METHODS FOR STIMULATING COGNITIVE ABILITIES USED BY STUDENTS

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Introduction. *The modern workplace requires workers to have broad cognitive and affective abilities. For continuous progress and societal improvement, students' education plays a crucial role, and for this, students need a high level of cognitive abilities to apply in their learning activities, reflecting in their academic performance. There are several methods to stimulate cognitive abilities, which can be healthy, unhealthy, or a combination of both.*
The *aim* of the research *is to identify and describe the methods used by students to stimulate cognitive abilities in their learning activities.*

Material and methods. *Google Drive questionnaire. Sample -212 of respondents.*

Results. *It was found that students prefer physical activities to stimulate their cognitive abilities. The most common method is walking (45.7%), followed by workout (17.10%), and meditation (15.2%). They also engage in other activities such as swimming, outdoor games, practicing yoga, drawing, cooking, etc. At the same time, students have a high rate of consuming caffeinated beverages, with 30.50% drinking them systematically, 37.10% occasionally, and 19% rarely. One-third of the respondents (30.5%) occasionally consume energy drinks, and 11.4% rarely do so.*

Conclusions. *Alongside healthy methods, students use many other quick and efficient ways to stimulate their cognitive abilities. The study results raise concerns about the students' risk behavior, as some prefer unhealthy methods to stimulate their cognitive abilities in their learning activities.*

Cuvinte-cheie: *capacitate cognitivă, activitate de învă-țare, stimulare, elevi.*

METODE DE STIMULARE A ABILITĂȚILOR COGNITIVE UTILIZATE DE ELEVI

Introducere. *Pentru obținerea de performanțe academice, elevii au nevoie de un nivel ridicat de abilități cognitive pe care să le utilizeze în activitățile lor de învățare. Există mai multe metode de stimulare a abilităților cognitive ale elevilor care pot fi sănătoase sau nesănătoase.*

Scopul cercetării. Identificarea și descrierea metodelor de stimulare a abilităților cognitive utilizate de elevi în activitatea de învățare.

Material și metode. *Chestionarul Google Drive a fost completat .de 212 respondenți.*

Rezultate. *În urma analizei răspunsurilor din chestionare s-a constatat că elevii preferă activitățile fizice pentru a-și stimula abilitățile cognitive, cele mai aplicate fiind mersul pe jos (45,7%), antrenamentul (17,10%) și meditația (15,2%). Urmează, în ordinea descreșterii preferințelor, înotul, jocurile în aer liber, practicarea yoga, desenul, gătitul etc. Printre preferințele elevilor se numără și băuturile cofeinizate, care sunt consumate sistematic (30,50%), uneori (37,10%) sau ocazional (19%). O treime dintre respondenți (30,5%) consumă băuturi energizante ocazional, iar 11,4% – rar.*

Concluzii. *Pe lângă metode sănătoase, elevii folosesc multe alte modalități mai puțin sănătoase, dar rapide și eficiente de a-și stimula abilitățile congnitive. Rezultatele studiului ridică un motiv de îngrijorare cu privire la comportamentul de risc al elevilor care preferă metode nesănătoase de stimulare a abilităților cognitive în activitatea de învățare.*

INTRODUCTION

High cognitive abilities are becoming increasingly relevant in our highly competitive world. Often referred to as "21st century skills," these abilities include being able to solve complex problems, think critically, communicate effectively across diverse cultures and using various techniques, work in collaboration with others, adapt to rapidly changing environments and conditions for performing tasks, effectively manage one's work, and autonomously acquire new skills and information (1). Both psychological and pedagogical theory and practice prove that extracting, structuring, and organizing knowledge, along with developing skills to find solutions to problems by students, are possible only as a result of their intensive cognitive activity. Common examples of cognitive activities are reasoning, thinking, perceiving, listening, observing, etc. High-level cognitive activities usually include problem-solving, decision-making, and sense-making that involve using and working with information (2). Cognitive ability is closely associated with educational attainment, occupation, and health outcomes (3).

