

## NON-MEDICAL USE OF METHYLPHENIDATE IN MEDICAL STUDENTS IN THE MEDITERRANEAN REGION OF TÜRKİYE: A QUALITATIVE RESEARCH

TÜRKİYE'DE AKDENİZ BÖLGESİNDE EĞİTİM GÖREN TIP ÖĞRENCİLERİNDE METİLFENİDATIN TIBBİ OLMAYAN KULLANIMI: NİTEL BİR ARAŞTIRMA

Hilal YAKUT İPEKOĞLU<sup>1</sup>, Giray KOLCU<sup>2</sup>

<sup>1</sup>Süleyman Demirel Üniversitesi, Fen Edebiyat Fakültesi, Sanat Tarihi Bölümü, Isparta, TÜRKİYE

<sup>2</sup>Süleyman Demirel Üniversitesi, Tıp Fakültesi, Tıp Eğitimi ve Bilişimi Ana Bilim Dalı, Isparta, TÜRKİYE

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### Öz

#### Amaç

Metilfenidatin reçetesiz kullanımı son yıllarda uluslararası yazında ilgi duyulan bir konu haline gelmiştir. Özellikle lise ve üniversite öğrencilerinin başarı için bu ilaçları kötüye kullanımları önemli bir araştırma konusu olmuştur. Gençler, hem derslerinde, girdikleri sınavlarda başarılı olmak hem de sosyal yaşamdan kopmamak için bu ilaçları bir kurtarıcı olarak görmektedir. Dünyada tıp eğitimi, öğrenciler açısından zor ve streslidir. Öğrenciler başarılı olmak için üzerlerinde çok fazla baskı hissetmektedir. Bu koşullar öğrencileri, üzerlerindeki baskıyı azaltacak, uyanık kalmalarını ve uzun süre odaklanmalarını sağlayacak alternatiflere yöneltmektedir. Bu çalışma, tıp eğitimi alan öğrencileri metilfenidat içeren ilaçlara yönelten süreci ve kullanım alışkanlıklarını anlamayı amaçlamaktadır.

#### Gereç ve Yöntem

Çalışma, antropolojik bakış açısı ile tasarlanmış nitel bir araştırmadır. Tıp eğitimi alan öğrencilerle derinlemesine görüşmeler yapılarak, metilfenidatin reçete dışı kullanımı üzerine deneyimleri, düşünceleri ve gözlemleri derlenmiştir. Çalışmaya 2019 yılı sonlarında yüz yüze görüşmelerle başlanmıştır. Koronavirüs

pandemisi nedeniyle verilen uzun bir aranın ardından görüşmeler Şubat 2022'de tamamlanmıştır. Çalışmaya katılan 17 gönüllü öğrencinin görüşleri, betimleyici bir yaklaşımla değerlendirilmiştir.

#### Bulgular

Araştırma bulgularımıza göre tıp öğrencileri yan etkilerine rağmen geçici ve hızlı bir çözüm olarak metilfenidatin reçete dışı kullanımına olumlu bakmaktadır. İlacın kullanımı özellikle sınav zamanlarında artmaktadır. Öyle görülüyor ki ilaç öğrenciler için kolay bir alternatiftir. İlaçlar büyük oranda yine kullanan diğer arkadaşlardan temin edilmektedir. Ayrıca ilacın zayıflamak için de kullanıldığı görüldü. Metilfenidatin olası etkilerinin yine reçete dışı kullanan öğrenciler tarafından övüldüğü ve diğer öğrencilere tanıtıldığı söylenebilir. Çalışmanın bulguları çeşitli ülkelerde yapılmış araştırma bulguları ile büyük oranda paralellik göstermektedir.

