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Dedicated to
my loving family in Austria and Italy
my grandmother, who taught me that the impossible is possible
my friends who support me unconditionally

and

all people living under such circumstances
that make them crave medication in order to see the light at the end of the tunnel

The main objective of this thesis is to contribute to the current literature and research on the non-medical use of methylphenidate as an emerging threat to our societies and public health systems around the world. Brazil was chosen as a case study due to the high prevalence of methylphenidate consumption among university students and the country's effort in addressing this problem through the implementation of scientific evidence-based prevention programmes in primary and secondary schools. By analysing Brazil's situation regarding the non-medical use of prescription drugs, this paper contributes to better understanding the challenges a developing country faces in its attempt to develop suitable prevention programmes.

Traditionally, methylphenidate, available in Brazil under its commercial name Ritalin or Concerta, is used to treat people suffering from Attention Deficit Hyperactivity Disorder (ADHD) in order to increase their capacity to concentrate and focus. However, as methylphenidate works as a stimulant on the central nervous system of the brain, its non-medical use as a cognitive enhancer or for recreational use in the nightlife scene has been challenging public health systems in Brazil and across the globe for the past decade.

In methodological terms, both quantitative and qualitative research has been carried out in Brazil in order to add first-hand data gained through interviews conducted with experienced Brazilian health care professionals, pharmacists, psychiatrists, psychologists, government officials and professors working in the field of public health and drug use prevention. This data was later combined with existing literature on drug use prevention and the non-medical use of methylphenidate in order to analyse prevention programmes, which were identified as being culturally appropriate to Brazil's specific challenges in facing this issue. Four different Brazilian cities (São Paulo, Rio de Janeiro, Florianopolis and Brasilia), each varying in size, population growth and location, were chosen as samples for this paper in an attempt to better capture Brazil's enormous regional differences and herewith, make a more significant contribution to research. A questionnaire, which was specifically designed for this thesis, was conducted among 114 students at the University of Brasilia. Findings highlight the importance and need to develop appropriate prevention mechanisms, as it resulted that approximately 36% of respondents have already used Ritalin medically and non-medically at least once in their life over the course of a calculated average period of 6.3 months.

ZUSAMMENFASSUNG

Das bedrohliche Ausmaß des nicht medizinischen Gebrauchs von Methylphenidat stellt weltweit eine immer größer werdende Belastung für unsere Gesellschaft und unser Gesundheitssystem dar. Es ist Ziel dieser Masterarbeit, mögliche Präventionsmethoden zu diskutieren und somit einen wissenschaftlichen Beitrag zum bestehenden Literatur- und Forschungsstand zu leisten. Eine detaillierte Analyse des Methylphenidatgebrauchs in Brasilien soll diesem Forschungsprojekt, aufgrund der hohen Prävalenz dieser Substanz, welche insbesondere unter UniversitätsstudentInnen zu beobachten ist, als Fallstudie dienen. In dieser Analyse sollen Brasiliens Bemühungen, eine Serie von evidenzbasierten Präventionsprogrammen in Volksschulen und Gymnasien umzusetzen, besonders hervorgehoben werden. Darüber hinaus wird in dieser Arbeit versucht, Herausforderungen zu diskutieren, mit welchen speziell Entwicklungsländer im Bereich der Drogenprävention zu kämpfen haben.

Methylphenidat, welches in Brasilien unter den kommerziellen Namen Ritalin oder Concerta erhältlich ist, wird traditionell in PatientInnen mit Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) angewandt, um diesen eine höhere Aufmerksamkeit und Konzentrationsfähigkeit zu ermöglichen. Die stimulierende Wirkung dieser Substanz auf das zentrale Nervensystem führt jedoch zu einem sehr großen nicht medizinischen Gebrauch unter SchülerInnen und StudentInnen, welche sich eine Leistungssteigerung erwarten.

Es wurde sowohl quantitative als auch qualitative Feldforschung in Brasilien durchgeführt, um diese Masterarbeit mit Daten aus erster Hand und Interviews zu bereichern, welche mit erfahrenen ApothekerInnen, PsychologInnen, PsychiaterInnen, RegierungsbeamtInnen und ProfessorInnen aus dem Gesundheits- und Drogenpräventionsbereich gehalten wurden. Diese Daten wurden in einem weiteren Schritt mit einer Literaturrecherche ergänzt, um zu diskutieren, welche Präventionsmaßnahmen für den brasilianischen Kontext geeignet wären. Für diese Analyse wurden vier Großstädte (São Paulo, Rio de Janeiro, Florianopolis and Brasilia) im Südosten Brasiliens gewählt, welche sich aufgrund ihrer regionalen, demographischen und politischen Disparitäten besonders eigneten. Darüber hinaus wurden 114 UniversitätsstudentInnen mit einem eigens entworfenen Fragebogen zum Thema „Ritalin – medizinischer und nicht medizinischer Gebrauch“ befragt. Analyseergebnisse zeigten einen Methylphenidatgebrauch von 36% unter Studierenden auf. Daher soll auf die Notwendigkeit aufmerksam gemacht werden, passende Präventionsprogramme zu entwickeln.

First and foremost, I wish to express my sincere gratitude to Professor Markus Kornprobst of the Diplomatic Academy of Vienna, who as the supervisor of my thesis, truly guided me throughout the academic process from the very beginning. I thank him for his patience, his ability to always find the right words in stressful moments, his enthusiastic encouragement to work on a topic I am truly passionate about and lastly, for his positive criticism that helped me to achieve more of myself.

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Thirdly, I wish to express my great appreciation to all of my interview partners both in Brazil and in Austria, without whom this thesis would have fallen short of its dynamics, nurtured by personal stories and expertise, and primary data. In particular, I wish to thank Dr Denise Borges Barros, Prof Dr Sheila Cavalcante Caetano, Prof Dr Francisco Inácio Bastos, Ana Paula Pellegrino, Dr Fernanda Ramallo, Prof Dr Zila Sanchez, Prof Dr Daniela Schneider and the team from ANVISA in Brasilia. Further, I would like to express my sincere appreciation to all the pharmacists and pharmaceutical assistants, who provided me with their personal stories and data concerning the ever-increasing sale of methylphenidate in Brazil.

Furthermore, I want to thank Dr Justice Tettey from the UNODC in Vienna, who allowed me to gain a more profound understanding of the current situation concerning NPS and prescription drugs around the world. He did not only share with me his years of expertise, but also personal stories, which enriched my thesis. Also, I wish to express my great appreciation to the entire team of the Health Branch of the UNODC, under the leadership of Prof Dr Gilberto Gerra. During my internship in this branch, I was able to discover my passion for public health affairs and, in particular, drug use prevention. This valuable work experience helped to guide me in choosing the important topic of the non-medical use of prescription drugs and its prevention as the main subject of my Master thesis.

I wish to dedicate this thesis, among many important people in my life, to my late grandmother Waltraud Andergassen Mair, without whom I would not have been able to enter the Diplomatic Academy of Vienna. She knew that I was meant to work in the international arena before I could speak. My grandmother is the very reason I was able to write this thesis with passion and dedication. Without my grandparents' selflessness, eternal love for their children and unconditional belief in the bright side of life, I would have lacked the courage and motivation to go to Brazil to conduct interviews for my research project with the same inner inspiration and drive.

Lastly, I wish to express my eternal gratitude to my family, my parents Christine and Gernot and my sister Antonia, who provided me with the very values and principles that inspire me to be the best version of myself everyday of my life. Without their dedication, passion and love, I could never have fallen in love with the world and its diverse languages, cultures and traditions. I believe that it was that very understanding of other nations and passion for diversity instead of uniformity, that ultimately led me to studying at the Diplomatic Academy.

LIST OF ACRONYMS

iii

ADHD	Attention Deficit Hyperactivity Disorder
ANVISA	Agência Nacional de Vigilância Sanitária/National Sanitary Surveillance Agency
ASAM	American Society of Addiction Medicine
APA	American Psychiatric Association
ART	Antiretroviral Therapy
CND	Commission on Narcotic Drugs
DSM	Diagnostic and Statistical Manual of Mental Disorders
FCM	Federal Council of Medicine
FDA	Food and Drug Administration
ICD	International Classification of Diseases and Related Health Problems
INCB	International Narcotics Control Boards
NPS	New Psychoactive Substances
PROERD	Programa Educacional de Resistência às Drogas e à Violência
RCM	Regional Council of Medicine (Conselho Federal de Medicina)
SAMSHA	Substance Abuse and Mental Health Services Administration
S-DDD	Defined Daily Doses for Statistical Purposes
SENAD	Secretaria Nacional de Políticas Sobre Drogas/National Secretariat on Drug Policy
UFSC	Federal University of Santa Catarina (Universidade Federal de Santa Catarina)
UnB	University of Brasilia (Universidade de Brasília)
UNGASS	United Nations General Assembly Special Session
UNIFESP	Federal University of São Paulo
UNODC	United Nations Office on Drugs and Crime
WDR	World Drug Report
WHO	World Health Organisation

Table of Contents

ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF ACRONYMS	iii
1. INTRODUCTION.....	1
1.1. RESEARCH AIM.....	1
1.2. SIGNIFICANCE OF THIS STUDY	5
1.3. STRUCTURE OF THE PAPER	7
2. THEORETICAL FRAMEWORK.....	8
2.1. DEFINITION OF THE TERM “NON-MEDICAL USE OF PRESCRIPTION DRUGS”	8
2.2. RESEARCH AREA: PREVENTION IN THE EDUCATIONAL SYSTEM.....	10
2.3. RELEVANCE OF PREVENTION	12
2.4. PREVENTION SCIENCE: FILLING THE GAP	17
2.5. THE ECOLOGICAL MODEL: A MULTI-LEVEL APPROACH TO PREVENTION	19
3. METHODOLOGY: A QUANTITATIVE AND QUALITATIVE APPROACH TO RESEARCH	24
3.1. INTERVIEWS: A QUALITATIVE APPROACH	24
3.2. SURVEY: A QUANTITATIVE APPROACH	25
4. PRESCRIPTION DRUG USE IN BRAZIL: A SPECIAL FOCUS ON METHYLPHENIDATE	26
4.1. METHYLPHENIDATE: AN INTRODUCTION	26
4.2. THE NON-MEDICAL USE OF METHYLPHENIDATE	30
5. DRUG USE PREVENTION IN BRAZIL: RESULTS FROM THE INTERVIEWS AND THE QUESTIONNAIRE	46
5.1. PREVENTION IN SCHOOLS: UNPLUGGED AND THE GOOD BEHAVIOUR GAME (GBG)	46
5.2. PREVENTION IN PHARMACIES	59
5.3. PREVENTION AT UNIVERSITY	72
5.4. RESULTS FROM THE QUESTIONNAIRE	76
6. CONCLUSION	81
6.1. UNIVERSAL RELEVANCE: THE <i>MEDICALIZATION</i> OF OUR SOCIETY	81
6.2. OUTLOOK.....	83

7. BIBLIOGRAPHY	84
8. ANNEX	94
LIST OF INTERVIEWS	94
QUESTIONNAIRE	98
RESULTS OF THE QUESTIONNAIRE.....	104

“If we want to find a long-term solution to the prescription drug epidemic, it will not suffice to simply change our legislation or prescription habits. Instead, we will have to profoundly change the way our society works, how we think, act and perceive medicine!”

- *Anonymous, Psychiatrist, Rio de Janeiro
March, 2017.*

1. Introduction

1.1. Research aim

The past decade did not only inaugurate a new millennium, but has equally given birth to a new era regarding the availability, accessibility and affordability of medication around the world. Today, more than ever, medical treatment is available, accessible and affordable. However, while cherishing these positive results, significant improvements are still to be made in most parts of the world, especially in developing countries. While the World Health Organisation (WHO) removed HIV/AIDS out of the list of the top 10 causes of death globally between 2000 and 2015, new challenges have arisen in particular in the field of the non-medical use of prescription drugs and the emergence of New Psychoactive Substances (NPS). In the United States, for example, the number of deaths due to an overdose (from all drugs) has reached unprecedented highs. Unfortunately, this phenomenon is far from being unique to the Northern hemisphere, as it has equally become popular in the Southern hemisphere and various developing countries. In South America, Brazil has been confronted with a prescription drugs crisis, especially concerning opioids and methylphenidate, a substance traditionally used to treat Attention Deficit Hyperactivity Disorder (ADHD), but misused by students to either increase their learning capacity and cognitive abilities in the hope to reach better results in national examinations or for recreational use in the nightlife scene. Between 2000 and 2010, Brazil witnessed a 775% increase in the consumption of methylphenidate with an approximate 2 million boxes of Ritalin sold in 2010.¹ How can we prevent these numbers from rising steadily at such fast pace?

In a globalised world, national and international decision makers must come together in order to find a common solution to a problem, that has manifested itself at the very core of our society. It is crucial to invest in prevention methods in order to avoid a public health epidemic and save our society, especially young people, from painful, and often expensive, treatment. No country is spared from having to implement a national drug policy framework in order to tackle its national drug problem. Last year alone, an estimated number of 247 million people

¹ „Ministério da Saúde recomenda restrição ao uso de Ritalina“ in *Carta Capital*, published online 15.10.2015, available at: <https://www.cartacapital.com.br/saude/ministerio-da-saude-recomenda-restricao-ao-uso-de-ritalina-9208.html> [last retrieved: 30.5.2017].

² UNODC (2016): x.

used drugs, out of which 29 million developed a drug use disorder.² However, only 1 in 6 people with drug use disorders is currently in treatment.³ As treatment is usually perceived to be more available and accessible than prevention and only a sixth of those needing treatment are actually being treated under medical supervision, one can image the overall lack of prevention programmes currently in place, despite the fact that each national drug policy provides room for prevention. Although some countries, such as Brazil, have recently taken the initiative to implement what is regarded as scientific-evidence based prevention interventions⁴ at schools and in communities, the way toward a full-fledged national drug use prevention policy is still long.

The estimated number that “1 in 20 adults, or a quarter of a billion people between the ages of 15 and 64 years, used drugs at least once during 2014”, combined with the lack of prevention methods and treatment directly imply the relevance and significance of further researching this topic.⁵ At the international level, the General Assembly dedicated an entire special segment to the world drug problem, which was held in the format of the United Nations General Assembly Special Session (UNGASS) in April 2016. This event further underlines the importance of the subject and the work and actions that are still to be taken in the near future in order to create a healthier society.

Although the total number of people using drugs worldwide has not increased significantly during the past years⁶, new substances are constantly emerging on the market and the toll of drug-related deaths has reached worrisome numbers with an estimated 207,400 deaths in 2014.⁷ In this context, the World Drug Report (WDR) highlights that this is “unacceptable” but “preventable”.⁸ As 1.6 million people who inject drugs are living with HIV and an additional 6 million with hepatitis C, the devastating consequences on people’s health, the public health system and, therefore, our entire society require a thorough reform of our drug policies, including suitable prevention methods.

² UNODC (2016): x.

³ Ibid.

⁴ For further information on the definition and criteria of “scientific evidence-based prevention” please see footnote 35.

⁵ Ibid.

⁶ See comparison: World Drug Report 2011 (b), 2012, 2013, 2014, 2015.

⁷ UNODC (2016): ix.

⁸ Ibid.

Although cannabis remains the most commonly used drug worldwide with an estimated 183 million people having used the drug in 2014, amphetamines and amphetamine-like drugs⁹, such as methylphenidate, account for the second most commonly used drug. However, it has to be underlined that these numbers should not be considered as isolated entities; many people who use drugs are so-called poly-drug users, combining one or two preferences with sub-preferences.¹⁰ The phenomenon of poly-drug use further blurs the global picture of drug use and complicates the implementation of prevention methods as well as subsequent treatment. When it comes to the non-medical use of prescription drugs¹¹, poly-drug use plays a crucial role, as many combine prescription drugs with more “conventional drugs”, such as cocaine or cannabis, in a concurrent or sequential manner. As a result, this complex structure further complicates the traditional picture on drug use patterns and requires a multifaceted approach to prevention.¹² Prescription drugs are not available and accessible to everyone, who needs them, which poses a further challenge to health care systems, especially in developing countries. As prescription drugs are only available, if at all, to persons, who can afford a doctor’s visit and have the money needed to buy medicines, epidemiological research finds itself challenged to “capture the hidden target populations that may be using prescription drugs for non-medical purposes.”¹³

The non-medical use of prescription drugs ranges from taking someone else’s prescription in order to relax or sooth pain, taking a medication to “get high”, to obtaining medicine under

⁹ Methylphenidate belongs to the group of Amphetamine-like stimulants (ATS), whose non-medical use has been growing in the past years. The WHO highlights that: “The use of ATS is a global and growing phenomenon and in recent years, there has been a pronounced increase in the production and use of ATS worldwide. Over the past decade, abuse of amphetamine-type stimulants (ATS) has infiltrated its way into the mainstream culture in certain countries. Younger people in particular seem to possess a skewed sense of safety about the substances believing rather erroneously that the substances are safe and benign. Meanwhile, ATS are posing a serious threat to the health, social and economic fabric of families, communities and nations.”

For further information see: http://www.who.int/substance_abuse/facts/ATS/en/.

¹⁰ E.g. the combination of methamphetamine or methylphenidate with ecstasy or cocaine; for further information on poly-drug use see: <http://www.health.gov.au/internet/publications/publishing.nsf/Content/phd-npi-methamphetamine-report-feb09-1-polydruguse>.

¹¹ In this Master thesis prospectus as well as in the following Master thesis, the term „non-medical use “ is preferred over its frequently used counterpart „drug abuse“ or „misuse“ in order to aim at the most objective definition. This is partly not to create stigma, correspond with UN language and avoid any misconceptions or misunderstandings due to the fact that there is some scientific and legal ambiguity about the distinctions between drug „use“, „misuse“ and „abuse“. Furthermore, the term „non-medical use“ clearly highlights the focus of this essay, which is to distinguish it from the medical use of prescription drugs. Therefore, the choice of only using „non-medical use of prescription drugs“ as opposed to the „abuse“ or „misuse“ of prescription drugs highlights in itself the nature of the drug use analysis in this prospectus. Whereas one could analyse the medical-use of prescription drugs, this essay will only focus on the use of prescription drugs other than the prescription (see World Drug Report „terms“).

¹² Ibid. xi

¹³ UNODC (2011a) p. 5.

false pretence or illegally from the street or the Internet.¹⁴ Adding to the complexity of this issue, these substances can range from tranquilisers (e.g. benzodiazepines such as diazepam), analgesics/painkillers (e.g. opioids such as oxycodone), sedatives (e.g. flunitrazepam), antidepressants (e.g. fluoxetine) and stimulants (e.g. methylphenidate).¹⁵ In this context, the WDR warns that the non-medical use of prescription drugs is on a stark rise worldwide, accounting for increasing numbers of emergency department visits and deaths from overdoses.¹⁶ In some countries, such as the United States of America, the number of prescribed amphetamines has skyrocketed in the past years. Stimulants have also been reported to be on a notable rise in some countries in South America, in particular Brazil and Argentina. It should not be forgotten that, although the impact is worldwide, the non-medical use of prescription drugs remains an issue more unique to high-income countries or the richer part of the population in developing countries. Therefore, when speaking about the non-medical use of prescription drugs, it should be highlighted that this issue does not pose a challenge to people without access to the healthcare system of a country, but rather the elite, who can afford a doctor and have access to medication bought in pharmacies or hospitals.

This study primarily aims at contributing to a more profound understanding of the situation regarding prescription drugs in Brazil and, more concretely, describes which steps could be taken in the field of prevention programmes, especially for high schools and universities. Among the myriad of prescription drugs available on the market, methylphenidate has been chosen as a case study for this research project, as this medication is currently redefining student life at many Brazilian universities. Young people take this medication as cognitive enhancers in order to improve their academic performance.¹⁷ However, taking chemical substances non-medically always comes at a high price: while some users may not experience

¹⁴ UNODC, Youth Initiative, Myth 8: „The non-medical use of prescription drugs is safe and legal“, published online in 2016, available at: https://www.unodc.org/documents/drug-prevention-and-treatment/Youth%20Initiative/Myth_8_2017.pdf [last retrieved: 30.05.2017].

¹⁵ UNODC, Information on the „non-medical use of prescription drugs“, 22.06.2010, available at: <https://www.unodc.org/unodc/en/drug-prevention-and-treatment/non-medical-use-prescription-drugs.html> [last retrieved: 30.05.2017].

¹⁶ UNODC (2016): p. 1.

¹⁷ Interestingly, „the mode of action in man [caused by methylphenidate] is not completely understood, but Ritalin presumably activates the brain stem arousal system and cortex to produce its stimulant effect. There is neither specific evidence, which clearly establishes the mechanism whereby Ritalin produces its mental and behavioral effects in children, nor conclusive evidence regarding how these effects relate to the condition of the central nervous system“. Nevertheless, psychiatrists and neurologists have experienced positive results. Ritalin therefore remains the most frequently prescribed methylphenidate-based medication for the treatment of ADHD. However, it should always be taken into consideration that individuals react very differently to this substances, from not experiencing any change to suffering from severe side effects, including the development of anxiety attacks. Source: Information on Ritalin provided by Novartis, available at: https://www.pharma.us.novartis.com/sites/www.pharma.us.novartis.com/files/ritalin_ritalin-sr.pdf [last retrieved: 16.06.2017].

any change, others develop a dependency on the psychological satisfaction the substances gives them and, more severely, suffer from serious side effects, such as anxiety, insomnia or significant loss of weight.¹⁸ Especially when taken along with other substances, such as alcohol in terms of poly-drug use, these actions could even have lethal consequences.

A discussion on the available data on the use of methylphenidate in Brazil, gained from existing research as well as quantitative and qualitative research methods will serve as the basis of this thesis. A more profound understanding on the current *status quo* will in a second step facilitate the discussion on how to best develop prevention methods specifically tailored to the reality Brazil is facing in terms of prescription drugs. It is the main objective of this thesis to highlight the necessity to develop effective prevention programmes, which, in the future, will lead to a decrease in the non-medical use of methylphenidate and prescription drugs in general. Based on programmes that are already in place and interviews as well as questionnaires particularly created for this thesis, this study will analyse what kind of prevention programmes would best tackle the non-medical use of prescription drugs in middle and high school. Therefore, the question will be asked “which prevention method(s) best prevent(s) the non-medical use of prescription drugs and can successfully be implemented in the education system, with a particular focus on middle and high school, in Brazil?”.

1.2. Significance of this study

In light of these worrisome figures, the significance of further researching this topic could not be emphasised more. Actions concerning adequate prevention methods have to be developed soon in order to reduce the non-medical use of prescription drugs, which is spreading at unprecedented rates. As the questionnaire designed for this thesis has shown, approximately 40% of respondents have already used methylphenidate both medically and non-medically, mostly in the form of its commercial name Ritalin, once in their life and for a time span of more than one month.¹⁹ Although long-term consequences are not yet known, short-term risks and consequences have already materialised. This means that our society, in particular students, finds itself increasingly dependent on prescription drugs to reach better academic

¹⁸ It should be highlighted that this does not mean that methylphenidate cannot cause physical dependence as well, as it can be found in Schedule II of the International Convention stating that this substance “has a high potential for abuse ... and may lead to severe psychological and physical dependence”. For further information see: Morton (2000).

¹⁹ For further information on the design and the results of the questionnaire see Annex and Chapter 5 discussing the results of the interviews and questionnaire, respectively.

results or solve personal issues. It has gone so far, that some young people do not believe that they can succeed or manage their lives well without taking medication. Although drug use prevention is already considered an important pillar of national and subnational drug policies, further studies need to be conducted on how to prevent the non-medical use of prescription drugs.

It is crucial to ensure a safe use of prescription drugs by strongly emphasising the health benefits these substances can have on the one hand and by avoiding abuse by emphasising risks and negative consequences on the other hand. Prevention methods need to be specifically tailored to strike a balance between medical and non-medical use. The complexity of the two-sided face of medication makes it particularly challenging to define prevention policies, as the focus on harmful aspects of the non-medical use should in no way hinder the rational use of medication in order to medically treat patients adequately.

Brazil has been characterised as a country known for its over-prescription of psychotropic substances despite strong regulations methods implemented by the government.²⁰ Due to this over-prescription of medicine, methylphenidate finds its ways into illicit channels, especially among university and high school students. As too much methylphenidate is prescribed, extra boxes are easily available on the black market – a phenomenon, which is particularly worrisome given the fact that methylphenidate is one of the most controlled substances monitored by the Brazilian government.

The severity of this crisis highlights the necessity to conduct further research on how methylphenidate is sold and used among young people, and what their intentions behind this non-medical use are. Only when a clearer picture on the reasons and patterns of usage can be drawn, will policy makers be able to develop adequate prevention methods. As drugs use prevention programmes usually address all substances, instead of a group of substances or a single drug, further research is needed to find out, how methylphenidate and prescription drugs can be better embedded into the larger context of “all drugs”.

This thesis therefore attempts to shed more light on the current situation in Brazil. It has as its main objective to gain a better understanding of firstly, which societal factors lead to the non-medical use of methylphenidate and secondly, how legislation and governmental regulations

²⁰ Barros et al. (2010): p. 502 and Interview with Dr Denise Barros, Rio de Janeiro, 20.04.2017.

aim at better controlling the safe purchase and sale of these substances. As this paper will only be able to outline a small part of this problem due to Brazil's size and can therefore not be regarded as being representative of the country as a whole, it is hoped that international organisations, local NGOs and other governmental bodies as well as individual researchers conduct further studies in this field to better capture the dimension of the non-medical use of prescription drugs, in particular methylphenidate among Brazilian university students.

1.3. Structure of the paper

The first chapter of this thesis is dedicated to elaborating a theoretical framework, which will guide the reader through the following chapters, providing a thorough understanding of the research question, its scientific relevance, the current state of the art of prevention science as well as to introducing the ecological model as a basis for prevention interventions in the field of the non-medical use of prescription drugs.

The second chapter provides the reader with an analysis of the methodology applied for this research project. It is divided into two subchapters, as both qualitative and quantitative instruments of methodology were used in the course of writing this thesis. The qualitative aspect of this paper consists of a series of more than 30 interviews, which were conducted in Vienna at the beginning of the year 2017 and in four different Brazilian cities from 14-30 April 2017. These interviews add further data concerning the non-medical use of methylphenidate in Brazil, while further revealing ideas regarding possible prevention methods based on the expertise and personal experience of the interviewees. The quantitative instrument used for this thesis was a questionnaire, which was distributed among university students studying in Brasilia. This method further revealed important data and gave room for personal comments concerning each student's experience with the non-medical use of Ritalin.

The third chapter introduces data, collected personally by the author, and combines this with data available in current literature, UN and INCB reports as well as data provided by ANVISA on the quantity of methylphenidate sold in Brazil. This chapter serves the purpose of preparing the stage for a more profound analysis of prevention methods for this specific issue, which is subject to the following chapter. However, it seems crucial to first provide a thorough and profound analysis of the *status quo*, as prevention methods should be specifically tailored to the situation at hand.

The fourth and last chapter discusses prevention methods of the non-medical use of prescribed methylphenidate in Brazil according to the findings of the quantitative and qualitative analysis conducted for this thesis. This chapter also takes into consideration the professional work and publications of peer reviewed journals in order to broaden the discussion in an attempt to further elaborate on suitable prevention programmes.

Lastly, the conclusion provides an outlook based on the overall findings of this thesis by embedding the thesis' topic into the broader concept of the "medicalization" of our society. This will leave the reader with new ideas and, in the best of cases, inspire future researchers to further analyse the issue regarding the non-medical use of prescription drugs. Only based on additional research and data collection, will we, as a society interested in public health, find a viable solution to this prescription epidemic.