The level of education directly influences cognitive function by enhancing brain function, and indirectly by encouraging individuals with higher education to engage in intellectually stimulating activities, thus preserving cognitive ability. Many efforts to enhance cognition are of a rather commonplace nature, with some practices dating back thousands of years. Education and training, for example, aim not only to impart specific skills or information but also to improve general mental faculties such as concentration, memory, and critical thinking. Various forms of mental training, including yoga, martial arts, meditation, and creativity courses, are also commonly employed. Caffeine is widely used to improve alertness, and herbal extracts believed to improve memory, like Ginko Biloba, enjoy significant popularity, with sales amounting to several hundred million dollars annually in the U.S.A. In an ordinary supermarket, numerous energy drinks are on display, appealing to consumers seeking to turbo-charge their brains (4).

According to some authors (Chrisantus O. Brumboiu I, Porrovecchio A, Peze T, Hurdiel R, Cazacu I, Mogosan C, Ladner J, Tavolacci P.M.), students use various methods to stimulate cognitive ability in their learning activities, such as the kinesiology method, meditation method, maintaining proper sleep, keeping a healthy and balanced diet, use of prescription drugs (beta-blockers, modafinil, and methylphenidate), use of "soft enhancers" (caffeinated products, food supplements, and energy drinks), and use of "drugs of abuse" (alcohol, cannabis, cocaine, and amphetamines) (5, 6).

As the discussion about stimulating cognitive abilities is widely covered in the literature, it has sparked empirical curiosity to know which specific methods students from our university use. Therefore, *the aim of the study* is to identify and describe the most common methods for stimulating cognitive abilities used by students in their learning activities.

MATERIAL AND METHODS

The study represents a descriptive, cross-sectional research based on the collection, interpretation, and evaluation of data. Research methods include bibliographic, statistical, and sociological approaches. A study was conducted among university students aged 18 and above from the Republic of Moldova. University students were invited by email to complete an online anonymous 20-minute Google Drive questionnaire consisting of 15 questions. Respondents' confidentiality was fully respected, as the Google Drive questionnaire did not collect emails. The criteria for respondent selection included student status, age above 18, and their agreement to respond to the questions. A total of 246 students responded to the questionnaire, but only 212 responses met the age criteria for inclusion in the research. Data about different methods for stimulating cognitive abilities (healthy or less healthy) were collected. All questions adhered to non-discriminatory and non-harm principles. The data were analyzed through an Excel database, and conclusions were formulated.

RESULTS

Students from various academic years participated in the survey, with the majority (75.5%) belonging to the second and third years of study. Out of the 212 respondents, 91.4% fell within the age range of 19 to 24, while 6.7% were older than 25, and the remaining were under 19. When queried about the time allocated to their learning activities, 46.7% of students reported spending

3-4 hours on learning, 32.40% dedicated less than 3 hours, and 21% spent more than 4 hours on learning.

Out of 212 respondents, when asked about methods to stimulate or reinforce their cognitive abilities in learning activities, 45.70% of students prefer walking, 15.2% prefer meditation, 17.1% prefer workouts, 2.90% of the students prefer swimming as well as physical exercises, 7.60% of respondents prefer outdoor games and activities, and 9.10% prefer to sleep or engage in other activities such as drawing, cooking, or playing musical instruments (fig. 1).

