students who use the medication or not

The m larger number of academic participants is the medical school with 20.2% (42 academic), followed by law school and Pharmacy A with respectively 14.4% (30 students) and 11.5% (24 to academic). In the sample of 208 participating academics, 36 academics (17.3%) stated that they had used the medication as shown in Figure 2, a large and expected number based on the studies analyzed, which state that 15 to 25% of students make use of it. The courses that are within this percentage are: Pharmacy (17%), Law (8.3%), Radiology (5.5%), Civil Engineering (5.5%), Dentistry (13.8%), Medicine (36.1%), Pedagogy (5.5%), Electrical Engineering (5.5%) and Nursing (2.8%). The percentage found confirms that there is a relatively large number of drug users indiscriminately, where of the 36 student users, 50% of them (18 students), claimed to have made the use by influence of friends and/or family members, as well as in the study by Affonso et al. (2016) at Anhanguera University of Brasilia with students from nutrition, pharmacy, biomedicine and nursing courses, where 48% use the drug under guidance from friends. 44.5% (16 academics) made the use out of curiosity and purchase illegally on the Internet. Only 5.6% (2 students) claim to use it by medical orientation. The study by Roedel et al. (2017) with 190 psychology students from the Higher Education Institution of Serra Gaúcha found contrary results with 94.2% of non-users. Of the participating courses, there was a predominance of medical students regarding the use of the drug with 13 academic users, corresponding to 36.1% of the users, with an average age of 20 to 25 years, where only one of the participants

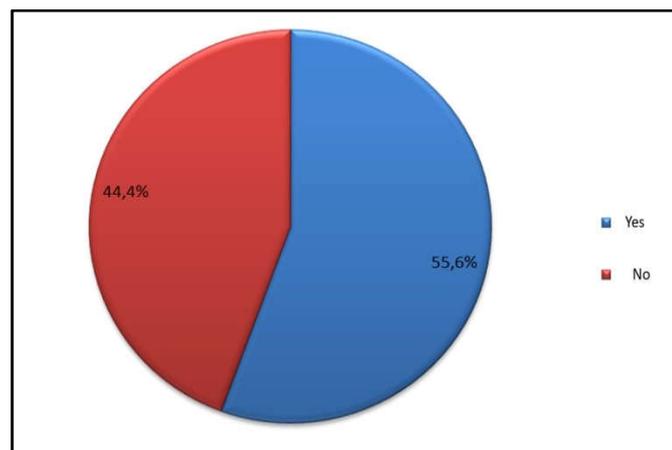
claims to make the use by medical indication for the treatment of ADHD, the others make use at the time of evaluation in search of improvement in the performance of the studies and arrived at the drug out of curiosity of its effects or by the influence of friends and/or family members. Worrying data since academics have information about the risks caused by misuse of the drug. The medication is known among students as an option for occasions where a greater concentration is needed or even to stay awake.



Source: own authorship

Figure 3. Frequency of using the medication

Figure 3 confirms this, that the demand for the drug comes mainly at evaluative times. Because it is the drug of choice in the treatment of ADHD, a very common disorder in young people and adolescents today, the percentage of 5.6% (2 students) of users for this purpose is considerable, however, 94.4 % (34 students) remaining report using it only on evaluation dates in order to improve academic performance. The percentage of users at the time of evaluation found is high in relation to similar studies, as in a study by Carneiro et al. (2013) with students of the Course of Medicine Center of Volta Redonda with 160 students, where they obtained a percentage of 23.72% (37 students) of users of the drug and 13.51% (5 students) stated to make the use in evaluation times. Methylphenidate presents as frequent side effect of severe headache or confusion, weakness or paralysis of limbs or face, difficulty speaking (disorder signs of cerebral blood vessels), heart rate accelerated and pain in the chest. D among the academics who reported using the drug, 55.6% answered that they felt some side effect, while 44.4% reported that they did not feel any and side effects as shown in Figure 4 below.

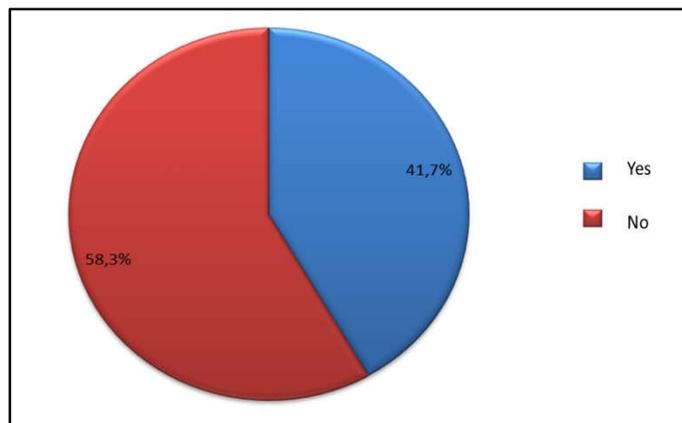


Source: own authorship.

