

PHARMACOLOGICAL COGNITIVE ENHANCEMENT: CONTEMPORARY MOTIVATIONS¹

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ABSTRACT. The aim of this theoretical descriptive study was to analyze the main motivations for pharmacological cognitive enhancement in contemporary times through the dialogue with authors who investigated some phenomena of the so-called post-modernity, such as Deleuze (1992), Foucault (2000), Bauman (2001) and Han (2015), in addition to authors of the psychoanalytic field (Bezerra Júnior, 2010; Ferraz, 2014; Birman, 2014) that criticize the issue of medicalization of education and its consequences. It was found that, currently, the search for pharmacological cognitive enhancement is closely linked to the lifestyle and society built in the last decades. Regardless of the name given to the historical moment the society is, it is increasingly difficult to deal with reality and, in this context, the pharmacological cognitive enhancement is revealed as one of the facets of the recent phenomenon known as 'psychiatrization of normality'. As a result, it is also noted that the non-medical and indiscriminate use of drugs to boost brainpower has become a common practice among college students; for this reason, it is not merely an educational issue that may interfere with the teaching-learning process, but also a public health problem. It is concluded that this phenomenon raises, in today's society, challenges of different orders, which is why it deserves special attention from the scientific community.

Keywords: Pharmacological cognitive enhancement; medicalization of education; contemporaneity.

APRIMORAMENTO COGNITIVO FARMACOLÓGICO: MOTIVAÇÕES CONTEMPORÂNEAS

RESUMO. O objetivo deste artigo, de caráter teórico descritivo, foi analisar as principais motivações para o aprimoramento cognitivo farmacológico na contemporaneidade, mediante o diálogo com autores que investigaram alguns fenômenos da denominada pós-modernidade, tais como Deleuze (1992), Foucault (2000), Bauman (2001) e Han (2015), além de autores do campo psicanalítico (Bezerra Júnior, 2010; Ferraz, 2014; Birman, 2014) que tecem críticas à questão da medicalização da educação e seus desdobramentos. Constatou-se que, na atualidade, a busca pelo aprimoramento cognitivo farmacológico está intimamente ligada ao estilo de vida e ao de sociedade construídos nas últimas décadas. Independentemente da

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palavra utilizada para nomear o momento histórico vivido, está cada vez mais difícil lidar com a realidade e, nesse contexto, o aprimoramento cognitivo farmacológico revela-se como uma das facetas do fenômeno recente conhecido como psiquiatrização da normalidade. Como resultado, nota-se também que o uso não médico e indiscriminado de medicamentos para ‘turbinar’ o cérebro tem tornado uma prática comum entre os estudantes universitários; por esse motivo, não se trata meramente de uma questão educacional relacionada à interferência nos processos de ensino e de aprendizagem, mas de um problema de saúde pública. Conclui-se que esse fenômeno suscita, na sociedade atual, desafios de diferentes ordens, razão pela qual merece atenção especial da comunidade científica.

Palavras-chave: Aprimoramento cognitivo farmacológico; medicalização da educação; contemporaneidade.

PERFECCIONAMIENTO COGNITIVO FARMACOLÓGICO: MOTIVACIONES CONTEMPORÁNEAS

RESUMEN. El objetivo de este artículo, de carácter teórico descriptivo, ha sido el de analizar las principales motivaciones para el perfeccionamiento cognitivo farmacológico en la contemporaneidad, el diálogo con autores que investigaron algunos fenómenos de la llamada posmodernidad, tales como Deleuze (1991), Foucault (2000), Bauman (2001) y Han (2015), además de autores del campo psicoanalítico (Bezerra Júnior, 2010; Ferraz, 2014; Birman, 2014) que lanzan críticas a la cuestión de la medicalización de la educación y sus desdoblamientos. Se constató que actualmente, la búsqueda por el perfeccionamiento cognitivo farmacológico está íntimamente conectada al estilo de vida y de la sociedad construido en las últimas décadas. Independientemente de la palabra utilizada para nombrar el momento histórico vivido, está cada día más difícil lidiar con la realidad y, en ese contexto, el perfeccionamiento cognitivo farmacológico se revela cómo a una de las facetas del fenómeno reciente conocido como psiquiatrización de la normalidad. Como resultado, se nota también que el uso no médico e indiscriminado de medicamentos para potencializar el cerebro se ha tornado una práctica común entre los estudiantes universitarios; por ese motivo, no se trata meramente de una cuestión educacional relacionada a la interferencia en los procesos de enseñanza y aprendizaje, pero de un problema de salud pública, se concluye que ese fenómeno suscita, en la sociedad actual, desafíos de diferentes órdenes, razón por la cual merece atención especial de la comunidad científica.