#### Sonuç

Ülkemizde psikomotor stimülanların reçetesiz kullanımları üzerine yapılmış çok az sayıda araştırma bulunmaktadır. Bulgular, tıp öğrencilerinin üzerlerindeki stres ve baskı ile baş edebilmeleri yolunda sağlıklı ve sürdürülebilir alternatiflere ihtiyaç duyduklarını ka-

Sorumlu yazar ve iletişim adresi /Corresponding author and contact address: H.Y.İ. / hilalyakut@sdu.edu.tr

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ORCID IDs of the authors: H.Y.İ: 0000-0002-2273-1379; G.K: 0000-0001-8406-5941

nıtlar niteliktedir. İlaçların reçetesiz, kötüye kullanım- larının uzun vadede yaratacağı olumsuz etkilerinin belirlenebilmesi ve önlem alınabilmesi açısından, bu çalışmanın bir temel oluşturacağı düşünülmektedir. Araştırma, mevcut durumu keşfetme amaçlı bir ön değerlendirme niteliğindedir. Alanda daha çok bilgiye, nicel ve nitel veriye ihtiyaç olduğu açıktır.

**Anahtar Kelimeler:** Akademik başarı, Bağımlılık, Stres, Tıbbi antropoloji, Uyarınların reçetesiz kullanımı

## Abstract

### Objective

The misuse of methylphenidate is an important issue in the relevant literature. The abuse of these drugs for success, especially by high school and university students, is quite common at the international level. Young people consider these drugs as a savior in order to be successful in the exams and to sustain with their social life. It is possible that medical education is very hard and stressful for students in the world. The students feel too much pressure to succeed. So, this situation directs students towards alternatives that will reduce the pressure, stay awake and focus more. This study aims to understand the process and usage habits that direct medical students to methylphenidate.

### Material and Method

The study was designed as a qualitative research method with an anthropological perspective. Medical students' experiences, thoughts, and observations on the illicit use of methylphenidate were collected

by researcher, using the in-depth interviews. The study started with face-to-face interviews at the end of 2019. Due to the coronavirus pandemic, the negotiations were completed in February 2022, after a long break. The opinions of 17 volunteer students who participated in the study were evaluated with a descriptive approach.

### Results

According to our research findings, medical students are positive about the non-medical use of methylphenidate to save the day, despite its side effects. The use of the drug increases especially during exam periods. It is seen that drugs are as an easy alternative for students. The medicines are mostly provided from other friends who still use them. In addition, the drug is also used for weight loss. It is a fact that its effects are exaggerated and advertised among non-prescription users. The results of our research are similar with international ones.

### Conclusion

There are very few studies on the illicit use of psychomotor stimulants in our country. The findings prove that medical students need healthy and sustainable alternatives to cope with the stress and pressure on them. It is thought that this study will be a basis for determining the long-term negative effects of misuse of the drugs and taking precautions. The research is a preliminary assessment to explore the current situation. It is clear that there is a need for more information, quantitative and qualitative data in the field.

**Keywords:** Addiction, Academic success, Illicit use of stimulant, Medical anthropology, Pressure.

## Introduction

Methylphenidate hydrochloride is a central nervous system stimulant approved by the American Food and Drug Administration (FDA) for adults and children over the age of six, used in the treatment of attention deficit and hyperactivity disorder (ADHD) (1, 2). In many studies, it has been determined that there is an increase in the use of Methylphenidate among students studying at various grades, especially during exams, project submissions, and thesis periods to increase focus.

It is seen that attention deficit and hyperactivity disorder are more common in students studying in

the field of health compared to the general population (3-6). In studies conducted on medical students, the diagnosis of attention deficit and hyperactivity and the use of drugs containing methylphenidate have been reported (3, 5, 7). In addition to this group, it is stated that drugs containing methylphenidate are commonly used without control to increase cognitive activities in healthy individuals (8, 9). While many studies have stated that the uncontrolled use of methylphenidate is alarmingly common worldwide, further studies are recommended for a solution (8).

There are many studies on methylphenidate in our country (10-13). In these studies, its psychiatric and pharmacological properties are discussed, in addition

to these studies, it is recommended to study the causes of uncontrolled use of methylphenidate.

In this context, the use of methylphenidate has been discussed in the conversations and observations with medical faculty students in medical anthropology courses. In these discussion sessions, the intense curriculum, challenging exams, lessons, and the thought that there is no time for anything other than school, disconnection from social life, sleep, and eating disorders are the subjects that students frequently talk about. Another remarkable issue is the uncontrolled use of methylphenidate.