Figure 4. Prevalence of side effect

Results are similarly found in the survey of Ji-Parana (CEULJI / ULBRA), made by Alberto et al. (2017) where they used a sample of 150 students from courses with subjects related to pharmacology, where 59% of the academics who use the medication said they recognized the manifestation of side effects after using it. In the study done with medical students in the city of Volta Redonda by Carneiro et al. (2013), 64.86% of academic users also reported having side effects after use, however, even with undesirable effects 86.49% of users reported improving concentration power and 54.05% also

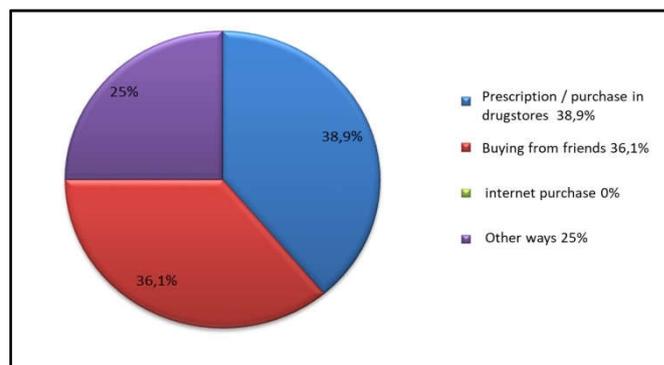
observed an improvement academic performance, indicating that the use of the medication is repeated, a number similar to that found in the survey, where 41.7% of the students reported that they would use the medication again, as shown in Figure 5.



Source: own authorship

Figure 5. Prevalence of academics who would use the medication again

The percentage found in Figure 5, even though the presence of side effects as shown in Figure 4 demonstrates the efficacy of the drug as a way to improve the performance of studies, which becomes worrisome since the damage caused by the excessive indiscriminate use of methylphenidate is frequently observed. In the study by Silva Junior et al. (2016) in the city of Gurupi (UNIRG) with 373 students from the medical school 66.7% of users said the drug to use for student achievement even with the presence of effects co sides. Access to this medicine for alternative purposes other than the treatment of ADHD is a delicate point, since the rate of referrals from it by friends is high, which was expected to have a greater number of purchases by friends, but as shown in Figure 6, 36.1% of academics have access through this means, as well as the study by Coli et al. (2016) with 120 academics from a Faculty of Medicine in the South of Minas Gerais, where 60% of users of the drug obtained the same through friends.



Source: own authorship.

Figure 6. Access to the medication

Among the results obtained in the previous graphs, it can be seen that the percentage of 38.9% referring to the purchase of the medicine with a prescription or in a pharmacy tends to be an illegal purchase due to the way in which the students use it, since the medicine has no purpose for aid in educational performance as a therapeutic indication. The percentage of 36.1% seen by access by buying friends is expected by the percentage of 50% of academics influenced by friends or family, a common practice witnessed in the academic environment. Among users, 41.7% (15 academics) answered that they felt the need to use the drug again, representing that the effect expected by users of improvement in concentration, however, the package insert informs that one of the effects of using the drug is dependency, important information and often unknown to users that can also be indicative of this percentage.

Conclusion

The study done at the institution shows the high prevalence of methylphenidate among academics. In the results of the population studied, the main reasons for the indiscriminate use of methylphenidate are due to increased educational performance and increased concentration, which are often used during evaluative periods, coming into contact with the medication due to the influence of friends and family, and out of curiosity. The way of acquiring or accessing the medicine obtained by the study is indicative of questionable practice by traders, since it was found that the greatest number was access by prescription or pharmacy, a form that does not match the data obtained and the way of using the medicine.

The reviewed studies show that the drug is present in academic environments with high prevalence, being an aid in studies and showing effectiveness for this, however, having a constant presence of side effects. The academics involved in the reviewed researches show that they have no problems living with the effects, a sign of little knowledge of the possible risks with use, and most studies involving courses in the health area, this is a worrying fact. Comparing the results obtained and the revised data, it can be observed that the search for the drug revolves around the improvement by concentration and performance in tasks and studies. The influence by friends is present in both and the form of access to the medication is partially consistent, since access by prescription for a treatment other than ADHD is not common. It is evident that the use of the medicine revolves around the need for aid in performance and concentration, showing the need of information on the risks to health through misuse and that the indication of use for this purpose is a dangerous practice, as well as indicate any use of medication without medical advice.

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