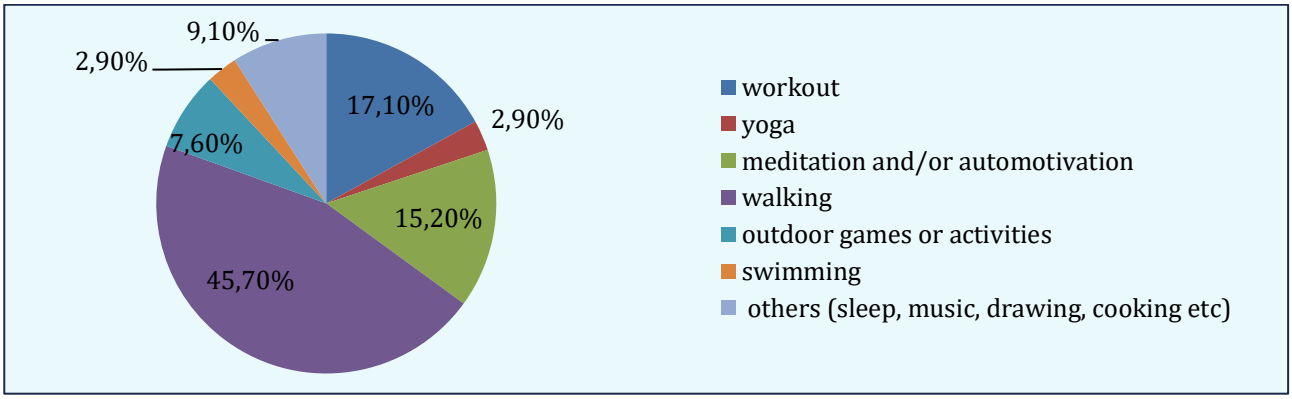

Figure 1. Students' preferred physical activities for stimulating cognitive abilities.

An important factor for stimulating cognitive abilities is sleep. Despite unanimous agreement among all respondents about the significant impact of sleep, 53.3% of students sleep less than 7 hours, 45.70% sleep for 7-9 hours, and only 1% of students reported sleeping for more than 9 hours.

When asked about their consumption of caffeinated drinks while studying, students provided varied responses. Among respondents, 37.10% and 30.50% of students drink caffeinated drinks sometimes and systematically, respectively. Additionally, 19% of students prefer only occasional consumption, and 13.30% do not consume caffeinated drinks (fig. 2).

When asked about the healthiness of their meals, more than half of the respondents (62.90%) perceive their eating habits as average in terms of healthiness. Meanwhile, 23.80% of them acknowledge following a poor healthiness of eating habit, and only 13.30% of students believe they have a good level of healthiness in their eating habits.

Among the 212 respondents, 48% of students never used energy drinks, while 38% of students drink them occasionally, and 12% use them seldom. Only 2% of the respondents use energy drinks regularly (fig. 3).

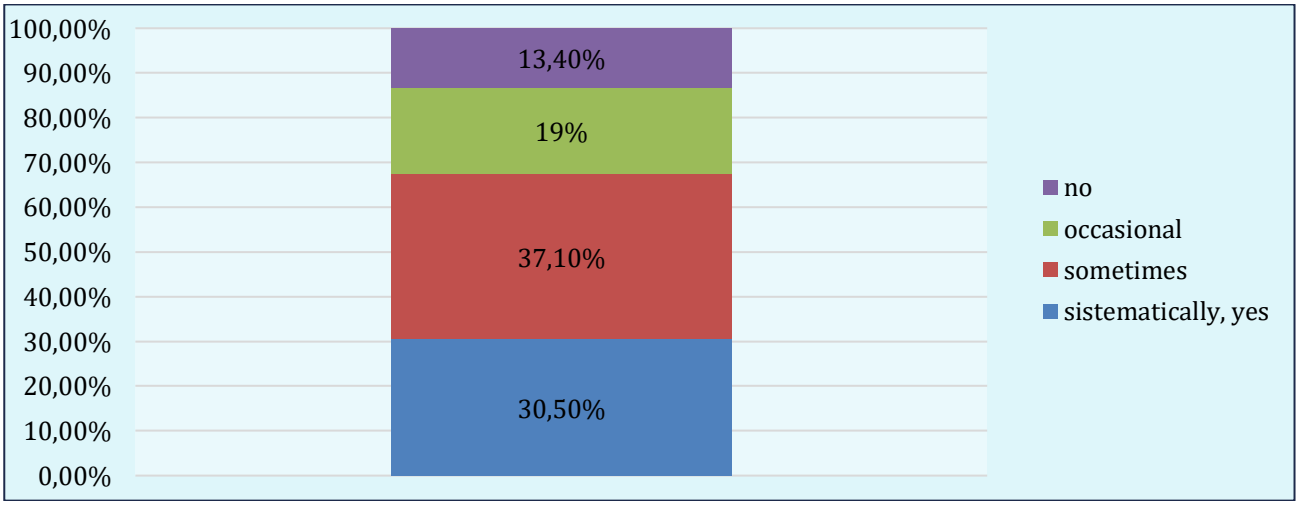

Figure 2. Consumption of caffeinated drinks while studying.

When asked about the use of drugs like Ritalin, Dexedrine, and Adderall without a doctor's prescription, all respondents (100% of the students) reported never using them. Regarding the use of psychoactive drugs such as marijuana, crack, cocaine, MDMA, codeine, morphine, dermol, and others without a doctor's prescription, the majority of the 212 respondents, 95%, reported never using them. Only a very few respondents (4%) indicated using them occasionally or trying them once or twice, and no one reported using them regularly (fig. 4).