Palabras clave: Perfeccionamiento cognitivo farmacológico; medicalización de la educación; contemporaneidad.

Introduction

The consumption of drugs to improve cognitive functions is a practice that has grown considerably in the contemporary world. It is characterized by the use of psychotropics by healthy individuals, which aim to enhance their cognitive, emotional and motivational functioning, specifically by increasing levels of concentration, organization and wakefulness, in order to improve school or work performance (Barros & Ortega, 2011; Araújo, 2017).

This phenomenon gained more intense pharmacological aspects in the passage from the 20th century to the 21st century. 'Normal' individuals, hoping to enhance their cognitive functions, started to consume psychotropic substances of controlled sale that, in their majority, can cause physical and psychic dependencies. Even with the increasing use of these substances, the scientific community has not yet recognized the safety and effectiveness of these substances for improving cognitive functions.

Drugs used for this purpose are psychotropics or psychostimulants, also called, in the specialized literature, nootropics - from the Greek *nous*, 'mind', plus *tropos*, 'bend or change' -, a term used to name a class of substances (synthetic or natural) that, supposedly, would have the capacity to promote the improvement of cognitive functions, such as thinking, language, perception, memory, learning and attention, as long as they do not have toxicity or potential for addiction.

Among the nootropics available on the market are Nootropil® (Piracetam), Stavigile® (Modafinila), Venvanse® (Lisdexamphetamine Dimesylate), Donepezila® (Donepezil Hydrochloride) and Ritalin® (Methylphenidate), this one, indisputably, the most popular and the most consumed in Brazil and in the world (Gonçalves & Pedro, 2018).

These nootropics work as central nervous system stimulants, with a mechanism of action that has not yet been elucidated and structurally related to amphetamines - substances prescribed, as a rule, for narcolepsy, for Alzheimer's and for Attention Deficit Hyperactivity Disorder (ADHD). However, according to the *Boletim de Farmacoepidemiologia do Sistema Nacional de Gerenciamento de Produtos Controlados [SNGPC]* da Agência Nacional de Vigilância Sanitária [ANVISA] (2012), the exponential increase in the consumption of these drugs is due to non-medical use for 'cognitive enhancement', as an instrument for improving school performance of children, adolescents, as well as adults.

Several names are assigned to this practice, such as 'cosmetic neurology' (Chatterjee, 2004), 'cosmetic psychiatry' (Giannini, 2004), 'intellectual doping', 'mental doping' (Han, 2015) and 'pharmacological cognitive enhancement'⁵, designation created by Barros and Ortega (2011), adopted in this article because we consider it more precise.

Despite not being a novelty, in Brazil, the phenomenon of PCE started to be debated with more intensity by the scientific community from December 2008, on the occasion of the publication of the article entitled *Towards responsible use of cognitive-enhancing drugs by the healthy* (Greely et al., 2008) in the journal *Nature*. Since then, the number of publications on this topic has increased, with some authors favorable to the use of drugs for cognitive improvement, while others are opposed.

In order to analyze the main motivations for the PCE in the contemporary world, we postulate the following research problem: to what extent is the socioeconomic reality transforming the psychic world of individuals and motivating the practice of PCE?

We organized the article to explore the transformations in the capitalist mode of production at the turn of the 19th to the 20th century and from the 20th to the 21st century, whose moment is understood by Bauman (2001) as the transition from solid modernity to the liquid modernity. In a dialectical perspective, we assume that the motivations for the PCE must be understood in the context in which they are inserted, that is, they transform according to the changes occurring in the social environment, due to the demands of each era, therefore they are historically determined.