2. Theoretical Framework

2.1. Definition of the term "non-medical use of prescription drugs"

It results from the research conducted that the term "non-medical use of prescription drugs" has the potential to cause confusion, especially in light of the bilingual nature of this study. Both the term "non-medical use" and "prescription drugs" were clearly defined in advance in order to ensure coherence, especially during the series of interviews conducted. As stated in the title of this thesis, the term "non-medical use of prescription drugs" was found to be the most appropriate, thereby avoiding the usage of the terms "abuse/misuse of licit drugs" or "abuse/misuse of medicine/medication/pharmaceuticals". The term "non-medical use of prescription drugs" was chosen in line with the UNODC discussion paper entitled *The Non-Medical Use of Prescription Drugs*, as it seems to be the least biased version when compared with the other two versions focusing on the misuse or abuse of drugs.²¹ The difference between abuse, inadequate use or misuse is therefore often embedded into the larger context of medical ethics and the field of diagnostics. In light of these difficulties, this thesis will speak of the "non-medical use of prescription drugs", as is the most neutral and least discriminating option.

²¹ For further information see UNODC (2011a).

Regarding the first part of this thesis' title, the "non-medical use", the synonyms most commonly used by professionals from the fields of medicine, public policy, psychology and the international community are "abuse", "misuse", "inadequate use" and "inappropriate use". The dilemma regarding this series of terms is that it depends on the beliefs and norms of a person judging whether the use of a substance is to be considered and classified as a mere use, a misuse or an abuse. A medical doctor might use different standards and instruments in detecting a non-medical use, which may vary significantly from those of a student, a psychologist or a community worker. While psychiatrists use very clear medical guidelines, psychologists may sometimes consider the diagnosis of the latter too "hasty" or detect over-prescription. It should be mentioned that there were further differences identified concerning the use of the term in the Portuguese language on the one hand and the English language, as used in international documents, such as the WDR, on the other hand. Whereas the UN has evolved to focusing on "the non-medical use" or misuse of substances in general, many psychiatrists still stress the abusive character when taking medication non-medically. In this context, using the English term, the UNODC has defined the non-medical use of prescription drugs as "the taking of prescription drugs, whether obtained by prescription or otherwise, other than in the manner or for the reasons or time period prescribed, or by a person for whom the drug was not prescribed".²²

Further, it seems crucial for the understanding of the discussion presented here to define the term "drugs", the second part of this thesis's title. As the majority of research conducted for this thesis was in Portuguese, a distinction had to be made between the terms "droga(s)" and "medicamento" or "remédio". Whereas the term "drug" can refer to both licit and illicit drugs in the English language, research for this study has shown that it is less controversial and clearer to use the term "medicamento" in Portuguese. Although the term "droga(s)" can be used to describe a licit drug prescribed by physicians to treat a certain disorder or illness, such as seen in the word "drogaria" (Portuguese for "drug store"), most Brazilians associate this term negatively with drug trafficking and organised crime. As in most countries, the average Brazilian would not include tobacco and alcohol into the category of drugs. This thesis will use the definition of "drug" as outlined in the *Manual de Orientações Básicas para Prática Médica*²³ published by the Federal Council of Medicine (FCM) stating that a drug is a

²² UNODC (2011a): p. 1.

²³ This manual was published to better inform professionals about good practices when prescribing drugs. Also, it aims at clarifying certain myths and doubts that may arise when prescribing a substance. For further information go to: http://portal.cfm.org.br/index.php?option=com_content&view=article&id=9809:&catid=3 [last retrieved: 30.05.2017].

“substance or primary material used for medical or sanitary means”.²⁴ The same manual further distinguishes the term “droga” from its synonym “medicamento”, describing the latter as “a pharmaceutical product, which is technically obtained or elaborated for prophylactic, curative, palliative or diagnostic purposes”.²⁵ The WHO is equally aware of the ambiguous nature of the term “drug” and, therefore, distinguishes between its common use as a psychoactive and/or illicit drug and its use in medicine. As this thesis focuses on a medical problem, the term “prescription drug” will be clearly distinguished from illicit drugs. When speaking about the term “drug” in medicine, the WHO states that in medicine the term “[drug] refers to any substance with the potential to prevent or cure disease or enhance physical or mental welfare, and in pharmacology to any chemical agent that alters the biochemical physiological processes of tissues or organisms. Hence, a drug is a substance that is, or could be, listed in a pharmacopoeia”.²⁶

The definition of the term “drug” as outlined by the WHO complements the definition elaborated in the Brazilian FCM’s guidelines for practising medicine. As research for this thesis was conducted in two languages, a similar definition in both Portuguese and English was sought. Hence, a drug is a substance or primary material used for medical or sanitary means (according to FCM) and substance with the potential to prevent or cure disease or enhance physical or mental welfare when used under applicable medical and clinical guidelines (according to WHO).

2.2. Research area: prevention in the educational system

The World Drug Reports, from past years, have stressed the worrisome rise in the non-medical use of prescription drugs worldwide, in particular in the Americas.²⁷ As mentioned in the introduction of this thesis, particularly Brazil is particularly confronted with a crisis related to the dependence on prescription opioids and amphetamines. In this context, it is important to understand the definition of “dependence”: according to the American Society of Addiction Medicine (ASAM) “addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry dysfunction in these circuits leads to characteristic

²⁴ Translated from Portuguese: “Droga – substância ou matéria-prima que tenha finalidade medicamentosa ou sanitária”.

²⁵ Translated from Portuguese: “Medicamento – produto farmacêutico, tecnicamente obtido ou elaborado com finalidade profilática, curativa, paliativa ou para fins diagnósticos”.

²⁶ WHO; *Lexicon of alcohol and drug terms*, 1994, Geneva, term searched: “drug”, available at: http://www.who.int/substance_abuse/terminology/who_lexicon/en/ [last retrieved: 23.04.2017].

²⁷ WDR “from the past years” implies from 2012 - 2017.

biological, psychological, social and spiritual manifestations. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviours” and

*“is characterized by inability to consistently abstain, impairment in behavioural control, craving, diminished recognition of significant problems with one’s behaviours and interpersonal relationships, and a dysfunctional emotional response. Like other chronic diseases, addiction often involves cycles of relapse and remission. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death”.*²⁸

Prescription opioids as well as amphetamines and amphetamine-like products are highly addictive according to this definition. Brazil, amongst other countries, is faced with a major prescription drug crisis, which has to be tackled at the national as well as international level.²⁹ However, it should be mentioned that while opioids create physical dependence, dependence on methylphenidate is rather psychological, as users recurrently yearn for the psychological and mental satisfaction this substance has given them.³⁰ In this context, the product information statement of Ritalin warns that: “Ritalin should be given cautiously to patients with a history of drug dependence or alcoholism. Chronic abusive use can lead to marked tolerance and psychological dependence with varying degrees of abnormal behaviour”.³¹

The current prevalence of the non-medical use of stimulants, methylphenidate in the form of Ritalin being the most consumed in Brazil and worldwide, has reached levels that inevitably make its prevention one of the most pressing public health issues in the field of drug use prevention, treatment and care. The authors of “Ritalin in Brazil: Production, discourse and practices”, Francisco Ortega and Denise Borges Barros, highlight that global production of Ritalin has grown by 1.200% between 1990 and 2006 – however, this number seems underestimated and has risen steadily in the past few years as demand has outgrown that of cocaine in some regions.³² As this phenomenon is causing an increasing number of drug-related deaths each year, existing prevention programmes have to be reformed and new

²⁸ American Society of Addiction Medicine (ASAM); Policy Statement: Definition of Addiction, August 2001 [https://www.asam.org/docs/default-source/public-policy-statements/1definition_of_addiction_long_4-11.pdf?sfvrsn=2 last accessed 20.01.2017].

²⁹ Cruz et al. (2014) and Ortega et al. (2010).

³⁰ For further information on chemical dependence vs. drug use dependence on psychotropic substances see (Instituto Paulista de Déficit de Atenção): <https://dda-deficitdeatencao.com.br/tratamento/abuso-dependencia-medicacao-tdah.html>.

³¹ Information bulletin and package information statement of Ritalin, available at: https://www.pharma.us.novartis.com/sites/www.pharma.us.novartis.com/files/ritalin_ritalin-sr.pdf.

³² Ortega and Barros (2010): p. 352.

intervention methods effectively implemented. This is due to the fact that no specific prevention programme targeting the non-medical use of prescription drugs could be identified in the course of the research conducted for this thesis in Brazil. Further, as most Brazilian schools do not offer continuous programs for drug and substance use prevention, there is a need to implement long-term and effective interventions for this purpose.³³ It should further be highlighted that there is currently no public policy in place, which specifically targets evidence-based prevention in Brazil.³⁴

As opposed to illicit drugs, prescription drugs can be purchased in pharmacies with a valid prescription, easily and legally. Perceptions of the public often have an ambiguous nature related to legal and illegal, valid and invalid prescriptions as well as the questions concerning over-prescription, a profound analysis of the topic seems crucial to better understand our contemporary drug market combined with the “medicalization” of our society.³⁵ Therefore, this research will analyse drug prevention programmes that are already in place and discuss how these could be improved in order to tackle the issue of the non-medical use of prescription drugs more efficiently. As the age group most affected by this health issue is young people, especially those entering university, and the fact that self-medication is a widespread practice in Brazil, the need for formulating educational programmes aiming at raising awareness in creating a more rational use seems inevitable and should constitute a true priority of the public health system.³⁶

2.3. Relevance of prevention

Given that this thesis was written in the context of International Relations³⁷, the main research focus will be put on the aspect of prevention of the non-medical use of prescription drugs as opposed to the treatment of related health disorders. This is due to the all-encompassing nature of prevention, as “an effective local or national prevention system is embedded and integrated in the context of a larger health-centred and balanced system responding to drugs including law enforcement and supply reduction, treatment of drug dependence, and

³³ Sanchez et al. (2016): p. 1.

³⁴ Ibid.

³⁵ For further information on the concept of the “medicalization of society” see: Conrad, Peter; *The Medicalization of Society: On the Transformation of Human Conditions into Treatable Disorders*, John Hopkins University Press, Baltimore 2007.

³⁶ Cruz (2014): p. 608.

³⁷ In accordance with the rules of the Diplomatic Academy, two disciplines had to be chosen for this Master thesis: International Relations and Economics.

prevention of health and social consequences”.³⁸ At the global level, it should be highlighted that the *1971 International Convention on Psychotropic Substances* stressed the importance of prevention in Article 20 on “Measures against the Abuse of Psychotropic Substances”:

*“The Parties shall take all practicable measure for the prevention of abuse of psychotropic substances and for the early identification, treatment, education, after-care, rehabilitation and social reintegration of the persons involved, and shall co-ordinate their efforts to these ends.”*³⁹

Prevention science has made enormous advances in the past 20 years as policymakers and practitioners in this field have come to the understanding that prevention is an integral part of analysing what factors make an individual vulnerable and more inclined to initiating the use of drugs at both the psychological and environmental level.⁴⁰ There is now a significant body of research driving prevention work, not only at the level of international organisations, but also Member States themselves. Vulnerabilities can be linked to risky behaviours, such as dropping out of school, other health disorders, delinquency, violence, risky sexual behaviours (such as HIV), depression, suicide and aggressiveness.⁴¹ As scientists have revealed that children and young people are particularly vulnerable to initiating drug use, educational prevention combined with a healthy school culture become increasingly important, even fundamental. Effective prevention programmes can contribute to a “safe and healthy emotional, cognitive and social development”.⁴² Hence, the successful implementation of age-specific prevention interventions is crucial.

In order to highlight the importance of age-specific prevention programmes, the UNODC published norms and guidelines entitled *International Drug Use Prevention Standards* with the help of over 80 experts from more than 30 Member States in 2011.⁴³ The UN Standards offer a comprehensive overview of the availability of prevention programmes based on scientific evidence⁴⁴ according to different age groups. They further aim at identifying the

³⁸ UNODC (2015): p. 2.

³⁹ UN (1971): p. 12.

⁴⁰ Ibid. p. 1.

⁴¹ Ibid.

⁴² Ibid.

⁴³ A second edition of the *Drug Use Prevention Standards and Norms* is currently being elaborated with a team of experts at UNODC Vienna.

⁴⁴ The UN stressed the need to implement scientific evidence-based prevention programmes, defining evidence-based as: “The text describes what evidence is available and the findings reported in it, by substance. Moreover, wherever available, effect sizes are included, as provided in the original studies. The geographical source of the evidence is indicated to offer policymakers an indication of whether it is already known that a strategy is effective in different geographical settings. Finally, if there is an indication of cost-effectiveness, this is also

major components and features of effective drug use prevention systems as well as assist policy makers worldwide in the development of national programmes. As this thesis focuses on prevention for adolescents in the educational system, the categories of “early adolescence” and “adolescence” as outlined in the Standards were considered the most relevant.

Furthermore, an important step toward raising the importance of effective prevention programmes for drug use disorders was the document signed in the context of UNGASS in April 2016. International consensus reflected in this document stresses efforts to “increase the availability, coverage and quality of scientific evidence-based prevention measures and tools that target relevant age and risk groups and multiple settings, reaching youth in schools as well as out of schools”.⁴⁵ International cooperation in the field of drug use prevention and health promotion shall further:

*“Take effective and practical primary prevention measures that protect people, in particular children and youth, from drug use initiation by providing them with accurate information about the risks of drug abuse, by promoting skills and opportunities to choose healthy lifestyles and develop supportive parenting and healthy social environments and by ensuring equal access to education and vocational training”.*⁴⁶

Hence, these documents illustrate what has been achieved at the international level regarding the prevention of drug use and highlight that the mandate of the United Nations and the grave concern of nations in this field go beyond the sheer treatment and rehabilitation of drug users. For the sake of simplicity, it should be highlighted that these documents do not distinguish the distinct nature of prevention interventions according to the type of drug, e.g. heroin, cannabis or cocaine, but stress that “effective scientific evidence-based prevention strategies [should be] centred on and tailored to the needs of individuals, families and communities as a part of comprehensive and balanced national drug policies”.⁴⁷

This research will mainly focus on what can be achieved in the field of preventing the non-medical use of prescription drugs in the education system, primarily in high school (15-18 years of age) and at university. Interventions specifically targeting one specific category of

included in these paragraphs. This part of the text is based exclusively on the studies included in the assessment of the evidence and assessed as “acceptable” or “good”, as described in appendix II”. For further information, please see: UNODC (2015): p. 7.

⁴⁵ UNGASS (2016): p. 5.

⁴⁶ Ibid.

⁴⁷ Ibid.

substances, such as prescription drugs, for early and middle childhood were not considered in this research, as, according to the UN Standards, programmes focusing on one single substance were not found to be effective for this young age group.⁴⁸ Universal prevention programmes targeting the population at large and aiming at reducing substance use in general are therefore found to be the most appropriate for adolescents.⁴⁹

Prof Dr Zila Sanchez from the Federal University of São Paulo (UNIFESP) further highlights that successful and effective prevention programmes do not merely consist of awareness raising and information campaigns, but more importantly, aim at reducing vulnerabilities and therefore risky behaviours.⁵⁰ Experience shows that giving children information on the risks and consequences of substance abuse very often creates an incentive to initiate or further continue using both illicit and licit drugs. In some cases no prevention was therefore better than prevention based merely on information giving. Thus, intervention in the field of substance use ought to be precisely analysed before being implemented.

Although drug use prevention can and should also be implemented in families, communities and the workplace, the UN Standards identified schools to be the area with the highest number of researched effective prevention programmes. Participation in school is the time when children start spending more time away from the family, become more independent and wish to “do it their own way”.⁵¹ Therefore, it is crucial to tackle the issue of drug use prevention at this very age, in order to render the children’s environment safer and healthier by decreasing vulnerabilities and herewith, risky behaviours. In this context, the UN Standards highlight that “the role of social skills and pro-social attitudes grows in middle childhood and they become key protective factors, impacting also the extent to which the school-aged child will cope and bond with school and peers”.⁵²

As the non-medical use of prescription drugs in the form of methylphenidate mostly affects university students in Brazil, prevention programmes have to be implemented at an early stage, namely in middle and high school, in order to make them more resilient at a younger

⁴⁸ Anonymous Interview, UNODC, 20.02.2017.

⁴⁹ UNODC (2015): Table I.

⁵⁰ Interview, São Paulo, 17.04.2017.

⁵¹ UNODC (2015): p. 13.

⁵² Ibid.

age.⁵³ A Brazilian study regarding the non-medical use of methylphenidate for cognitive enhancement amongst university students shows that the most pertinent reason for using cognitive enhancers is social pressure and the feeling of insecurity.⁵⁴ These findings further highlight the need to successfully create and implement prevention programmes in middle and high school, so that students can enter university feeling more secure, safe, healthy and less vulnerable.

An example of an effective prevention intervention of substance use among adolescents is the EU-based programme *Unplugged* and the adaption of the American *Good Behaviour Programme* in Brazil. These two programmes will further be subject to the chapter dedicated to drug use prevention in Brazil. At this point it should only be mentioned that both programmes were implemented in Brazilian schools with the help of the Ministry of Justice, Ministry of Health and the UNODC. Despite its focus on drug prevention, there is no mention of the responsible use of medicines in the manual and guidelines of *Unplugged*.

It was identified by the author that there is a lack of prevention programmes combining the prevention of illicit drugs, alcohol and tobacco with medicine and psychotropic substances. As there has been a stark rise in the inappropriate consumption of prescription drugs, prevention methods have to be reformed and better adapted to this new emerging drug phenomenon. Social factors must be taken into significant consideration, as the main reason for this seems to be social pressure and the urge to improve the cognitive activity and concentration of the brain.

Furthermore, the UNODC documented a gap of research and evidence for prevention programmes related to sports and leisure, NPS and the non-medical use of prescription drugs. This was further highlighted at the International Symposium on *Drugs: From coercion to Cohesion* in September 2013.⁵⁵ In the light of this gap, this thesis aims at analysing possible prevention programmes for the excessive, non-medical use of prescription drugs, in particular

⁵³ All interviews conducted for this thesis showed that university students are more affected than any other age group in Brazil.

⁵⁴ Barros et al. (2011): p. 354.

⁵⁵ UNODC, Drug Prevention and Health Branch, Power Point Presentation introducing the International Drug Use Prevention Standards, held at the International Symposium on Drugs, organized by the UNODC in cooperation with the Federal Ministry of Health, Brasilia, held from 9-13 September 2013; and UNODC (2015).

methylphenidate, which is sold in Brazil under the name Ritalin or in its similar form Concerta.⁵⁶

2.4. Prevention science: filling the gap

Annually, more than 1.9 million individuals, in the US, find themselves on the verge of using prescription drugs for non-medical purposes for the first time.⁵⁷ As these numbers are increasing at an unprecedented rate, various international organs and institutions, such as the United Nations Office on Drugs and Crime (UNODC) and the International Narcotics Control Board (INCB) have warned of the adverse consequences this crisis will (or already has) for our public health system worldwide.⁵⁸ The non-medical use of prescription drugs “is a public health concern because of its association with an increased risk of overdose, death, and medical complications requiring emergency department visits, all of which have steeply increased within the past decade”.⁵⁹ As most of these substances have the potential to cause dependence, patients face enormous risks related to brain damage, insomnia, slow heart rate and respiration issues, especially when mixed with alcohol or other substances.

Given the growing significance of this phenomenon for our societies and the related personal and civil costs, researchers have devoted increasing attention to this topic. However, most of their research focuses on the United States and Canada, where initiation rates are second only to cannabis.⁶⁰ Despite the importance of this issue, there is still a lack of research regarding effective prevention methods for this particular group of substances (prescription drugs) especially in developing countries.

As prevention methods particularly in high schools are of universal nature and do not target one specific drug or substance, but rather focus on substance use as a general health issue,

⁵⁶ It should be mentioned that in addition to Ritalin and Concerta, the product known as Venvanse is also used to treat ADHD. It is an amphetamine-like product and is available in three different versions: 30, 50 or 70 mg, each 28 capsules. Venvanse is based on the chemical substance lisdexanfetamine and therefore works in a similar fashion to Ritalin. However, as it is not based on methylphenidate and for reasons of clarity, Venvanse will not further be discussed in this thesis. For more detailed information see: http://www.anvisa.gov.br/datavisa/fila_bula/frnVisualizarBula.asp?pNuTransacao=8277242014&pIdAnexo=2228519 [last retrieved: 22.05.2017].

⁵⁷ SAMSHA; Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings, September 2011, p. 94, available at:

<https://www.samhsa.gov/data/sites/default/files/NSDUHNationalFindingsResults2010-web/2k10ResultsRev/NSDUHresultsRev2010.pdf> [last retrieved: 01.06.2017].

⁵⁸ World Drug Report 2011, 2016 and INCB Report 2016.

⁵⁹ Nargiso et al. (2015): p. 5.

⁶⁰ Ibid.

there are no evidence-based prevention programs specifically designed to prevent the non-medical use of prescription drugs. Despite the fact that most substance use prevention methods mention the emergence of new psychoactive substances (NPS) and prescription drugs, research conducted for this thesis did not identify a single prevention concept uniquely dedicated to this specific subject at (high) schools. Although there are some successful prevention methods targeting pharmacies or hospitals, there seem to be none in place for high schools or universities. For research purposes, literature had to be combined in the field of educational prevention methods as well as theories of drug use prevention and the non-medical use of prescription drugs.

Most research papers on the topic to be discussed are drawn from the following health and drug-related databases and resource finders: PubMed⁶¹, SAMSHA⁶², SCIELO⁶³, ANVISA⁶⁴ and BIREMI⁶⁵. Relevant literature has been selected by using the terms of “substance use prevention”, “drug use prevention”, “school-based prevention” as well as “non-medical use of prescription drugs” and “abuse of prescription drugs” – all these terms have been searched for both as separate terms and in combination with “Brazil”. Further, research was conducted in English, Portuguese and Spanish in order to deepen the author’s understanding of the problem both in the region and in Brazil specifically, by using national resources and studies. Findings show a relatively thorough research regarding the non-medical use of prescription drugs in Brazil and elsewhere (the main research focus of this topic being the United States) as well as on the theory of prevention and evidence-based prevention methods. However, it seemed impossible to find literature dedicated to evidence-based prevention methods in the field of the non-medical use of prescription drugs and focused on middle and high school students.

Besides scientific articles on the group of terms listed above, international documents published mainly by the UN serve as the main foundation of this research at the global level. These publications include the policy direction issue on “the non-medical use of prescription drugs” and the three International Drug Conventions, which aim “to ensure the availability of these medications for medical and scientific purpose, and to prevent their diversion into illicit channels”.⁶⁶ As these documents serve as the framework for the latest research conducted at

⁶¹ <https://www.ncbi.nlm.nih.gov/pubmed/>

⁶² <https://www.samhsa.gov/>

⁶³ <http://www.scielo.org/php/index.php>

⁶⁴ <http://portal.anvisa.gov.br/>

⁶⁵ <http://bvsalud.org/>

⁶⁶ UNODC (2015): p. 1.

the international level based on scientific evidence, the prevention methods discussed in this study are compatible with the UN Standards. Furthermore, the WDR⁶⁷ as well as the Annual Report launched by the INCB⁶⁸ are valuable sources when it comes to data on the world drug problem divided into regions, different substances/drugs and their global impact.

In light of the lack of literature dedicated to prevention methods including the non-medical use of prescription drugs, this is a humble attempt to contribute to filling the gap in this aspect. Although a lot of literature focuses on prevention programmes, the inappropriate use of prescription drugs does not yet seem to attract as much scholarly attention as the use of illicit drugs. However, given the unprecedented amount of young people suffering from an overdose, which partly occurs due to a poly-drug use mixing prescription drugs with other illicit substances or alcohol, the issue concerning our current prescription drug epidemic will have to be tackled more broadly. As politicians around the world increasingly become aware of this worrisome phenomenon, policy and decision makers, especially in the field of public health and drug prevention and treatment, have to start thinking of how the responsible use of medicine can be better integrated into prevention programmes, not only among health professionals, but also in schools, universities, at the workplace and in communal spaces.

In this context, this study will present the findings of interviews conducted with health professionals and medical doctors in Brazil concerning the most adequate prevention methods to avoid the excessive use of prescription drugs, especially among young people, in the future. In doing so, this thesis will give recommendations based on what the interviewees and the current literature deem to be the most appropriate form of prevention in Brazil, but can equally be replicated elsewhere.

2.5. The Ecological Model: a Multi-level Approach to Prevention

Schools are frequently the focus of educational programs targeting drug use prevention and health promotion, as adolescence is a development period when young people first seek to challenge responsibilities, adopt adult roles and find themselves increasingly exposed to new environments, ideas and experiments.⁶⁹ Therefore, schools are the perfect setting to “develop

⁶⁷ UNODC World Drug Reports available at: <http://www.unodc.org/wdr2016/en/previous-reports.html>.

⁶⁸ INCB Annual Reports available at: <https://www.incb.org/incb/en/publications/annual-reports/annual-report.html>.

⁶⁹ UNODC (2015): p. 18.

and test evidence-based approaches to adolescent drug abuse prevention”, as “school-based efforts are efficient in that they offer access to large numbers of students”.⁷⁰

When analysing suitable prevention methods for the non-medical use of prescription drugs it is crucial to take risk and protective factors into account, as these shape the development of children and adolescents⁷¹ and further influence their relationship to drugs – the higher the protective factors, the less likely it is that the child will try drugs and develop a dependence: “the degree of involvement in substance use for any teenager is often a function of the negative pro-drug social influences that they are exposed to combined with their individual developmental vulnerabilities to these influences”.⁷²

Non-theory driven attempts to prevent substance use at the school level failed to “incorporate information about the developmental factors and social influences and other etiologic factors that contribute to adolescent substance use” by merely focusing on lecturing students about the long-term health dangers of drug use.⁷³ These “drug lectures” and “anti-drug campaigns” were based on the hypothesis that people take or leave drugs according to their knowledge of the adverse consequences involved, neglecting the importance of the above-mentioned factors.

The past twenty years have shown an increase in the availability of scientific evidence-based programs for schools, which can be categorised into three types⁷⁴:

- a) Social resistance skills training
- b) Normative education
- c) Competence enhancement skills training.

An ideal approach would be to combine these three methods into one comprehensive intervention targeting the prevention of the use of various kinds of drugs: prescription drugs, alcohol, cannabis, heroin, opioids and NPS.

According to the findings of Mrazek and Hoggarty dating back to 1994, school and family-based prevention programs can further be of *universal*, *selected* or *indicated* nature. Universal

⁷⁰ Griffin et al. (2010): p. 5.

⁷¹ “Adolescents”/ “young people” in this thesis are defined as “those persons between the ages of 15 and 24” according to <http://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf>.

“Children” are therefore all persons below 15 years of age.

⁷² Ibid. p. 3.

⁷³ Ibid. p. 6.

⁷⁴ Ibid.

programs target everyone in the population (e.g. all students of a particular setting), the *selected* approach looks at members of at-risk groups (e.g. programs designed for students attending alternative schools) and lastly *indicated* programs are designed for a specific group of people (e.g. heavy drinkers or people living with HIV/AIDS).⁷⁵

Social resistance skills programs are aimed at making students more resilient and less vulnerable to drinking, smoking and using drugs in general. By raising awareness about the various social influences that support substance use, participants are taught certain life skills needed to recognise situations where they might be drawn to using drugs and trains them how they can resist social pressure. In short, students are “taught ways to avoid or otherwise effectively deal with these high-risk situations”.⁷⁶

Normative Education programmes on the other hand, aim at correcting inaccurate perceptions regarding the high prevalence of substance use. Many children and adolescents overestimate the number of drug users in their environment and beyond and, therefore, cling to the perception that “everyone is doing it”. This type of prevention programme consists in informing participants about the actual *status quo* of the drug market as well as statistics, numbers and drug policies in place.

Competence-enhancement as a prevention method teaches life skills, general problem solving mechanisms, decision-making skills and conduct seminars to boost self-confidence and release stress. These programmes are based on the theory that “youth with poor personal and social skills are more susceptible to influences that promote drug use”.⁷⁷ An emphasis on teaching social, developmental and personal skills contribute to making the individual stronger and, therefore, less vulnerable to giving in to dangerous situations related to substance use (which may be linked to violence and crime).

The research question of this study will further be analysed using the ecological perspective model of health promotion, as it seems to best fit the aim and objective of this thesis due to its multidisciplinary and interactive approach. It highlights that “contemporary health promotion involves more than simply educating individuals about healthy practices [and includes] efforts to change organizational behaviour, as well as the physical and social environment of

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

communities”⁷⁸ As an effective prevention programme, designed for schools and targeting the non-medical use of prescription drugs, needs to operate on multiple levels, this model seems to best support the theoretical and practical framework of this study. Further, it stresses the multi-layered and interconnected nature of prevention, which is not only based on individual factors, but also takes into account the community and policy level.