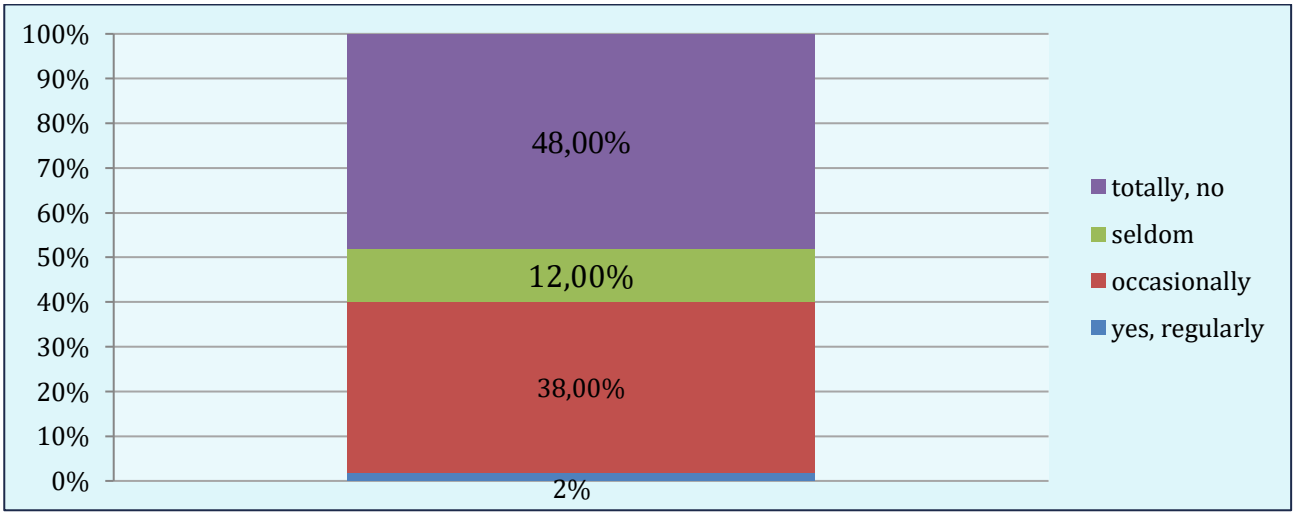

Figure 3. Energy drink consumption.

