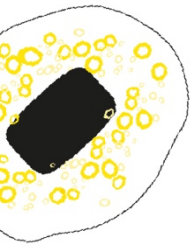


UNIVERSITY OF TWENTE.



The COVID-19 Pandemic and Substance Use

The influence of the COVID-19 pandemic on the substance use of university students in Enschede

by

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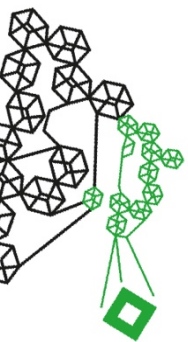
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Summary

This thesis examines the impact of the COVID-19 pandemic on substance use among students at the University of Twente. The research aims to understand how the pandemic influenced the consumption of various substances by comparing usage patterns before, during, and after the COVID-19 lockdown periods. The study involved surveying students about their substance use, focusing on the types and quantities of substances consumed across the three different time frames.

In addition to substance use patterns, the research considers other influential factors such as restrictions, opportunities, and driving forces that could affect substance consumption. These factors were analyzed to provide a comprehensive understanding of the changes in behavior during the pandemic.

The results of the study are expected to provide valuable insights into the relationship between pandemic measures and substance use among university students, as well as identify potential interventions and preventive strategies to support students during this challenging time. The findings of this study have the potential to inform university and public health policies, as well as inform the development of future research in this area.

Overall, this research proposal seeks to contribute to the growing body of knowledge surrounding the impact of the COVID-19 pandemic on substance use and to support university students in maintaining their well-being during this unprecedented time

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1. Introduction

The year 2020 will be remembered as the year the world was confronted with an unparalleled global health disaster - the COVID-19 pandemic. This extremely infectious respiratory disease caused by a new coronavirus (SARS-CoV-2) spread fast over the world, resulting in widespread infections, severe illness, and, unfortunately, millions of fatalities. To counteract the virus's fast spread, governments and public health officials undertook a variety of measures, including social isolation, lockdowns, travel restrictions, and the shutdown of educational institutions (World Health Organization, 2020). The pandemic and its associated measures have had a profound impact on every aspect of everyday life, with university students being particularly hard affected (Lee et al. 2021). Students faced unique and numerous challenges during this period. The transition to remote learning, isolation from friends and peers, financial uncertainties, and increased stress and anxiety levels have become prevalent in their lives. This abrupt disruption in their academic and social routines may have profound effects on their overall well-being, including their substance use patterns (Browning et al., 2021).

This master thesis seeks to address a research gap by investigating the extent to which COVID-19 pandemic response measures affected substance use behaviors of university students in Enschede, a thriving student community in the Netherlands. This study seeks to contribute to a comprehensive understanding of the impact of the pandemic on this vulnerable population by investigating changes in substance use patterns, exploring potential underlying factors, and analyzing the implications for student well-being and academic performance. Ultimately, the findings of this study have the potential to improve targeted methods, policies, and support systems aimed at minimizing the pandemic's negative consequences on university students' substance use habits. This master thesis aims to contribute to the larger endeavor of improving the mental and physical health of university students in the face of unprecedented difficulties by shining light on this critical component.

While numerous studies have addressed this issue, it is essential to acknowledge that research conducted within a single country may not universally apply due to cultural, societal, and economic differences. Variances in population demographics, resource accessibility, and governmental policies among countries can significantly influence research outcomes. Additionally, methodologies employed in a specific study may not be directly transferrable across different cultural or societal contexts. These disparities reveal potential knowledge gaps and stress the significance of considering cultural and contextual specificities when interpreting and applying research findings. However, there exists a research need for more comprehensive comparative studies across diverse cultural and socioeconomic backgrounds to uncover broader patterns and address existing research gaps. For instance, areas such as comparative analysis of pandemic responses, cultural variations in coping mechanisms, impact of socioeconomic factors, effectiveness of remote learning strategies, government policies, and mental

health, and long-term effects on substance use patterns warrant further investigation to comprehensively understand the implications of the pandemic on students globally.

1.1 Research questions

The following research questions will guide the investigation of the changes in substance use amongst students attending university in Enschede the COVID-19 measures. This group is chosen because they are accessible. This method, convenience sampling, selects participants from the target population based on ease of access (Andrade, 2020). The purpose of this study is to uncover if the measures that were taken during the COVID-19 pandemic have had any influence on the substance use of the students that attend the universities in Enschede. Through an examination of relevant literature and data, the study will seek to answer the following research questions:

To what extent did the COVID-19 pandemic influence the substance use of university students in Enschede?

In order to answer the research question, a distinction is made using sub-questions. There are four sub-questions in total, with the first question being:

1. *What measures were taken during the pandemic to contain the infection of COVID-19 in the Netherlands?* This question helps to understand the context of the study.

Subsequently, the difference in substance use during the course of the COVID-19 pandemic is analyzed with the second sub-question:

2. *Did the perceived substance use frequency and quantity change during the COVID-19 pandemic for university students in Enschede?*

Next, the potential changes in the way substances were being obtained will be analyzed by answering the following sub-question:

3. *To what extent did the perceived availability and accessibility of substances change for university students in Enschede during the COVID-19 pandemic?*

At last, possible changes in using substances will be analyzed with the following sub-question final sub-questions:

4. *What explains the perceived changes in substance use behaviors among university students in Enschede during the COVID-19 pandemic?*

1.2 Scientific relevance

Unearthing changes in substance use among university students due to COVID-19 are scientifically relevant for various reasons. First, it can help to advance our understanding of how social and environmental factors influence substance use behaviors, which is important for developing effective prevention and intervention strategies. Second, it can provide insight into the potential short-term and long-term effects of the pandemic on young adults' mental health and well-being. Third, it can inform the development of new research questions and hypotheses that can be tested in future studies. Finally, it can also help to identify new targets for interventions, which may be useful in preventing and treating substance use disorders among university students in the future.

There have been several studies on this matter. Both globally, nationally, and occasionally regionally. In the Netherlands, the Trimbos Institute is the organization that conducts studies of this nature. Further in this study, the monitors that the Trimbos Institute prepared in 2021 and 2023 are discussed.

1.3 Societal relevance

Uncovering changes in substance use amongst university students due to COVID-19 is socially relevant for several reasons. First, it can help researchers and policymakers understand how the pandemic has affected young adults' mental health and well-being, which is important for developing effective interventions and support programs. Second, it can provide insight into how social isolation, stress, and other factors associated with the pandemic may influence substance use behaviors. At last, it can inform the development of public health campaigns and messaging that is tailored to the specific needs and concerns of university students during the pandemic.

2. Theoretical Framework

This chapter will discuss the literature and theories underlying this research to give the reader a better idea of the current state of scientific knowledge. Hereby there is a focus on substance use. Additionally, in the conceptualization, the issues addressed in this study will be delimited and clarified so that it is evident how the concepts are applied in this study.