Methodology will not merely look at schools, but also include qualitative research in the form of interviews with policymakers, health professionals and experts in the field of drug prevention as well as UN officials experienced in this matter. As a result, findings will be based on interdisciplinary dimensions and, therefore, need to be combined and incorporated well into one comprehensive prevention strategy.

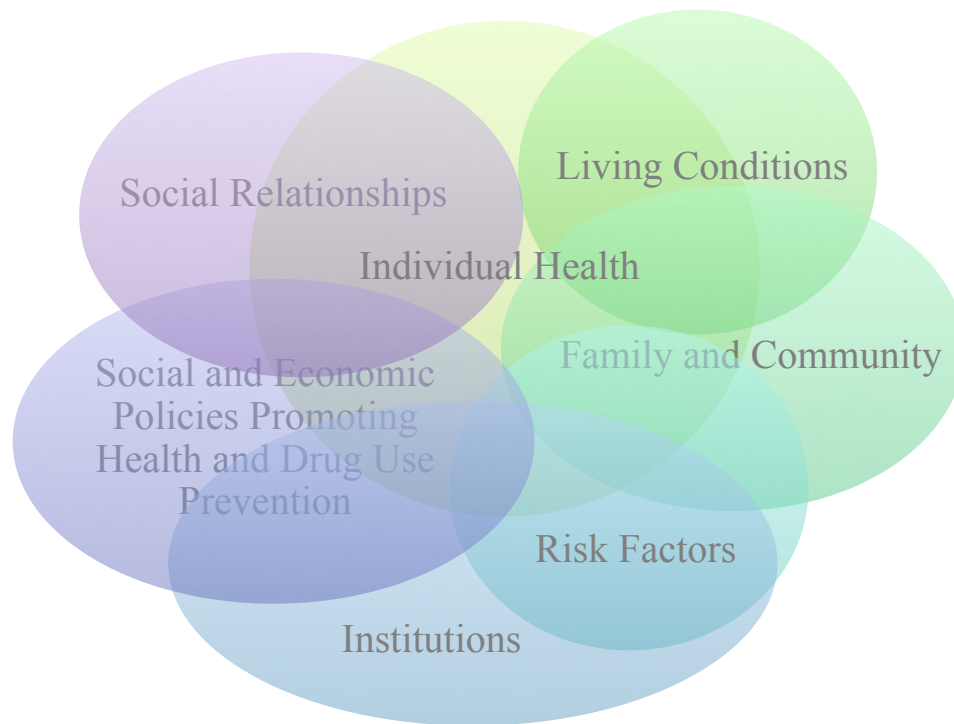
The ecological model helps approach prevention methods and health promotion from various angles, ranging from the focus on individual health to genetic factors, living conditions to the role of institutions and policymaking bodies at the national and international level. There are two key concepts underlying the theoretical concept of this model: “First, behaviour both affects, and is affected by, multiple levels of influence; second, individual behaviour both shapes, and is shaped by, the social environment (reciprocal causation)”⁷⁹ This model further goes in hand with Brazil’s strategy on preventing the use of alcohol and other drugs elaborated in 2015, which as a guiding principle makes use of the very same multi-layered concept.⁸⁰ It stresses a triple approach to prevention and treatment by focusing on the individual, the social, political and economic context and lastly, on the substance itself.

⁷⁸ U.S. Department of Health and Human Services (2005): p. 10.

⁷⁹ Ibid.

⁸⁰ Ministry of Health (2015): p. 6.

The Ecological Model: A multi-level and multi-layered approach to drug use prevention



(Source: KS Dolezal)

The illustration above shows that the ecological perspective is based on multiple layers of influence zones, which as a whole have an impact on health-related behaviour and conditions: these levels consist of the intrapersonal/individual level, the interpersonal level, the institutional or organisational level, the community level and lastly, the public policy level.⁸¹ The model above shows seven different layers, which according to the five categories mentioned above, highlight the fact that health as well as prevention methods are not only based on one single level, but should rather be seen as an interconnected network of factors, which can be used in prevention. It is therefore not only individual health or the family/community which have an impact and influence on drug use as well as prevention, but also the policy level and institutions that should be taken into consideration when developing prevention methods. This research study focused on the non-medical use of prescription drugs will take into consideration all five levels in order to create an effective prevention program based on an interdisciplinary and multifaceted approach.

⁸¹ Ibid. p. 11.

It should further be mentioned that all interviews and the questionnaire conducted for this research project are based on this model. Interviewees were selected according to the multi-layered and multi-level paradigm of the ecological model: herewith, not only patients (representing the individual level) were interviewed for this thesis, but also pharmacists, psychologists, psychiatrists and other health professional working in the field of the prevention of the non-medical use of psychotropic substances. Additionally, interview questions were designed according to this model, requiring information concerning prevention in schools, but also homes and the community, in order to widen the picture of prevention and render it an all-encompassing intervention method, working at layers ranging from individual risk factors and health to pharmacies, institutions and policy makers.

3. Methodology: a quantitative and qualitative approach to research

3.1. Interviews: a qualitative approach

Beyond a profound analysis of the current literature available, the main and most important methodological approach to this thesis is based on a series of interviews conducted with policymakers, health professionals, university professors in the field of medicine, psychology and drug use prevention, as “interviews can be used to explore views, experiences, beliefs and motivations of individual participants”.⁸² Additionally, students taking methylphenidate non-medically were interviewed in order to shed light on the main reasons for using this substance outside of the treatment for any psychological disorder. Furthermore, personal conversations and discussions add a more dynamic approach to theoretical research and support the hypothesis and arguments with empirical knowledge and data. Especially when it comes to creating and implementing specific drug use prevention methods, empirical data is crucial to develop successful interventions. As the field of health promotion and drug use prevention relies on the analysis of sociological as well as psychological concepts of the individual and society, qualitative research methods, such as “interviews are believed to provide a deeper understanding of social phenomena than would be obtained from purely quantitative methods,

⁸² Gill, P. et al.; “Methods of data collection in qualitative research: interviews and focus groups” in *British Dental Journal* Vol. 204 (March 2008), pp. 291-295.

such as questionnaires”.⁸³ Therefore, it is crucial to combine the two methodological research models, which form a more comprehensive overview when combined.

It should be further highlighted that due to the fact that the phenomenon of the non-medical use of prescription drugs and its prevention methods have not yet been subject to major research and relatively little has been scientifically established so far, interviews are most appropriate, as they shed further light on the emerging topic. The fundamental purpose of interviews as a research method is to “listen attentively to what respondents have to say, in order to acquire more knowledge about the study topic” – the purpose is not to advise the person interviewed.⁸⁴

3.2. Survey: a quantitative approach

In order to support the thesis’ research aim, a questionnaire was developed to gather first-hand data on the use of methylphenidate among university students in Brasilia, Brazil’s capital and one of the centres of public examinations. The questionnaire entitled “The use of methylphenidate (Ritalin, Concerta) among university students in Brasilia” contained 14 basic questions concerning the use of methylphenidate and was distributed electronically among members of the University of Brasilia (UnB) Facebook groups. Brasilia was chosen as a sample, as it is not only the country’s capital, but also an important hub attracting students and so-called *concurseiros*⁸⁵ from across the country. Its largest university UnB accepts more than 27,000 students each year.⁸⁶ As findings suggest a positive correlation between the amount of public examinations (*concursos publicos*) and the non-medical use of Ritalin, Brasilia seemed the ideal city to conduct a questionnaire. The purpose of this questionnaire was to find out more about methylphenidate use patterns among Brazilian students in Brasilia in order to support the argument that there is an excessive use of methylphenidate in Brazil, implying non-medical use, especially among students.

The 14 basic questions of the survey aimed at gaining a more profound understanding concerning the profile of users, such as age, sex, university course and the main motivations and reasons behind the non-medical use of methylphenidate. As Concerta could theoretically

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Portuguese term for the group of people who are taking a public examination.

⁸⁶ http://unb2.unb.br/administracao/decanatos/deg/downloads/cil/numero_de_alunos.pdf.

also be used non-medically, the student's familiarity with Concerta was asked for. The last few questions aimed at finding out more about the student's experience of possible side effects Ritalin could have on the user's body, especially when taken non-medically. Lastly, students were asked to provide further information on whether they had, if at all, taken methylphenidate along with any other drugs. As poly-drug use is a common phenomenon and can have lethal consequences, the inclusion of this question seemed important in order to draw a more complete picture of the drug use among university students (for further information on the questionnaire please see the Annex, where a sample is available).

4. Prescription drug use in Brazil: a special focus on methylphenidate

4.1. Methylphenidate: an introduction

Prescription drugs can be divided into five main groups according to their chemical effect on the human brain: tranquilisers (e.g. benzodiazepines such as diazepam), analgesics/painkillers (e.g. opioids such as oxycodone), sedatives (e.g. flunitrazepam), antidepressants (e.g. fluoxetine) and stimulants (e.g. methylphenidate).⁸⁷ As each of these categories is based on different psychological and medical conditions, and therefore may require tailored treatment and prevention programmes, this thesis will only analyse the use of stimulants in the form of methylphenidate as an amphetamine-like substance in Brazil.

Methylphenidate, which was first licensed by the US Food and Drug Administration (FDA) in 1955, is a central nervous system stimulant, which acts by blocking the dopamine transporter leading to an increase in concentration. This substance can be found in Schedule II of the 1971 UN Convention on Psychotropic Substances, characterising it as “[a substance with] a high potential for abuse which may lead to severe psychological or physical dependence.”⁸⁸ According to Article 2 of the International Convention, all substances in Schedule II “require licences for manufacture, trade and distribution”, “require medical prescriptions for supply or dispensing” and “need to comply with the obligations relating to export and import”.⁸⁹

⁸⁷ <https://www.unodc.org/unodc/en/drug-prevention-and-treatment/non-medical-use-prescription-drugs.html>.

⁸⁸ UN (1971), table entitled “Substances in Schedule II”, Annex. Known under its chemical name *Methyl alpha-phenyl-2-piperidineacetate*.

⁸⁹ 1971 Convention, Article 2 (b), p. 3.

The system of Schedules (I-IV) as laid out in the 1971 UN Convention for psychotropic substances serves as international indicators of requires substance control. According to the INCB, there are currently 125 psychotropic substances to be found in one of the four schedule, which function according to level of hazard or risk; Schedule I being the most controlled and Schedule IV the least, respectively.⁹⁰ By being a state party to the Convention, each country needs to control these substances at least to the same level as scheduled in the Convention at the national level. Each country's drug administration authority is therefore responsible for controlling and monitoring these substances through specific legislation.

It depends on each country's preferences and legislation to develop a comprehensive system of control, as deemed necessary and according to national challenges and problems. Most of the psychotropic substances scheduled under the 1971 Convention "act on the central nervous system, which include stimulants [such as methylphenidate], depressants, analgesics and antidepressants".⁹¹ Despite their importance within mental healthcare, only five psychotropic substances are currently included in the latest WHO *Model List of Essential Medicines*.⁹² National drug administration authorities, such as the FDA in the USA or the National Sanitary Surveillance Agency (ANVISA) in Brazil, need to take into consideration the need to ensure the availability of these substances to treat medical disorders, while preventing misuse and diversion.⁹³

Regarding the discussion surrounding essential medicines and each government's responsibility to control scheduled substances, while still ensuring adequate availability and accessibility, it is important to highlight the WHO's guidelines on the rational use of medicines.⁹⁴ This further plays a role in prevention, which will be analysed in the chapter dedicated to prevention methods of the non-medical use of prescription drugs. The WHO defined rational use as "[the need to] receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community".⁹⁵ To this end, each country's national drug control authority is not only responsible for providing a sound legal basis regarding the

⁹⁰ INCB (2016a): p. 37.

⁹¹ Ibid.

⁹² WHO, Model List of Essential Medicines, 19th list (April 2015, amended June 2015), available at: www.who.int/medicines/publications/essentialmedicines [last retrieved: 26.04.2017].

⁹³ UNODC (2011a): p. 1.

⁹⁴ WHO Rational Use of Medicine available at: http://www.who.int/medicines/areas/rational_use/en/.

⁹⁵ WHO (2012): p. 1.

control of substances, but equally for ensuring the availability and diffusion of adequate information about the rational use of medicines.

In Brazil, ANVISA was established in 1999 by then President Fernando Henrique Cardoso in order to promote health by controlling hygiene, the consumption of medical products and services in the field of sanitary surveillance.⁹⁶ As a result, this organ is responsible for the control of all substances scheduled under the UN Conventions (not only psychotropic, but also narcotic substances). As imports and exports of substances also fall into this category, an outpost of ANVISA can be found not only inside Brazil, but also airports, ports, boarder areas and custom areas.

As methylphenidate can be found in Schedule II of the 1971 Convention, the same (or higher) control also applies to Brazil. Therefore, ANVISA has made methylphenidate available only under two trade names: Ritalin and Concerta. The system of schedules and list of substances and medicines that are subject to special control goes beyond the system of four Schedules as found in the 1961 and 1971 Conventions.⁹⁷ According to the directive *Portaria n.º 344* from May 1998, which regulated substances in a technical and comprehensive way for the first time in Brazil in line with the UN Conventions, there were fourteen lists created, each containing substances subject to different forms of control: A1, A2, A3, B1, B2, C1, C2, C3, C4, C5, D1, D2, E, F. In the following years, lists F2, F3 and F4 were added in order to keep up with the growing market of psychoactive drugs.⁹⁸ Since the beginning of this process methylphenidate was placed into the category *Lista A3* for psychotropic substances.⁹⁹ As the control of substances is subject to constant change, exclusion, inclusions and changes to the list of substances under special control are published on the website of ANVISA regularly – methylphenidate, however, has not been subject to any change so far.¹⁰⁰

It seems crucial to briefly analyse prescription methods regarding methylphenidate in order to better understand the distribution methods of this substance in Brazil. As laid out in the *Portaria SVS/MS n.º 344*, there are three different kinds of prescription, easily recognisable by their different colours: yellow (Group “A”, being the most controlled), blue (Group “B”) and

⁹⁶ Established according to *Lei n.º 9.782* on 26.01.1999, available at: <http://portal.anvisa.gov.br/institucional> [last retrieved: 25.04.2017].

⁹⁷ List of substances, ANVISA, available at: www.portal.anvisa.gov.br [last retrieved: 25.04.2017].

⁹⁸ Interview, Brasília, 28.04.2017.

⁹⁹ Ibid. p. 56.

¹⁰⁰ Changes and modifications to the List of Controlled Substances in Brazil can be traced at: <http://portal.anvisa.gov.br/lista-de-substancias-sujeitas-a-controle-especial> [last retrieved: 26.04.2017].

white.¹⁰¹ Prescriptions of the type “A” (*Image I*) include all substances found in *Lista A1*, *A2* and *A3*, generally containing narcotics with the exception of *Lista A3* referred to as psychotropic substances, such as methylphenidate, and can be valid up to 30 days.¹⁰² Prescriptions of the type “B” (*Image II*) include all psychotropic substances found in *Lista B1* and *B2* and can be valid up to 60 days. Lastly, white prescriptions are required for all substances found in *Lista C2* containing so-called retinoids (vitamin-like substances). All other substances found in the *Portaria n.º 344* are subject to special prescription orders and in some cases even under the control of the Ministry of Justice.

NOTIFICAÇÃO DE RECEITA

UF NÚMERO

Data de de

Assinatura do Emitente

IDENTIFICAÇÃO DO EMITENTE

Paciente

Endereço

ESPECIALIDADE FARMACÊUTICA

Nome:

Quantidade e Apresentação

Forma Farm. Concent. /Unid. Posologia

IDENTIFICAÇÃO DO COMPRADOR

Nome:

Endereço:

Identidade Nº: Órgão Emissor: Telefone:

IDENTIFICAÇÃO DO FORNECEDOR

Nome

Data

Dados da Gráfica: Nome - Endereço Completo - CGC

Image I: *MODEL Prescription form “A”*, Conselho Regional de Farmácia do Estado do Paraná, “Manual para a Dispensação de Medicamentos – Sujeitos a Controle Especial”, 4th Edition 2015, page 24.

NOTIFICAÇÃO DE RECEITA

UF NÚMERO

de de

Assinatura do Emitente

IDENTIFICAÇÃO DO EMITENTE

Paciente:

Endereço:

Medicamento ou Substância

Quantidade e Forma Farmacêutica

Dose por Unidade Posológica

Posologia

IDENTIFICAÇÃO DO COMPRADOR

Nome:

Endereço:

Telefone:

Identidade Nº: Órgão Emissor:

CARIMBO DO FORNECEDOR

Numeração desta impressão: de a

Dados da Gráfica: Nome - Endereço Completo - CGC

Image II: *MODEL Prescription form “B”*, Conselho Regional de Farmácia do Estado do Paraná, “Manual para a Dispensação de Medicamentos – Sujeitos a Controle Especial”, 4th Edition 2015, page 25.

¹⁰¹ Portaria SVS/MS nº 344, 12.05.1998, “Aprova o Regulamento Técnico sobre substâncias e medicamentos sujeitos a controle especial”, “Notificação de Receita”, p. 1, available at: [last retrieved: 25.04.2017].

¹⁰² Medical prescriptions, ANVISA, available at: http://portal.anvisa.gov.br/informacoes-tecnicas13/-/asset_publisher/FXrpx9qY7FbU/content/receitas-medicas/219201/pop_up?_101_INSTANCE_FXrpx9qY7FbU_viewMode=print&_101_INSTANCE_FXrpx9qY7FbU_languageId=en_US [last retrieved: 25.04.2017].

Regarding the use of methylphenidate products for a patient, the yellow prescription, commonly known as *Receita Amarela*, is required. However, not every physician or psychiatrist has automatic access to these prescriptions. In order to avoid abuse and protect patients, further control measures are placed on yellow and blue prescriptions, making them subject to a complex bureaucratic process. Group A and B prescriptions, yellow and blue respectively, have to be registered and signed by the Regional Council of Medicine (Portuguese: Conselho Federal Medicina/RCM), which functions as a public agency in charge of professional regulation and medical licensing.¹⁰³ It is headquartered in Brasília, the country's capital, but is further represented by a regional Council in each of the 26 Brazilian *estados* (English: States). As a result, each physician with the intention to prescribe substances subject to controlled prescription methods needs to go to the regional Council in person every two or three months in order to obtain for himself/herself a booklet containing a certain number of prescriptions. Psychiatrist Dr Fernanda Ramallo pointed out that “as these prescriptions usually do not last for more than two to three months, I evaluate the situation of the patient very well; whether he/she really needs to be medicated. This further functions as a type of prevention. As prescription paper is rare and precious, we do not waste it”.

4.2. The non-medical use of methylphenidate

In Brazil methylphenidate is sold under three different commercial names: Concerta, Ritalin and Ritalin LA.¹⁰⁴ Interviews conducted for this thesis in pharmacies and with psychiatrists in four different Brazilian cities show that Ritalin is sold and prescribed more commonly than Concerta. However, these numbers may vary according to the psychiatrist's or neurologist's preference of prescribing Ritalin or Concerta, respectively, to treat ADHD.¹⁰⁵

Depending on the patient's needs and reaction to the substance, Ritalin seems to be the preferred brand for prescription.¹⁰⁶ A similar pattern was identified in a study conducted

¹⁰³ Ibid.

¹⁰⁴ For more detailed information on the pharmacology of Ritalin/Ritalin LA, please see:

https://www.pharma.us.novartis.com/sites/www.pharma.us.novartis.com/files/ritalin_ritalin-sr.pdf

or

http://www.anvisa.gov.br/datavisa/fila_bula/frmVisualizarBula.asp?pNuTransacao=1975702014&pIdAnexo=1989280.

¹⁰⁵ See list of interviews for more information

¹⁰⁶ It should be noted that this statement is not representative for all of Brazil. However, this is the result identified in the field research conducted for this thesis in four different cities, primarily in the Central-West, Southeast and South (three of the five regions) of Brazil.

among 2,087 American college students. This survey found that Ritalin was the preferred product containing methylphenidate and that Concerta was the least preferred among respondents of this study.¹⁰⁷ Further, when used non-medically, the study revealed that Ritalin was used for recreational purposes and partying, while Concerta was used almost exclusively for work or study purposes.¹⁰⁸



Image III: Types of Ritalin available in Brazil, São Paulo, 14.04.2017, source: Katharina-Sophia Dolezal.

Traditionally, methylphenidate is used medically to treat patients with ADHD in order to allow them to increase their capacity to concentrate and decrease their inattention or in some cases narcolepsy, a sleeping disorder.¹⁰⁹ According to the American Psychiatrist Association (APA), ADHD is defined as a "persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development".¹¹⁰ As these symptoms can be rather vague and found in many people, the APA developed the *Diagnostic and Statistical Manual of Mental Disorders*, the very guidelines used universally in order to better diagnose patients in a consistent manner.

First published in 1952 in the aftermath of World War II, the fifth edition, known by its abbreviation DSM-V, was published in 2013.¹¹¹ DSM-V places ADHD within the group of neurodevelopmental disorders, as "[this disorder] typically manifest[s itself] early in

¹⁰⁷ DuPont et al. (2008): p. 6.

¹⁰⁸ Ibid. p. 7 and 9.

¹⁰⁹ ANVISA, Information leaflet Ritalina e Ritalina LA (cloridrato de metilfenidato), available at: http://www.anvisa.gov.br/datavisa/fila_bula/frmVisualizarBula.asp?pNuTransacao=1975702014&pIdAnexo=1989280 [last retrieved: 27.05.2017].

¹¹⁰ Definition of ADHD according to the DSM5 outlined on the ADHD Institute's website (an educational platform developed and funded by Shire), available at: <http://adhd-institute.com/assessment-diagnosis/diagnosis/dsm-5/> [last retrieved 30.04.2017].

¹¹¹ <http://dsm.psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596>.

development, often before the child enters grade school, and [is characterised] by developmental deficits that produce impairments of personal, social, academic or occupational functioning. The range of developmental deficits varies from very specific limitations of learning or control of executive functions to global impairments of social skills or intelligence”.¹¹² Further, for children six or more of the symptoms as outlined in the table found in the section “Diagnostic Criteria and Codes” have to be detected by the psychiatrist in order to deliver a diagnosis. For adults (17 years and older), on the other hand, five or more symptoms are considered sufficient for a diagnosis of ADHD. These symptoms must have persevered for at least six (or more) continuous months “to a degree that is inconsistent with [their] developmental level, and that negatively impacts directly on social and academic/occupational activities”.¹¹³

As an alternative to using DSM-V to statistically classify diseases, the WHO developed the so-called *International Classification of Diseases and Related Health Problems* (ICD), which was first published in 1893 as the *Bertillon Classification of Causes of Death*, named after the French physician Jacques Bertillon, and is currently available in its 10th edition.¹¹⁴ Chapter V of the ICD is dedicated to classifying mental and behavioural disorders, such as ADHD. Generally speaking, DSM-V is used more frequently in the United States and for research purposes, while ICD-10 is being consulted to diagnose a patient.¹¹⁵ Although these two manuals have been developed in a similar fashion, it ultimately depends on each psychiatrist’s preference and habit in using the DSM or ICD. For example, for this thesis two psychiatrists were interviewed concerning their diagnostic methods. While one consults DSM-V, the other prefers ICD-10 to deliver a diagnosis and uses DSM-V for research purposes only. These results illustrate that it very much depends on the psychiatrist’s personal preference in choosing the “most suitable” manual.

It is crucial to understand how ADHD is diagnosed in order to better understand the over-prescription of Ritalin, the product containing methylphenidate most used. When analysing the criteria as stated in the DSM-V, it seems that the average person could suffer from many of these symptoms, such as “often does not seem to listen when spoken to” or “often has

¹¹² DSM-V, available at: <http://dx.doi.org/10.1176/appi.books.9780890425596.dsm01> [last retrieved: 24.04.2017].

¹¹³ Ibid.

¹¹⁴ WHO, “Classifications: International Standard” and “History of ICD”, available at: <http://www.who.int/classifications/icd/en/> [last retrieved: 26.04.2017].

¹¹⁵ Interview, São Paulo, 18.04.2017.

difficulty waiting their turn”.¹¹⁶ In this context, psychiatrist Dr Fernanda Ramallo pointed out that further conversations, therapy and experience is needed to detect whether a patient is suffering from ADHD, a different mental health disorder or has the intention to attain a prescription for the non-medical use of Ritalin.

Patterns of the non-medical use of methylphenidate detected in Brazil

In order to discuss possible prevention methods of the non-medical use of methylphenidate in Brazil, it is crucial to briefly analyse the current situation of methylphenidate within Brazilian society in general. Only once the degree of the non-medical use of methylphenidate has been defined and supported through data as well as empirical research, can a discussion on its prevention follow. This subchapter will therefore look at methylphenidate use worldwide and in Brazil, as well as deliver an approximate image of who the users and what their motives are. This will serve as a basis for the following chapters on prevention. Only when motives and reasons behind the non-medical use of a prescription drugs are clear, prevention methods can be discussed. Therefore, it is essential to dedicate a subchapter to the *status quo* of the consumption and market of methylphenidate, before elaborating interventions to prevent its excessive use.

As mentioned above, central nervous stimulants controlled under the 1971 Convention are not recognised by the WHO as essential medicines and can therefore not be expected to be part of the minimum requirements for a basic healthcare system.¹¹⁷ While developed countries frequently suffer from an oversupply and excessive availability of psychotropic substances, developing countries lack sufficient supply and are particularly challenged to grant access to medicine in general, lacking the infrastructure needed. However, in contrast to most psychotropic substances, “amphetamines and methylphenidate are the only stimulants in Schedule II that are manufactured and traded in large quantities” worldwide.¹¹⁸

It is crucial to mention that while abuse and diversion should be prevented on a large scale, availability and accessibility should be promoted and ensured. Within the international arena, this concept was highlighted by the adoption of Resolution 53/4 and Resolution 54/6 on

¹¹⁶ See Table I.

¹¹⁷ It should be mentioned that the emphasis is put on central nervous stimulants, such as methylphenidate. This is not to be seen as a generalization, as there are psychotropic substances that were listed as essential medicines by the WHO. However, there are still much more narcotic drugs listed as essential medicines than psychotropic substances.

Source: INCB (2016a): p. 38.

¹¹⁸ Ibid.