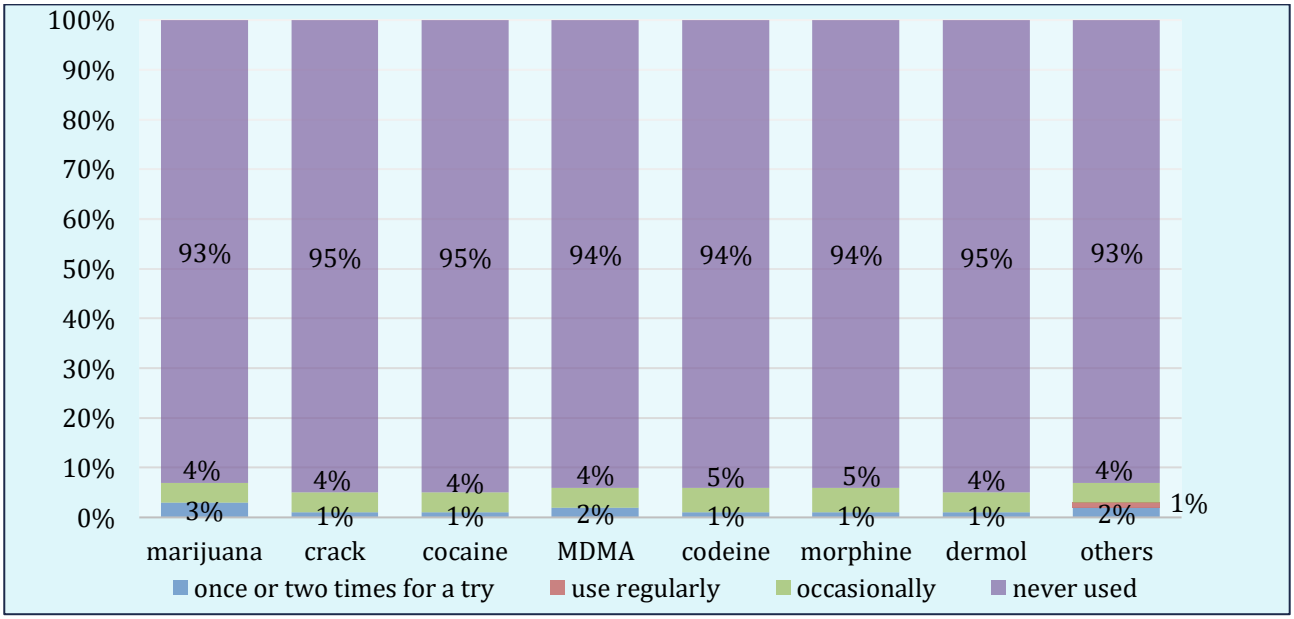

Figure 4. Use of psychoactive drugs (without doctor's prescription).

DISCUSSIONS

In this study, one of the main aspects investigated was the time spent on learning activities, and the findings reveal that a majority (46.7%) of students dedicate around 3-4 hours to studying. Additionally, 21% of students invest more than 4 hours in learning, indicating a high motivation to enhance their cognitive abilities and achieve academic success. The study also highlights that students prefer engaging in physical activities to stimulate their cognitive abilities. The most favored methods include walking (45.7%), followed by workout (17.10%), and meditation (15.2%). Furthermore, students express a preference for various other activities such as swim-

ming, playing outdoor games, practicing yoga, drawing, cooking, etc. These activities are not only essential for cognitive stimulation but also contribute to maintaining the mental and physical well-being of students.

According to the study data, students exhibit a high rate of caffeinated drink consumption, with 30.50% drinking them systematically, 37.10% sometimes, and 19% occasionally. Caffeinated beverages, such as coffee, tea, and cola, are generally socially acceptable and serve as coping strategies for students to enhance cognitive function and manage stressful academic situations. However, the misuse of caffeinated drinks, especially among systematic users, can lead to various adverse effects. Similar to caffeinated beverages, 30.5% of students use energy drinks occasionally, and 11.4% use them seldom. It is crucial to be mindful of the dosing of energy drinks, as increased consumption poses potential risks.

The study indicates that the majority of students (62.90%) maintain an average level of healthiness in their eating habits, while 23.80% follow poor dietary practices. Regarding the use of drugs like Ritalin, Dexedrine, and Adderall without a doctor's prescription, all respondents (100%) reported never using them. Additionally, the consumption of drugs of abuse for neuroenhancement, such as marijuana, cocaine, MDMA, crack, morphine, etc., is very low (4-5%), with the majority (95%) of students reporting never using them. While the data suggests a healthy and positive approach, it's important to note that in reality, many students may not disclose the use of unhealthy methods for neuroenhancement.

CONCLUSIONS

1. The information derived from specialized literature sources highlights the correlation between cognitive abilities and learning activities. The enhancement of students' education is pivotal for societal improvement, and achieving a high level of cognitive abilities is essential for students to excel in their learning activities, thereby positively influencing their academic performance.
2. Research reveals that the majority of students favor healthy methods to stimulate their cognitive abilities, such as physical exercise, walking, and meditation. These practices contribute to increased attention during learning activities. However, some students opt for a combination of both healthy and unhealthy methods. They may engage in healthy activities while also resorting to less advisable practices like smoking or using psychoactive drugs without a doctor's prescription. It appears that students utilizing systematic methods for cognitive stimulation may prioritize approaches with immediate effects. Notably, only a very small percentage of students choose to rely solely on unhealthy methods to enhance their cognitive abilities during learning activities.
3. The study results highlight a concern regarding the risk behavior of students who opt for unhealthy methods to stimulate cognitive abilities during learning activities. It emphasizes the need for educational programs and other measures aimed at increasing awareness among students about the potential consequences associated with unhealthy methods of cognitive enhancement during learning activities.

CONFLICT OF INTEREST

Authors have no conflict of interest to declare.

ETHICAL APPROVAL

Not applicable to this research.

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