This study aims to understand the process that leads medical school students to use this drug by evaluating the opinions and thoughts of the medical faculty students about how to provide methylphenidate hydrochloride, their needs, the duration of use, and their habits in terms of methylphenidate use.

## Material and Method

The study was designed as phenomenological research in a qualitative research design. The population of the study was determined as students receiving medical education, and the sample was determined as students receiving medical education in the Mediterranean Region in Türkiye. Based on the anthropological point of view, in-depth interviews were conducted with the 17 volunteer students.

The study began with face-to-face interviews in late 2019. After a small number of face-to-face meetings, the onset of the coronavirus pandemic caused the work to be interrupted for a while. Due to the course of the pandemic, the interviews were continued over the phone, after a long break. The interviews were finished in February 2022. An announcement was made to the students and those who wanted to express their opinions were asked to reach the researchers. No demographic information was asked during the interview, only the period they studied was asked to ensure the diversity of the period. In the oral interview, the students were asked questions to understand whether they used a methylphenidate group drug at any time or not, the reasons for quitting and continuing their prescription and illicit use behaviors, and in what situations they needed these drugs. In addition, their opinions were obtained on what they observed in their environment regarding the subject. The statements of the participants are given in the findings section. It was adapted to grammar rules and written language only for ease of reading.

Expressions without italics in quotation marks are the explanations of the interviewing researcher. The data were evaluated and presented with the descriptive analysis approach.

## Results

Within the scope of the study, 17 students were interviewed (N:17). In the analysis of the study data, the most important reasons for students to use methylphenidate-containing drugs are to stay sober and awake and to sit for a long time without losing focus while studying.

It can be said that students are divided into three groups in terms of methylphenidate use. The first group is those who are diagnosed with ADHD (Attention Deficit Hyperactivity Disorder) at an early age, such as primary school and high school and use prescription drugs. It is seen that this group of students use the drug regularly/irregularly in their university life. From time to time, they stop using the drugs, reduce them, or start using them again when needed. The second group of students is those who try drugs containing methylphenidate without a prescription as a result of the advice of friends and/or rumors about its positive effects. These are limited to the availability of the drug without a prescription. The third group consists of students who did not try, did not feel the need to try, or stated that they could try if necessary due to side effects.

When we look at the reasons why students need drugs containing methylphenidate, it can be said that the most striking reason is stress and not being able to manage stress correctly. *"People start to use drugs because they can't cope. The system makes them use it. There is no time for social life, even if there is time, the students stress themselves out and want to study"* (S8). The students express that they need drugs containing methylphenidate, especially when they are under stress and during exam periods when they are too busy. For this reason, even if it is prescribed (due to its side effects and reduced duration of action), they mostly prefer to use it under stress. In other words, even if they need to use it regularly, they use it during exam periods so that its effect can be stronger. *"If I'm not going to study, I don't need it at all. When I get into a busy pace, I need it a lot under intense stress"* (S13).

Another reason seems to be that they do not know where and how to start studying. When this situation is combined with stress, it turns into a vicious circle.

*"My study pattern was problematic. I entered the faculty without knowing how to study, I had trouble, I could not study, I was sleeping, and I was falling asleep in class. In the first 3 years, this situation did not cause a problem, but in the 4th, the transition to the clinic was a problem" (S7).*

Students can try the drug without a prescription by observing their friends who use methylphenidate or by listening to their advice. It turns out from their statements that the students tried the drugs or they had the desire to try as a result of recommendations or mention of their positive effects. *"For example, my friend was using and working for 6 hours without a break. They were talking, it was understood. Everyone is emulating, they also want to study hard, the situation of the ones using these drugs causes me to use them" (S8).* *"My cousin used it while studying for the DUS (Dentistry Specialization Education Entrance Exam). I don't know if she used it with or without a prescription... She said that she studied for a long time by focusing" (S3).* *"While my friend and I were studying together, I couldn't complete all the topics, I had to sleep, so I tried. ... Once a person uses it, they think that they can't do anything without it in the next committee..." (S16).* *"I used it myself and got it from a close friend. ...I will use it if I need it again. There is a drug which works for focusing, why should I not use it?" (S1).*