⁵ We will start using the acronym PCE to refer to the nomenclature 'pharmacological cognitive enhancement'.

Within the limits of an article, we begin our reflection by highlighting some characteristics of solid modernity and the type of man it produces. Then, we analyzed traits of liquid modernity divided into two distinct moments, with emphasis on the social transformations responsible for the constitution of new subjectivities. Then, we reflected on the PCE as an expression of a recent phenomenon known as 'psychiatrization of normality'. We conclude the text by highlighting challenges of different orders that are raised by this theme.

The confined subject of disciplinary society

Our society is becoming increasingly competitive and the level of demand to which we are currently subjected has affected both our physical health and our mental health. We also know that, in their evolutionary process, men have overcome a multitude of adverse conditions with serious consequences for our organism. However, the stressors of today are diffuse and silent, quite different, for example, from the felines that, for thousands of years, have threatened men in African savannas and the wars that, in recent centuries, have marked our struggle for territories (Bezerra Júnior, 2002).

These changes have intensified in recent decades and, according to Bezerra Júnior (2002, p. 232), currently, they occur through different forms and means, such as

[...] through the creation of certain ideals, the valorization of models of thought, the propagation of certain repertoires of conduct, the diffusion of metaphors that are incorporated into common sense, finally by the creation of new language games, range of senses or games of truth that give consistency to the imaginary of an era, imaginary through which the world, existence and personal experience gain consistency and signification.

We began, therefore, our reflection on the Second Industrial Revolution, with its beginning in the early 19th century. The logic of productivity determined that the largest number of products be manufactured in the shortest possible time. At that historic moment, changes in the energy matrix and in the efficiency of the machines, which became more complex and improved, enabled large-scale production.

Therefore, the question of the consumption of all this series production remained to be solved, since the predominant culture was still to save for the future. By the basic principles of the economy, in a society in which the earned income is saved, economic cycles are inevitably slower.

Bauman (2001) designates this corporate model of 'solid modernity', which had, in the factory, the paradigm by which all institutions were molding themselves and definitively occupying the few spaces that still belonged to the agrarian world. It is worth remembering that this time-space experience called solid modernity came to be studied/known when it showed signs that it would be replaced with another model. On this issue, the author says that "[...] what we think the past had is what we know we don't have" (Bauman, 1998, p. 111).

Most people followed a standard path of life: they were formed in a nuclear family and educated in a factory model school that prepared them for the work to be carried out in large companies, public or private. Each phase of life was in charge of one of the fundamental institutions of corporate organization; personal life was not mixed with professional life, that is, home and work occupied different spaces in people's daily lives.

Foucault (2000) refers to this form of social organization as the 'disciplinary society', guided by the mechanical, analog model and submitted to control and surveillance techniques; a world made of hospitals, asylums, convents, seminars, prisons, barracks,

schools, factories and other disciplinary institutions created for confinement, occupied by obedient subjects and with their limits well defined by walls and gates that separated the 'normal' from the pathological.

It was a society based on negativity, on duty performed under coercion, on commitment to regulation and to obligations imposed on citizens through laws (Han, 2015). The protagonist of this disciplinary society was the 'confined subject', who lived in a structured time-space, tough, solid and durable. A subject, according to Bauman (1998, 2016), capable of sacrificing his freedom in the name of security which was his overriding value.

The political ideal that helped shape solid modernity also emerged in the first half of the 20th century, more precisely after the crash of the New York Stock Exchange, which occurred in 1929. To mitigate the damage caused by this episode, President Delano Roosevelt inaugurated, in the early 1930s, the *New Deal*, a new agreement characterized by interventionist economic policies, adopted with the aim of reversing the socioeconomic depression caused by that event which was reflected throughout the world economy. Thus was born the *Welfare State*, known, in our language, as the State of Social Welfare, "[...] conceived as an instrument managed in order to rehabilitate the temporarily unfit and to stimulate those who were able to do more, protecting them from the fear of losing aptitude in the middle of the process" (Bauman, 1998, p. 121).