2.1 Literature review

There have been several studies on substance use among university students and the COVID-19 pandemic. These studies were conducted in countries other than the Netherlands. Since regulations, as well as perceptions about substances, differ from country to country, it cannot be said that the results in the Netherlands would be the same as in other countries. However, the Trimbos Institute has conducted a number of studies on the subject, and many of these monitors were focused on young people in general or young people from specific backgrounds. The studies that are compatible with this particular research are as follows: *"Adolescent Substance Use: Challenges and Opportunities Related to COVID-19"* by Sarvey and Welsh (2021) - This study examines the impact of COVID-19 on adolescent substance use and explores the challenges and opportunities that the pandemic presents for prevention and intervention efforts. The study found that the pandemic has led to an increase in substance use among adolescents, likely due to factors such as increased stress and social isolation. However, the study also highlights the potential for digital interventions and other innovative strategies to reach adolescents during the pandemic. *"COVID-19 Fear, Stress, Anxiety, and Substance Use Among Russian and Belarusian University Students"* by Gritsenko et al. (2021) - This study surveyed Russian and Belarusian university students to assess the impact of COVID-19 on their mental health and substance use. The results of the study found that the majority of students reported increased levels of fear, stress, and anxiety as a result of the pandemic and that these factors were associated with an increased risk of substance use. The study highlights the need for targeted interventions to address the mental health and substance use needs of university students during the pandemic. *"The COVID-19 Pandemic and Its Impact on Substance Use: Implications for Prevention and Treatment"* by Ornell et al. (2020) - This study explores the impact of the COVID-19 pandemic on substance use and the implications for prevention and treatment efforts. The study found that the pandemic has led to an increase in substance use, particularly among individuals with pre-existing substance use disorders. The study also discusses the challenges of providing substance use treatment during the pandemic and highlights the need for innovative and flexible treatment approaches. *"Impact of COVID-19 on the Mental Health of US College Students"* by Lee et al. (2021) - This study assesses the impact of the COVID-19 pandemic on the mental health of US college students. The study found that college students reported significantly higher levels of stress, anxiety, and depression as a result of the pandemic and that these factors were

associated with increased risk of substance use. The study underscores the need for mental health support for college students during the pandemic and the potential for telehealth and other digital interventions to reach this population.

Overall, these studies suggest that the COVID-19 pandemic has had a significant impact on the mental health and substance use of university students, particularly in terms of increased fear, stress, anxiety, and substance use. The studies also highlight the need for targeted interventions and innovative strategies to support university students during the pandemic and the need to consider the unique challenges and opportunities that the pandemic presents for substance use prevention and treatment.

2.2 Conceptualization

In this research, university students, substance use, influence, and measures to fight the COVID-19 pandemic are studied. This section will delineate the concepts so that it is clear what is and is not meant by the concept in this study.

2.2.1 University Students

Individuals who are enrolled in higher education institutions and actively seeking academic degrees or certificates are referred to as university students. They are normally between the ages of 18 and 25, however, this might vary depending on individual circumstances and the school system. University students attend courses, lectures, seminars, and workshops as part of their academic program, whether full-time or part-time. They actively participate in obtaining information, skills, and abilities in their chosen field of study. This study focuses on students enrolled at universities in Enschede, province of Overijssel.

2.2.2 Substance use

The concept of substance use in this study refers to the consumption or ingestion of substances that have psychoactive properties, meaning they alter one's mental state, cognition, mood, or behavior. Substance use can encompass a wide range of substances, including legal substances like alcohol and tobacco, as well as illegal drugs such as cocaine, heroin, or marijuana.

2.2.3 Influence

According to Parsons (1963), influence refers to the process through which individuals and social systems affect one another. Influence, within the context of the study, refers to the extent to which the measures implemented to combat the COVID-19 pandemic have affected or shaped the substance use behaviors of university students. It entails examining how these measures have impacted the prevalence, frequency, quantity, motivations, and contexts of substance use among this particular group.

2.2.4 Measures to fight the COVID-19 pandemic

Conceptualizing "measures to fight the COVID-19 pandemic" involves understanding the range of interventions, policies, and actions that have been implemented to contain and mitigate the spread of the virus. Measures to fight the COVID-19 pandemic include a wide range of strategies and interventions implemented at various levels, including national, regional, and local, with the goal of preventing, controlling, and reducing SARS-CoV-2 virus transmission and mitigating the impact of the COVID-19 disease. Non-pharmaceutical interventions (NPIs) as well as pharmacological treatments are included in these measures. Primarily because of ethical reasons, this study does not examine the pharmacological treatments, only the non-pharmaceutical interventions. This study focuses on three components of the NPIs namely social distancing, the closure of public spaces, and changes in the educational setting.