The participants state that they have heard about drugs containing methylphenidate not only in the university but also during the pre-university period. It is seen that the positive effects of such drugs are discussed during the preparation period for university. *"While I was studying for the university exam, there was a rumor that there was such a drug" (S12).* *"... the students talked about it a lot. They said that the drug worked well, but it stupefied when you quit, so we thought that it would be logical not to start at all. ...my brother also studied (for the exam), and I also heard from him" (S15).*

It is seen that drugs are mostly taken free of charge from friends advising on illicit uses. It is also understood that some students are selling these drugs. *"I wanted to use it so many times. My friends were bringing it, asking would you use it, etc. I always tried to pull it off myself, but I could use it during the TUS (Medical Specialty Exam) period" (S8).* *"... If I want, I can find it... Since those with a prescription are used when needed, the rest are sold" (S1).*

Another situation is trying to get the drug prescribed

using symptoms. *"There are certain symptoms for prescribing these drugs. ... Some know these symptoms and go to the doctor. (S1).* *"People ask for advice about what they should say so that the doctor will prescribe this drug for them" (S2).*

So, at which educational grade do students feel the need for such drugs more? In other words, when they first started school or when they are close to graduation and TUS? The participants have different views about the periods when methylphenidates are used more. Some students think that these drugs are needed more in the first semesters of school. Adapting to university life, not having a good study order, and trying to stand on their legs, especially for those who study far from their families are great sources of stress when combined with the intensity of the courses. *"... we were talking about such things when we could not manage to focus/study at the beginning" (S15).* *"... The new students get into panic and this may be the reason why they use these drugs" (S11).* *"At first, life is very irregular, it becomes easier in time, you get accustomed to it in term 4, and you have an order" (S10).*

Others think that the closer they get to graduation and TUS, the more they tend to use these drugs. *"The closer TUS is, there are more users of these drugs" (S16).* *"When you see the difficulty of the courses in the 3rd grade, you feel a great pressure" (S14).*

The students who use methylphenidate-containing drugs on prescription and for a long time have different experiences and thoughts about the drug, its side effects, and use compared to others. This experience often causes them to act on their own in cases of starting, stopping, or restarting the drug. While this situation can lead to abuse, it is also seen that the students who know themselves better over time can develop alternatives to focus. *"I got the diagnosis of ADHD from the psychologist that I went to in primary school 3, but my family did not allow me to use drugs because they thought it was harmful. (After attending the school of medicine) I started to experience the effect of a lack of attention on committees and courses. I went to the doctor again, ... so I started using the drug. She prescribed the short-acting one, and I started using it. I experienced a significant improvement. It was as if "someone turned the electrical switches back on in my brain." However, after 4-5 hours, when the drug lost its effect, withdrawal symptoms started. Crying spells, collapse. I gave up using the drug by myself" (S17).* *"I was diagnosed with ADHD in 5th grade which*

means methylphenidate for life. ... During internship shifts, I reduced methylphenidate and its effect also went down. By feeling confident, I was also using it wrongly. I was using it as an alarm to study at night as it woke me up" (S7). "I'm trying to cope with it myself by reminders, notes, etc., I'm used to it" (S9).

There are cases where students share the prescribed drug with their close friends. "I shared my drugs at the committee time" (S17). However, the price of the drug may prevent sharing. "I didn't share it. ... The drug is expensive" (S14). "... I have a stock to use for a week before the exam, I use it sparingly because the drug is expensive" (S2). In particular, the fact that these drugs cannot be prescribed for male students due to health insurance and these drugs are expensive can prevent sharing them. However, the fact that female students have health benefits changes the situation. "Female students obtain the drugs more easily and males usually get these drugs from them" (S8).