To enable consumption on a large scale, it was necessary to move hearts and minds. In this sense, the great challenge of the capitalist system has become the transformation of the 'confined subject' of disciplinary society - savior and conservative par excellence - into a subject aimed at consumption. Values such as honor, honesty, solidarity, stability and loyalty have become incompatible with a society that needed to allow production in large scale. Subjectivity, obedient to a set of rules and bureaucratic devices that delimited its relationship with time and space, needed to give way to another subjective constitution, much more flexible, malleable, in short, liquid.

From solid modernity to liquid modernity

At the end of the Second World War, the United States assumed the leadership of the capitalist world, having as its opponent the Soviet Union, the main reference of the socialist world. Then, in the second half of the 20th century, an intense battle to prove to the world which of the two modes of production is the most efficient began. To face this clash, both sides went through a deep economic restructuring and a social and political readjustment.

According to Leonard (2011), the changes on the capitalist side occurred due to the various strategies adopted to make the income, hitherto saved, to enter into circulation through the acquisition of products and services, in an increasingly expanded market. This would guarantee greater speed in the economic cycle and, consequently, increase in the production of wealth. Large-scale production was already a reality; the creation of a new environment and a new culture based on consumption was lacking, and this depended on factors of both subjective and objective order.

The objective factors were related to people's income and the durability of consumer goods. As for the first, instead of increasing workers' wages, it was decided to give them credit, an initiative only possible due to the 'financialization' of the economy and the consequent increase in household indebtedness. The second factor was solved by adopting the logic of perceptible obsolescence, in charge of the fashion industry, and programmed obsolescence, which transformed durable products into disposables. It is not without reason

that the fashion industry and financial capital are among the most powerful in late capitalism, having overcome the power of industrial capital in disciplinary society (Leonard, 2011).

The subjective factor, according to Bauman (2001), depended on changes in people's *modus vivendi*, not least because the increase in income, by itself, does not imply an increase in consumption. It was necessary to lead the consumer to assume the idea that he/she did not need to save, because his/her safety would not come from this practice, but from the fact that he/she is a 'special person'. Thus, it was being awakened the desire to buy in people from all social strata. This was not such a complicated task, as they expressed dissatisfaction with life based on the security of solid modernity and longed for more freedom.

In this sense, marketing and one of its instruments, advertising, were decisive in convincing people that they were unique and special, as only gives up the security of saving those who admit freedom as a fundamental value. This was the case, that is, through the transformation of the values that prevailed and supported the 'solid modernity' that 'liquid modernity' was created, as a result of the unprecedented development of a new organizational and technological model (Bauman, 2001).

Founded on the advancement of information technology, new communication technologies and nanotechnology, liquid modernity has broken geographical and temporal barriers, transforming the Earth into an immense consumer market, globalized and dominated by large multinational groups. Thus, we had the birth of a new subject, fascinated by everything that the consumer society presents him/her, dazzled by all the possibilities of enjoying life, but still unaware of the price he/she would pay for this 'admirable new world'.

The indebted subject of the control society

Continuing Foucault (2000) about 'disciplinary society' and theorizing about radical changes in ways of living and producing throughout the 20th century, Deleuze (1992) called this nascent corporate model as 'control society', which Bauman (2001) called 'liquid modernity'.

In the political sphere, socialism began to show signs of exhaustion and, with the fall of the Berlin Wall in 1989, we entered the last decade of the 20th century with the triumph of capitalism as the most effective mode of production and social organization. Since then, the dismantling of the State of Social Welfare has intensified, with the United States as the flagship of this new planetary geopolitics. Bauman (1998) argues that the State, under strong neoliberal influence, left the task of organizing the reproduction of the systemic order to the deregulated forces of the market, becoming less and less interventionist.

"When it controlled the disciplined conduct of its members through their 'productive roles', society incited combined forces and the search for advancement through collective efforts" (Bauman, 1998, p. 54, authors emphasis); however, in a society in which the producer starts to be defined primarily as a consumer, collective actions lose their meaning and new values need to be cultivated. Consumption, unlike production, is an entirely individual activity and places subjects in opposite fields. This is the reason for the crisis of values and institutions of confinement that shaped life in solid modernity. The curious thing is that the rejection of these institutions and the repulsion to these values, instead of guaranteeing more freedom, ended up producing new structures of power and control.