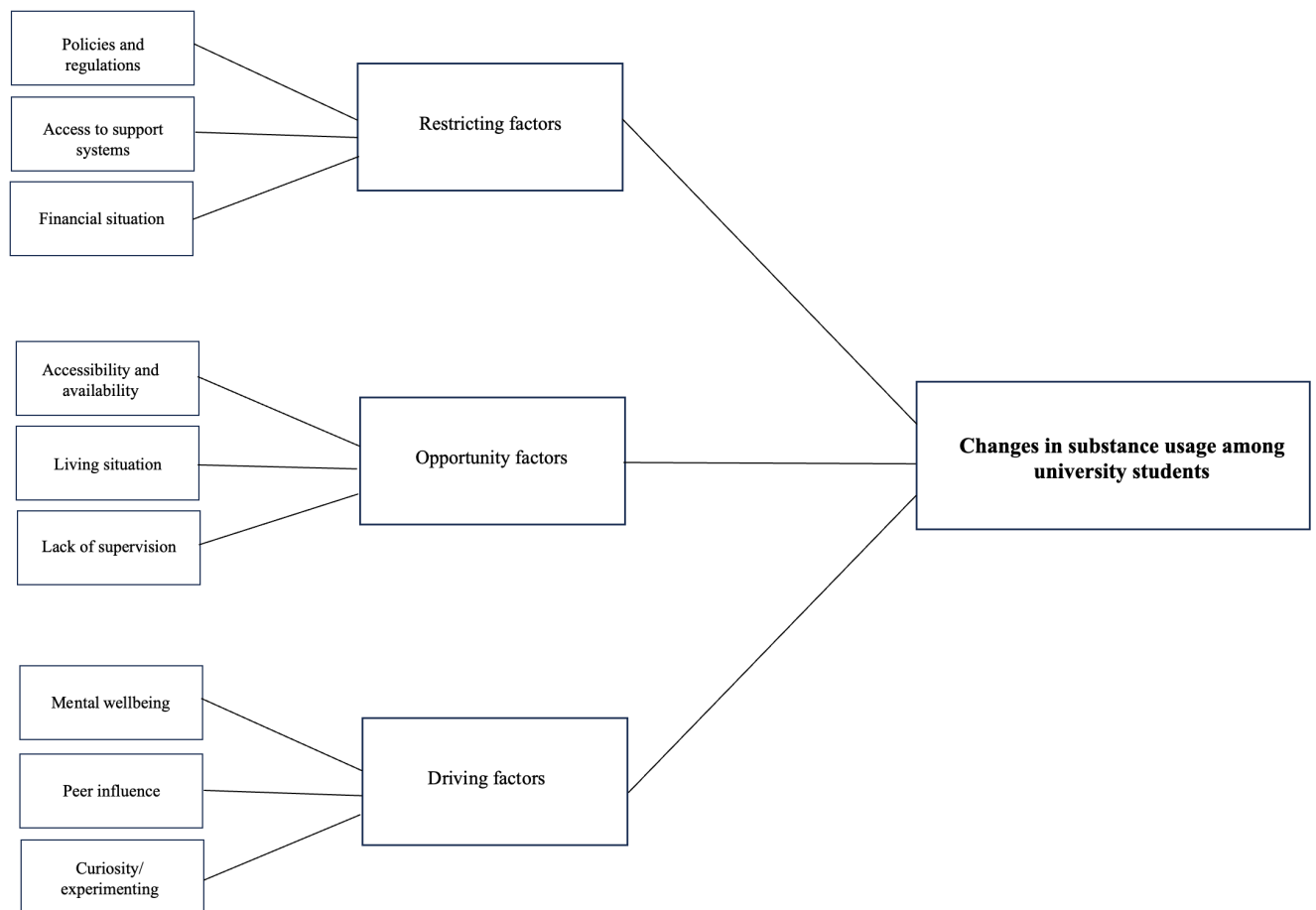


Figure 1. Factors that could influence substance use

The model above identifies several factors that may influence changes in narcotic use among students. For each of these three factors, there are also three sub-factors mentioned that are related to these three main factors. These factors are partially based on the Routine Activity Approach, developed by Lawrence E. Cohen and Marcus Felson in 1979. This theory argues that crime occurs when a

motivated offender encounters a suitable target in a situation where there is little social control or supervision. Although the Routine Activity Approach by Cohen and Felson (1979), was originally developed to explain crime and delinquent behavior, it can also be applied to the use of narcotics.

Restricting factors refer to factors that may contribute to curbing the consumption of substance use, but when not implemented, these factors can also be counterproductive. Thus, policies and regulations may undoubtedly be used as restricting factors under the Routine Approach Theory. Specific laws and regulations can help restrict opportunities and lessen the likelihood of substance usage (US Department of Health and Human Services, 2016). Access to support systems and making them available as alternative opportunities can reduce substance use opportunities. Providing treatment, healthy coping mechanisms, peer support, and preventive programs creates alternative avenues for individuals to cope with challenges, meet their needs, and find support without using substances (Winters et al., 2014). However, when these options are not available, this can also work to its disadvantage and may worsen usage. The financial situation an individual finds themselves in can also influence substance usage. Considering the cost of the substances, but also the cost of treatment and support one may need. It is crucial to point out that a person's financial situation does not inevitably guarantee that they will use substances, but it might impact opportunities and access to substances. Financial constraints can restrict the possibility of substance use, but this depends entirely on the individual. Restrictive factors seek to reduce the availability and acceptance of substances and emphasize the risks and consequences of substance use.

The opportunity factors refer to factors that may contribute to creating an or several opportunities for an individual to use substances. Accessibility and availability are crucial according to the Routine Activity Approach, if substances are readily available in a setting, this may increase the opportunity for individuals to try or use substances. Living situation refers to the circumstances and context in which a person lives, and it can include several aspects that influence the opportunity for substance use (Whitesell et al., 2013). When living situation is being referred to, it refers primarily to household composition and the area in which a person resides. Lack of supervision refers to a situation in which individuals have inadequate guidance, monitoring, or accountability, which can increase the opportunity for substance use (Clark et al., 2008). The three main components when discussing the lack of supervision are parental supervision, school supervision, and workplace supervision.

The last factor, the driving factor refers to what factors may drive an individual to use substances. It is important to remember that the reasons will vary from one individual to the next, and often involve a combination of different factors. The first sub-factor, mental well-being cannot be attributed to the Routine Activity Approach, due to the fact that this theory focuses on external factors, but mental well-being relates to an individual's inner state. However, understanding mental well-being is relevant in the broader context of substance use because it can interact with other factors, such as

opportunity, restrictive factors, and drive. Having adequate mental well-being can be protective and prevent the use of substances, while poor mental well-being can contribute to an increased risk of substance use (National Institutes on Drug Abuse (US), 2020). Peer influence refers to the influence peers have on an individual's behavior and decisions, particularly with regard to the use of substances. Peer influence can increase the opportunity and motivation to use substances (Tomé et al., 2012). Peer influence is mainly a social pressure, the desire to belong and the pressure to be part of the group can enhance one's motivation to use substances (Keyzers et al., 2020). Experimentation and curiosity can certainly apply as driving factors in the Routine Approach Theory, these factors refer to intrinsic motivations and curiosity to gain new experiences. According to Soussan et al. (2018), the unique and exciting element of attempting new and unknown medicines was defined as daring and mysterious. It seems that the newness-seeking behavior was motivated by a desire to push oneself beyond the bounds of normalcy.

Through the reinforcement of restrictive factors, including the implementation of stringent regulations and the enforcement of drug policies, coupled with the reduction of opportunity factors, such as limiting drug availability and living situation, and the targeted addressing of driving factors, such as peer influences and mental wellbeing, it may be possible effectively enhance the overall health and well-being of students.

3. Mental Health and Substance Use Among Students in Higher Education in the Netherlands in 2021 and 2023

This chapter presents the research conducted by the Trimbos Institute. It also provides an explanation of what they do and what their role was during the COVID-19 pandemic.

3.1 Introduction

The Trimbos Institute is a leading Dutch knowledge institute in the field of mental health, alcohol, tobacco, drugs, and addictions. Founded in 1996, resulting from the merger of the Netherlands Centre for Mental Health (NCGV) and the Institute for Research in Extramural Medicine (EMGO), the institute focuses on collecting, developing, and disseminating scientifically based knowledge and expertise in the field of mental health and addiction care (Trimbos-instituut, 2023b).

The Trimbos Institute conducts research, develops interventions and guidelines, offers training and advice to healthcare professionals and policymakers, and informs the general public about mental health, addictions, and related issues. It aims to improve the mental health and well-being of individuals and communities, as well as to promote the prevention and treatment of addiction problems.

The institute works with national and international partners, including universities, research institutes, government organizations, and civil society organizations, to make an impactful contribution to promoting a healthy society.

3.2 The role of the Trimbos Institute during the COVID-19 pandemic

The Trimbos Institute played an important role during the COVID-19 pandemic by researching the impact of COVID-19 on people's mental health and well-being. This included studies on the increase in mental health symptoms, the effects of the pandemic on specific population groups such as young people and people with severe mental illness, and the need for support and interventions to address these problems (Moerenburg, 2021). In addition, the institute collaborated with other research institutions and organizations to fund and carry out joint research projects (Romunde, 2023). The Trimbos Institute also contributed to informing the public and healthcare professionals about the mental health aspects of the pandemic, which helped policymakers and social workers take appropriate measures to support the mental health of the population.

3.3 Monitor 2021

In 2021, the Trimbos Institute published two reports on mental health and substance use. This monitor examined nationwide the mental health of students in higher vocational education and university. Over 28,000 students completed an online questionnaire (Trimbos-instituut, 2023a). The aim of this first Monitor of Mental Health and Drug Use in Higher Education is to give a nationally representative picture of higher education students' mental health and drug use, as well as the protective and risk factors involved (Dopmeijer et al., 2021).