Especially the fact that they have used them for a long term, they have more experience with their positive/negative effects may lead them to be more hesitant about sharing or recommending the drug. "Some people said, "Let me try" a few times, but I didn't give it because I know the side effects" (S9). "Because of the side effects, I hesitate and try not to give" (S2). "Since I was using it, my friends wanted me to buy it so they can use it (since these drugs require a red prescription), but it's not that easy. I had been using 54 mg lately, and I knew the side effects very well... People who have used them for many years do not share them, but those who arbitrarily buy distribute them like a dealer" (S11).

The main thing in the use of illicit methylphenidate is the tendency of students to save the day. Therefore, an unconscious way of use emerges where side effects or post-drug effects are ignored. "(For example) If I say in the committee that I am using it, some will use it without question, I think that there will be someone who will say that I can save the day with this" (S12).

There is another reason for students' illicit use of methylphenidate other than academic achievement; to lose weight. It is understood that drugs are also used to lose weight with the thought that it accelerates the metabolism and eliminates the appetite. "At first, it causes to lose weight until the body gets used to it, and some may use it for this reason" (S7). "...a friend used it to lose weight without a prescription" (S2).

We talked about a group that did not use methylphe-

nidate - containing drugs although they heard a lot about their effects on focusing and these drugs were recommended to them, they did not have a desire to do so. The opinions of students who have never used it are divided into two. While one group does not consider the success of a drug appropriate, the other group states that they do not prefer it because of its negative side effects. "...it feels artificial. I prefer to feel like I did it myself" (S4). "I've never used it. I did not feel the need, I can study myself" (S10). "Narcotic drugs do not start from the top. It seems to have a similar usage profile" (S6). "I never used it when I found out that it had side effects" (S12).

## Discussion

It seems that today, students need stimulants to increase their focus, study for a long time, and stay awake. In particular, the abuse (illicit and arbitrary use) of prescription drugs for these purposes is quite common (14-18).

The issue of abuse of methylphenidates started to be emphasized in the studies conducted shortly after their introduction to the market (19). It is possible to find many studies on stimulant substance use among university students in the United States. Stimulant substance use is much more intense in north-eastern universities (20). According to McCabe et al. stimulant use is not unusual or illegitimate for most people in a place like New York where daily life is difficult, people have high ambitions, and pressure is high (21). The pressure that students feel due to academic stress increases the use of stimulant substances for similar reasons in various parts of the world. In South Africa (22), Switzerland (23-24), the United Kingdom and Ireland (25), Lithuania (26), France (27), Nigeria (28), China (29-30), Iran (31), Southwest America (32), the Midwest America (33), Germany (34), and Australia (35) high school and university students use methylphenidates without a prescription considering that this will contribute to their academic success. Tuttle et al. believe that the coping strategies of medical students may not be sufficient for the strict demands of education, and this situation poses more risk for medical students in terms of non-medical use of prescription drugs (5).

The results of international studies on the reasons for the use of stimulants are in line with the results of our research. Students use drugs to help them study at night (14), increase their concentration, and stay awake while studying (24, 27, 31, 36, 37). For this reason, Ford and Schroeder have defined

methylphenidates as homework drugs and stated that their use reaches the highest rate during exam periods (38). The results of the mentioned studies are in line with our findings. Even the students who use prescription drugs use it more intensely during exam periods to feel its effect. It is also possible to say that the sharing of the drug increased during these periods. Another reason for abuse, according to our findings, was to lose weight. Teter et al. reached this finding and determined that students used methylphenidates to lose their excess weight (32).

It was revealed from the statements of the students that friends had a very important role in obtaining information about the drugs and accessing them. This is also in parallel with the related literature. In New Zealand, students first hear about drugs from their friends and then from the media (37). The primary source of information in Iran is friends (31, 39). According to Ram et al., the most common sources of information in New Zealand are friends and social networks (37). Abbasi-Ghahramanloo et al. considered the influence of peers and friends as the most important factor in the spread of stimulants (40). In addition to sharing their drugs, friends also share their experiences about the things to tell doctors to have them prescribe the drugs (41). In Brazil, medical students obtain drugs free of charge from their friends (36). According to Cadwalladr's study, students at Edinburgh University buy stimulants from Far Eastern websites or American students, almost all of whom use stimulants (30). Although the participants in our study said that the drug can also be bought, they mentioned that it is much more common to share among friends.