The factory gave way to the company, a more dynamic, horizontal and flexible institution, but with a working environment based on mutual rivalry and distrust. In the speech, the worker stops being considered an employee to become a 'collaborator'; thus,

he/she starts to feel more freedom and autonomy. However, the company has appropriated the space and time of the workers - the 'collaborators' - in its entirety. "The space has become irrelevant, has lost its strategic value, as it can be crossed in one click and thus no longer imposes limits on the action and its effects. Time, in turn, no longer gives value to space" (Bauman, 2001, p. 136).

Thus, working time became part of all spheres of the subject's life, eliminating the separation between personal and professional life that existed in solid modernity. The boss was replaced by the leader, charged with motivating and integrating employees to maximize the performance of his/her team.

New values were shaping the culture of consumption, with flexibility as the paradigm for the construction of subjectivities entirely different from those existing in solid modernity. The confined, sparing and safe subject of yore gives way to a new social protagonist, whom Deleuze (1992) calls 'indebted subject'. Jorge (2014, p. 35), when referring to the subject of this new corporate model, describes it as follows:

Stripped of the feeling of satisfaction and conformity with the direction of his/her life, the protagonist of contemporaneity seems to always be a step back in relation to the novelties of consumption, as well as to the new skills and demands of the market, to the continuous and unlimited development, to the unrestricted information flow that circulates through the networks, and to the different social roles that each one always plays in search of the high performance that is required (and almost never achieved) in all areas of life.

In the society of control, development is permanent, endless. As Ferraz (2014, p. 4) states, "[...] it is no longer a question of following molds, but of continuously modulating yourself, like an undulating snake". Deleuze (1992) conceives the world in which the indebted subject is found through the metaphor of unlimited moratorium, in continuous and infinite variation, very different from the logic operating in the disciplinary society in which there was the possibility, even if apparent, of paying off debts.

For didactic purposes, in this article, we divided liquid modernity into two distinct phases: the society of control, described in this topic, which had its quintessence in the 'indebted subject', and the society of performance, which we scrutinized in the next topic.

The assessed subject of the society of performance

As we have seen, the fall of the Berlin Wall is the historical fact that symbolizes the triumph of capitalism and the consolidation of neoliberal ideas as a political and economic model for central countries. Therefore, we return to this political issue, characterized by the dismantling of the State of Social Welfare safety net, to analyze how this historical fact is implicated in the construction of subjectivities related to the PCE, according to Psychoanalysis scholars (Bezerra Júnior, 2010; Birman, 2014).

Among the various consequences of the neoliberal influence on public policies, we have the progressive abandonment of the concept of public health and the transfer of this responsibility to the individual. "The propagated belief is that the individual can and should be able not only to prevent diseases, but above all to manage the risks to his/her health, consciously minimizing the possibility of pathologies and optimizing his/her own resources" (Bezerra Júnior, 2002, p. 232). In this context, health has ceased to be life in the silence of the organs to become a spectacle to be displayed on the surface of the body image. We therefore have a lifestyle that combines hedonism with an obsessive concern for the appearance of health and beauty.

As a corollary of this new lifestyle, “[...] the demands of fierce competitiveness, the cult of flexibility, the celebration of performance, the ideology of prosperity, the exaltation of personal competence, etc.” are aspects to which we subject ourselves (Bezerra Júnior, 2002, p. 232). We are daily called upon to face the risks of this new world, to be entrepreneurs and to develop a notorious capacity for empowerment, setting on the horizon unattainable, infinite goals. The watchword today is ‘overcoming’ and the sky is no longer the limit.

We have previously stated that changes occur, among other means, through the propagation of certain repertoires of conduct that give consistency to the imagination of a time. In this sense, the media has been doing its part in consolidating the values respected by what we present as the second phase of liquid modernity. Youth, beauty, success, proactivity, resilience, competitiveness, strength and flexibility are some of these values, which can be summed up in one word: performance.