“Promoting adequate availability of internationally controlled licit drugs for medical and scientific purposes while preventing their diversion and abuse ” adopted by the CND in 2010 and 2011, respectively.¹¹⁹

The importance of striking a balance between ensuring availability on the one hand and prevention on the other hand was further affirmed by the UNGASS outcome document stating that “we [the international community] highlight the need to enhance national efforts and international cooperation at all levels to address that situation by promoting measures to ensure their availability and accessibility for medical and scientific purposes, within the framework of national legal systems, while simultaneously preventing their diversion, abuse and trafficking, in order to fulfil the aims and objectives of the three international drug control conventions”.¹²⁰

Despite the lack of availability and accessibility of certain psychotropic substances, the consumption of methylphenidate has increased steadily over the past twenty years worldwide. According to the INCB, consumption levels were seven times higher in 2000 than in the 1990s and have reached a new record of 2.4 billion S-DDD (Defined Daily Dose) in 2012.¹²¹ Although the United States have always been the frontrunner regarding the consumption of methylphenidate, a stark rise has equally been observed in other countries. *Map I* shows how methylphenidate consumption increased from 2004-2006 until 2011-2013 worldwide. While the Americas, Europe and Oceania have seen a stark increase in consumption, Africa and Asia were almost not concerned at all by this phenomenon. The coloured maps (*Map II* and *Map III*) further highlight the change in methylphenidate use during the same time period. It should be noted that the USA is mostly responsible for this change that gives rise to concern (> 10 S-DDD per 1,000 inhabitants). However, Map I and II equally emphasise a rapid change in Chile, Costa Rica and Brazil, which moved from 0-1 S-DDD between 2004-2006 to 1-2 S-DDD between 2001-2013 (see maps below).¹²²

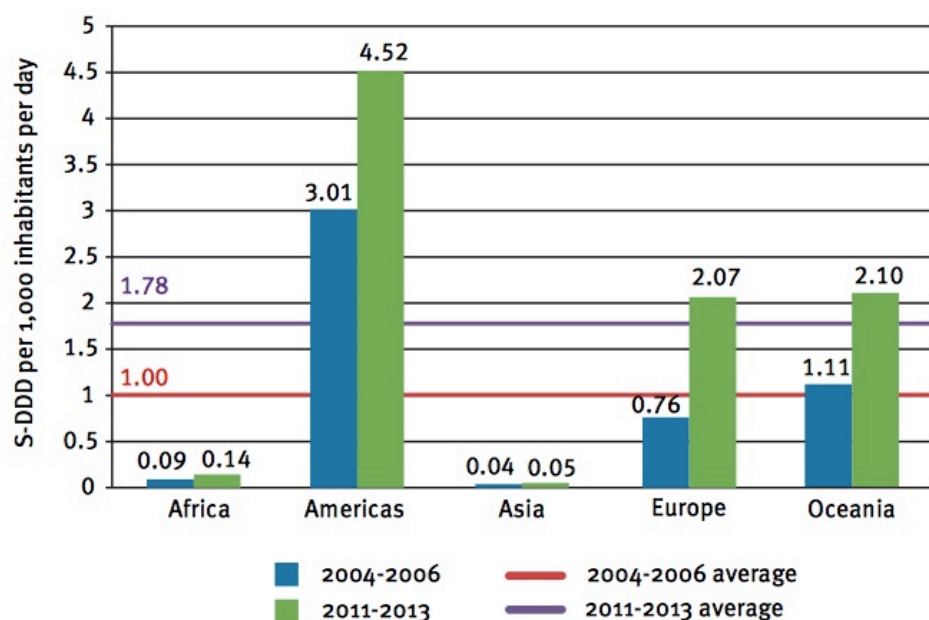
¹¹⁹ Commission on Narcotic Drugs, Resolutions, 2010 and 2011, available at: https://www.unodc.org/unodc/en/commissions/CND/Resolutions_Decisions/Resolutions-Decisions_2010-2019.html#2010 [last retrieved: 27.04.2017].

¹²⁰ UNGASS Outcome Document, 2016, United Nations New York, available at: <https://www.unodc.org/documents/postungass2016/outcome/V1603301-E.pdf> [last retrieved: 25.04.2017].

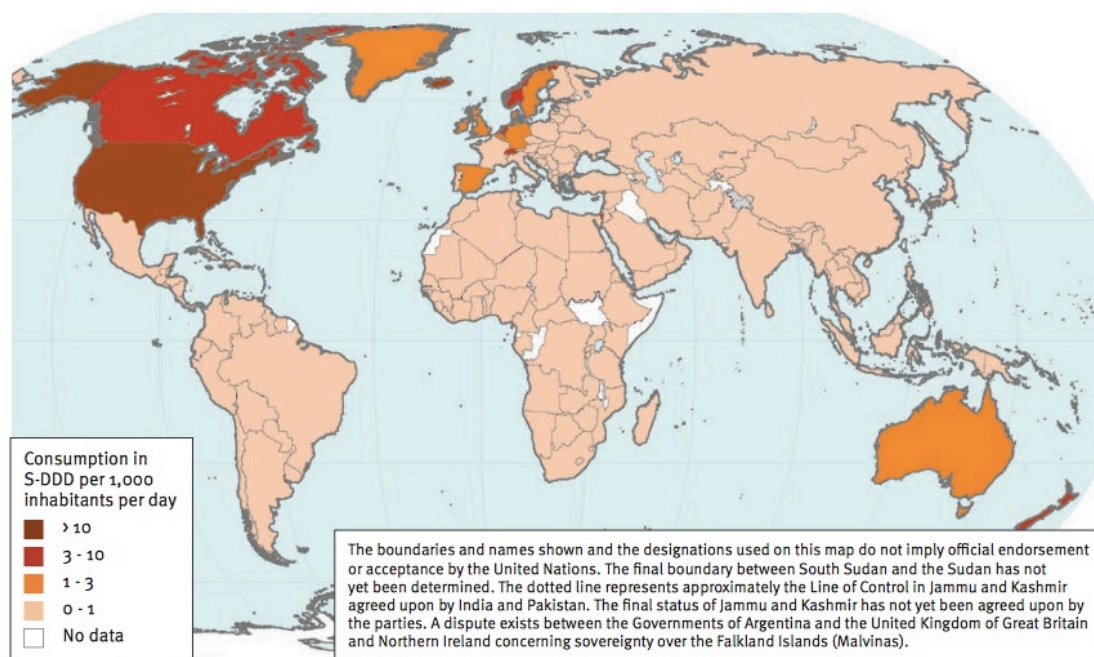
¹²¹ INCB (2016a): pp. 46-47.

S-DDD (per 1,000 inhabitants) stands for “defined daily doses” was calculated by the INCB for statistical purposes. In order to read more about the defined daily doses for psychotropic substances as formulated by the INCB go to: INCB; Psychotropic Substances (2016), available at: https://www.incb.org/incb/en/psychotropic-substances/technical_reports/technical_reports-index.html [last retrieved: 28.04.2017].

¹²² Ibid. p. 49.

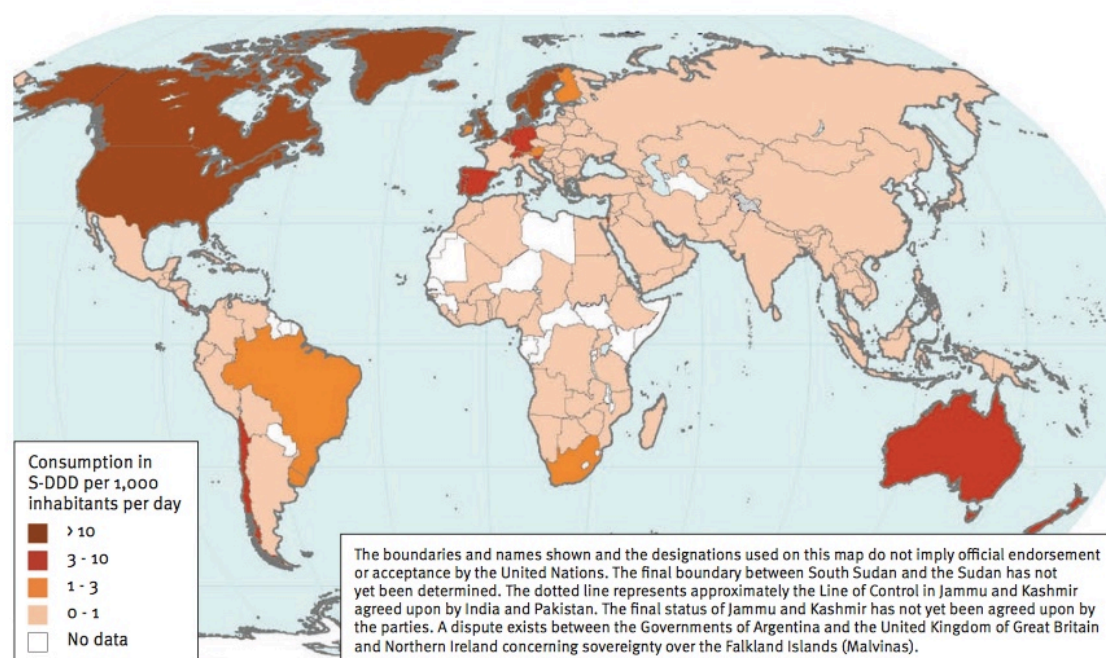


Map I: Consumption of methylphenidate, all regions, 2004-2006 and 2011-2013, source: INCB (2016a), p. 48.



Source: International Narcotics Control Board.

Map II: Average national consumption of methylphenidate, 2004-2006, source: INCB (2016a), p. 4.



Source: International Narcotics Control Board.

Map III: Average national consumption of methylphenidate, 2011-2013, source: INCB (2016a), p. 49.

According to the INCB's *Report on Psychotropic Substances* (2016), manufacture of methylphenidate has increased worldwide: "after reaching a record low of 62 tons in 2014, global manufacture reached a record high of 72 tons in 2015 (the highest level since the 1990s)".¹²³ The report further highlights that the USA accounts for approximately 73% of total output. In a similar fashion to rising consumption patterns, international trade has equally increased sharply from 920 kg to 32 tons during the period from 1994-2014.¹²⁴

However, the maps above also show rising trends in other parts of the Americas, such as Brazil. The same report mentions Brazil among the countries with the highest levels of reported consumption of methylphenidate in the period from 2013-2015.¹²⁵ According to the INCB's table on consumption rate, Brazil reported 0.56 for 2013 and 0.65 for 2014 of S-DDD (per 1,000 inhabitants per day), respectively.¹²⁶ Regarding the calculated consumption of methylphenidate during the period of 2003-2005 with that of 2013-2015, it can be observed that Brazil experienced an increase from 0.10 to 0.56 S-DD during this timeframe. However, it should be mentioned that the calculated level of consumption differs slightly from the

¹²³ INCB (2016b): p. 35.

¹²⁴ Ibid.

¹²⁵ It should be mentioned that this calculation is based on the statistics provided by governments. Therefore, the quality of the analysis depends on the quality of the data provided. (for more information see INCB report p. 29)

¹²⁶ Ibid. p. 36.

reported version between 2012-2015: while 0.40 S-DDD was reported for this time period, the INCB's calculation was 0.56 S-DDD.

In the case of Brazil, more methylphenidate is imported from abroad than produced domestically. The Government reported to the INCB in 2011 that 227 kg of methylphenidate was manufactured domestically, 274 kg accounted for manufacturers' stocks and 710 kg were imported, which shows that imports make up a larger part than domestic production.¹²⁷ In this context, it should be mentioned that Brazil does not export any methylphenidate. Therefore, it is slightly easier to calculate how much methylphenidate is consumed domestically. Further, the quantities of exported methylphenidate increased steadily, reaching an unprecedented high in 2013 amounting to 1.820 kg.¹²⁸ These numbers dropped slightly in 2014 and 2015, reaching approximately 990kg in both years.

While in Brazil, Concerta is provided by Janssen-Cilag Farmacêutica and was approved for sale in 2002, Ritalin and Ritalin LA¹²⁹ [Ritalin (10 mg / 23 or 60 pills) and Ritalin LA (10, 20, 30 or 40 mg / 30 capsules)] are both produced by Novartis Biociências, being the oldest product of methylphenidate in Brazil since 1998.¹³⁰ While all variations of this medicine are to be taken orally, Ritalin LA is regarded to be stronger in its effect than normal Ritalin, as it is based on an extended-release formulation of methylphenidate with a bi-modal release profile. This means that Ritalin LA has a longer effect on the brain, as it releases methylphenidate slower and is therefore active up to eight hours. However, as the substance is released slower and in waves, consumers often suffer from strong headaches and mood swings.¹³¹ Further, the price difference plays a significant role in the choice of medicine (perhaps especially relevant for those who wish to use Ritalin in a non-medical way):¹³²

- Ritalin 10 mg (20 pills): ~ R\$ 34
- Ritalin 10 mg (60 pills): ~ R\$ 64
- Ritalin LA 10 mg (30 capsules): ~ R\$ 81

¹²⁷ Ibid. p. 209. Table on methylphenidate import and domestic production.

¹²⁸ Ibid.

¹²⁹ It should be mentioned that Ritalina LA is known as Ritalin SR in the US and other English speaking countries, as "SR" stands for "Sustained Release" and "LA" for its Portuguese equivalent (*Liberção Lenta / Modificada*). However, as research was carried out with a focus on Brazil, the term Ritalin LA will be used.

¹³⁰ ANVISA, Information leaflet Ritalina e Ritalina LA (cloridrato de metilfenidato), available at: http://www.anvisa.gov.br/datavisa/fila_bula/fmVisualizarBula.asp?pNuTransacao=1975702014&pIdAnexo=1989280 [last retrieved: 27.05.2017].

¹³¹ This statement is based on a psychiatrist's perception.

¹³² The prices for Ritalin, Ritalin LA and Concerta were given away during an interview in a pharmacy held on 17.04.2017 in São Paulo. Other pharmacies as well as the Internet show similar tendencies in prices. However, it should be mentioned that many pharmacies in Brazil sell medication with a discount upon registration.

- Ritalin LA 20 mg (30 capsules): ~ R\$ 116
- Ritalin LA 30 mg (30 capsules): ~ R\$ 227
- Ritalin LA 40 mg (30 capsules): ~ R\$ 237.

When compared with Concerta, two compelling reasons concerning the preference of prescribing Ritalin over Concerta have been identified in the interviews conducted for this thesis. Firstly, Concerta is significantly more expensive than Ritalin; a factor, which, from an ethical point of view, should not make any difference in the choice of prescribing substances, but does matter from a financial point of view. Further, Concerta seems to be less available and accessible in pharmacies, especially without a valid prescription. Further, some patients interviewed (see questionnaire) seem to have suffered from stronger side effects than with Ritalin.¹³³ In this context, a pharmacist working in Brasilia mentioned during an interview that most customers already come with a prescription for Ritalin and those, who were originally prescribed Concerta, frequently change medication within the first few months due to strong headaches and loss of appetite.¹³⁴ As a comparison, prices for Concerta are listed below:

- Concerta 18 mg: R\$ 363
- Concerta 36 mg: R\$ 493
- Concerta 54 mg: R\$ 493

Therefore, Concerta can be compared to Ritalin LA in structure, effect and use. Due to the many side effects these two medicines may cause, consumers seeking to use methylphenidate non-medically chose normal Ritalin in order to minimise the side effects.

In order to discuss prevention methods of the non-medical use of methylphenidate, this paragraph is dedicated to analysing the profile of users taking methylphenidate other than as prescribed in Brazil. Only if the type of users and his/her motivation behind the non-medical use are clear, can prevention methods be implemented successfully, namely targeting the right audience. According to the interview conducted with psychiatrist Prof Dr Sheila Cavalcante Caetano, there are three different types of non-medical users of methylphenidate in Brazil. This excludes all users who were prescribed methylphenidate in order to treat ADHD or

¹³³ See questionnaire (results). This is not a scientifically proven statement; however, psychiatrists interviewed for this thesis have perceived more side effects in patients taking Concerta. However, it ultimately depends on the individual's preference.

¹³⁴ Interview, São Paulo, 18.04.2017.

narcolepsy (in rare cases). The three major groups using methylphenidate non-medically are firstly, so-called *concurseiros* (this term refers to the group of people studying for a particular exam called *concurso publico*, which will enable them to work in the public sphere, such as hospitals or the government), secondly, truck drivers and lastly, persons seeking to lose weight.

In their study on social representation among university students who use methylphenidate, Denise Borges Barros and Francisco Ortega identified three similar profiles: persons using methylphenidate for recreational purposes, persons using methylphenidate for aesthetic reasons in order to lose weight and persons using methylphenidate in order to increase their academic performance by staying awake.¹³⁵ According to the findings resulting from the research activities conducted for this thesis, students seem to account for the majority of methylphenidate consumption for non-medical purposes.¹³⁶

The first and most common type of non-medical user¹³⁷ is the group of *concurseiros* and adolescents studying for the so-called *vestibular*, the entrance exam for any Brazilian university. At the moment, there are more than 2.665 universities registered in the country's vestibular system.¹³⁸ As these exams are very competitive and difficult in nature as well as rely on a student's capacity to remember details written in a textbook, students often lack self-confidence and feel the need to use medication in order to increase their chances of success. A Brazilian student of International Relations highlighted during an interview that:

*"If you know that you are not one of the best students and your chances of passing a very important exam, which will decide your future, are quite low, you start thinking about alternatives. These days, especially in the big Brazilian cities, everyone knows about Ritalin. We call it Tia Rita (Portuguese for Aunt Rita). It is very easy to buy it at school campus. If you don't know anyone, your friends will. I know that it's not the best of options, but if your entire future depends on one exam and there is only one place for about twenty people competing, taking a promising pill to make you focus more seems like a good alternative to failing."*¹³⁹

¹³⁵ Ortega and Barros (2011): p. 352.

¹³⁶ Interview with Barros (20.04.2017) and Ramallo (19.04.2017).

¹³⁷ In this context, the term "user" refers to the non-medical use of methylphenidate.

¹³⁸ Cadastro e-MEC de Instituições e Cursos de Educação Superior, available at: <http://emec.mec.gov.br> [last retrieved: 1.04.2017].

¹³⁹ Anonymous, Interview held in Brasília, 30.04.2017.

These findings are further mirrored in the results of the questionnaire, which was specifically designed for this research project and was electronically sent to students of the largest university in Brasilia. As already mentioned, results show that out of 114 respondents to the survey, 35.3% have already taken products containing methylphenidate at least once in their life and for an average period of at least one month.¹⁴⁰ However, it should be mentioned that out of these 35.3%, almost half or 45.5% of students replied that the main reasons for taking methylphenidate was to treat ADHD and not to pass an exam. Concerning the motives behind the non-medical use of this substance, further 25% stated that they wanted to pass the *vestibular* exam and 11.4% to achieve better results on a public examination.

It should be highlighted that despite the fact that 45.5% supposedly took Ritalin as a treatment for ADHD, this would still mean that more than 20 respondents were diagnosed with attention deficit disorder by their psychiatrist. In this context, the high number of young people being diagnosed with ADHD should be regarded as a public health concern, as the high number of young people using Ritalin for cognitive enhancement purposes. Moreover, the questionnaire affirms the findings gained from interviews conducted in pharmacies that the substance most used is normal Ritalin as opposed to Ritalin LA or Concerta – which, usually, are primarily used to treat severe cases of ADHD, as they have a higher dosage of methylphenidate.

Furthermore, the interviews conducted for this thesis indicated that some medical doctors, especially during their residency programme, take Ritalin, as it is fairly easy to either obtain a prescription from one of your colleagues or, alternatively, write a prescription for yourself. As auto-prescription is illegal according to Brazilian law, persons seeking to take methylphenidate for their own purposes will simply put down a friend's or family member's name in the box reserved for the patient's name. A medical doctor, who is currently completing his first year of residency in São Paulo highlighted the following during an interview:

“The first three months of residency are the hardest. We work more than 100 hours per week. I usually start at 5 a.m. and return home at midnight. If I have to do a night shift, I do not get the following day off, but have to continue the entire day until midnight. I personally have never taken Ritalin to stay awake, but I know that it is a common practise among my

¹⁴⁰ For further results of the questionnaire see Annex and Chapter discussing the findings.

*colleagues. Many Brazilians would love to have this position, as obtaining a good residency in Brazil is very hard. We have to pass various exams. We don't complain, because someone else would take my spot immediately. One of my colleagues, for example, takes Ritalin, because she would not be able to stay awake and focus during her duties as a medical doctor. If other people depend on your performance and concentration, you do not think about whether using methylphenidate without having ADHD is ethical or not. It's about saving someone else's life."*¹⁴¹

In order to allow for a more profound analysis regarding the non-medical use of methylphenidate among Brazilian university students and so-called *concurseiros*, the second and third group of users, namely truck drivers, and persons wishing to lose weight, were not interviewed nor studied for this thesis. However, it should be mentioned that the latter group is growing, as the commercialisation of the amphetamines Anfepromona, Femproporex and Mazindol, traditionally used to treat obesity, was banned by ANVISA in 2011.¹⁴² As the WDR warned Brazil, especially due to its skyrocketing numbers in the consumption of amphetamines used especially by women non-medically to lose weight in 2011, ANVISA changed its policy concerning substances used to treat obesity the same year.¹⁴³

The fact that the US FDA banned the sale of various diet pills promoted by Brazilian companies highlights the global impact this issue has as well as the dangerous consequences for our entire public health system connected to their use.¹⁴⁴ While banning the three substances mentioned above, ANVISA liberated the use of sibutramine¹⁴⁵, which is said to equally treat the issue of obesity without the worrisome side effects the three banned substances had caused. However, psychiatrist Prof Dr Sheila Cavalcante Caetano pointed out that:

"As amphetamines are not available anymore, many women now try methylphenidate, as one of the common side effects caused by the use of methylphenidate, whether in the form of

¹⁴¹ Anonymous Interview, São Paulo, 30.04.2017.

¹⁴² Portal Brasil, „ANVISA prohibits the use of amphetamines used to lose weight“, available at: <http://www.brasil.gov.br/saude/2011/10/anvisa-decide-banir-emagrecedores-a-base-de-anfetaminas-mas-libera-sibutramina> [last retrieved: 1.05.2017].

¹⁴³ UNODC (2011b), INCB (2008): p. 73.

¹⁴⁴ FDA (2006): available at: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2006/ucm108578.htm> [last retrieved: 30.05.2017].

¹⁴⁵ Sibutramine is an oral anorexiant used to treat obesity and can be found in *Lista B2 – Substâncias psicotrópicas anorexígenas* within the Brazilian system of controlled substances.

*Ritalin, Ritalin LA or Concerta, is the loss of appetite and weight. The problem is that methylphenidate does not work in the exact same way in all individuals. People usually are unaware of the fact that there is a significant difference between the effects in healthy people and that in patients with ADHD. While we do not know how methylphenidate works exactly, we have years of evidence that it successfully treats ADHD. It is unknown why a stimulant works so well in people who are already agitated and hyperactive and as a result, calms them down and makes them more focused, perform better. However, when a healthy person takes Ritalin, the contrary may occur. Many healthy people taking methylphenidate inappropriately subsequently suffer from anxiety, gain weight and cannot concentrate at all. While some individuals with ADHD may lose appetite and weight, others may even gain weight, as he/she is becoming more anxious and therefore, soothes his/her mood swings with food. This is why it is crucial to see a psychiatrist prior to usage, as misuse can lead to undesired and very problematic side effects”.*¹⁴⁶

The group of truck drivers, who use methylphenidate non-medically in order to stay awake during long drives across the country, was not studied, as it is very difficult to conduct interviews directly with the persons concerned and would involve a closer analysis of the black market. Prof Dr Francisco Bastos from Fiocruz highlighted that there is still a lack of studies concerning this particular group, but its numbers should not be underestimated.¹⁴⁷

The group of university students was analysed most, as prevention programmes discussed in the context of this thesis target high school and university students. Furthermore, the literature on the use, both medical and non-medical, of methylphenidate among this age group is more abundant and coherent than on the other two groups. In order to focus on one group and therefore allow for a more detailed analysis, interviews and questionnaires used for this thesis did not tackle the issue of the non-medical use of methylphenidate among truck drivers and adults wishing to lose weight, who were not classified as students.

Lastly, it is important to clarify how people using methylphenidate non-medically obtain this substance without suffering from ADHD. This information is largely based on the interviews conducted for this thesis, the questionnaire and secondary literature. According to the interviews conducted with students, in pharmacies and with professionals working in the field of public health, methylphenidate is easily available at university campuses and within the

¹⁴⁶ Interview, São Paulo, 18.04.2017.

¹⁴⁷ Interview, Rio de Janeiro, 20.04.2017.

group of young people willing to pass a public exam despite its rigid control by ANVISA. As mentioned above, methylphenidate is regulated under Schedule II internationally, can be found under *Lista A3* in the Brazilian drug control system and is further only available with a yellow prescription form, being the most controlled. However, given the rise in prescriptions for ADHD and the excessive use of methylphenidate in the country, there must be other ways of buying this substance.

In this context, two different groups should be distinguished: persons obtaining methylphenidate with prescription and those buying the substance without prescription on the black market. According to a student interviewed for this research project, persons seek a yellow prescription by faking the symptoms required for a diagnosis of ADHD as laid out in DSM-V or ISD-10. This mechanism was further highlighted by a psychiatrist working in Rio de Janeiro:

“Many people come to my practice and tell me that they have read the symptoms of ADHD online and that they are sure that they need methylphenidate in order to feel better. However, a thorough analysis is required in order to diagnose patients with ADHD. When someone comes in and is already sure of his/her own diagnosis, I am even more cautious. Unfortunately, the abuse of Ritalin is very common these days, as people feel they need this substance to pass an exam at university or a public concurso. My receptionist sometimes even receives calls directly asking whether we prescribe substances requiring the yellow prescription form, as not all psychiatrists do so. It requires a lot of administrative and bureaucratic work in order to obtain a pile of yellow prescription forms every few months. Therefore, not all medical doctors work with this kind of controlled prescription mechanism.”¹⁴⁸

Prof Dr Sheila Cavalcante Caetano pointed out that: “It is quite easy to differentiate a person who really suffers from ADHD from a person who is simply faking the symptoms. When asking specific question, a person not suffering from ADHD usually fails in playing their role at one point. I ask very detailed questions in order to diagnose a patient, as methylphenidate is a very strong medicine and should not be used in healthy people, especially young ones.

¹⁴⁸ Interview, Rio de Janeiro, 19.04.2017.

Whenever a person is convinced that he/she needs methylphenidate, I sometimes have to disappoint them; I only prescribe Ritalin when really needed”.¹⁴⁹

Despite the fact that the psychiatrists interviewed for this thesis follow very rigid methods in diagnosing their patients, it is commonly known that there are psychiatrists who give away yellow prescription forms easier than others. A student interviewed mentioned that:

*“I went to a psychiatrist because I truly believed that I had ADHD. I couldn’t concentrate when studying and thought I should see a doctor. She asked me a few questions and let me do a few tests regarding memory, sounds and tested my capacity to focus on one task. When I was done I apparently met the criteria for ADHD in her eyes. She prescribed me Ritalin, already 3 boxes for one month. However, it did not show any effect and I stopped after one month. I felt indifferent with or without Ritalin. I then studied for the concurso and still got in – without Ritalin. I shouldn’t have done so, but I gave the rest of the pills to a friend, as I didn’t need them anymore.”*¹⁵⁰

It results from the interviews conducted that the most common way of obtaining Ritalin without a prescription is as stated in the last interview above: the market of “excessive” or “superfluous” boxes of methylphenidate. This can occur due to various reasons. Most often people are prescribed a higher dosage per month in order to avoid going to the doctors every single month to obtain a new prescription for the following month. The yellow prescription form is only valid for the dosage required for one month. This means that in theory, a patient would have to renew his/her prescription every month. However, as this seems too complicated and expensive (every appointment with a medical doctor is very costly) for both the patient and the doctor, many psychiatrists prescribe a higher dosage, which is supposed to last for two or even three months.

As a result, this very person, who was prescribed three times the amount really needed, is left with two extra boxes. Knowing of the potential market and the demand for methylphenidate at universities, a significant amount of these “excessive boxes” are sold for higher prices.¹⁵¹ An alternative to this model, is that due to the high prices of medication, some people can

¹⁴⁹ Interview, São Paulo, 18.04.2017.

¹⁵⁰ Interview, Brasília, 30.04.2017.

¹⁵¹ This occurs, if we assume, that the person returns to the medical doctor each month in order to get a new prescription. If methylphenidate is really needed for treatment and he/she does not want to return in order to obtain a new, valid prescription, these “extra” boxes would be used for the following months and would not be sold.

only afford two of the three boxes prescribed and as a result, the pharmacy is left with an extra box, which is officially registered within the system of ANVISA and does not appear to have been sold outside the legal framework. In this case, however, the pharmacy is left with an extra box, which is then sold illegally by pharmacists or pharmaceutical assistants to the black market and customers without valid prescription.¹⁵² A medical doctor as well as a pharmacist confirmed this market pattern by highlighting that “although big pharmacy chains cannot afford to sell Ritalin this way, smaller pharmacies do. The market for the non-medical use of methylphenidate is almost exclusively concentrated on Ritalin. Ritalin LA and Concerta are rather sold for patients with ADHD, as the side effects are more severe and the price is significantly higher”.¹⁵³

The results presented above show how products containing methylphenidate are obtained for non-medical use. This analysis is of great importance for this study, as prevention methods will have to tackle the very root cause(s), namely how this substance, which is already under the most rigid national and international control, is still so easily available. It is essential to mention that within the framework of the discussion regarding the non-medical use of methylphenidate, there is a valid and important use of this substance.