It was observed that there were differences in the opinions of the participants about the period in which methylphenidates were used more. Some students argued that those close to graduation needed more, while others stated that they may be used more in the first semesters. The relevant literature shows that stimulant use is more common close to graduation (23, 25, 31).

It is not known what the long-term effects of stimulant use to save the day will be. It is observed that some students rely on the education that they receive and act overly self-confident about the effects/side effects. In other words, it is seen that they make decisions on their own, such as starting the drug, stopping it, using it when necessary, using two different drugs at the same time to increase the effect, and increasing the dose. It is seen that the official prescription of drugs

has an important role in this situation. In a sense, it also causes it to be perceived as more reliable when compared to other stimulants. According to DeSantis and Hane, the idea that drugs are used for academic success and that they will not cause a problem if they are used in moderation and when necessary lead to the open and free use of these substances (42). Peterson et al. also stated that these stimulants were perceived as multivitamins for the same reason (41). According to Teter et al. and Cicero et al., the legality of methylphenidates also makes access to drugs easier. It is both legal and more socially acceptable (16, 43). Therefore, they are ideal substances for abuse in universities. In parallel, Ford and Schroeder state that the instrumental or recreational use of these substances is normalized among certain social groups in universities (38). According to the research of Franke et al. the participants were undecided about whether there is a difference between the use of caffeine-containing substances and the use of amphetamines and methylphenidates (44).

In addition to the issues mentioned in the related literature, other misuses of methylphenidates that can have fatal effects have also been identified. Overdosage to increase the effect and their frequent use in certain periods were also expressed by the participants in our study. However, nasal or intramuscular, or intravenous administration of these stimulants has been observed both national (45) and international (14, 46, 47).

## Conclusions

A fast and competitive lifestyle makes people work to be more active, successful, and social. The thought that the body cannot meet these requirements properly causes them to use chemical alternatives. As Le Breton stated, the lack of self-confidence leads people to psychopharmacology, even though they have no disease, and causes them to use drugs to have the desired moral state (48). Various products are used to sleep, wake up, stay in shape, relieve anxiety and stress. Thanks to these chemical prostheses, a person can always keep his/her body, which is insufficient to fulfil the requirements of the contemporary world, in a more efficient and more demanding system. Abiodun et al. stated that industrialization, urbanization, and Western lifestyle contributed to the prevalence of alcohol and substance use (cocaine, heroin, amphetamine, hallucinogens) in Nigeria (28). Circumstances bring increasing uncertainty and uncertainty brings insecurity. When the lack of social support caused by an individual lifestyle is added to

this, people start to look for remedies in substances.

The limitations of the study can be listed as the limitations due to the nature of the qualitative research design, the data collection from the participants voluntarily, and the use of two different data collection methods due to the pandemic. However, the study is very important in terms of determining the situation. We believe that this determination of the situation will guide further studies on what alternative methods can be developed in the short and long term to solve the problems that lead students to non-medically drug use with an interdisciplinary approach.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Ethical Approval

Ethics Committee approval was received at the 07.07.2019 dated and 229 numbered meeting of Clinical Research Ethics Committee, School of Medicine, Süleyman Demirel University. The study was conducted in line with the principles of the "Helsinki Declaration".

### Consent to Participate and Publish

Written informed consent to participate and publish was obtained from all individual participants included in the study.

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### Availability of Data and Materials

Data available on request from the authors.

### Authors Contributions

HYI: Conceptualization; Investigation; Data curation; Methodology; Formal Analysis; Visualization; Supervision; Validation; Writing-original draft; Writing-review & editing.

GK: Conceptualization; Investigation; Methodology; Validation; Resources; Writing-original draft; Writing-review & editing.

### Editorial

Although GK, one of the authors of the article, is editorial board member of the journal, he has not taken part in any stage of the publication processes of this article.

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