To confirm this, Jorge (2014) analyzed the first 27 editions of the weekly magazine *Veja*— with the highest circulation in Brazil - published in 2012. Of the 27 editions, 11 (40%) had, on their covers, reports with narratives about trajectories of success, victory and enrichment or who discussed themes related to body and mental performances.

Competitiveness, productivity and efficiency are, therefore, the values that outline the human being of the 21st century, defined precisely by Gil (2013) as the ‘assessed subject’. Proactive and, at the same time, submissive to the imperative of performance, he/she is a subject pressed by goals to be achieved - constantly reformulated and updated. In perennial evaluation, this being is measured and categorized in all areas of life during its existence. Those who ignore this imperative are at risk of social exclusion and moral disapproval. Those who, despite their efforts, fail to integrate, inevitably are excluded and begin to form legions of inept (Ferraz, 2014).

The cult of performance, however, takes its toll on this figure symbol of the society of performance, paid for the search for all kinds of specialized help. We feel obliged to show the world a healthy, independent, responsible, reliable image, endowed with will and self-esteem; we need to break with anonymity, making ourselves visible. To this end, we have at our disposal a number of institutions specialized in improving the cognitive, affective, appreciative and motor functions of the human body, as is the case with gyms, shopping centers, beauty and aesthetics center, plastic surgery clinics, genetics and medication laboratories, etc.

Han (2015), in a text written two decades after the analysis of Deleuze (1992) on the society of control, gives to the moment in which we live, the name of ‘society of performance’, characterized by the positivity of power and the tireless pursuit of excellence by overcoming the normal.

If there is no fixed and stable goal, it will always fall short. ‘Degrees’ of perfectibility, optimization, improvement remain, in a sinuously comparative and mutant escalation, extending exclusion in the same step as the fixing of final horizons and definitive arrival points is dissolved. The ‘debt’ thus becomes unpayable; there are no more ‘maturities’: this is in fact an unlimited moratorium system in place (Ferraz, 2014, p. 7, authors emphasis).

While the disciplinary society, by distinguishing the normal from the pathological, generated madmen and delinquents, our society, due to the desire for performance, has registered an exponential increase in individuals affected by anxiety, by the sensation of failure and by depression; this, not by chance, the most disabling disease in the world. According to the global report published in February 2017 by the Organização Mundial da Saúde [OMS] (2017), the number of people living with depression increased by 18%

between 2005 and 2015. Worldwide, the disease affects 4.4% population, while in Brazil, depression affects 11.5 million people (5.8% population). In addition, we are the country with the highest incidence of anxiety, that is, 9.3% of Brazilians present this psychological state.

The assessed subject of the society of performance is highly efficient, fast and productive; paradoxically, this efficiency is achieved through strict discipline and control. This subject is both a victim and an aggressor, tired of doing and of power. In fact, he/she is not even given the possibility of not wanting to, in a world that sells the idea that nothing is impossible. Away from disciplinary society and control, the contemporary subject sees his/her dream of freedom transformed into the nightmare of social coercion (Han, 2015).

The subject of performance surrenders to coercive freedom or free coercion to maximize performance. Overwork and performance are sharpened in self-exploration, which is more efficient than exploitation by others, as it goes hand in hand with the feeling of freedom. [...] The psychic illnesses of the society of performance are precisely the pathological manifestations of this paradoxical freedom (Han, 2015, p. 29-30).

In the society of performance, tiredness and exhaustion, both physical and mental, are inevitable, “[...] characteristic of a world that has become poor in negativity and that is dominated by an excess of positivity” (Han, 2015, p 70). For this reason, we resort to substances that, hypothetically, would have the ability to maximize performance and make the organism function beyond what was considered normal in disciplinary society, giving rise to the PCE.

Pharmacological cognitive enhancement as an expression of the ‘psychiatrization of normality’

Psychiatry, in the society of performance, has been promoting the erasure of the frontier between the treatment of alleged pathologies and the physical and mental improvement of the human being. This phenomenon, according to several authors, is characterized by the prescription of medications to normal individuals to make them more than normal (Bezerra Júnior, 2010; Camargo Júnior, 2013; Birman, 2014; Frances, 2016).