Frequently it is forgotten that methylphenidate can change lives, if used according a well-guided and comprehensive programme consisting of therapy and medication. The debate on its inadequate use has overshadowed the significant function of methylphenidate in treating ADHD.¹⁵⁴ Therefore, when analysing this topic, it should always be remembered that methylphenidate is a well-established psychotropic medication, which has been on the market for over fifty years in some countries and has successfully helped people with ADHD in leading a fairly normal life. In this context, psychiatrist Prof Dr Sheila Cavalcante Caetano highlighted that “I have a patient who forgets everything, she simply cannot handle any situation on her own. She always needs a secretary. With methylphenidate she remembers better and is more focused when working. She is one of those cases where Ritalin changes the life of a person for the better”.¹⁵⁵

¹⁵² Interviews, Rio de Janeiro, Brasília, 19.04.2017, 01.05.2017 and 30.04.2017.

¹⁵³ Interview, Brasília, 30.04.2017.

¹⁵⁴ Interview, São Paulo, 18.04.2017.

¹⁵⁵ Ibid.

In fact, a study published by Paulo Mattos et al. found that ADHD is even undertreated in Brazil. As big cities prevail in statistics, partly due to the high quantity of methylphenidate used non-medically for cognitive enhancement, rural areas are often neglected in discussion on this topic. The study calculated that in 2009 there were 1.413.460 boxes of methylphenidate sold in Brazil, which represents a total of 40.585.870 pills.¹⁵⁶ This entails that, if one pill is taken per day, 149.937 to 184.481 could be treated with methylphenidate.¹⁵⁷ The study equally calculated how many people are estimated to live with ADHD in Brazil, which resulted in a prevalence of 5.2 among people and 2.5 among adults – according to these findings, at least 927.732 Brazilians are estimated to suffer from ADHD. When these two different data sets are crossed, it is calculated that only 16.2 to 19.9% of individuals are currently with the much needed methylphenidate.¹⁵⁸

According to Prof Dr Sheila Cavalcante Caetano, this result confirms the calculations made by the WHO that seven times more psychotropic medication is needed to treat the number of people requiring treatment.¹⁵⁹ However, in many rural area people do not have access to medical facilities and frequently lack the education about psychological disorders. Therefore, educational programmes need to be brought to more isolated areas in order to teach the population (parents, students as well as health professionals and community workers) about medication and the rational use of medicines in general. These efforts should go hand in hand with effort to invest in the healthcare structure and medical equipment outside of larger metropolitan areas.

5. Drug use prevention in Brazil: results from the Interviews and the Questionnaire

5.1. Prevention in schools: Unplugged and the Good Behaviour Game (GBG)

Unplugged and the *Good Behaviour Game* were chosen for discussion in this thesis, as both prevention programmes were first implemented in the form of pilot projects and later became part of the curriculum in various Brazilian high schools since 2013. These programmes were selected by the Brazilian Ministry of Health and the Ministry of Justice in cooperation with

¹⁵⁶ Mattos et al. (2012): p. 513.

¹⁵⁷ Ibid.

¹⁵⁸ Ibid. p. 516.

¹⁵⁹ Interview, São Paulo, 18.04.2017

UNODC in order to start filling the gap of missing evidence-based prevention programmes in schools in Brazil.¹⁶⁰ Currently, there is only one drug prevention programme, which is being implemented across the country. This is known as *Programa Educacional de Resistência às Drogas e à Violência* (PROERD) in Portuguese and functions as the Brazilian adaption of the North American programme entitled Drug Abuse Resistance Education (DARE). This programme was first introduced in 1983 in the United States and culturally adapted to Brazilian standards in 1992, the year in which it was first implemented by the Military Police of the State of Rio de Janeiro.¹⁶¹ Since 2002 it has been introduced to all Brazilian States and is currently available in four different formats: PROERD for children's education and the first years of basic education, PROERD for grade V, PROERD for grade VII and lastly, PROERD for parents or other educators. However, other than PROERD, there are no widespread drug use prevention programmes available in Brazil, let alone, a list of programmes teachers and educators can choose from.

The Ministry of Health and the Ministry of Justice therefore decided to introduce a new series of programmes, which had successfully been implemented and studied in Europe and the United States. As Prof Dr Zila Sanchez pointed out: "There was a need to introduce new programmes in Brazilian schools, which are based on scientific evidence. The problem with PROERD is that, as the police conduct the programme, it lacks a proper health approach. Furthermore, its efficacy has never been studied in Brazil."¹⁶² Adding to this notion, Donald R. Lyme et al. suggested already in 1999 that DARE lacks the efficacy needed for a drug use prevention programme to be successful and have a significant impact.¹⁶³ However, it should be mentioned that DARE in the US has been significantly revised following studies that demonstrated that it was not effective.¹⁶⁴ It is now a skills-based prevention programme, which by teaching children "to resist peer pressure and live productive drug- and violence-free lives" has shown positive results.¹⁶⁵

¹⁶⁰ Sanchez et al. (2017): p. 2.

¹⁶¹ PROERD Brasil, Introduction, available at: <http://www.proerdbrasil.com.br/oproerd/oprograma.htm> [last retrieved: 17.05.2017].

¹⁶² Interview, São Paulo, 17.04.2017.

¹⁶³ Lyme et al. (1999): p. 593.

¹⁶⁴ "The New DARE Program – This One Works" in *Scientific American* (September 2014), available at: <https://www.scientificamerican.com/article/the-new-d-a-r-e-program-this-one-works/> [last retrieved: 11.06.2017].

¹⁶⁵ DARE, „Recovering Month“, available at: <https://www.recoverymonth.gov/organizations-programs/drug-abuse-resistance-education-dare> [last retrieved: 11.06.2017].

As an attempt to fill this gap and, in particular, in light of the crack epidemic in the country, the Brazilian government launched the “Integrated Plan to Combat Crack and Other Drugs”¹⁶⁶ in 2011, which “focused on reducing the already established consumption and the future drug use in social and public health policy agendas”.¹⁶⁷ In this very context, the Ministry of Health together with the UNODC conducted a transcultural adaptation of three specific scientific evidence-based programmes: *Unplugged* (#Tamojunto), the GBG (*Jogo Elos*) and the *Strengthening Families Programme* (*Famílias Fortes*).¹⁶⁸ It should be mentioned that research conducted for this thesis only took into consideration the first two programmes, as these are to be implemented in schools, while the latter programme served the purpose of strengthening family and community ties. The selection of the first two programmes over the last one does not in any way imply a certain hierarchy of efficacy or quality of these three interventions.

However, to allow for a more profound analysis of the prevention of the non-medical use of prescription drugs, the school premise has been chosen as the main focus of prevention in this thesis. Ideally, students should be offered a variety of prevention programmes, implemented both at school and within families and the community. However, as the focus of this thesis are mainly prevention programmes among adolescents and, according to the UN, “adolescence is a developmental period when youth are exposed to new ideas” and “increasingly more time is spent away from the family”, it seems most appropriate to focus on *Unplugged* and the GBG within the research aim of this thesis.

Unplugged or #Tamojunto

Unplugged was originally developed by the European Drug Addiction Prevention Trial (EU-Dap) and successfully implemented in seven EU Member States.¹⁶⁹ This programme is relevant for this thesis, as it was brought to Brazil in the form of a pilot project in 2013. *Unplugged* is a multifunctional intervention programme aimed at either curbing initiation of drug use or at the transition from experimental to addicted behaviour toward cannabis, alcohol, tobacco and other drugs. Developed by the European Drug Addiction Prevention Trial (EU-DAP) in 2009, it consists of 12 separate classes, each 50 minutes long. These classes are delivered by the teachers themselves, who were trained and familiarised with the material and teaching methods in advance. Its aim is to educate students about drugs by

¹⁶⁶ Decree 7.627, 08.12.2011.

¹⁶⁷ Sanchez et al. (2017): p. 2.

¹⁶⁸ Ibid.

¹⁶⁹ Information concerning the *Unplugged* drug use prevention programme available at: http://www.eudap.net/Unplugged_HomePage.aspx [last retrieved: 18.05.2017].

providing them with knowledge and attitude classes, but also by making them more resilient and less vulnerable toward drug use through additional classes on social, personal and interpersonal skills.

Unplugged puts emphasis on the fact that “the school’s primary role is to mediate knowledge, skills and sound values in relation to health and drug use” and that an effective prevention program should therefore cover information campaigns, certain rules against drug use, drug-specific instructions and procedures for communicating the policies.¹⁷⁰ This approach is in line with the International Standards, which stresses the fact that school offers an ideal environment for universal prevention, as it is the time when children or adolescents start spending more time away from their family and become more independent. *Unplugged* was chosen by the Brazilian Ministry of Health to be implemented in public middle schools, as it is based on a theoretical model of social influence to promote life skills and development.

Further, it encourages a training cascade, as European trainers educate local developers and teachers, who will then carry out the programme in classes. Following the conclusion of the pilot project in late 2013, feasibility and efficacy evaluation studies were conducted by a group of Brazilian experts. Among these experts were both Prof Dr Zila Sanchez from the Addiction Medicine Department of the University of São Paulo and Prof Dr Daniela Ribeiro Schneider, Psychologist at the Federal University of Santa Catarina, who were both interviewed for this thesis. Feasibility, efficacy and acceptability further highlight the opportunities and challenges of *Unplugged* in the context of Brazilian schools.¹⁷¹ One specific study concludes that “Unplugged has proved to be feasible to be applied with teenagers in Brazilian schools, contributing to facing the drug problem with [a] less moral [focused] and more participatory and reflective [skills] approach”.¹⁷²

However, despite these positive findings, *Unplugged* has equally been identified as not yet successful for the Brazilian context in effectively reducing the use of drugs among adolescents.¹⁷³ Prof Dr Zila Sanchez suggested that the Brazilian Ministry of Health “should re-evaluate the expansion of the #Tamojunto program in schools and analyse why the program’s effects were inconsistent with those of previous European studies; these efforts

¹⁷⁰ EU-Dap Study Group (2002): p. 8.

¹⁷¹ See following studies: Ribeiro Schneider et al. (2015) and (2016), Sanchez (2016) and (2017).

¹⁷² Ibid.

¹⁷³ Sanchez et al. (2017): p. 10.

should focus, in particular, on the changes made to the handbooks and teacher training, as these modifications could have affected the theoretical model and fidelity”.¹⁷⁴

Prof Dr Daniela Ribeiro Schneider pointed out that evaluation studies are currently being conducted to discover “the aspects that facilitate or obstruct the programme’s implementation” and how this programme can best be adapted to the Brazilian culture and education system: “We are still evaluating the various reasons involved”.¹⁷⁵ She also mentioned that “many different factors could have contributed to the fact that the programme was not as successful as expected. It could have been our educational system, our students or teachers, mentors, language, the programme in itself. In short, more studies should be conducted to better implement this programme in our schools”.¹⁷⁶

As this thesis aims at defining possible methods of prevention of the non-medical use of methylphenidate, all of the interviews conducted for this thesis included a specific set of questions focusing on prevention methods and programmes. Given that there are already various prevention programmes in place and have been implemented in schools, it was asked, whether instead of creating new programmes, specific actions could be integrated into existing programmes. Especially in light of the findings that prevention at school is usually of universal nature, targeting all substances instead of a single one. According to a UNODC official, universal programmes have proven to be more effective among adolescents.¹⁷⁷ Furthermore, the guidelines outlined in the *Unplugged* handbook highlight that “it is indeed an advantage if such programmes are designed to prevent the use of all substances”.

In order to understand how, if at all, the rational use of medicines or a unit on medication could be included into the programme, an overview should be presented on the 12 basic units forming the main curriculum of *Unplugged*¹⁷⁸:

- Unit 1: Opening Unplugged
- Unit 2: Choices – Risk and Protection
- Unit 3: Drugs – Get informed

(General Questions on Drugs, Information and Questions on Inhalants, Information and Questions on Alcohol, Information and Questions on Cannabis, Information and

¹⁷⁴ Ibid.

¹⁷⁵ Interview, Florianopolis, 25.04.2017.

¹⁷⁶ Ibid.

¹⁷⁷ Anonymous, United Nations Office on Drugs and Crime, 20.02.2017.

¹⁷⁸ EU-Dap Study Group (2002): p. 11 f.

Questions on Ecstasy, Information and Questions on Cocaine, Information and Questions on Heroine)

- Unit 4: Smoking the cigarette drug – Get informed
(Special information on Nicotine)
- Unit 5: Your beliefs, norms and information; are they correct?
- Unit 6: To be or not to be in a group
- Unit 7: Express yourself
- Unit 8: Party tiger
- Unit 9: Get up, stand up
- Unit 10: Coping competences
- Unit 11: Problem solving and decision making
- Unit 12: Goal setting and closure

The curriculum of *Unplugged* presented above shows that the programme aims at combining various prevention theories with one another and bases its teaching units not only on information giving, but integrates the social learning theory with the health belief model, the theory of reasoned action and lastly, the social norms theory.¹⁷⁹ In this context, an expert pointed out that *Unplugged* owes its success in Europe partly to “the balanced combination of various social theories. We know that information giving alone is not the key to success. Ideal prevention programmes combine information giving with the teaching of life skills in order to reduce vulnerabilities by proving students with the necessary tools to become more resilient”.¹⁸⁰ Beyond the scope of information giving, *Unplugged* mainly focuses on conveying so-called life-skills. The WHO equally stresses the importance of the education and the implementation of life skills for psychosocial competences in schools defining this concept as “a person’s ability to deal effectively with the demand and challenges of everyday life. It is a person’s ability to maintain a state of mental wellbeing and to demonstrate this in adaptive and positive behaviour while interacting with others, his/her culture and environment”.¹⁸¹ As drug problems occur partly due to a behavioural disorder consisting of compulsive seeking of substances, the education of life skills plays a crucial role in drug use prevention and in developing abilities to deal with stress and pressure as well as enhance the following abilities:

- Critical thinking

¹⁷⁹ Sanchez et al. (2017): p. 2.

¹⁸⁰ Interview, São Paulo, 17.04.2017.

¹⁸¹ WHO (1997): p. 1.

- Decision-making
- Problem solving
- Creative thinking
- Effective communication
- Interpersonal relationship skills
- Self awareness
- Empathy
- Coping with emotions
- Coping with stress
- Normative belief.¹⁸²

The abovementioned life skills can therefore contribute to a successful prevention programme in enhancing a person's coping resources as well as social and personal competences.¹⁸³ As adolescence is the time when young people increasingly spend time away from home, schools seems to be the most appropriate place for the teaching and practice of these skills. Furthermore, many children and adolescents lack the support required to acquire these life skills from their parents and find themselves more exposed to vulnerable situations. In this context, the WHO highlighted that "the rapid rate of social change, witnessed in many countries, makes the lives of young people, their expectations, values, and opportunities very different from that of their parents".¹⁸⁴ It should, therefore, be the school's mandate to aim at strengthening and promoting the teaching of life skills in order to increase its students' resilience. It should be mentioned that life skills are not equivalent to basic learning skills, such as reading or numeracy. However, "life skills are being promoted so that they can gain recognition as essential skills that should be included in the education of young people" in order to render their overall education more comprehensive.¹⁸⁵

In the case of *Unplugged*, seven main components of successful drug use prevention have been identified by the founding minds of this programme. The teaching cascade of this programme approximately follows the grounding model of this thesis, described in the chapter above. It starts by tackling the outer circles of the model, a top-down approach through a teachers' training by international prevention experts, gradually moves toward

¹⁸² EU-Dap Study Group (2002): p. 9.

¹⁸³ WHO (1996): p.1.

¹⁸⁴ Ibid. p. 5.

¹⁸⁵ Ibid. / For the original phrase see: EU-DAP; *Unplugged Workbook: Prevention at School, Handbook for the Student*, Turin 2007, p. 9.

normative education of an entire group of people, and ends by strengthening personal, social and resistance skills of the individual.¹⁸⁶ The seven components are:

- Teacher training and support from programme developers or prevention experts
- Appropriate information about drugs, including information on short-term effects and long-term consequences
- Emphasis on normative education and reinforcement of awareness that most adolescents do not use alcohol, tobacco or other drugs (since many overestimate the prevalence of drug use among peers and adults)
- Focus on personal, social and resistance skills in order to help identify internal as well as external pressures
- Structured broad-based skills training
- Active family and community involvement
- Cultural sensitivity in the classroom

In order to better understand the Brazilian version of *Unplugged*, it should be mentioned that transcultural adaptations to the European version of the programme were needed in order to make it culturally suitable to the Brazilian context.¹⁸⁷ This included the translation of the manual into Portuguese and the exclusion and/or inclusion of certain phrases. Further, adaption for time were made, as teachers taught the programme voluntarily and did not have much time available. It is important to highlight that one specific concept does not correspond with the Alcohol and Other Drugs Policy paradigm advocated by the Brazilian Government: the “War on Drugs”.¹⁸⁸ Therefore, the Ministry of Health changed warning statements, such as “Do not drink alcohol because it is not healthy [...] particularly at your age” and turned them into more positive questions requiring deeper reflection, such as “why do some people drink alcohol but not get drunk?” or “what can be done so that you do not become dependent on alcohol?”.¹⁸⁹ The guide concerning the Alcohol and Other Drugs Policy strategy, published in 2015 by the Ministry of Health, officially prohibits the inclusion of any repressive measures, discrimination against race or sex as well as the discourse on the “War on Drugs” in the context of prevention programmes.¹⁹⁰

¹⁸⁶ EU-Dap Study Group (2002): p. 8.

¹⁸⁷ Sanchez et al. (2017): p. 3.

¹⁸⁸ Ministry of Health (2015): p. 27.

¹⁸⁹ Sanchez (2017): p. 4.

¹⁹⁰ Ministry of Health (2015): p. 28.

It results from the interviews that it would be of great importance and necessity to include classes on the “responsibility toward medication as well as the rational and responsible use of medicines” as prevention programmes for schools. It should be mentioned that this would only work in those parts of Brazil, where general prevention programmes are already being conducted (mainly larger urban areas). In those areas of the country, where overall medical infrastructure is still lacking, the availability and accessibility to medication as well as the teaching of health professionals should be put first. As a result, it is crucial to be aware of the various development stages of the different regions within Brazil. Concerning larger and more developed urban areas, however, the Brazilian version of *Unplugged* was identified as too unstable a programme to already start including new classes.¹⁹¹ This is due to three major reasons: firstly, further studies have to be conducted to discover why the programme has not enjoyed the success it previously had in European countries. Without knowing what caused the partial inefficacy of the programme in the country, it seems premature to integrate new information or change the curriculum. Secondly, *Unplugged* has not yet been established as a standard component of drug use prevention in Brazilian schools.

Despite its pilot implementation in 72 public schools in 6 Brazilian cities and its expansion to other cities and states during the past year, the Ministry of Education does not cooperate with the Ministry of Justice nor the Ministry of Health in this very case.¹⁹² Thirdly and lastly, teachers implemented this programme on a voluntary basis and in addition to their curriculum, meaning that they were not granted extra lessons, but had to integrate the 12 *Unplugged* units into their regular teaching units.¹⁹³ As a result, Prof Dr Zila Sanchez points out that “only 57% of the classes described in the programme manual were completed and teachers reported excluding activities due to difficulties finding the time needed to implement them”.¹⁹⁴

Moreover, as the teachers were initially supposed to be trained in three days, as proposed by the EU-DAP developers, and the Brazilian training was conducted in two days, it is important to consider that a two-day training may be insufficient to guarantee fidelity of the implementation”.¹⁹⁵ These difficulties suggest that, if teachers did not have sufficient time to

¹⁹¹ Interview, Florianopolis, 25.04.2017.

¹⁹² Interview, São Paulo and Florianopolis, 17.04.2017 and 25.04.2017.

¹⁹³ Sanchez (2017): p. 9.

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

implement the basic teaching units, they would not manage to implement a further comprehensive unit on the responsibility toward medication.

These findings suggest that the basic nature of the programme would be suited to include a discourse on medication, however, it seems premature to integrate this concept into the current state. Further studies need to be conducted concerning the efficacy of *Unplugged*, before adding elements. It should be mentioned that a unit on medication should not consist of information giving or only knowledge based material, as this has been proven to potentially even increase the use of substances.¹⁹⁶ Especially in the case of methylphenidate, students could be encouraged to use this substance non-medically upon receiving the information that it can potentially increase one's ability to concentrate. An expert warned that:

*“If you simply provide a young person with the effects methylphenidate can have on the brain and explain them that they could suffer from insomnia and a dry mouth, you will most probably not succeed in preventing its use. A young person does not care too much about the long-term consequences. He/she would rather calculate the pros and the cons. Unfortunately, for most people, the pros, meaning more concentration and possibly better results in school, easily outweigh the cons. However, it does not work with everybody. Many of those taking Ritalin non-medically do not feel anything or even suffer from the reverse effect of methylphenidate: less sleep, more anxiety and more appetite. The worst for them is less concentration. As methylphenidate is a stimulant, some of those who are not supposed to take it end up not being able to concentrate and focus at all”.*¹⁹⁷

It is therefore crucial to strike a balance between the right amount of information provided concerning possible consequences of the non-medical use of prescription drugs, without creating panic or fear among students. As prevention programmes should be skills based and limit the actual knowledge based focus, as well as strengthen and promote health awareness, too much “brutal” information on possible side effects and negative consequences, can increase vulnerabilities. According to an expert, a unit dedicated to the responsible use of medicines of a general nature, without going too much into details about each substance, would be ideal.¹⁹⁸

¹⁹⁶ UNODC (2015): p. 16.

¹⁹⁷ Interview, São Paulo, 18.04.2017.

¹⁹⁸ Ibid. 17.04.2017.

The Good Behaviour Game or Jogo Elos

In addition to *Unplugged*, the cooperation between the UNODC and the Brazilian Ministry of Health as well as the Ministry of Justice gave birth to the implementation of another evidence-based programme: the *Good Behaviour Game* (GBG). GBG, known as its Brazilian adaptation of *Jogo Elos – Construindo Coletivos*, is a prevention programme targeting children between six and ten years and aims at constructing new ways of social integration to create a peaceful atmosphere within the classroom, both among students and between teachers and students.¹⁹⁹

Upon facing high potential for aggression and disintegration among fourth-grade students, American teacher Muriel Saunders developed GBG in 1967 in order to “promote mental health among children [and to] intervene in risk situations for future antisocial behaviour”.²⁰⁰ Due to its success in the United States, GBG has become one of the interventions with the most extensive evidence of short-, mid- and long-term effectiveness for outcomes, such as delinquency, violence, various behavioural disorders and lastly, substance use.²⁰¹ According to Ribeiro Schneider, the programme “helps teachers create collective and collaborative activities among colleagues and reinforce appropriate classroom behaviours consistently” by creating a more stable environment through the promotion and teaching of social, emotional and psychological development of the students.²⁰² Teachers are instructed by professional mentors to create this atmosphere by supporting good behaviour through four basic rules: work quietly, be polite to others, ask for permission to get out of the seats and follow directions.²⁰³ Thus, the implementation of the programme is based on a reward-punishment system.

The programme was culturally adapted to Brazilian standards and then implemented in six different schools in the State of São Paulo and the State of Santa Catarina, respectively, between October and December 2013.²⁰⁴ It should be mentioned that the implementation process faced some initial challenges, such as the theoretical model of behaviourism, comprehended by Brazilian teachers as being in conflict with the traditional pedagogical

¹⁹⁹ Universidade Federal de Santa Catarina (UFSC); “O que é o programa Jogo Elos – Construindo Coletivos?”, available at: <http://conselheiros7.nute.ufsc.br/o-que-e-o-programa-jogo-elos-construindo-coletivos/> [last retrieved: 18.05.2017].

²⁰⁰ Ribeiro Schneider et al. (2016): p. 509.

²⁰¹ Ibid.

²⁰² Ibid. p. 510.

²⁰³ Ibid.

²⁰⁴ Ibid. p. 511.

paradigm used nationally, known as the Socio-Historical Theory based on Vygotsky.²⁰⁵ In an interview, Prof Dr Daniela Ribeiro Schneider explained that during the Brazilian military government (1964-1985), behaviourism was the predominant theory among psychologists and educators in the country.²⁰⁶ However, with the formation of the new government following the collapse of the military regime, traditional forms of behaviourism started to be criticised, while the incoming leadership aimed at profoundly changing state structures as well as the theories governing them. In this context, the government created the so-called *New Law of Directives and Foundations of National Education* (1996) based on Vygotsky's theory.²⁰⁷ This law replaced and redefined Brazilian educational theories and standards by clearly distinguishing itself from its former version, adopted in 1971, during the height of the military government.²⁰⁸

In the new era, behaviourism was declared as non-compatible with the new form of cultural-historic psychology, which, based on the Soviet psychologist Lev Vygotsky, focuses on development through social norms, cultural paradigms and traditions.²⁰⁹ As a result, our behaviour is a result of our culture rather than exogenous stimuli such as reward or punishment. Thus, one quickly comes to the understanding that a programme mainly based on influencing children's behaviour through reward and punishment would not be received well by the Brazilian education system.²¹⁰ Although the programme was not received well in the beginning, GBG soon became to be understood as a cooperative rather than a competitive game, which aimed at strengthening cultural values, such as team membership and cooperation, among the students.

The pilot study of GBG was regarded as highly acceptable by both the school administration and teachers, as they perceived a decrease in violence and aggressiveness among their students as well as an increase in attention, teamwork and social integration.²¹¹ It was said to be "easily to be included in the daily classroom routine", as it is "helpful in classroom and

²⁰⁵ Ibid. p. 516.

²⁰⁶ Interview, Florianopolis, 25.04.2017.

²⁰⁷ Lei n° 9.394, 20 December 1996, The *New Law* known in Portuguese as *Lei de Diretrizes e Bases da Educação* (LDB) is available at: http://www.planalto.gov.br/ccivil_03/leis/L9394.htm.

²⁰⁸ Lei n° 5.692, 11 August 1971, *Fixa Diretrizes e Bases*, available at: <http://www2.camara.leg.br/legin/fed/lei/1970-1979/lei-5692-11-agosto-1971-357752-publicacaooriginal-1-pl.html>.

²⁰⁹ Ibid.

²¹⁰ Ribeiro Schneider et al. (2016): p. 516.

²¹¹ Ibid. p. 515 ff.

student behaviour management”.²¹² Differently than *Unplugged*, GBG is integrated into the basic curriculum through implementing the four basic rules of the programme and does not require teachers to “sacrifice” as much of their own time. However, the control group ironically received the same positive results, namely an increase in social integration, teamwork and a decrease in aggressive behaviour.²¹³ This result points at the fact that further studies need to be conducted concerning the nature of implementation of the programme as well as which cultural adaptations still need to be made in order for the programme to achieve even better results. The participants in the study emphasised “the need for changes in the translated materials in terms of language and terminology, especially the phrasing of the classroom rules, and the definition of rewards”.²¹⁴

Although this programme “merely” aims at strengthening social abilities among children and does not tackle substance use directly, this intervention could be useful in strengthening a child’s resistance toward auto-medication, the non-medical use of prescription drugs and the use of illicit drugs in the future.²¹⁵ It is important to highlight that effective drug use prevention goes beyond awareness raising in the form of information sharing, but rather includes a comprehensive framework influencing a person’s abilities to cope with stress, act within society and face challenges in life. This is equally emphasised in the manual of the UN International Drug Use Prevention Standards stating that “the general aim of drug use prevention, however, is much broader [...]: it is the healthy and safe development of children and youth to realise their talents and potential, and become contributing members of their community and society”.²¹⁶ Effective prevention interventions should therefore aim at providing youth with protective factors and reducing their vulnerabilities, as more resilience toward exogenous shocks is less likely to lead substance use behaviours.

In light of these findings, GBG seems to be an adequate and successful programme in rendering children more resilient and socially integrated, which ideally leads to a decrease in drug consumption. This model could have a positive impact on auto-medication and the non-

²¹² Ibid. p. 512.

²¹³ Interview, Florianopolis, 25.04.2017.

²¹⁴ Ibid. p. 517.