The focus of the monitor within sub-report II is first to understand which substances students use and in what frequency and quantities they do so. The report describes the use of alcohol, tobacco, cannabis, ecstasy, and the inappropriate use of concentration-enhancing drugs and sleep and sedatives. For associations with mental health and other factors, analyses were conducted for four of the substances: excessive alcohol use, frequent cannabis use, ecstasy use (in the past month), and inappropriate use of concentration-enhancing drugs. In the research, they also paid attention to risky gaming behavior.

The study reveals that 94% of participants drink alcohol, with 85% in the past year. Excessive and heavy drinkers are more common among males and independent-living students. Older students and those with migration backgrounds drink less excessively. Heavy drinking is accepted among friends. 17% used drugs in the past year, mainly cannabis and ecstasy. Improper medication use is linked to factors like LGBTQ+ identification, learning disabilities, and psychological issues. Risky gaming behavior is more common among males, living independently, and psychological issues. Stress, academic pressure, and sleep problems are associated with substance use. Mental health issues like stress and sleep problems are associated with substance use. Study delays and debt are also linked to substance use. Social support doesn't affect substance use, but loneliness correlates with it.

3.4 Monitor 2023

The purpose of the second measurement (2023) of the Mental Health and Substance Use Monitor for Higher Education Students (MMMS) is to update figures from the first measurement (2021), deepen the first measurement in parts, and compare with the first measurement (Nuijen et al., 2023).

The MMMS 2023 research focuses on various significant questions. First, it seeks to examine the mental health and substance use status of participating students and establish the extent of any differences from the initial evaluation. Second, it investigates the link between the participating students' characteristics and their mental health and substance use behaviors. Finally, the study looks into how much therapy or support participating students received in response to mental health concerns or challenges related to substance use. It tries to determine whether there were any changes

from the original assessment and to identify the variables influencing the receipt or absence of guidance or help.

Mental health was investigated in terms of mental well-being (life satisfaction, resilience, and flourishing), psychological complaints (depression/anxiety symptoms, emotional exhaustion symptoms, and life tiredness), stress, performance pressure, and loneliness. Substance abuse includes drinking, smoking, and vaping, using cannabis, ecstasy, cocaine, and psychedelics, as well as using concentration-enhancing medicines, sleep aids, and sedatives without a doctor's prescription.

3.5 Monitor 2021 vs. Monitor 2023

In the 2023 monitor, several comparisons were made in relation to the 2021 monitor. These comparisons were divided into four different categories. These four categories will be explained below.

3.5.1 Mental health

Among the participating students, emotional exhaustion, frequent experiences of performance pressure, and feelings of loneliness occurred less frequently in 2023 compared to 2021. While there is also improvement in other measures of mental health in 2023 compared to 2021, the differences between the two years are not significant enough to indicate a meaningful improvement

3.5.2 Substance use

In 2023, a higher percentage of students vaped regularly or daily compared to 2021, with rates at 4% and 1%, respectively. In 2023 and 2021 excessive and heavy alcohol consumption are by far the most common. 39% of students were considered high risk and 4% were dependent on alcohol. This is no longer substance use but substance abuse. While substance use refers to responsible and controlled consumption, substance abuse involves problematic patterns of use that have adverse effects on an individual's well-being and functioning (Griffin, 1990). Additionally, in 2023, there is a decrease in the prevalence of frequent cannabis use, recent consumption of psychedelics, and the use of sleep and calming medications without a doctor's prescription in the past twelve months, compared to 2021. However, there are no significant differences between the two years in other measures of substance use.

3.5.3 Psychological issues

In 2023, the percentage of students receiving advice or assistance for mental health issues was higher (65%) compared to 2021 (51%). Additionally, there are no differences between the two years regarding online searching for information or help.

3.5.4 Counseling

The percentage of students seeking institutional counseling for substance use issues was higher in 2023 (4%) than in 2021 (2%), while the proportion of students seeking help from external

professionals increased from 6% in 2021 to 10% in 2023. Furthermore, there were no discrepancies between the two years in terms of online searches for information or assistance.

3.6 Sub-question 1: What measures were taken during the pandemic to contain the infection of COVID-19 in the Netherlands?

The primary purpose of the Dutch COVID-19 pandemic strategy was to protect vulnerable individuals while also striking a balance between the health infrastructure (without overburdening hospitals and healthcare workers) and supporting the economy, both large and small organizations, and protecting jobs. Just like in the surrounding nations, the smart recommendations prioritized measures such as promoting a 1.5-meter social distance, practicing frequent handwashing, and controlling movement by shutting down universities, restaurants, sports centers, cinemas, museums, and the entire cultural sector. They also imposed restrictions on shopping and stressed the importance of working from home. Notably, schools remained operational while universities had to suspend their activities. The first lockdown commenced on March 23 and concluded on June 1, 2020. A second, more severe lockdown was introduced in December 2020, driven by the rapid escalation of COVID-19 infection rates. The primary focus of the second lockdown was to impose strict limitations on interpersonal contact (National Defense University Press, n.d.). This more severe, lockdown also introduced a curfew that was installed on January 23, 2021. While the curfew was in force, people were not permitted to be outdoors between 9.00 PM and 4.30 AM. One could only go outside if they had a legitimate and requiring cause to do so. It was necessary to always have a self-declaration for curfew exemption. If someone was required to work during these hours, they also had to be able to provide proof of an employer's certification of curfew exemption (Ministerie van Algemene Zaken, 2021).

On January 6, 2021, the first healthcare worker in the Netherlands was vaccinated (Ministerie van Volksgezondheid, Welzijn en Sport, 2021). The campaign was implemented in phases, beginning with high-risk groups and healthcare workers, and progressively expanding to include a larger proportion of the community. Dedicated vaccination facilities equipped with the necessary equipment and trained employees were established around the country to enable the effective distribution and administration of vaccinations. An online appointment system was developed to assist with the scheduling of vaccination appointments and to simplify the process. Furthermore, the Dutch government actively promoted vaccination through a combination of public preaching and rewards. These incentives included the possibility of easing limitations for those who had been completely vaccinated, to encourage more people to be vaccinated (Ministerie van Algemene Zaken, 2023a).

After the vaccination campaign, the Dutch government implemented a combination of measures to contain infections. This included promoting continued adherence to preventive measures such as

social distancing, mask-wearing in certain settings, and hand hygiene. Additionally, they closely monitored COVID-19 trends and adjusted measures accordingly (National Institute for Public Health and the Environment, n.d.). In March of 2022, the measures were gradually eased after a strict lockdown. Eventually, the last measures were lifted in May of 2022 (Ministerie van Algemene Zaken, 2023d).

4. Methodology

The methodology of this study is described in this chapter. First, the research design options are set out. The sample selection procedure is then discussed, and the variables are conceptualized and operationalized. The chapter concludes with a description of how data is gathered and analyzed to answer the research question.

4.1 The Social and Environmental Determinants

The theoretical framework section of this thesis provides a conceptual foundation for understanding the social and environmental determinants that influence substance use among university students, with a particular focus on the impact of the measures implemented during the COVID-19 pandemic.