We no longer discuss whether we should use drugs to expand our potential and improve school performance and/or work performance, but how we should do it. As Bezerra Júnior (2010, p. 127-128) says:

With the emergence of drugs and other biotechnologies increasingly effective in the control and normalization of functions and behaviors altered by pathology, the idea of making healthy people use them, becoming more than healthy individuals, has gained the social imaginary. If people who are well can be better than well, why not use what we can to achieve this goal? Cosmetic psychiatry has already entered the stage, eliciting reactions ranging from distrust to enthusiasm.

We live in an era of ‘supernormality’, whose obsession with efficiency, productivity and recognition goes hand in hand with the massive consumption of psychotropic drugs. Ehrenberg (2010, p. 156), one of the first scholars to warn about the consequences of this culture of achievement, states:

The conditions of modern life, the competition and the unrestrained competition of the candidates to obtain a diploma, a position, a success, a professional recognition or affective gratifications often make the use of tonics and stimulating products indispensable. [...] It is no longer enough to participate in, as Pierre de Coubertain proclaimed, but to triumph, dominate, crush the opponent, in short, go up to the podium.

In fact, lack of concentration and focus, disorganization, low productivity and fatigue are 'defects' that are less and less tolerated socially and are considered less than expected responses for the contemporary individual who, when not seeing another way to achieve the performance that is required, uses the drug route.

It is clear that this phenomenon is strongly motivated by market interests and segregators of capitalist logic. The pharmaceutical industry, one of the most powerful on the planet, has been competently improving its sales strategies to further expand its power. If selling drugs to 'sick' has always been a highly profitable activity, imagine selling medicine to 'normal' people (Frances, 2016). This phenomenon greatly expanded the consumer market for medicines presented in expensive and sophisticated advertising campaigns as indispensable for achieving success.

As if that were not enough, the 'psychiatrization of normality' gained a strong ally with the publication of the Diagnostic and Statistical Manual of Mental Disorders - DSM-5, of the Associação Psiquiátrica Americana (2014) -, which considerably increased the number of mental disorders. Frances (2016, p. 2), an American psychiatrist who helped write the DSM-4, became one of the most forceful critics of the DSM-5:

DSM-5 suffers from the unfortunate combination of overly high ambitions and a loose methodology. Its optimistic hope was to create a revolutionary advance in psychiatry; instead, the sad result is a manual that is neither safe nor scientifically correct. [...] Unless these diagnoses are used in moderation, millions of essentially normal people will be misdiagnosed and subjected to potentially harmful treatments and unnecessary stigma.

The author continues his criticism by warning that it is necessary to face the fact that the misuse of legal drugs is a greater public health problem than that of narcotics sold on the streets. "It is unacceptable for 7% of the population to be addicted to prescription drugs, and fatal overdoses of these exceed those caused by illegal drugs" (Frances, 2016, p. 247). In short, the substances marketed by the large pharmaceutical laboratories, used in exaggeration or in a non-prescribed manner, have become more dangerous than drugs sold by drug trafficking cartels.

Being 'normal' nowadays has become an almost impossible task. It is increasingly easy to fit into one or more diseases listed in the DSM-5. The pathologization of 'normal' appears, in Birman (2014), as a phenomenon at the service of promoting the performance of the assessed subject, in order to make him/her capable of facing the challenges posed by today's society - the society of risk. Psychiatry to 'normal people' is, therefore, to produce new subjectivities, willing to overcome the limits of the body, subjected to sleep, hunger and fatigue, to escape the ghost of failure and invisibility.

Final considerations

Our objective, with the present study, was to reflect on how the socioeconomic reality has been transforming the psychic world of individuals, motivating the practice of PCE. The path taken in this article, with a theoretical-descriptive nature, revealed the complexity of the theme and the educational, professional, ethical and political challenges raised.