²¹⁵ Drug use prevention programmes designed for children, such as GBG, only indirectly tackle substance use, as children are too young to receive information about the consequences of certain types of drugs. Therefore, programmes consist of personal and social skills education, classroom environment improvement or keep-children-in-school programmes. For further information go to:

https://www.unodc.org/documents/prevention/UNODC_2013_2015_international_standards_on_drug_use_prevention_E.pdf.

²¹⁶ UNODC (2015): p.1.

medical use of prescription drugs, as studies show that the main motivation behind the non-medical use of methylphenidate, for example, is social pressure, the willingness to increase one's academic performance and therefore make use of methylphenidate as a cognitive enhancer.²¹⁷ In an attempt to create a coherent profile of those using methylphenidate non-medically, an American study showed that a significantly higher number of users are white (rather than Hispanic, for example) and that students with lower grades and less self-confidence are more likely to engage in the non-medical use of prescription drugs.²¹⁸ As a result, a prevention programme tackling the strengthening and promotion of social skills seems most appropriate in this case. However, further studies have to be conducted to explore the efficacy of such programme vis-à-vis the non-medical use of prescription drugs, as so far, illicit drugs, alcohol and tobacco have been the focus of prevention research and data collection.

In conclusion, both *Unplugged* and GBG can make a contribution in rendering children and adolescents more resilient in vulnerable situations. However, none of the abovementioned programmes has been scientifically evaluated in the context of the prevention of the non-medical use of prescription drugs. Nevertheless, schools are recommended to include lessons on responsibility toward the rational use of medications into their prevention programmes, if such programmes already exist. Reaffirming the importance of drug use prevention programmes for adolescents, schools, which currently do not engage in prevention activities, are further recommended to consider the adoption of culturally adapted and scientific evidence-based programmes.

5.2. Prevention in pharmacies

In order to better understand how methylphenidate is sold and distributed in Brazil, more than fifteen interviews were conducted in Brazilian pharmacies and drugs stores in four different cities, namely Brasilia, Rio de Janeiro, Florianopolis and São Paulo. When considering prevention methods of the non-medical use of a psychotropic substance, it is crucial to not only take into consideration its end use, but equally the elements that lead to the use, such as prescription and the selling place of the substance: prescription mechanisms by psychiatrists and the pharmaceutical system itself. Prevention interventions therefore need to consist of a

²¹⁷ DuPont et al. (2008): p. 169; Ortega et al. (2010): p.6, Barros and Ortega (2011): p. 354.

²¹⁸ DuPont et al. (2008): p. 167.

comprehensive framework, ranging from prevention methods in pharmacies, schools, universities and the workplace. This subchapter will lay out the main challenges pharmacies face in the field of drug use prevention, as identified in the interviews conducted with Brazilian pharmacists and their assistants in over seven different drug store chains.

According to ANVISA, there are currently 59.162 private pharmacies and drug stores registered in the National System Managing Controlled Products (SNGPC, in Portuguese: Sistema Nacional de Gerenciamento de Produtos Controlados) and spread among the 27 Brazilian Federal Units.²¹⁹ In light of the rising problem concerning the non-medical use of psychotropic and narcotic substances, in particular amphetamines used to lose weight, ANVISA introduced a new system of drug monitoring and control on 30 March 2017 through Resolution n° 27.²²⁰ SNGPC was developed to better tackle the issue of the non-medical use of prescription drugs through stronger control and monitoring of the structures underlying the movement of purchases and sales of medications subject to the *Portaria SVS/MS n° 344* of 12 May 1998 (the list containing all substances subject to national control by ANVISA).²²¹

From then on the system required pharmacies to register and submit their data concerning the purchase and the sales of substances electronically, instead of the traditional manual method used in Brazil until 2007. A pharmacist working in Brasilia pointed out during an interview that “we have to submit the required data within a week electronically and later send a box with all the prescriptions to ANVISA from time to time. However, the important thing is that we send the data electronically without any delay, so that ANVISA can monitor how many boxes of Ritalin, for example, we sold within a specific period of time. The introduction of SNGPC has made it almost impossible, at least for bigger drug store chains, to sell medication over the counter, without any prescription.”²²²

In a similar fashion, ANVISA affirmed that the new system “made it possible to increase efficacy and security when it comes to the structure of the purchase and the sales of pharmaceutical products, which was lacking in transparency and without a controlled

²¹⁹ ANVISA, Interview, Brasilia, 28.04.2017.

²²⁰ ANVISA, Resolução RDC n° 27, 20 March 2007, available at: <http://www.anvisa.gov.br/sngpc/Documentos2012/RDC%2027%202007.pdf?id=26280&word> [last retrieved: 21.05.2017].

²²¹ ANVISA, Interview, Brasilia, 28.04.2017.

²²² Interview, Brasilia, 30.04.2017.

structure before 2007”.²²³ Originally the system was developed to monitor the movements of medications subject to *Portaria SVS/MS nº 344* only. However, from April 2013 onward, antimicrobial products also had to be registered according to *Resolution (RDC) nº 20* from 5 May 2011 and its updated version *Resolution (RDC) 68/2014*.²²⁴ This difference is important to mention, as patients taking antimicrobial products have to provide the SNGPC with information concerning their sex and age. Unfortunately, prescription under *Portaria SVS/MS nº 344* lacks this mechanism, which makes it harder to draw a more precise picture of the profile of users.

SNGPC was identified as the best prevention mechanism for pharmacies, as methylphenidate is subject to the highest national drug control according to *Portaria SVS/MS nº 344* and therefore only available in pharmacies, if a yellow prescription format is presented. As a result, pharmacies are required to send the exact amount of sold methylphenidate products to ANVISA within a short timeframe, maximum of seven days, and cannot sell this or any other controlled substance without a valid prescription. As both the amount of methylphenidate in the form of stock and the number of prescriptions are made available to ANVISA, fraud can easily be identified.

The results from the interviews and the questionnaire show that most methylphenidate products used non-medically are not bought in pharmacies and nor are purchased without a valid prescription. Therefore, it is suggested that further prevention initiatives should focus on programmes outside of pharmacies, as control already seems to be effective in terms of SNGPC and the prescription mechanism in Brazil. However, it should be mentioned that these results only took into consideration larger private pharmaceutical chains in the South, Southeast and Central-west of Brazil. Public pharmacies, hospitals and special clinic outposts, known as *Postos de Saúde* are not part of SNGPC and are therefore not included in the calculations provided by ANVISA and featured in this thesis.²²⁵

²²³ ANVISA, Interview, Brasília, 28.04.2017.

²²⁴ ANVISA, *Resolution (RDC) nº 20*, available at:

http://www.anvisa.gov.br/sngpc/documentos%202013/Nota_Tecnica_RDC_n_20_2011_24_09_2013.pdf [last retrieved: 21.05.2017] and ANVISA, *Resolution (RDC) 68/2014*, available at: https://portal.anvisa.gov.br/documents/33880/2568070/rdc0068_28_11_2014.pdf/729224fa-b118-4288-8fe9-64d444274ce7 [last retrieved: 21.05.2017].

²²⁵ Unfortunately no literature or indications were found as to what the percentage of methylphenidate is sold in private chains and how much in hospitals and clinical outposts. However, it is recommended that more research be conducted to find out how the sales of Ritalin are divided into private and public. Interviews conducted for this thesis suggest that at least 80% of the Ritalin sold, can be purchased in the pharmacies registered in SNGPC.

Concerning the efficacy of SNGPC as a prevention method for the non-medical use of prescription drugs, a pharmacist at a Pacheco drug store in Brasilia pointed out that: “Big pharmacy chains, such as ours or Drogaria Raia, would not dare circumvent the system and engage in illegal sales. It is simply not worth it. However, there are smaller pharmacies that do this. And it is well known. In Brazil, you can get everything without a prescription, ranging from a simple antibiotic to the most controlled psychotropic substance, in particular Ritalin”.²²⁶ This statement was further voiced by a psychologist working in Florianopolis, who mentioned that there was a pharmacy in the city centre that sold prescription drugs to students without a prescription. She claimed that: “Everyone knows that that pharmacy sells without prescription for higher prices. How do they circumvent the system? We do not know”.²²⁷ Despite these worrisome statements, it seems more urgent to implement prevention programmes in schools and reform the prescription mechanism.

Although methylphenidate is controlled under Schedule II internationally and under *Lista A3* in Brazil, which requires a yellow prescription form, Ritalin accounts for one of the most misused psychotropic substances in the country.²²⁸ In light of the high prevalence despite this rigid control mechanism, there must therefore be a reasonably large black market for Ritalin. According to a psychiatrist working in Rio de Janeiro, students wishing to increase their cognitive and academic performance either buy Ritalin from friends, acquaintances or at university campus, thereby creating a black market. Or students obtain a medical prescription either by faking the symptoms or by acquiring the prescription from the doctor, which according to Article 273 of the Brazilian Penal Code citing the “falsification, distortion, editing and changing of a product with therapeutical or medical ends” constitutes an illegal act (these crimes fall under the category entitled “Crimes against Public Health”).²²⁹ In the very same article it is further mentioned that any import or sale of this product in a falsified, distorted, edited or changed manner is equally to be considered under the same category of crimes and shall be penalised with at least ten years in prison.²³⁰

²²⁶ Interview, Brasilia, 30.04.2017.

²²⁷ Interview, Florianopolis, 25.04.2017.

²²⁸ For more detailed data on the prevalence of methylphenidate among Brazilian society, see Chapter IV.

²²⁹ Brazilian Penal Code, Article 273, available at: http://www.oas.org/juridico/mla/pt/bra/pt_bra-int-text-cp.pdf [last retrieved: 21.05.2017].

²³⁰ Ibid. Article 273, 1º

Original in Portuguese: “Art. 273. - Falsificar, corromper, adulterar ou alterar producto destinado a fins terapêuticos ou medicinais: Pena - reclusão, de 10 (dez) a 15 (quinze) anos, e multa. // 1º - Nas mesmas penas incorre quem importa, vende, expõe à venda, tem em depósito para vender ou, de qualquer forma, distribui ou entrega a consumo o producto a falsificado, corrompido, adulterado ou alterado.”

An interview with a student of International Relations at the University of Brasilia showed that most of his friends, including himself, bought Ritalin from friends or a friend of a friend, without a valid medical prescription.²³¹ This hypothesis was further strengthened by the result of the questionnaire conducted among university students in Brasilia, which suggests that more than 45% obtained Ritalin without a prescription and that more than 61% did not consult with a medical doctor upon taking methylphenidate.²³² The discrepancy between the amount of people buying Ritalin with/without a prescription and whether or not they had consulted with a medical doctor could arise due to the phenomenon of fraudulent prescription. This can arise if a family member or friend writes a prescription for another family member or friend. This then does not count as having consulted with a medical doctor in advance.

The interviews conducted in over fifteen pharmacies across the country did not solely focus on prevention methods, but also on the collection of data concerning the amount of methylphenidate sold and the typical profile of its user. In order to find out whether the location of the point of sale positively correlates with the quantity of methylphenidate sold, in each of the four cities one set of pharmacies interviewed was located close to a university and the other farther away from the city centre.

The data gathered during these interviews shows that the amount of methylphenidate sold in pharmacies located closer to universities was significantly higher (see *Table I*) than that of pharmacies located farther away from universities. However, when considering these numbers, it should be highlighted that the high number of Ritalin and Concerta sold in pharmacies located within the proximity of a university could also be based on reasons, not only the non-medical use of prescription drugs by students. For example, a pharmacy located on Avenida Paulista, one of the main commercially and politically significant streets of São Paulo, only served approximately ten customers per month, whereas a pharmacy located next to the city's largest university, UNIFESP, served approximately fifty customers per month.²³³

However, it should be considered that the latter is also located right next to the department of psychiatry and psychology of UNIFESP and therefore also serves patients, who come to the pharmacy to obtain methylphenidate for purely medical reasons. Withstanding this fact, it is

²³¹ Interview, Brasilia, 30.04.2017.

²³² See results from Questionnaire.

²³³ This data was collected during an interview session in pharmacies conducted in São Paulo between 14-18 of April 2017.

almost impossible to know whether a patient buying methylphenidate, uses this substance for medical or non-medical reasons, let alone sells it further to friends or other family members. In light of this statistical uncertainty, the most reliable and useful data gained from pharmacies is simply the number of boxes of methylphenidate sold per month or the number of clients requesting methylphenidate served.

The Table below illustrates the positive correlation between the location of a pharmacy with the growing quantity of Ritalin sold. Furthermore, it emphasises that the staff working in pharmacies located closer to a university have perceived a higher level of the non-medical use of methylphenidate than those located farther away. It should be mentioned that the findings concerning the latter phenomenon are based on the personal experiences and perceptions of the respective pharmacist and their assistants, as it is impossible to serve a client and be convinced that he/she will use methylphenidate inappropriately, if acquired with a valid medical prescription. One pharmacist, who claimed that the pharmacy she was working in sold at least 100 boxes of Ritalin per month, highlighted that:

“Of course I cannot be sure that a client will misuse the Ritalin he had just bought. How can I know whether he/she really suffers from ADHD? However, it is simply impossible that everyone buying Ritalin here has a mental disorder! Consumption has risen, prescriptions for methylphenidate have risen, but also, the urge to perform well and achieve these results through auto-medication and abuse has risen. No one can claim that it is normal to sell 100 boxes of Ritalin for patients in treatment for ADHD. Although there is no precise data concerning the number of people misusing Ritalin – in my eyes, the sheer amount of over-prescription speaks for itself. How can it be that one pharmacy sells only a few boxes of Ritalin and others, like us, sell more than a hundred?”²³⁴

²³⁴ Interview, Brasilia, 30.04.2017.

Table I: *Sales of Ritalin according to proximity to university in four Brazilian cities*²³⁵

Location of pharmacy	Close to university (Yes / No)	Approximate number of boxes of methylphenidate (Ritalin only) sold	Abuse of methylphenidate perceived (Yes / No)
São Paulo	No	8-10 clients per month	No
São Paulo	No	6 clients per month	Sometimes
São Paulo	Yes	50 clients per month	Yes
Rio de Janeiro	No	6 clients per month	No
Rio de Janeiro	Yes	15 clients per month	Yes
Florianopolis	No	0 (no sale of psychotropics)	No
Florianopolis	No	7 clients per month	Sometimes
Florianopolis	Yes	January 2017: 56 boxes February 2017: 47 boxes March 2017: 27 boxes	Yes
Florianopolis	No	3 boxes per month	No
Brasilia	No	Sale of Rit. very rare	No
Brasilia	Yes	At least 3 clients per day	Yes
Brasilia	Yes	20-30 boxes per month	Yes
Brasilia	Yes	12 boxes per month	Yes
Brasilia	Yes	At least 2 clients per day	Yes
Brasilia	Yes	100 boxes per month	Yes
Brasilia	Yes	April 2017: 37 boxes March 2017: 43 boxes	Yes
Brasilia	Yes	At least one client per day	Yes

Regarding the questions related to how one of the most controlled psychotropic substances still seems to be easily available, interviews have shown that the problem partially lies within the medical prescription system. A psychiatrist affirmed that: “Prescriptions of the type A are

²³⁵ This data was gained during interviews held in São Paulo, Rio de Janeiro, Florianopolis and Brasilia during 14-30 of April 2017. Concerning the approximate number of Ritalin sold per month, it should be mentioned that, as pharmacies are not allowed to give away the exact quantity sold per month, the number of clients was enquired and can be found in the Table above. In two cases the exact quantity sold was communicated. In the rest of the cases, the approximate number of clients was communicated. This, however, does not inform us about the quantity of boxes sold, as some customers could have been prescribed three boxes, whereas other could have only bought one.

the hardest to get. They are only valid for one month. If I do not want a patient to come back every single month to get a new recipe, which is a pricey undertaking for him and for me, I prescribe him double or triple the amount of pills, so he/she already has some Ritalin in stock for the next two or three months”.²³⁶

However a student interviewed for this thesis pointed out the problem in this context: “When I went to see my doctor for the first time, she already prescribed me three boxes. I didn’t need them, so I gave away the rest. Unfortunately, this happens to many of us and this is how so many extra boxes appear on the market.”²³⁷ It was identified that the mechanism of “over-prescription” seems to be one of the most worrying elements when it comes to the non-medical use of methylphenidate in Brazil. On the other hand, it also seems understandable that a patient cannot always afford to ask for an appointment with his/her psychiatrist on a monthly basis and that the psychiatrist cannot give away an unlimited number of yellow prescriptions, as there is only a very small number available within a certain period of time.

Unfortunately, it has been identified that falsification of prescription forms as well as theft of identity have led to problems in the past. According to a pharmacist interviewed in Brasilia, falsification can occur more easily in the case of the yellow prescription form, despite it being reserved for the highest level of controlled substances in the country, as it is only subject to a single numbering system (*Image IV*).²³⁸ This phenomenon occurs as the serial number in the left corner of the form stands on its own, whereas the blue prescription form is numbered twice and in a visible manner, meaning that it does not only include its own number, but also the span of the number “from to” (*Image V*). Yellow prescription forms only contain one single number in the left corner of the paper. The pharmacist mentioned that due to this difference, she cannot double check in the system, whether the number on the yellow prescription form has already been used somewhere else.

Theft of identity occurs when someone either steals the package of prescription forms from a medical doctor or steals the stamp of a doctor and therefore signs prescription forms with the wrong name. All interviewees have either experienced such theft or have heard about it in the news or from friends. One interviewee even mentioned that her own mother’s identity was stolen by someone in the neighbourhood, who suddenly started prescribing psychotropic

²³⁶ Interview, Rio de Janeiro, 19.04.2017.

²³⁷ Interview, Brasilia, 30.04.2017.

²³⁸ Interview, Brasilia, 30.04.2017.

substances requiring the type “A” prescription form.²³⁹ However, when a pharmacist discovered a discrepancy with the person prescribing the increasing amount of psychotropic and narcotic substances, ANVISA and the police were informed and called in to investigate the case. Despite the fact that the person responsible was caught and brought to justice accordingly, the physician, who had been subject to theft of identity, was faced with enormous challenges of having to regain patients’ and the pharmacies’ trust.

Image IV: Single numbering of yellow prescription forms

Image V: Double numbering of blue prescription forms

²³⁹ Interview, São Paulo, 18.04.2017.

An increasing control of methylphenidate in terms of pharmaceutical sales as in the case of ART, the medication used to treat HIV, was shortly considered during the interviews conducted, however, very soon also rejected. In Brazil, HIV treatment is only available at one of the approximately 700 so-called Specialised Care Services (SEA/in Portuguese: Centro de Referência e Treinamento DST/AIDS-SP) in the country.²⁴⁰ These are quality care and service facilities that accompany the patient through a decentralised network of specialists providing immediate treatment and care as well as follow-ups and monitoring. As suggested by a psychiatrist working at Fiocruz in Rio de Janeiro, the use and non-medical use of methylphenidate would drastically decline, if it was only available in specific pharmacies or clinic outposts.²⁴¹

However, this mechanism does not seem feasible, as the sales of psychotropic substances make up a large part of the annual turnover of pharmaceutical companies. It is therefore suggested that pharmacies would enact pressure on ANVISA not to further limit the sales psychotropic substances. A pharmacist voiced her preoccupation in this context, highlighting that “it would simply be impossible to take away the sale of psychotropic substances from our pharmacies. After all, we are also a business and a large part of our income is made from selling psychotropic substances.”²⁴² By crossing available data of the quantity of methylphenidate sold in Brazil in 2010, it was calculated that the approximate economic profit of the Ritalin selling business in Brazil amounts to a minimum of 80 million R\$ per year.²⁴³

An interview with UN official Justice Tetley further showed that drug use prevention, in particular in the field of the non-medical use of prescription drugs, should be focused on schools and communities instead of pharmacies, as, according to Dr Tetley, “only a rather small percentage of those using prescription drugs non-medically actually go to the pharmacy. There is a certain stigma associated with the non-medical use of prescription drugs. Many youngsters feel shame and avoid going to the pharmacy”.²⁴⁴ Also, he stated that the Internet is

²⁴⁰ AVERT, “HIV and AIDS in Brazil”, available at: <https://www.avert.org/professionals/hiv-around-world/latin-america/brazil> [last retrieved: 21.05.2017].

²⁴¹ Interview, Rio de Janeiro, 20.04.2017.

²⁴² Interview, Brasília, 30.04.2017.

²⁴³ This amount was estimated by assuming that 2 million boxes of methylphenidate were sold in 2010 and multiplied by 40 (assuming that more normal Ritalin to the price of app. 34 R\$ is sold than Ritalin LA; as an average 40 R\$ was taken). The overall turnout must be much more, as more Ritalin LA and Concerta is sold than taken into consideration when calculating the abovementioned amount.

²⁴⁴ Interview, Vienna, 23.01.2017.

an emerging market, where prevention methods in the form of a stronger legal framework, have to be developed.

As a conclusion, psychiatrists should not feel pressured into prescribing methylphenidate and conduct a thorough examination before diagnosing a patient with ADHD. Furthermore, when prescribing methylphenidate, psychiatrists should act with caution regarding the amount they prescribe. Special attention should be paid to young people, who may want to pass a state examination or a regular university course. If diagnosed with ADHD, the psychiatrist should consider whether he/she deems the prescription of extra Ritalin or Concerta boxes per month necessary, “merely” to spare the patient from asking for a prescription on a monthly basis.

It was identified during the interviews that most methylphenidate at university campuses come from people who either do not use it at all or give away their spare box. Therefore, it is recommended that the apparent disequilibrium between the prescribed amount of methylphenidate on the one hand and the amount consumed by the person it had been prescribed for on the other hand. As a result, it seems most urgent to review prescription habits and mechanisms in Brazil. Despite the fact that the psychiatrists interviewed for this thesis seemed very rigid and cautious regarding their prescription habits, interviews with pharmacists and students from different universities showed that there are many psychiatrists who either seem to lack rigidity when prescribing methylphenidate or even sell prescriptions to students wishing to boost their academic performance. Whereas the latter constitutes a federal crime, the concept of prescription habits can be influenced by trainings and programmes offered to psychiatrists.

However, at the very end it depends on a physician’s own judgement and diagnostic skills whether he deems the prescription of a certain substance necessary or not. In comparison to other medical disciplines, diagnostic mechanisms within the realm of psychiatry and psychology seem to rely on subjective judgement and knowledge to a large extent, as symptoms are not as visible as a broken foot, for example. Despite the existence of aiding manuals, such as the DSM or the WHO’s ICD, guidelines for the diagnosis of mental disorders still remain vague and depend on the psychiatrist’s judgement, whether these criteria are being fulfilled by a patient or not.²⁴⁵

²⁴⁵ This dilemma has been recognized and particularly highlighted by all three psychiatrists that were interviewed for this thesis (Interviews: São Paulo, 18.04.2017, Rio de Janeiro, 19.04.2017, 20.04.2017).

Further, pharmacies should not engage in any illegal trade regarding the sale of methylphenidate. Each year, the police close pharmacies in Brazil due to the illegal sale of controlled substances without prescription – these operations are carried out in cooperation with ANVISA.²⁴⁶ Suspects can be charged with organised crime as well as drug trafficking. Measures have been taken to counteract the illegal sale of medications without valid prescription by ANVISA in ensuring regular monitoring activities of each pharmacy registered in the SNGPC. A pharmacist stated that:

*“From time to time someone from ANVISA comes by to check whether we adhere to all standards and requirements. For example, whether the amount of prescriptions in the box corresponds with the amount of stock and boxes sold of a certain substance. Further, they check whether all controlled substances are kept in special boxes. We are not allowed to store controlled substances on a shelf. They have to be kept in a locked box for safety reasons. However, this procedure does not happen very frequently – especially at large pharmacy chains, such as ours”.*²⁴⁷

Lastly, in the field of prevention methods for pharmacies, it is important to visibly inform the customer regarding the possible risks auto-medication, the illegal sale of products to persons the substance was not prescribed for, as well as the possible side effects they can bear. In this context, it has been identified that some pharmacies are very well equipped when it comes to such visible signs, whereas others still lack the presentation of this information. *Image VI* and *Image VII* were both taken in a pharmacy located in the very centre of Florianópolis and offer information to the client concerning the risks of auto-medication on the one hand and the illegal nature concerning the distribution of medication into illicit channels according to ANVISA legislations on the other hand. Although these signs are not a guarantee against auto-medication or the distribution of controlled substances, they can be seen as a preventive measure designed for pharmacies. In this context, a pharmacy assistant claimed that: “Not all clients read these signs, but there are some who, upon reading them, request more

²⁴⁶“Farmácia que vendia remédios controlados sem receita é fechada” in *Notícias R7*, 6.04.2016, available at: <http://noticias.r7.com/minas-gerais/farmacia-que-vendia-remedios-controlados-sem-receita-e-fechada-06042016> [last retrieved: 22.05.2017] or “Farmácia que vendia remédios sem receita é fechada em Porto Alegre” in *G1 Globo*, 10.04.2015, available at: <http://g1.globo.com/rs/rio-grande-do-sul/noticia/2015/04/farmacia-que-vendia-remedios-sem-receita-e-fechada-em-porto-alegre.html> [last retrieved: 22.05.2017].

²⁴⁷ Interview, Brasília, 30.04.2017.

information. They for sure don't prevent the misuse of substances, but I believe they help a little bit in making the client more pensive".²⁴⁸

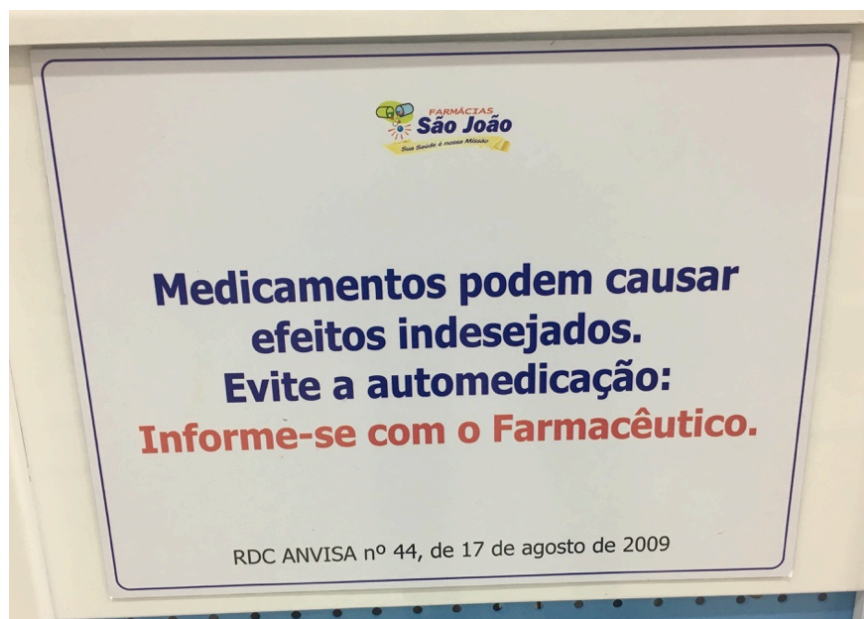


Image VI: “Medication can cause undesired side effects. Avoid auto-medication: Inform yourself”, Florianópolis.

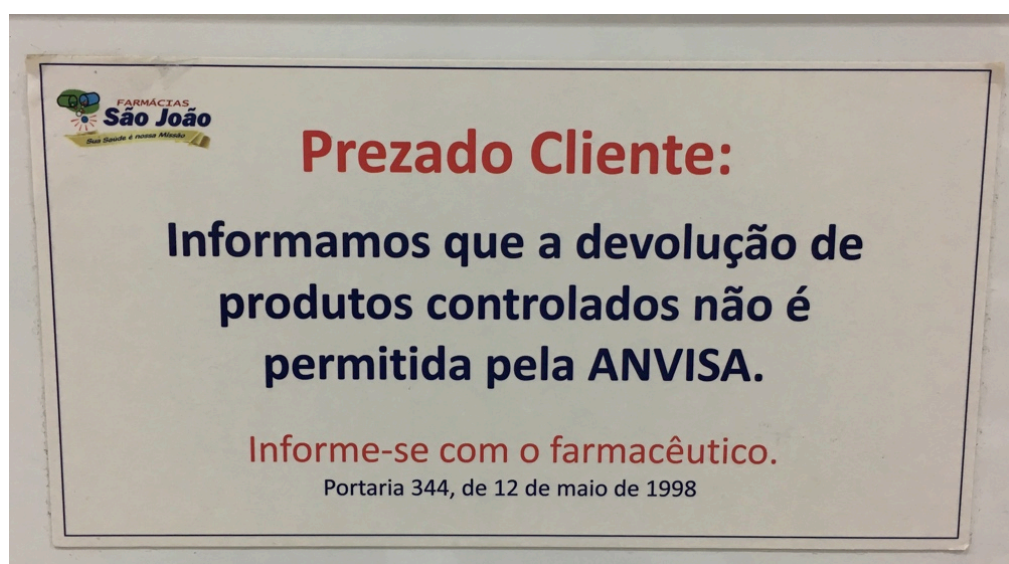


Image VII: “Dear Client: We inform you that the distribution of controlled substances is not permitted by ANVISA. Inform yourself”, Florianópolis.