The framework of Social and Environmental Determinants refers to a method for understanding the different elements that impact people's health and well-being. It acknowledges that health outcomes are influenced not only by personal characteristics or actions but also by larger social and environmental variables. The framework highlights the importance of social and environmental variables in affecting health outcomes, such as socioeconomic position, education, employment, housing, community resources, access to healthcare, and environmental quality. These variables can either support or detract from health, resulting in health disparities or inequalities within communities (World Health Organization: WHO, 2019). The Social and Environmental Determinants approach recognizes that variables outside an individual's control impact their health and emphasizes the significance of addressing the underlying social and environmental circumstances to enhance health outcomes. It acknowledges that interventions concentrating on these variables can have a greater and more long-term influence on population health than just on individual-level causes (S. C. Short & Mollborn, 2015).

In the specific context of the COVID-19 pandemic, the social and environmental determinants framework becomes particularly relevant. The pandemic has created new obstacles and disruptions in social, economic, and environmental situations, which may have an impact on drug use habits among university students. By applying this framework to examine the impacts of pandemic-related measures, such as lockdowns, social distancing, and remote learning, an assessment can be made of how these changes in the social and environmental landscape have influenced substance use patterns among this population.

The study's theoretical framework investigates the social and environmental determinants of substance use among university students, with a specific focus on how the COVID-19 pandemic measures influenced these determinants and, as a result, substance use behaviors.

One key determinant to be explored is peer influence. Peer relationships play a crucial role in shaping substance use behaviors among young adults. The pandemic and measures such as social

distancing and reduced in-person interactions may have altered the dynamics of peer influence. This warrants investigation into changes in social networks, the prevalence of virtual interactions, and the impact on peer pressure and normative behaviors related to substance use. Social norms, which include common views and actions within a social group, are another influence. Changes in social norms around drug use among university students may have resulted from the pandemic. The study will look at how changes in social activities, gathering limits, and increasing health consciousness have changed the perceived acceptability and prevalence of substance use. Another significant determinant is stress, which has a considerable impact on substance use behaviors. The study will examine how the pandemic and other stresses, such as academic hurdles, financial issues, and social isolation, affected students' stress levels. The goal is to examine how variations in stress levels may have affected substance usage as a method of coping or a way to unwind. Furthermore, the study will look into the relationship between mental health and substance use. The pandemic has had a significant impact on mental health, which may affect substance use behavior. The study will look at how the pandemic and its accompanying pressures impacted students' mental health, such as increased anxiety, despair, or loneliness. The emphasis will be on determining whether changes in mental health problems have affected substance use as a form of self-medication or emotional distress management. Ultimately, accessibility to substances is an important factor to consider. The study examines how the pandemic and related measures affected the availability of substances among university students. This involves looking at changes in the availability, and ways of acquisition of substances like drugs, alcohol, or narcotics. The study will look at whether interruptions in supply chains, venue closures, or changes in online markets have altered students' access to drugs and, as a result, their substance use habits.

By exploring these social and environmental determinants within the context of the COVID-19 pandemic, the thesis aims to provide insights into how the pandemic has altered these factors and subsequently impacted substance use behaviors among university students.

4.2 Research Design

This study is interested in the relationship between the implemented COVID-19 measures and the substance use of students who attend the University of Twente. A quantitative study was carried out to ascertain if and to what extent this relationship existed.

The study focuses on how the students of the University of Twente experienced the COVID-19 pandemic and how substance use related to this. The first measures taken by the Dutch government, also known as the smart lockdown, were implemented in March 2020 (Ministerie van Algemene Zaken, 2023a). In March 2022, the last measures expired, and in May 2022, the Netherlands was completely free of measures regarding the COVID-19 pandemic (Ministerie van Algemene Zaken, 2023b). This

study, therefore, considers May 2022 as the end of the COVID-19 pandemic, due to the situation in the Netherlands.

The units of analysis of this study are students that attend the University of Twente, Enschede, and Saxion University of Applied Sciences, also located in Enschede. As they are the group that the study is focused on. In order to state the extent of the relationship between the COVID-19 measures and the substance use of students, both elements were examined individually. Sub-question one has studied through a content analysis of the government documents. Sub-questions two, three, and four are studied via the answers that were obtained in the survey.

In Chapter 2, a model was developed based on three different factors—restricting factors, opportunity factors, and driving factors—each with three sub-factors, to help identify changes in substance usage among university students. These factors formed the foundation for the survey questions, guiding the design and structure of the survey to analyze how various elements influenced student behavior during the pandemic. This comprehensive model is crucial for understanding the multifaceted impacts of the COVID-19 pandemic on substance use.

4.3 Development of the survey questions

A thorough and comprehensive approach was used to develop survey questions for this master's thesis, which looks at the influence of the COVID-19 pandemic on substance use among university students. To ensure thorough coverage of essential information, three dimensions were established to guide the development of survey questions.

The first dimension focused on restricting factors associated with substance use. This involved examining the influence of policies and regulations implemented during the COVID-19 pandemic, evaluating the role of support systems available to students, and investigating the impact of financial situations on substance use behaviors. By exploring these factors, the survey aimed to identify barriers or constraints that may have influenced substance use choices among university students during the pandemic.

The second dimension, opportunity factors, sought to understand the circumstances and conditions that facilitated substance use. This dimension encompassed questions related to the accessibility and availability of substances, the influence of living situations (such as on-campus housing or living at home), and the potential lack of supervision experienced during remote learning. By exploring these factors, the survey aimed to gain insights into the environmental and situational influences on substance use behaviors during the COVID-19 pandemic.

The third dimension, driving factors, aimed to uncover the internal motivations and psychological aspects that influenced substance use behaviors among university students. This

dimension included inquiries into the impact of mental well-being on substance use, the influence of peer influence, as well as factors such as curiosity and experimentation. By exploring these driving factors, the survey sought to provide a deeper understanding of the psychological processes and social dynamics underlying substance use patterns among students during the pandemic.

Through this comprehensive approach, the survey questions aimed to provide a thorough understanding of the impact of the COVID-19 pandemic on substance use among university students, contributing to the existing body of knowledge in this area.

4.3 Sample

Enschede has several educational institutes that cater to various levels of education. This research focuses on two educational institutes in Enschede. The universities in question are the University of Twente and Saxion University of Applied Sciences. Saxion University of Applied Sciences is a public university with three campuses in the Netherlands' east: Deventer, Enschede, and Apeldoorn. Only students at Saxion in Enschede will be considered for this study. The University of Twente is likewise a public institution with only one campus, which is located in Enschede. The units of analysis of this study are students who attend the University of Twente and Saxion University of Applied Sciences.

In 2021 there were 12,903 students enrolled at the University of Twente, 4,676 of them were first-year students in bachelor's or master's programs and 33% of all students were international students (University of Twente, n.d.).

During the 2021-2022 academic year, Saxion University of Applied Sciences had a total of 28,756 enrolled students. These were students from full-time, part-time, and dual studies and un-funded programs, such as master's and private education (Saxion, n.d.). The Enschede location is by far the most prominent, with 17,603 students enrolled (Studiekeuze123, n.d.).

4.4 Operationalization

Operationalization of variables refers to the process of defining and measuring a variable in a specific and objective way in a research study. It is the process of taking a concept or variable and defining it in a way that can be measured, observed, and quantified in a research study. This helps to ensure that the variable is being measured consistently across different participants or groups and that the results of the study are valid and reliable (Bhandari, 2022b).