The search for PCE in contemporary times is closely linked to the lifestyle and society built in recent decades. To do so, we discussed different forms of corporate organization, starting with the disciplinary society, passing through the society of control until reaching the society of performance, known as a post-industrial, narcissistic, individualistic, hedonistic

society, a society of excesses, consumption, spectacle, information, risk, among other designations. Regardless of the name given to the present historical moment - which are not few - the fact is that it is increasingly difficult to meet its requirements.

This abundance of synonyms for the current society inspires countless qualifiers to the subjectivities it forges, such as assessed subject, motivated subject, performing subject, chameleon subject, *reticularis* subject, *economicus* subject, etc.

In dissecting these contemporary subjectivities, we find, as its most eloquent sign, the search for a standard of normality defined no longer by the common character of an attribute, but by large pharmaceutical laboratories and psychiatry manuals. We are thus faced with the paradox of the competent, efficient, productive subject, in short, of the performing subject, yet unable to deal with suffering, with limits, with conflicts and with the contradictions inherent to the human condition. A subject increasingly dependent on devices offered by the market, such as psychotropic substances, capable of providing the much coveted 'plus' in daily performance.

It is not about condemning or encouraging the use of any type of biotechnology to improve our cognitive apparatus; it is a matter of reflecting on the destinies of human nature, because, until now, the limit for cognitive enhancement is the body and, as Bezerra Júnior (2010) warns, the development of drugs used for this purpose is still in progress.

Anyway, science already envisions the possibility of a post-organic subject, shaped by molecules created for the production of more intelligent humans, but without side effects, without adverse reactions and without the limits imposed by the body, that is, quite different of the PCE, which has been using controlled drugs, that is, drugs that must be sold under medical prescription, precisely because they can bring health risks. When that post-human future arrives, a series of ethical and political issues, whose discussion does not fit in this work, should be thoroughly debated.

In the meantime, we should address the issues that the PCE already raises in our lives, aware that, so far, we have no scientific evidence on the effectiveness and safety of using any types of drugs for cognitive enhancement (Freese, Signor, Machado, Ferigolo, & Barros, 2012; Finger, Silva, & Falavigna, 2013; Anvisa, 2014; Batistela, Bueno, Vaz, & Galduroz, 2016; Machado & Toma, 2016; Gonçalves, & Pedro, 2018).

Several scientific studies (Ehrenberg, 2010; Barros & Ortega, 2011; Ferraz, 2014; Pasquini, 2015; Affonso et al., 2016) corroborate the discussions presented herein, that is, the motivations for the PCE are fundamentally due to the concern of individuals to meet social expectations in relation to academic and professional performance.

Surveys carried out in Brazil and in other countries, developed in recent years (Dal Pizzol et al., 2006; Pasquini, 2013, 2015), reveal that the non-medical and indiscriminate use of drugs to 'boost' the brain is increasingly more common among college students. This practice has become a public health problem, which can become even worse if we do not take into account the production of subjectivities related to the PCE.

In the work environment, the scenario is very similar. "The worker, in the struggle to increase his/her work capacity, minimize the perception of fatigue and extend his/her stay in the work situation, has been looking for chemical substances as a strategy to achieve these goals" (Carvalho, Brant, & Melo, 2014, p. 598).

Aware of the seriousness of the topic and regardless of the adversities imposed by the competitiveness of the society of performance, the scientific community should further investigate this phenomenon to produce knowledge that contributes to a more consistent and convincing debate, so that the population understands the risks that the PCE, as carried

out today, posed to those who use this means to achieve the performance that is demanded in different situations of their life.

All this effort should result in the reinvention of society, an apparently pretentious, but not impossible task. In the perspective of historical-dialectical materialism, everything around us that is not natural was conceived by human beings; in this way, it can also, by human hands, be transformed. When we interfere with the construction of new subjectivities, we automatically transform the social structure in which they are inserted (Elias, 1990).

Like all scientific work, our reflection is not intended to offer definitive answers to the problems raised in this article. We recognize the long way we still have to go, permeated more by questions that remain unanswered than by the lights shed on the proposed theme. In any case, we confidently expect that this study can inspire as many others as are necessary for the human being to relearn how to live and suffer without seeing him/herself as sick.

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