²⁴⁸ Interview, Florianópolis, 24.04.2017.

5.3. Prevention at university

When considering prevention methods of the non-medical use of methylphenidate among university students on campus, one has to distinguish between two different uses and users: the use of methylphenidate (mostly Ritalin) as a performance enhancer on the one hand and the recreational use.²⁴⁹ Both are equally worrisome, as already short-term consequences and side effects can range from changes in the heart rate to serious insomnia and anxiety. Although long-term consequences of the excessive prescription of methylphenidate are expected to unfold in about two generations from now, health experts agree that “we will certainly be surprised – unfortunately, in a negative way”.²⁵⁰ In this context, a pharmacist believes that: “I am convinced that we will see many more mental disorders, possibly more Alzheimer’s and other damages of our central nervous system. Although long-term effects are not clear yet, it is a logical consequence that the brain cannot remain the same when being stimulated constantly for a certain period of time. And this does not even take into consideration the ethical questions concerning our society!”²⁵¹

Firstly, interviews showed that the non-medical use of methylphenidate for recreational purposes is not yet as well-known a phenomenon as its inappropriate use for study purposes. The questionnaire designed for this study equally showed that more than 70% of those taking Ritalin non-medically did so in order to pass either a public examination (*concurso*) or the infamous *vestibular* exam.²⁵² According to the same questionnaire, less than 20% used Ritalin for recreational purposes. A student, who was interviewed for this research project, claimed that he only knew one single person taking Ritalin recreationally and about 25 others taking the same substance for study purposes.²⁵³

However, these findings should not lead to the conclusion that no prevention is needed at party locations to also investigate the non-medical use of prescription drugs, methylphenidate in this case. Instead, prevention methods should be implemented in clubs and other nightlife locations aiming at approaching young people using stimulants. For example, the Austrian organisation *checkit!* aims at providing information and free drug testing at various party locations in Austria. Young people are encouraged to anonymously test the purity of the

²⁴⁹ For further data and information on the profile of users see chapter discussing the results of the questionnaire.

²⁵⁰ All interviewees agreed that the excessive use of methylphenidate will have serious negative consequences on our public health system in about two generations from now.

²⁵¹ Interview, Brasilia, 30.04.2017.

²⁵² See results of the Questionnaire.

²⁵³ Interview, Brasilia, 30.04.2017.

psychoactive substances in their possession, and therefore inform themselves about possible risks and consequences.²⁵⁴

Further, regulations have to be developed in order to monitor and control the black market more rigidly, as it comes back to the abovementioned dilemma, that despite it being the most controlled substance at the national and international level, methylphenidate is easily available at universities and beyond.

Secondly, the non-medical use of methylphenidate among university students for cognitive enhancement purposes is at the core of the excessive and rapidly increasing use of this substance in Brazil. Unfortunately, this problem involves many more serious issues than simply the phenomenon of over-prescription by psychiatrists. The research conducted for this study, especially the interviews, showed that the root cause of the problem seems to lie within society itself: the pressure young people feel to find a suitable job, the many public examinations held in all of Brazil's larger cities and lastly, the "medicalization" of our society. In order to truly tackle this phenomenon and reduce the inappropriate use of psychoactive substances, societal needs should be reconsidered.

A psychiatrist claimed: "If Brazilian society will not change, the Ritalin-issue will not be off the table so easily either".²⁵⁵ In a similar fashion, a medical doctor voiced his preoccupation that, "if the Brazilian public healthcare system does not rapidly change, my colleagues will continue to use Ritalin, as it allows them to save more lives and stay awake during lifesaving surgeries. They don't want to bear the responsibility for something they have committed, because they had not slept enough. Ritalin is therefore crucial for their performance and for a cause that is way more important than his/her good night's sleep".²⁵⁶ It is most crucial to tackle this issue without compromising the medical use of methylphenidate, which has proven to enable people suffering from ADHD to lead a normal life. Therefore, the guiding principle should "ensuring the availability and accessibility of methylphenidate for medical purposes and avoiding its non-medical use".

It is important that children and adolescents receive adequate prevention programmes and training in school in order to better prepare them for university. By focusing on the teaching

²⁵⁴ For further information see: <http://www.checkyourdrugs.at>

²⁵⁵ Interview, Rio de Janeiro, 19.04.2017.

²⁵⁶ Interview, São Paulo, 30.04.2017.

of life skills and the creation of protective factors, interventions, such as *Unplugged* and GBG, in order to render young people more resilient toward possible future exogenous shocks, which could lead to substance use. Research for this thesis showed that programmes designed to prevent drug use in general and equip young people with social tools to become independent, strong and self-confident people seem to be the most effective. In this context, the UN discussion paper on the non-medical use of prescription drugs highlighted that “the best current evidence regarding the prevention of the non-medical use of prescription drugs comes from research on programmes that were designed to prevent drug use in general.”²⁵⁷ Furthermore, the report highlights that:

*“It would seem wise to embed prevention interventions for the non-medical use of prescription drugs within effective mainstream prevention programmes for addressing risk and protective factors of young people and other vulnerable groups in a variety of settings (family, school, workplace and community) at a variety of levels of risk (the universal level, which targets the whole community, the selective targeting of groups that are more at risk, and, indicated level targeting individuals who are at high risk of using prescription drugs non-medically).”*²⁵⁸

As university students are the main group vulnerable to the non-medical use of methylphenidate, prevention activities should focus on two specific settings in particular: schools and universities.²⁵⁹ Schools should offer a comprehensive prevention mechanism targeting all ages and the prevention of all substances, instead of focusing on alcohol or tobacco only. This should help the student to be informed about the variety of risks involved in drug use and, even more importantly, render him/her more resilient toward negative influences, such as peer pressure and factors increasing his/her vulnerability. At university, prevention programmes should be continuously offered, as pressure increases and more autonomy and independence is required of the young person entering this advanced level of studying. However, in order to make the non-medical use of prescription drugs an integral

²⁵⁷ UNODC (2011a): p.37.

²⁵⁸ Ibid. p. 38.

²⁵⁹ Various studies confirm that the prevalence of the non-medical use of methylphenidate is particularly high among university students. For further information see: Pasquini (2013) or Carvalho Lage (2015).

part of already existing prevention programmes with a successful history, further research is needed in the following fields:²⁶⁰

- Identification of the protective factors and vulnerabilities of the non-medical use of prescription drugs among students of pharmacy and medicine at Brazilian universities.
- Conduct country-specific studies on the non-medical use of prescription drugs with a special focus on opioids, amphetamines and amphetamine-like substances, such as methylphenidate. This study has shown that it is almost impossible to define the exact amount of persons using prescription drugs non-medically, as these have an important medical use and can be bought in pharmacies legally. Only if further studies are conducted on more precise data concerning this health concern, suitable prevention programmes can be developed targeting the very audience that most needs it.
- Whether or not parents should be involved in promoting the responsible use of medications, “these might include promoting simple safety measures about how to store prescription drugs safely, raising awareness about the dangers of providing their children with prescription drugs that have not been prescribed for them, and monitoring their child’s use of prescription drugs for medical or non-medical purposes”.²⁶¹ According to a psychiatrist interviewed in São Paulo, it is crucial to involve parents to a certain extent, “as they sometimes facilitate the purchase of prescription drugs in the hope that their child will perform better at school or university”.²⁶²
- Universities should be more involved in the design and implementation of drug use prevention programmes at campus, as much of the “prescription drugs dealing” occurs within the premise of universities. In so doing, universities should go beyond information campaigns and implement a full-fledged drug prevention policy. In this context, Prof Dr Zila Sanchez mentioned that: “We are currently developing our own policy framework on drug use prevention here at UNIFESP. We are very much aware of the excessive use of prescription drugs as cognitive enhancers at campus. This is a problem we have to tackle and have to somehow integrate into our strategy. This topic should go beyond methylphenidate and tackle responsibility toward medications in general”.²⁶³ It is therefore recommended that universities follow this trend in

²⁶⁰ This list of recommendations is based on two specific sources: the knowledge gained from the interviews conducted for this thesis on the one hand and the chapter on prevention of the UNODC discussion paper on the non-medical use of prescription drugs on the other hand.

²⁶¹ UNODC (2011a): p. 38.

²⁶² Interview, São Paulo, 18.04.2017.

²⁶³ Interview, São Paulo, 17.04.2017.

developing a general policy framework on drug use prevention, which is tailored to the aspects and patterns of their student's drug use.

- More studies are needed to better understand the complexity of the ever-increasing phenomenon regarding the non-medical use of prescription drugs. As prescription drugs are not to be avoided in the same manner as illicit substances due to their important medical use and health benefits, other methods of prevention have to be developed alongside already existing programmes aiming at increasing resilience and decreasing vulnerabilities of an individual. In this context, further studies have to be conducted in order to understand whether interventions, such as *Unplugged*, also decrease the use of prescription drugs. This very last point of recommendation seems to be the most challenging in the future due to the complex and ambiguous nature of the use versus the non-medical use of prescription drugs and, connected to this, problems our society faces, that can be summarised as the “medicalization of our society”.

5.4. Results from the Questionnaire

Between 2nd of May 2017 and 2nd of June 2017, a questionnaire was conducted among 114 university students of all courses at the University of Brasilia in order to gain a more profound understanding and add to the data collected concerning the dimension of the non-medical use of methylphenidate.²⁶⁴ This questionnaire was disseminated electronically targeting students of all university courses, sexes and ages. According to the ecological model for drug use prevention, this questionnaire aimed at gaining information about each respondent's individual health, his/her communication with society (the reason for taking methylphenidate non-medically – whether for social pressure, passing an exam etc.) and his/her interaction with a psychiatrist. A multi-level analysis allows for a more profound understanding of the respondent's overall characteristic when it comes to the non-medical use of psychotropic substances and prescription drugs.

Characteristics of the respondents

Findings show that 58.4% of respondents were female and 41.6% male, which makes for an almost balanced sex ratio. Out of these 114 respondents, 87.5% stated that they were between 18-35 years old, which further highlights the hypothesis that most young people taking methylphenidate non-medically find themselves at the very age of starting an academic life,

²⁶⁴ For all results and graphs see Annex.

which can manifest itself either by trying to get into university through the *vestibular* system or the attempt to pass a public *concurso* to start a professional career. Only 7.1% claimed to be between 26-30 years old and a mere 5.4% were over 30. However, it should not be forgotten that this questionnaire was disseminated among university students and that the average age of university students in general is below 30 years of age. Thus, it is recommended that further studies be conducted among persons at workplace and above 30, as this very questionnaire is only valuable in information for young people and people studying at universities, which automatically excludes those pursuing vocational training.

As already mentioned, this questionnaire was open to any university course in order to diversify the results as much as possible instead of focusing on one single university course, such as medicine or pharmacy. This questionnaire showed that out of 112 respondents, 38.4% study International Relations, which is followed by Medicine (7.1%), Journalism (6.2%), Legal Studies and Economics (both 3.6%).

Prevalence of methylphenidate use among respondents

Findings show that a worrisome number of 36.3% of the respondents have already taken methylphenidate, both medically and non-medically, in the form of Ritalin. Concerning methylphenidate prevalence among young university students, this result is shocking, as this means that approximately every 1.5th person took Ritalin at least once according to this survey. Although 45.5% stated that they took this substance as a treatment of ADHD, this would still make for an excessive diagnosis of ADHD among young people in Brazil, in particular at this university and in the capital city, Brasilia. These findings would also correlate with the critique toward prescription mechanisms in Brazil by Dr Denise Borges Barros, who, in an interview conducted in Rio de Janeiro in March, claimed that: “Far too many young people are diagnosed with ADHD in Brazil. Adult ADHD, in particular, seems to have become almost a trend here”.²⁶⁵ In a publication on Ritalin, the Brazilian psychologist mentioned that adults, who had never before been diagnosed with hyperactivity, difficulties to focus and impulsivity, have now started to interpret certain difficulties in their personal life as manifestations of ADHD.²⁶⁶

Concerning the preference of methylphenidate products, 29.1% of the respondents seemed to take normal Ritalin, while only 8.2% stated that they took Ritalin LA. It is suspected the latter

²⁶⁵ Interview, Rio de Janeiro, 20.04.2017.

²⁶⁶ Barros et al. (2010): p. 500.

is only used medically when treating ADHD, as it is stronger in its dosage and costs up to approximately 700% more than a simple box of 10mg Ritalin. Another option, which does not occur to patients, is Concerta, which is less well-known and almost never used non-medically due to similar reasons as Ritalin LA – higher dosage, side effects and costs. The questionnaire revealed that only 30% of respondents had even heard of Concerta, while every university student seems to be familiar with so-called *Tia-Rita*.

Overall, the findings of this thesis suggest that prevention efforts should be implemented at schools in the first place, as these premises as well as university campuses seem to nurture the establishment of a black market, making Ritalin one of the most easily available substances despite its rigid control mechanism ensured by ANVISA. The questionnaire further mirrored this argument, as almost 61% of respondents did not consult with a medical doctor prior to usage. Only 39.1% followed traditional pattern of receiving a diagnosis by a professional psychiatrist. Interestingly, 56.8% still responded that they obtained Ritalin with a valid medical prescription. These findings suggest that a significant amount of young people buy Ritalin with either a false prescription or a prescription signed by a family friend or member. However, one should bear in mind that some people did obtain Ritalin for purely medical purposes, namely the treatment of ADHD, with a valid prescription upon consulting with a psychiatrist. Although these findings are worrisome, it is once more highlighted that methylphenidate does have an important medical use and can lead to health benefits, if used accordingly. Despite the fact that most people answered that their psychiatrist did not facilitate their buying of Ritalin, 15.9% mentioned that their medical doctor did, however, prescribe methylphenidate without sufficient medical reasoning.

In terms of the time span during which methylphenidate was taken, answers varied significantly. While most respondents (34.1%) took Ritalin over approximately one month, 31.7% made use of this substance for a period of 1-6 months in total. Further, 12.2% used Ritalin between 6-12 months and finally, 22% for more than one year. According to this questionnaire, the average period of use is 6.3 months.²⁶⁷

²⁶⁷ The average was calculated according to a weighted average score analysis of data: for the periods between “1-6 months” or “6-12 months”, the average of “3 months” and “9 months”, respectively, were chosen. For “more than one year”, the period of “18 months” were chosen as an indicator of 1 ½ years.

Reasons behind the use of non-medical methylphenidate use and side effects

Out of all respondents, 30% did not perceive any side effects or negative consequences on their health. Among all side effects listed in the questionnaire, a set of five specific consequences of the use of methylphenidate, whether medical or non-medical, should be highlighted: 12.5% claimed to have suffered from irregular and abnormal heartbeat (palpitations), another 12.5% from anxiety and again 12.5% from the loss of appetite. Equally important seem to be the 7.5% suffering from a dry throat and the 5% of respondents, who experienced severe mood swings and insomnia. These results equally reflect and reaffirm the findings outlined in this thesis so far.

Interestingly, 71.4% of respondent did not perceive the their use of methylphenidate, as being an abuse of any kind, while 28.6% admitted to having used the substance non-medically, characterising their personal use as an “abuse”. In the Introduction of this thesis the topic of poly-drug use was stressed, as it contributed to overdose-affiliated deaths and can further lead to servere health damages. In this context, the questionnaire revealed that 40% of respondent took Ritalin along with other drugs, both licit and illicit substances.

In order to complete the questionnaire and to gain more information on the use of methylphenidate among university students in Brasilia, the reasons behind its use were asked. The results show that 45.5% of students used it for actual medical reasons, namely the treatment of ADHD. 25% claimed to have used Ritalin to pass the so-called *vestibular* and 15.9% to succeed in a public *concurso*. While only 2.3% trace their use back to social pressure and norms, no student answering to this questionnaire reported using methylphenidate in order to lose weight. Surprisingly, however, 15.5% admitted to having used Ritalin for recreation purposes, a phenomenon which was very much underestimated by the interview partners of this research project.

Nevertheless, Dr Denise Borges Barros, who conducted a similar field research for her doctorate, underlined the importance of this group of students. As a result, it is recommended that prevention methods integrate the group of non-medical users of methylphenidate at university campuses and parties into their streamlining of possible interventions and programmes. The recreational use of psychotropic substances, mostly taken by first grinding and then sniffing the substance, pose severe risk to young people, as these so-called “trips” almost always involve other illicit drugs or alcohol and can therefore lead to long-term

consequences. Bearing in mind the creation of substance-specific prevention methods, the phenomenon of poly-drug use further blurs Brazil's picture of drug use, especially in the field of the non-medical use of prescription drugs. According to the World Drug Report: "the non-medical use of prescription drugs, synthetic stimulants and NPS in lieu of or in combination with more conventional drugs clouds the distinction between users of a particular drug, presenting an interlinked or cyclical epidemic of drug use and related health consequences in recent years".²⁶⁸ It is therefore recommended that studies take into consideration the concept of poly-drug use, which, due to its complexity, has not been captured yet sufficiently at the national and international level.

Lastly, it should be mentioned that respondents of the questionnaire were able to leave comments in order to better describe their experience with the use of methylphenidate in their own words. As every individual's body is intrinsically different and does not react in the same way to substances or medicines, the overall effect of methylphenidate on a patient's health cannot be predicted, every case varies significantly. Respondents' answers range from positive experiences, such as "I needed to pass two important exams, which I did – then I stopped, but it served its purpose wonderfully", to neutral experiences like "I did not experience any difference when taking Ritalin" to very negative reports, such as "this medicine changed me – I am not the same person anymore, I have changed completely and am now suffering from trembling hands and nervous attacks".²⁶⁹ The very comment that was most frightening mentioned irreparable damages a stimulant can have on a person's body, if used for too long without any breaks, is the following:

*"I used Ritalin between 2006-2011, noting that the last two years functioned as a type of "abstinence period" of the drug. I started with normal Ritalin, but [soon] used [Ritalin] LA for almost two years and a half. I was never again the same person ever since introducing Ritalin [to my life] – until now do I suffer from shaky hands, violent crisis due to nervousness (including now, I have currently found myself in a crisis for already 5 days). I do not believe that I abused the drug, but using it for many years caused irreparable damage to my health, which is probably a consequence of my extended use without any breaks".*²⁷⁰

²⁶⁸ UNODC (2016): xi.

²⁶⁹ For further comments by respondents concerning their personal experiences, see Annex.

²⁷⁰ Ibid.

Although methylphenidate helps some people, when used for medical purposes, in the right dosage and used short-term, it is impossible to predict a person's reaction to this substance. Experts have equally warned that chronic methylphenidate exposure during childhood and adolescence can have severe consequences for the rest of an individual's life: "disturbances in the neurodevelopment at these crucial stages are major concerns given the unknown future life consequences".²⁷¹ As a result, this substance should not be prescribed recklessly in order to study for an exam. Side effects and long-term consequences might or might not occur – however, in order to implement preventive measures, young people, whose health is the most important asset they still own (in most cases), should be informed in order to make better informed decisions and treat their health, body and mind with more responsibility and respect.

6. Conclusion

6.1. Universal relevance: The *medicalization* of our society

Amongst other findings, it was one of the main aims of this thesis to show how the phenomenon concerning the non-medical use of prescription drugs is embedded into the larger context of the "medicalization" of our society. In this context, poet Johann Wolfgang von Goethe wrote already in 1787: "Speaking for myself, I too believe that humanity will win in the long run; I am only afraid that at the same time the world will have turned into one huge hospital".²⁷² Goethe's statement perfectly captures the ambivalent nature of medicine, as it constitutes an important, if not one of the most important, pillar of a healthy society, namely the fact that we are able to access available medication for our health benefits. Beyond health promotion, however, it reveals the troubles faced by a society, where merely individual problems "can be corrected with the appropriate chemical or behavioural interventions" and without which we feel lost and ill.²⁷³ One only has to ponder, how easily we fall back on medication in the hope that it would sooth our pain and relieve us from our troubles. These days, there exists medication for almost any personal problem, ranging from a cure for hangovers to sleep-inducing pills and over-the-counter pain relievers of all sorts. It seems that the society of the 21th century does not have time anymore to truly face individual issues, to reduce the amount of stress accumulated during everyday activities and to take breaks from

²⁷¹ Loureiro-Vieira et al. (2017): p. 34.

²⁷² Dingwall (2008): p. 382.

²⁷³ Ibid.

our buzzing lives, if necessary. This is said without prejudice to medication that is truly needed to cure pain, illnesses or other disorders. While we are still facing severe problems regarding the availability and accessibility of medications, it seems hard to strike a healthy balance when it comes to the “medicalization” of our society and the apparent urge to better equip our household medicine cabinets.

In a similar fashion, methylphenidate has become the curing solution to problems, such as inattention or hyperactivity as well as the lack of concentration, faced by almost every student. However, as methylphenidate products are readily and easily available on university campuses, it seems that a worrisome number of students rely on medication to either pass an exam or increase their overall performance. The questionnaire conducted for this thesis, for example, suggests that approximately 40% of students have already used Ritalin once in his or her life. When stating the reasons, the most common answers given referred to the treatment of ADHD, recreational use or the wish to pass the *vestibular* or a public *concurso*. When it comes to the “medicalization” of our society, Dingwall points out that:

*“Childhood hyperactivity [...] was one example, where the behavioural problems of US children, faced with an uninspiring educational system and domestic environment threatened by the stresses of mass labour and mass consumption, could be resolved by medication. The doctors who led this diagnostic innovation and expansion created a new source of profit and a new area of professional control”.*²⁷⁴

The findings of this thesis pointed out that critical thinking and basic knowledge regarding the concept described above are required when analysing Brazil’s excessive use and prescription of methylphenidate for both children and adults. Although the substance does play a very important role in helping patients with ADHD to lead better and more functional lives, using this psychotropic stimulant non-medically can lead to severe damages of a young person’s health during university years.

It can therefore be concluded, that prevention programmes need to take into consideration the larger concept of the “medicalization” of our society as well as its protective and risk factors in order to better tackle the non-medical use of prescription drugs in general. This category of drugs cannot be treated in the same way as illicit drugs, simply due to the fact that these

²⁷⁴ Ibid. p. 283.

substances have significant health benefits. At this point, it should also be mentioned that in some parts of Brazil, ADHD is still undertreated and persons suffering from this disorder are sometimes not even aware that medication exists.²⁷⁵ Prevention interventions are therefore recommended to take into consideration each Federal State and city's prevalence regarding the non-medical use of methylphenidate and should only be implemented in areas of the country where there is need for prevention.

6.2. Outlook

The main objective of this paper was to outline and discuss the current status of the excessive use of methylphenidate in Brazil, in particular among university students. The primary data gathered for this thesis implies a necessity to tackle this issue both at the national and international level. It is recommended that policy makers sit together to find a viable solution to prevent more young people from taking methylphenidate non-medically for cognitive enhancement or recreational purposes. Current research available also shows that there still exists a large gap of studies to be conducted in the field of drug use prevention and the attempt to link already existing programmes to the phenomenon of prescription drugs. It is not enough to merely illustrate the prevalence of a certain type of substance in a country. Researching the prevalence of methylphenidate is crucial, but only as a foundation leading to concrete results in the field of substance use prevention. This data combined with interviews conducted with patients suffering from ADHD, students, teachers, policy makers and decision makers has to be used in order to develop an all-encompassing prevention strategy concerning the non-medical use of prescription drugs.

Furthermore, the impact of substance use on a country's economy, as well as the influence and power pharmaceutical companies have, should be taken into consideration when developing prevention programmes. Regional differences in education and overall living conditions play an important role in a country as large as Brazil, where the discrepancy between urban and rural areas is of particularly significant. In order to implement prevention mechanisms regarding the non-medical use of prescription drugs in Brazil, the ecological model should be consulted, where the individual's health is considered to the same degree as the policy making level. Only if a multi-layered system is used, will Brazil find a way to effectively tackle its rapidly increasing consumption of, what its young people call, *Tia Rita*.

²⁷⁵ Mattos et al. (2012): p. 115.

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UNGASS; *Outcome Document of the 2016 UNGASS on the World Drug Problem – Our Joint Commitment to Effectively Addressing and Countering the World Drug Problem*, Thirtieth Special Session, General Assembly, New York 19-21 April 2016
[<https://www.unodc.org/documents/postungass2016/outcome/V1603301-E.pdf> last accessed 20.01.2017].

WHO; *Guide to Good Prescribing: A practical manual* published by WHO, Geneva 2011, WHO/DAP/94.11 [<http://apps.who.int/medicinedocs/pdf/whozip23e/whozip23e.pdf> last retrieved: 10.01.2017].

Relevant Platforms and websites:

Agencia Nacional de Vigilância Sanitária (ANVISA): <http://portal.anvisa.gov.br>

American Society of Addiction Medicine (ASAM): <http://www.asam.org/>.

Centro Brasileiro de Informações sobre Drogas Psicotrópicas (CEBRID):
<http://www.cebrid.epm.br/index.php>.

European Monitoring Centre for Drugs and Drug Addiction (EMCDDA):
<http://www.emcdda.europa.eu/>.

European School Survey Project on Alcohol and Other Drugs (ESPAD):
<http://www.espad.org/>.

Instituto Igarapé: <https://igarape.org.br>

Ministry of Health (Brazil): <https://www.portalsaude.saude.gov.br>

National Center for Biotechnical Information (NCBI) / (PubMed):
<https://www.ncbi.nlm.nih.gov>

National Institute on Drug Abuse (NIDA): <https://www.drugabuse.gov/>.

Observatório Brasileiro de Informações Sobre Drogas (OBID): <http://obid.senad.gov.br/obid>.

Secretaria Nacional de Políticas sobre Drogas (SENAD):
<http://www.justica.gov.br/Acesso/institucional/sumario/quemequem/secretaria-nacional-de-politicas-sobre-drogas>.

Serviço Nacional da Saúde (SICAD):
<http://www.sicad.pt/PT/Publicacoes/Paginas/default.aspx>.

Sistema Nacional de Gerenciamento de Produtos Controlados (SNGPC):
<http://www.anvisa.gov.br/sngpc/boletim.htm>.

Sistema Nacional de Informações Tóxico-Farmacológicas (SINTOX):
<http://sinitox.iciet.fiocruz.br/>.

Special Session of the United Nations General Assembly on the World Drug Problem (UNGASS): <http://www.unodc.org/ungass2016/en/about.html>

Substance Abuse and Mental Health Services (SAMHSA): <http://nrepp.samhsa.gov>

The Global Commission on Drug Policy: <https://www.globalcommissionondrugs.org>

The National Center on Addiction and Substance Abuse (CASA):
<http://www.centeronaddiction.org/>.

Unidade de Pesquisas em Álcool e Drogas (UNIAD): <http://www.uniad.org.br/>.