Table 1*Operationalization of the variables*

Variable	Indicator	Category
Student	Living situation	Nominal
COVID-19 Measurement	Changes in daily routine	Ordinal
	Social distancing	Nominal
	Stress/anxiety	Nominal
Substance use	Type(s) of substance	Nominal
	Frequency	Ordinal
	Change in usage	Ordinal
	Motivation	Nominal
	Accessibility	Ordinal

In Table 1 the different variables, indicators, and categories are operationalized, due to the operationalization of the variables it is possible to measure the abstract conceptual ideas.

4.5 Data Collection

4.5.1 Procedure

The survey was conducted online amongst students of the University of Twente, Enschede. The students were made aware of the study via social media, flyers, and in person.

Students first arrived at an introduction page. Here it was explained why this study was being done and what was being asked of them. On this page the estimated duration of the survey was presented and my contact details. This page also listed what agencies they could consult if the topic was perceived as triggering or if they were struggling with issues in which help might be beneficial. This introduction also made it known that the participant could stop at any time during the survey, without reason. Before the participants could actually begin the survey, they were asked if they agreed, after which they could begin the survey if they agreed to the terms.

4.5.2 *Ethical considerations*

Research ethics are vital for scientific integrity, human rights and dignity, and science-society partnership. These principles ensure that study participants' involvement is voluntary, informed, and safe (Bhandari, 2022). Since this research directly involved human participants, it is mandatory to ensure the research practice was ethically correct (University of Twente, n.d.-a). Various types of ethical issues have been taken into account whilst conducting the research.

In the research of Bhandari (2022), the following ethical issues were considered:

- ***Voluntary participation***

Without any pressure or compulsion, participants were free to choose whether or not to engage.

- ***Informed consent***

All potential participants got and comprehended all of the information required to make an informed decision about whether or not to partake. This contained details regarding the study's advantages, disadvantages, financing, and institutional permission.

- ***Anonymity***

The identity of the participants is unknown, and it is not possible to link any particular participant to their data.

- ***Potential for harm***

In this study there is a risk for potential psychological harm, the survey question may have triggered negative emotions like fear or shame. Therefore, participants were informed about the nature of the questions prior to the survey and assured that their responses would be confidential. At the end of the survey participants were informed about counseling services and information about managing substance use.

An application was made to the ethics committee before the survey. This application passed the ethics committee, after which it was possible to conduct the survey.

4.5.3 *Materials*

An online survey was used to answer the research question. The topics of the survey consisted of numerous topics and were largely based on The Global Drug Survey and their research on COVID-19 and drugs, the Trimbos Instituut, and their drug monitor. The different topics that were covered in the survey and how they were measured will be mentioned below. The questions asked in the survey were based largely on the conceptual framework given in the previous chapter. In some cases, the students were asked how their experiences had changed before and after the outbreak of COVID-19. The period before the COVID-19 epidemic refers to the time before the middle of March 2020, whilst the period following the COVID-19 outbreak refers to the time from the middle of March 2020 until the time of questionnaire participation. The full survey can be found in the appendix, listed as appendix a.

Substances use

- *Types of substances*

To study what type of substances are being used by students were asked if they ever had used certain substances and if this has changed compared to before the COVID-19 pandemic. The measurements were based on a combination of the Global Drug Survey, ‘De impact van COVID-19 en de coronamaatregelen op alcohol-, tabak- en drugsgebruik onder uitgaanders’ and the MMMS research, both from the Trimbos Instituut.

- *Frequency*

To understand how frequently students use substances they were asked how many times per day, week, or month they are using their preferred substances and how this has changed since the COVID-19 pandemic.

- *Amount*

The amount of substances that students were using was measured by asking the students what type of use they were. They had several options to choose from, ranging from non-user to binge user. The students were also asked how this compared to before the COVID-19 pandemic.

Restricting factors

Students were asked about various components that could be a restricting factor regarding substance use. The following three components were asked concerning the restricting factor.

- *Policies and regulations*

Students were asked to what extent they believed the implemented restrictions that the COVID-19 pandemic entailed influenced their substance use. The students were asked to keep different factors in mind, like social distancing, travel restrictions, working from home, and quarantine. Students were given the choice between several multiple-choice answers, ranging from no influence at all to extreme influence.

- *Access to support systems*

Two questions were asked based on support systems. The first was whether students were aware that the university makes these resources available to them. The second question focused on whether the student had actually encountered support systems and whether this had affected their substance usage. For both questions, students were supplied with several answers they could choose, whether or not they knew about such services and whether or not they had an influence on their substance use.

- *Financial situation*

The question about finances focused on whether this affected students' substance use. Mainly due to perhaps declining incomes or lost grants. Students were given multiple answers, ranging from no influence to significant influence.

Opportunity factors

- Accessibility and availability

To understand if there were any changes in the accessibility and availability of substances for students, they were asked how the accessibility and availability of substances are for them. They were asked to give their experience before COVID-19, during COVID-19 and after COVID-19.

- Living situation

The living situation of students was asked to uncover if their living situation and where they were living had any relation to their substance use. They were asked about their living situation before COVID-19, during COVID-19 and after COVID-19.

- Lack of supervision

If lack of supervision had any influence on the substance use of students, they were asked if they thought the decreased amount of supervision had any influence on their substance use. Factors such as remote learning and limited face-to-face interaction were named as factors. The respondents were supplied with answers that ranged from significant influence to no noticeable influence. When they were not sure if the lack of supervision had any influence, they could give that as an answer.

Driving factors

- Mental wellbeing

To understand if mental well-being had anything to do with the respondents' substance use during the COVID-19 pandemic they were asked to what extent influenced their usage. Respondents were asked to take factors such as increased stress, loneliness, anxiety, or depression into account.

- Peer influence

To uncover if peer influence had anything to do with substance use during the COVID-19 pandemic, the respondents were asked if the attitude that their peers had towards substance use influenced their behavior in any way. Respondents were given five options, that ranged from 'strongly agree' to 'strongly disagree'.

- Curiosity/experimenting

Respondents were asked whether or not their curiosity to experiment with substances had any influence on their usage. They were asked to consider factors like the desire for new experiences, wanting to experiment, or even because of boredom.

4.5 Response

The survey process generated 116 recorded responses from survey participants. It is worth noting that seven respondents explicitly declined to participate in this phase, therefore ending their participation in the survey. This left **109 individuals** who started the survey. Given the sensitive nature of the subject matter under consideration, all participants were informed that they could opt out of the survey at any time if they felt uncomfortable or wanted to withdraw their participation. As a result of this option, 94 people persisted and finished the survey, providing significant information to our research project. Throughout the data-gathering procedure, this approach provided the highest consideration for the participants' liberty and comfort.

Several outreach methods have been used to increase survey response rates. The campus of the University of Twente was visited four times, offering the chance to interact with students and request their participation. Furthermore, the survey was distributed through a university student-only group chat in order to reach a targeted and relevant participant pool.

It is important to note that the initial plan was to include students from Saxion University of Applied Sciences as well. However, despite efforts to engage them, Saxion University students did not participate to the extent that was initially anticipated. In an attempt to reach out to a broader spectrum of students, study associations were contacted; however, responses from these organizations were not forthcoming.

Furthermore, it is important to note that during the testing period, students at Saxion University faced difficulties in completing the survey as intended, which may have hindered their ability to offer thorough responses. In contrast, the test group of University of Twente students encountered hardly any challenges. The difference in test groups highlighted differences in survey accessibility and familiarity, with Saxion students encountering particular issues that hindered their ability to complete the survey according to its intended purpose.

Additionally, it is crucial to consider potential response biases in this survey. The voluntary nature of participation, the opt-out option, and the varied outreach methods could introduce self-selection bias, where individuals with strong opinions or particular experiences related to the subject matter might be more likely to participate. Moreover, the difficulties faced by Saxion University students in accessing and completing the survey could result in a non-response bias, potentially skewing the data towards the experiences and opinions of University of Twente students who found the survey

more accessible. These factors must be acknowledged when interpreting the survey results to ensure a comprehensive understanding of the data.

4.6 Data analysis

The collected survey data were subjected to a rigorous analysis employing both descriptive and inferential statistical techniques to explore the extent to which the measures implemented to fight the COVID-19 pandemic influenced the substance use of university students in Enschede.

A thematic approach was used to evaluate the qualitative data collected from open-ended questions. This involved a methodical procedure of classifying and categorizing comments based on reoccurring themes and patterns. The qualitative analysis gave new insights and contextual knowledge of the individuals' substance use experiences and perspectives throughout the pandemic. To highlight and strengthen the selected themes, direct quotes and examples from responses from participants were used.

The combined use of quantitative and qualitative data enabled a thorough examination of the research question. The quantitative data offered quantitative information about the prevalence of the use of substances, changes in substance use patterns, and the impact of COVID-19 measurements on substance use behaviors. The qualitative data supplemented the quantitative findings by providing detailed insights into the individuals' experiences, coping techniques, and the larger context surrounding their substance use habits throughout the pandemic.

5. Results

The COVID-19 pandemic has had a significant impact on society worldwide, including the implementation of various measures aimed at reducing its spread. One area of concern is the potential impact of these measures on the substance use behaviors of university students. The main research question of this master thesis is to what extent the measures implemented to fight the COVID-19 pandemic influenced the substance use of university students in Enschede. In this chapter, the results of this study will be presented, which aims to investigate this question. The data collected from the survey will be analyzed and interpreted to provide insights into the impact of COVID-19 measures on substance use behaviors among university students in Enschede.

The result of the survey research is disclosed in this essential component of the study. The presentation of these findings is the result of careful data gathering and analysis, and it sheds insight into the research issues and objectives that inspired this study. This chapter provides an in-depth overview of the findings, including important insights, interpretations, and consequences that lead to a better knowledge of the issue. Aiming to draw connections, uncover patterns, and underline the importance of survey-based research in addressing the larger context of research. The answers to the questions that have inspired this study may be found in this chapter.

Within this results chapter, an extensive survey research effort is presented, dedicated to addressing the fundamental research question: *"To what extent did the COVID-19 pandemic influence the substance use of university students in Enschede?"* The entire research is shaped by this question. Furthermore, this chapter analyzes the different sub-questions that are interconnected with the main research question. The sub-questions were carefully chosen in order to uncover complex components of the research issue. Each sub-question will be carefully examined throughout this chapter, explaining their separate contributions to the understanding of the broader issue.

Wide-ranging responses to these sub-questions have been cautiously sought through the survey. As a result, the goal of this study is to give an in-depth understanding of how the COVID-19 pandemic has impacted the substance use behaviors of university students in Enschede. These findings not only answer the current research concerns but also highlight their importance in the context of a more comprehensive research environment.

5.1 Results in relation to sub-questions

This section examines the survey results in regard to the sub-questions. Each sub-question will be addressed separately, providing specific insights and information that provide a better understanding of the research issue. This focused analysis allows a comprehensive look at each sub-question, with the exception of sub-question 1, which is answered in Chapter 3.

5.1.1 Sub-question 2: Did university students in Enschede perceive change in substance use frequency and quantity during the COVID-19 pandemic?

In this chapter, the second sub-question will be addressed: To gain insight into whether the use of substances among University of Twente students, changed in frequency and quantity during the COVID-19 pandemic, this question was included in the survey. The students were asked about their habits before COVID-19, during COVID-19, and after COVID-19.

Frequency

The provided table illustrates the frequency of substance use among university students in Enschede before, during, and after the COVID-19 pandemic, with various time frames specified. Respondents were asked to indicate their usage frequency using categories ranging from "Daily" to "Never." Before the pandemic, the most common responses were using substances 1-2 times per week (27 respondents) and 1-3 times per month (10 respondents), followed by 3-4 times per month (14 respondents). During the pandemic, there was a shift, with the most common responses being 1-2 times per week and 1-3 times per month (both with 23 respondents). After the pandemic, a similar pattern emerged, with 1-2 times per week and 1-3 times per month being the most frequent responses (both with 23 respondents). These findings provide insights into the changing patterns of substance use among university students in Enschede throughout different phases of the pandemic.

The examination of substance use frequency revealed consistent trends across the three periods studied. Before COVID-19, the median frequency of substance use was 10. During the pandemic, this median increased to 14.5, indicating a significant rise in substance use. After COVID-19, the median frequency decreased to 12, suggesting a decline in substance use compared to the pandemic period, yet it remained higher than pre-pandemic levels. These findings suggest that while substance use frequency spiked during the pandemic, it did not fully return to pre-pandemic levels, indicating a lasting impact on substance use behavior.

Table 2

Frequency of substance use per week or month

	Daily	5-6 times	3-4 times	1-2 times	1-3 times	3-5 times	1-2 times	Never	Total
Before COVID-19	8	10	14	27	10	3	6	15	93
During COVID-19	11	14	20	23	16	4	8	15	111
After COVID-17	8	10	19	23	14	3	4	16	97

Note. The indications of frequency are per week or month.

Quantity

The presented table illustrates the consumption levels of substances among university students in Enschede before, during, and after the COVID-19 pandemic, categorized from "None" to "Binge." Participants were prompted to specify their substance consumption using these delineated categories. Prior to the pandemic, the most frequently reported consumption level was "Standard" (27 respondents), followed by "Moderate" (30 respondents). During the pandemic, the distribution shifted slightly, with "Standard" and "Moderate" consumption levels remaining prevalent (both with 27 respondents), closely trailed by "High" consumption levels (14 respondents). Post-pandemic, a similar trend persisted, with "Standard" consumption levels being the most common (26 respondents), closely followed by "Moderate" consumption levels (31 respondents). These insights shed light on the fluctuations in substance consumption levels among university students in Enschede throughout different phases of the pandemic.

The examination of substance consumption levels across three distinct periods reveals shifts in behavior. Before COVID-19, the median consumption level was 27, indicating a moderate level of substance use. During the pandemic, this median decreased to 23, suggesting a slight reduction in consumption levels. After COVID-19, the median level further decreased to 26, indicating a continued decrease but remaining elevated compared to pre-pandemic levels. These findings suggest that while there was an initial increase in minimal consumption levels during the pandemic, the levels did not fully return to pre-pandemic norms afterward, implying a lasting impact of the pandemic on substance consumption behaviors.