United Nations Office on Drugs and Crime (Drug use prevention, treatment and care):
<https://www.unodc.org/unodc/en/drug-prevention-and-treatment/index.html>

United Nations Office on Drugs and Crime (field office in Brazil): <http://www.unodc.org/lpo-brazil/pt/drogas/informacoes-adicionais.html>

World Health Organisation (WHO): <http://www.who.int/en/>

Virtual Health Library of the WHO (BIREMI): <http://bvsalud.org/>

8. Annex

List of interviews

List of interviews conducted in Vienna, Austria			
No. of Interview	Date	Place	Person interviewed
1	20.02.2017	UNODC	Anonymous
2	23/01/2017	United Nations Vienna	Dr Justice Tetty
3	03/2017	Plataforma Brasileira de Políticas de Drogas (PBPD)	Gabriel Santos Elias

List of interviews conducted in Brazil (14-31 April 2017)			
No. of Interview	Date	Place	Person interviewed
1	14/04/2017	Droga Raia, Avenida Paulista, São Paulo	Anonymous, Pharmacist assistant
2	14/04/2017	Drogaria São Paulo, Avenida Paulista, São Paulo	Anonymous, Pharmacists
3	15/04/2017	São Paulo	Anonymous, Physician (currently in residence)
4	17/04/2017	Drogaria São Paulo, Rua Pedro de Toledo, São Paulo	Anonymous, Pharmacist assistant
5	17/04/2017	Univesidade Federal de São Paulo (UNIFESP), São Paulo	Prof Dr Zila Sanchez
6	18/04/2017	Departamento de Psiquiatria, Escola Paulista de Medicina, UNIFESP	Prof Dr Sheila Cavalcante Caetano, Psychiatrist

7	18/04/2017	São Paulo	Anonymous, Patient
8	19/04/2017	Instituto Igarapé, Rio de Janeiro	Ana Paula Pellegrino
9	19/04/2017	Private Practice, Rio de Janeiro	Dr Fernanda Ramallo, Psychiatrist
10	20/04/2017	Foundation Fiocruz, Rio de Janeiro	Prof Dr Francisco Inacio Bastos, Psychiatrist
11	20/04/2017	Rio de Janeiro	Dr Denise Borges Barros, Psychologist
12	20/04/2017	Droga Raia, Rio de Janeiro	Anonymous, Pharmacist
13	24/04/2017	Florianopolis	Anonymous, Pharmacist assistant
14	24/04/2017	Florianopolis	Anonymous, Pharmacist
15	24/04/2017	Florianopolis	Anonymous, Pharmacist
16	25/04/2017	Universidade Federal de Santa Catarina (UNFSC), Florianopolis	Prof Dr Daniela Ribeiro Schneider
17	25/04/2017	Droga Raia, Florianopolis	Anonymous, Pharmacist
18	26/04/2017	Airport, São Paulo	Anonymous, Pharmacist Assistant
19	27/04/2017	Drogaria Família, Asa Sul, Brasília	Anonymous, Pharmacist Assistant
20	28/04/2017	ANVISA, Brasília	Anonymous
21	30/04/2017	Drogaria Rosario, Brasília	Anonymous, Pharmacist Assistant
22	30/04/2017	Drogaria Generica, Brasília	Anonymous, Pharmacist Assistant
23	30/04/2017	Drogaria Unicom, Brasília	Anonymous, Pharmacist Assistant
24	30/04/2017	Drogaria Rosario, Brasília	Anonymous, Pharmacist Assistant
25	30/04/2017	Drogaria Brasil, Brasília	Anonymous, Pharmacist Assistant
26	30/04/2017	Drogaria Pacheco, Brasília	Anonymous, Pharmacist
27	30/04/2017	Farmácia Santa Marta, Brasília	Anonymous, Pharmacist Assistant

28	30/04/2017	Brasília	Student
29	30/04/2017	Brasília	Student
30	30/04/2017	São Paulo	Medical doctor
31	01/05/2017	São Paulo	Medical doctor

Approximated interview questions:

As the interviews were conducted in a semi-structured manner, only approximated questions were prepared in advance. Depending on the nature of the interviews and the field the interviewed person work in, questions were slightly altered. The questions above give a short overview of a series of questions that were asked during the interviews conducted for this thesis.

Questions concerning the non-medical use of prescription drugs

- Have you perceived an increase in the use of methylphenidate in Brazil?
- Have you perceived a general increase in the use of prescription drugs?
- Do you believe that Brazil is overprescribing medication, such as methylphenidate?
- Who are the main age groups taking methylphenidate non-medically?
- Have you personally come across this problem within your professional capacity?
- Have you prescribed methylphenidate?
- How do you diagnose ADHD?
- How do you know that someone is not simply faking the symptoms typical in patients with ADHD?
- What kind of products containing methylphenidate are available in Brazil? What is the difference between them?
- How are substances regulated in Brazil?
- How are controlled substances prescribed? Do you believe the control is strong enough?
- What is the main difference between Ritalin and Ritalin LA?
- Does methylphenidate work in the same way in healthy people as it does in patients with ADHD?

Questions concerning prevention methods of the non-medical use of prescription drugs

- Have you ever taken part in drug use prevention activities?
- If yes, what was the nature and purpose of these programmes?
- What was their efficacy and current availability?
- Do you believe that the non-medical use of methylphenidate can be characterised as a national public health problem?
- What would be a viable prevention programme for this problem?
- Do you believe that drug use prevention programmes in Brazil are “ready” to go a step further and include the rational use of medicines into their curriculum?
- What is the government’s attitude toward this problem?
- How important is the concept of prevention within Brazilian politics in general and more specifically, Brazilian legislation in the field of drug use and mental health?

Questionnaire

Uso do metilfenidato (Ritalina, Concerta) entre universitários em Brasília

Bom dia gente!

É um prazer poder compartilhar com vocês que estou fazendo uma pesquisa sobre o uso do metilfenidato em universitários no Brasil. Sou uma estudante de Relações Internacionais na Academia Diplomática de Viena. Seria ótimo se vocês pudessem me ajudar a realizar essa pesquisa! Preciso da sua ajuda!

Obrigada,
Katharina

Sexo

- ☐ F
- ☐ M

Idade

- ☐ 18-25
- ☐ 26-30
- ☐ Mais de 30

Curso

- ☐ Medicina
- ☐ Farmácia
- ☐ Direito
- ☐ Economia
- ☐ Relações Internacionais
- ☐ Outro: _____

Você já tomou Ritalina?

- ☐ Sim
- ☐ Não

Qual tipo de Ritalin você tomou?

- ☐ Ritalina (normal)
- ☐ Ritalina LA
- ☐ Não tomei Ritalina

Você já ouviu falar de Concerta (uma alternativa a Ritalina)

- ☐ Sim, eu já ouvi falar
- ☐ Não

Qual foi a principal razão por a qual você tomou Ritalina?

- ☐ Passar num concurso
- ☐ Passar no vestibular
- ☐ Pressão social
- ☐ Uso recreativo
- ☐ Perder peso
- ☐ Tratamento do TDAH

Como você conseguiu comprar Ritalina?

- ☐ Com prescrição medica
- ☐ Sem prescrição medica

Você consultou com um medico antes de tomar Ritalina?

- ☐ Sim
- ☐ Não

O seu médico facilitou a compra da Ritalina (através de uma prescrição) mesmo que você não precisasse para o tratamento do TDAH?

- ☐ Sim
- ☐ Não

Por quanto tempo você tomou Ritalina?

- ☐ Por um mês
- ☐ 1-6 meses
- ☐ 6-12 meses
- ☐ Mais de um ano

No caso de ter tomado o metilfenidato nos últimos dois anos, você notou o aparecimento de alguma(s) das reações adversas descritas abaixo?

- ☐ Dores de cabeça
- ☐ Boca seca
- ☐ Falta de apetite
- ☐ Ansiedade
- ☐ Palpitações, batimento cardíaco irregular
- ☐ Variações acentuadas de humor
- ☐ Insônias
- ☐ Náuseas
- ☐ Nervosismo
- ☐ Diminuição do crescimento e de peso
- ☐ Não senti efeitos adversos

Você percebe / percebeu o seu uso de metilfenidato como abuso?

☐ Sim

☐ Não

Você usou outras drogas ou medicamentos junto com a Ritalina?

☐ Sim

☐ Não

Se você quiser deixar mais informação sobre a sua experiência com a Ritalina, escreva aqui:

Sua resposta

Translation of the questionnaire into English

Title: “The use of methylphenidate (Ritalin, Concerta) among university students in Brasilia”

Original language: Portuguese

Link: <https://docs.google.com/forms/d/e/1FAIpQLSeQBKrjdaUAiaLaBU778kqBCNJFpJy-hWc4r7HAcPxZs9nLZA/viewform>

Targeted audience: Brazilian university students studying in Brasilia

Method of distribution: via four university Facebook groups of students studying at UnB

1. Group *UnB - Universidade de Brasília*
2. Group *Comunicação – UnB*
3. Group *Pesquisa UnB – Universidade de Brasília*
4. Group *REL/UnB*

Date of distribution: 02.05.2017

Time span while active: 1 month

Number of questionnaires answered: 114

Translation of the questionnaire (Portuguese into English):

Title: “Use of methylphenidate (Ritalin, Concerta) among university students in Brasilia”

Question I: Sex

- F
- M

Question II: Age

Answer II:

- 18-25
- 26-30
- above 30

Question III: University programme

- Medicine
- Pharmacy
- Law
- Economy
- International Relations
- Other

Question IV: Have you ever take Ritalin?

- Yes
- No

Question V: Which type of Ritalin did you take?

- Normal Ritalin
- Ritalin LA
- I did not take Ritalin

Question VI: Are you familiar with Concerta (an alternative to Ritalin)?

- Yes
- No

Question VII: What was the main reason why you took Ritalin?

- To pass a public exam (*concurso*)
- To pass the *vestibular*
- Social pressure
- Recreational use
- To lose weight
- To treat ADHD

Question VIII: How did you manage to buy Ritalin?

- With a medical prescription
- Without a medical prescription

Question IX: Did you consult with a medical doctor before taking Ritalin?

- Yes
- No

Question X: Did your medical doctor facilitate your buying of Ritalin (through a prescription) although you did not need it to treat ADHD?

- Yes
- No

Question XI: For how long did you take Ritalin?

- For one month
- 1-6 months
- 6-12 months
- More than a year

Question XII: Should you have consumed methylphenidate during the past two years, did you experience any of the following side effects?

- Headaches
- Dry mouth
- Loss of appetite
- Anxiety
- Irregular heartbeat
- Mood swings
- Insomnia
- Nausea
- Agitation
- Loss or increase of weight
- I did not experience any side effects.

Question XIII: Do you consider the non-medical use of methylphenidate to be abuse?

- Yes
- No

Question XIV: Did you take any other medication or drugs along with Ritalin?

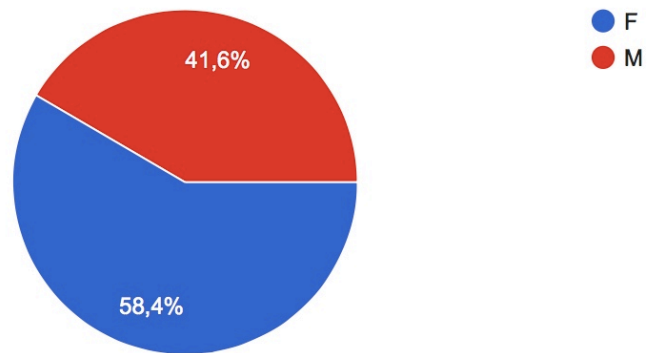
- Yes
- No

If you wish to leave more detailed information, please specify below

Results of the Questionnaire

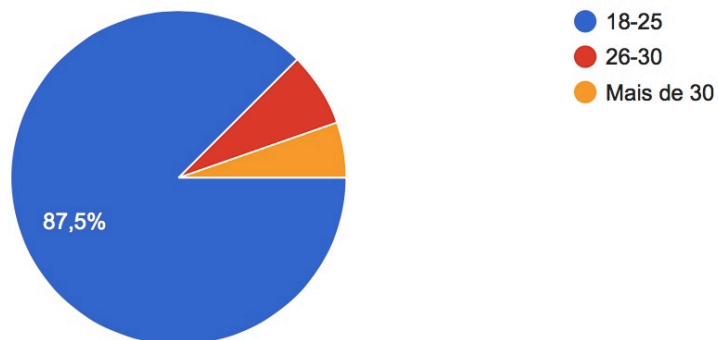
Sexo

113 respostas



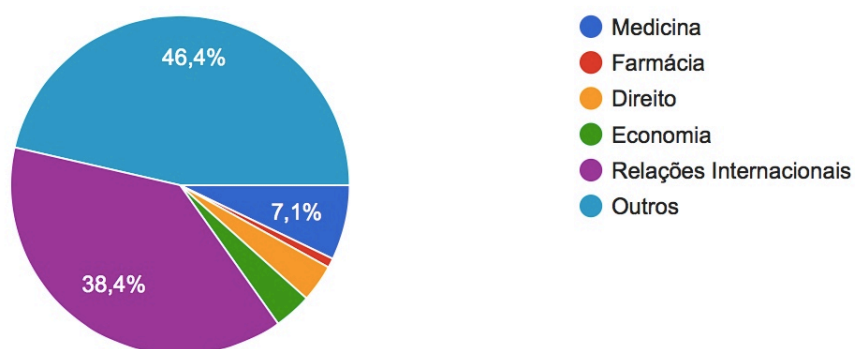
Idade

112 respostas



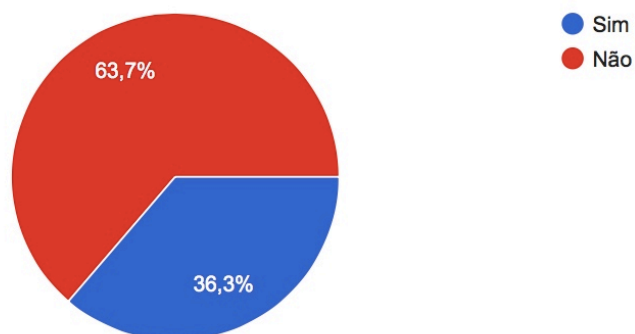
Curso

112 respostas



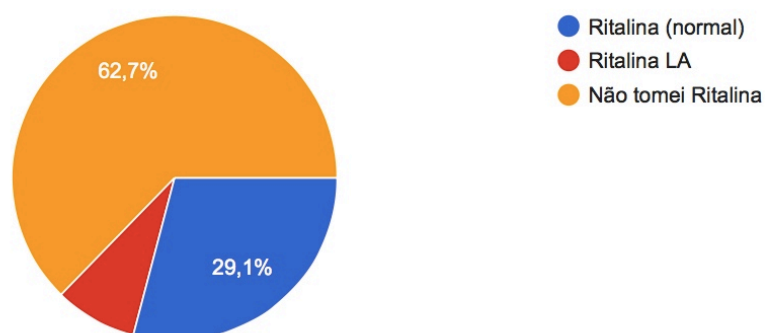
Você já tomou Ritalina?

113 respostas



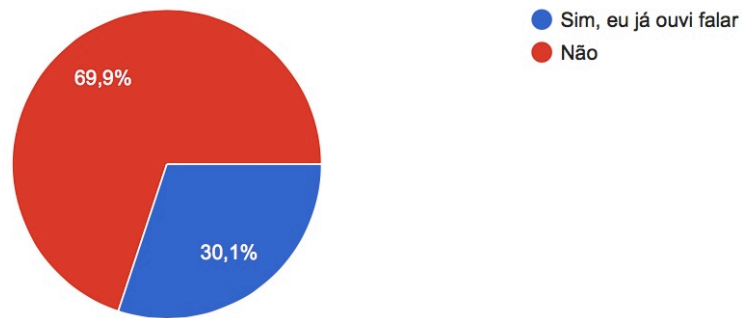
Qual tipo de Ritalin você tomou?

110 respostas



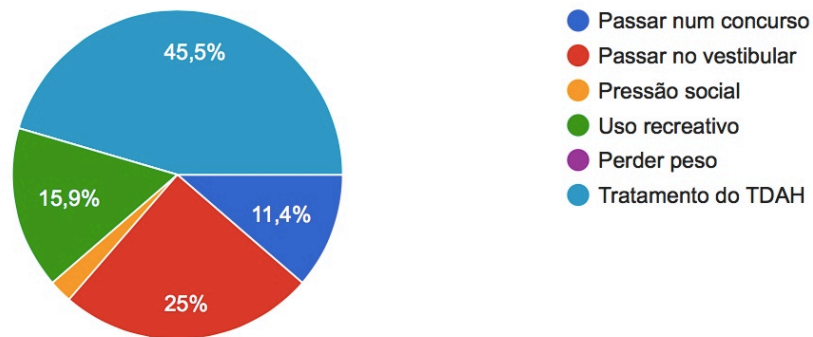
Você já ouviu falar de Concerta (uma alternativa a Ritalina)

113 respostas



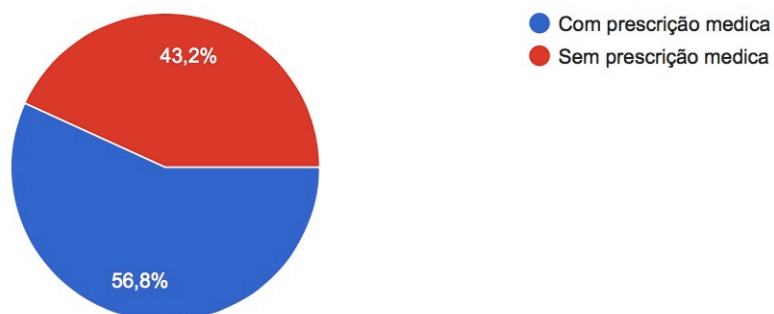
Qual foi a principal razão por a qual você tomou Ritalina?

44 respostas



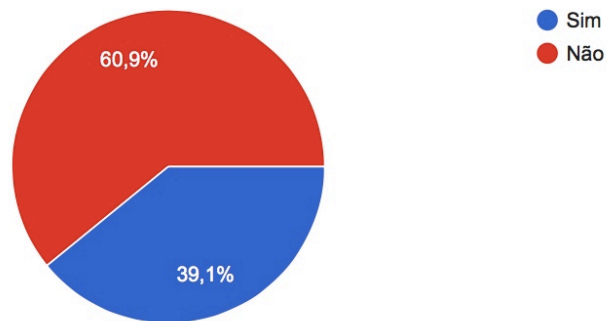
Como você conseguiu comprar Ritalina?

44 respostas



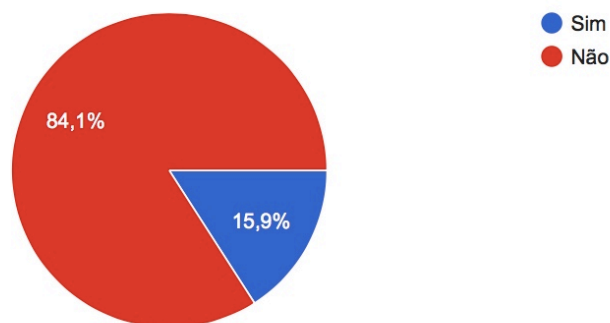
Você consultou com um medico antes de tomar Ritalina?

46 respostas



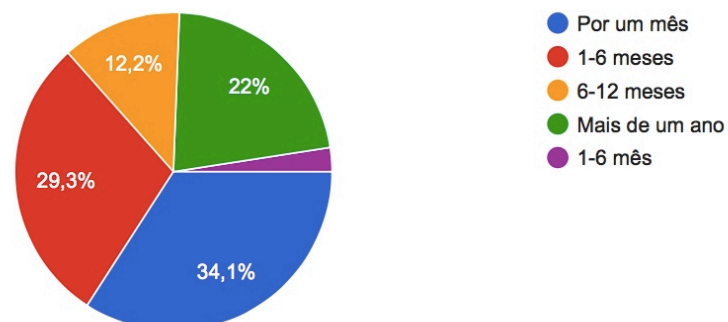
O seu medico facilitou a compra da Ritalina (através de uma prescrição) mesmo que você não precisasse para o tratamento do TDAH?

44 respostas



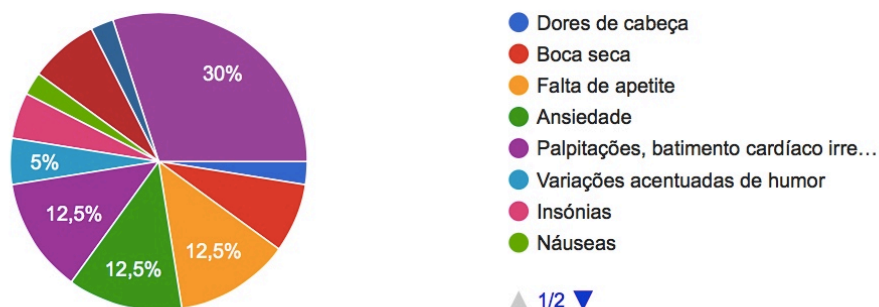
Por quanto tempo você tomou Ritalina?

41 respostas



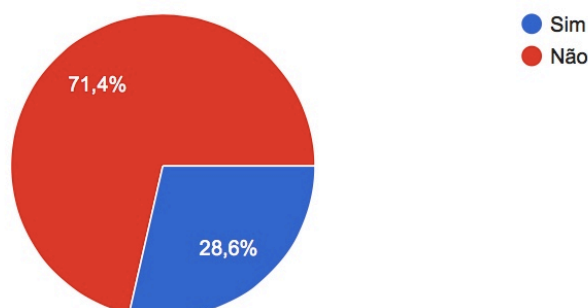
No caso de ter tomado o metilfenidato nos últimos dois anos, você notou o aparecimento de alguma(s) das reações adversas descritas abaixo?

40 respostas



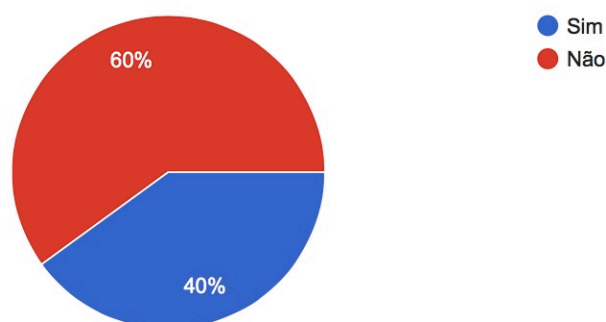
Você percebe / percebeu o seu uso de metilfenidato como abuso?

42 respostas



Você usou outras drogas ou medicamentos junto com a Ritalina?

45 respostas



In the last field of the questionnaire, students could leave comments concerning their experience with methylphenidate. These were the additional comments left by respondents:

- “Usei apenas uma vez pra estudar pra duas provas, precisava me concentrar e acabar com o sono. Realmente deu resultado, mas fiquei sem dormir o dia e a noite toda.”
- “Achei normal, com uma concentração boa para estudo, insônia tbm e mt fadiga ao passar o efeito.”
- “Não me causou efeito algum, apenas me deixou com mais ansiedade.”
- “Tive muitos efeitos colaterais.”
- “Eu só ingeri uma vez antes de fazer a prova do ENEM. Como eu não tinha dormido nada no dia anterior eu decidi tomar. No segundo dia do ENEM eu acabei não tomando já que eu não tinha visto nenhuma diferença tomando ou não a medicação.”
- “Não tinha como marcar todos os sintomas que tive: insônia, falta de apetite, boca seca e náuseas.”
- “eu uso esporadicamente. O neurologista que me passou ficou meio temeroso com o uso pq além da desatenção (momentânea) eu tenho muita ansiedade . Dai , eu uso só quando preciso mesmo . Na verdade mesmo sou totalmente contra medicamentos desse tipo , mas tive q recorrer ao uso pq os sintomas de desatenção estavam me atrapalhando muito e meu rendimento na faculdade também, além no xadrez e outras atividades intelectuais..”
- “Aumento de rendimento.”
- “Nunca usei, porém cogitei a ideia na época de prestar o vestibular para ingressar na UnB.”
- “Ritalina é um remédio com um efeito muito forte e "repentino". O Concerta é melhor.”
- “Na UnB devido a cobrança excessiva no curso de química muitos alunos tomam tanto ritalina, quanto medicamentos semelhantes mesmo sem a receita. É fácil conseguir o remédio entre os próprios alunos do curso pois o curso de química tem muitos casos de alunos que fazem tratamentos tanto com ritalina, quanto com outros estimulantes desde que entraram no curso e tb tem outras drogas que os alunos que fazem tratamento vendem pq eles compram com a receita deles e repassam entre os colegas. Sem falar nos medicamentos para tratamento de depressão que tb são vendidos entre os alunos do curso.”

- “Não senti diferença nenhuma.”
- “Como eu de fato sou diagnosticado com TDAH a Ritalina me ajuda muito, primeira vez que eu tomei foi como se eu sentisse que meu cérebro funcionasse pela primeira vez.”
- “Pode causar dependência de acordo com a idade e ser muito perigoso. Pra mim, foi muito importante e funcionou bem.”
- “Usei Ritalina de 2006 a 2011, sendo que os dois últimos anos foram o desmame da droga. Comecei com a Ritalina normal, mas usei a LA por quase dois anos e meio. Eu nunca mais fui o mesmo depois deste medicamento - até hoje tenho tremores nas mãos e crises violentas de tique nervoso (inclusive me encontro em uma crise que já dura 5 dias). Eu não acho que abusei da droga, mas usá-la por tantos anos causou danos irreparáveis à minha saúde e considero isso uma consequência desse uso prolongado e sem pausas.”

Translation of the comments left by students (Portuguese into English):

- “I have only used Ritalin once to study for two specific exams, as I needed to concentrate and *finish with that sleep*. To be honest, the results were very positive, but I did not sleep for days and nights”
- “I thought it was normal, I was more concentrated with studying, however, I suffered from insomnia and fatigue, which did not disappear immediately.”
- “It [Ritalin] did not cause any effects in me, I only suffered from a severe side effect: anxiety.”
- “I was left with many side effects.”
- “I am an engineer and was once studying for the Exame Nacional do Ensino Médio (ENEM)²⁷⁶. As I had not slept anything the day before the exam, I decided to take Ritalin. I ended up not taking it the second day of the test, as I did not experience any difference taking Ritalin really.”
- “I could not put down all the side effects I felt in the part of the questionnaire above: additionally I felt insomnia, loss of appetite, a dry mouth and nausea.”

²⁷⁶ ENEM is a non-mandatory standardized National High School Exam, therefore entitled ENEM, which evaluated high school students in Brazil. It usually takes more than 10 hours and is held over 2 days. Offered once per year, it allows students to enter university upon receiving positive grades; for further information see: <http://enem.inep.gov.br>.

- “I use [Ritalin] sporadically. The neurologist who gave it to me was quite hesitant when prescribing it, as I do not only suffer from inattention, but also severe anxiety. Thus, I only use it, if I really need it. To be honest, I am personally totally against any kind of medication of this type, but I had to fall back to [Ritalin], as the symptoms of my inattention syndrome started becoming a real obstacle and my performance at university, chess and other intellectual activities suffered from this.”
- “[I experience] an increase in my performance.”
- “I never used [Ritalin], however, I was playing with the idea of doing so when studying for the *vestibular* in order to get into UnB.”
- “Ritalin is a type of medication with a very strong and immediate effect. Concerta is better.”
- “Due to the excessive workload experienced by the students of the chemistry course at UnB, many take a lot of Ritalin as well as similar medication, even without a prescription. It is easy to obtain the medication among colleagues of the same course, as there are many cases of students in our chemistry course, that are being “treated” with Ritalin as well as with other stimulants since they got into the course. There are also other drugs circulating that are eventually being sold by those students, who are in “treatment”, own the prescription, buy these with their prescription and later sell them among their colleagues. I did not even touch upon the subject of antidepressants, which are also being sold among students of our course.”
- “I did not experience any difference.”
- “As I am diagnosed with ADHD, Ritalin helps me a lot. When I first took it, it felt as though my brain finally worked for the first time.”
- “It can cause dependence according to age and can therefore be very dangerous. For me, however, it was very important and worked well.”
- “I used Ritalin between 2006-2011, noting that the last two years functioned as a type of “abstinence period” of the drug. I started with normal Ritalin, but [soon] used [Ritalin] LA for almost two years and a half. I was never again the same person ever since introducing Ritalin [to my life] – until now do I suffer from shaky hands, violent crisis due to nervousness (including now, I have currently found myself in a crisis for already 5 days). I do not believe that I abused the drug, but using it for many years caused irreparable damage to my health, which is probably a consequence of my extended use without any breaks.”

"On my honour as a student of the Diplomatic Academy of Vienna, I submit this work in good faith and pledge that I have neither given nor received unauthorized assistance on it."