Table 3

Quantity of substance used in one sitting

	None	Minimal	Moderate	Standard	High	Binge	Total
Before COVID-19	15	12	30	27	10	2	96
During COVID-19	16	21	27	23	14	4	105
After COVID-17	16	13	31	26	6	1	79

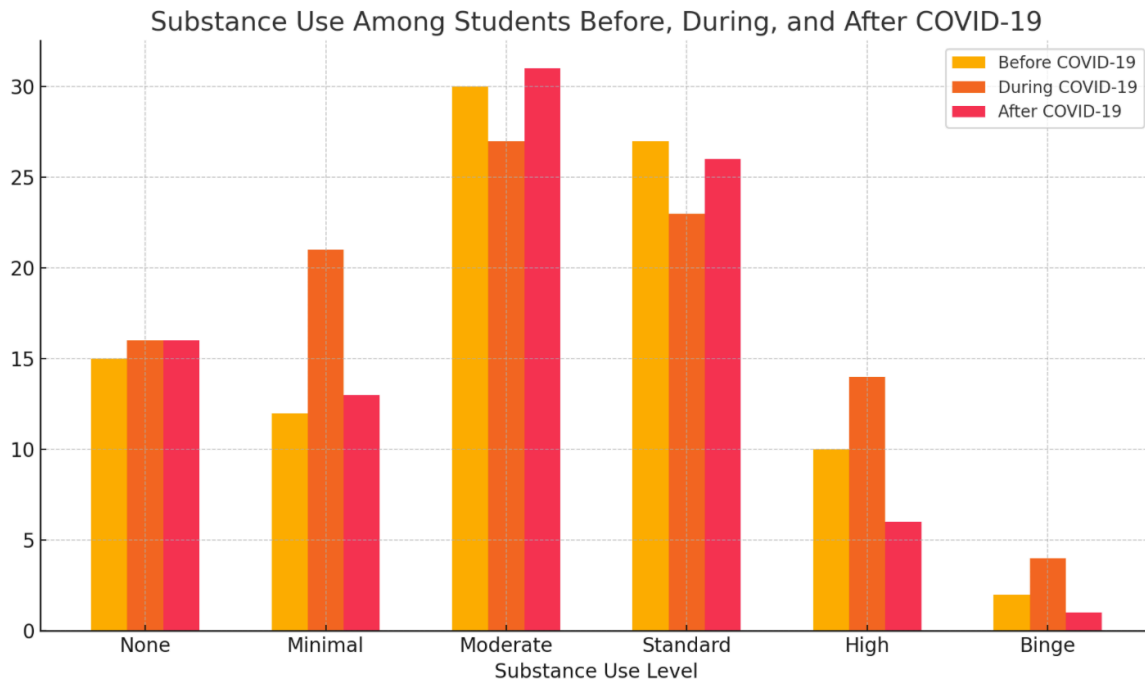


Figure 2. Histogram quantity of substance use

According to the findings of Nuijen et al. (2023) substance use amongst students was largely in line with the findings of research on the impact of COVID-19 on substance use among partygoers, which showed that the use of substances increased during the pandemic. The

5.1.2 Sub-question 3: To what extent did the perceived availability and accessibility of substances change for university students in Enschede during the COVID-19 pandemic?

The survey included a question investigating the perceived availability and accessibility of substances. In order to get insights if the different phases of the pandemic had an influence on these matters, students were asked about the availability and accessibility before, during, and after the COVID-19 pandemic.

Table 4 presents data regarding the perceived changes in substance availability and accessibility among university students in Enschede throughout the COVID-19 pandemic. Participants were asked to rate their experiences using a scale ranging from "Very easily" to "Extremely difficult." Prior to the pandemic, a majority of respondents (59) indicated finding their preferred substances very easily. During the pandemic, there was a shift in responses, with fewer participants (36) reporting very easy access, while 10 and 4 respondents reported moderate difficulty and difficulty, respectively. After the pandemic, 43 respondents noted very easy access to substances. These findings suggest variations in substance availability and accessibility among university students in Enschede in response to the pandemic.

Table 4*Access and finding preferred substances*

	Very easily	Easy	Moderate easily	Moderately difficult	Difficult	Extremely difficult	Total
Before COVID-19	59	17	2	1	0	0	79
During COVID-19	36	14	17	10	4	2	83
After COVID-17	43	26	5	2	1	0	77

The provided table outlines the various outlets used by university students in Enschede to acquire substances before, during, and after the COVID-19 pandemic. Respondents were presented with multiple options including "Supermarket," "Online," "Friends," "Streets," "Darkweb," "Pharmacy," and "Dealer," alongside an additional category labeled "Other." Before the pandemic, the most prominent outlets were "Supermarket" (70 respondents) and "Friends" (30 respondents). During the pandemic, "Supermarket" remained the primary source (65 respondents), followed by "Friends" (31 respondents). Following the pandemic, a similar trend persisted, with "Supermarket" continuing as the predominant choice (64 respondents), alongside "Friends" (32 respondents). Additionally, "Other" outlets were indicated by 4 respondents before the pandemic, 7 during the pandemic, and 7 after the pandemic, indicating a consistent reliance on alternative channels across different stages of the pandemic. These findings reveal the diverse acquisition methods employed by university students in Enschede throughout the various phases of the pandemic.

Table 5*Obtaining preferred substances*

	Supermarket	Online	Friends	Streets	Darkweb	Pharmacy	Dealer	Other	Total
Before COVID-19	70	7	30	1	0	4	6	4	122
During COVID-19	65	15	31	3	3	3	10	7	137
After COVID-19	64	13	32	1	0	3	8	7	128

5.2.4 Sub-question 4: What explains perceived changes in substance use behaviors among university students in Enschede during the COVID-19 pandemic?

In order to uncover what might explain changes in substance use there were several questions, each formulated from a different angle.

Financial situation

When examining the impact of the financial situation amid the COVID-19 pandemic, survey respondents provided diverse perspectives. A significant majority, comprising 70.5% of participants, reported that their financial situation had no discernible influence on their substance use. In contrast, 8.4% acknowledged a slight influence, resulting in a decrease in substance consumption. Likewise, 12.6% indicated that their financial circumstances had no noticeable effect on their substance use patterns. On the other hand, 7.4% of respondents noted a slight influence leading to an increase in substance use, while a minority of 1.1% reported a substantial impact, resulting in a significant rise in their substance consumption.

According to the research from Nuijen et. al. (2023), 15% of students with mental health problems reported being unable to afford professional counseling, which may have contributed to a change in their substance use. They also found that students with a paid job of 16 or more hours per week were more likely to smoke daily than students without a (side) job. A possible explanation for this is that having a part-time job provides these students with more financial opportunities to afford the relatively expensive purchase of tobacco.

When examining the impact of the financial situation during the COVID-19 pandemic on substance use, it's evident that financial constraints play a role in influencing behaviors. The majority of survey respondents (70.5%) reported that their financial situation had no noticeable effect on substance use. However, Nuijen et al. (2023) found that financial barriers, such as the inability to afford professional counseling among students with mental health issues, could contribute to changes in substance use patterns. Additionally, their research highlighted that students with part-time jobs of 16 or more hours per week were more likely to smoke daily, possibly due to increased financial opportunities enabling the purchase of tobacco. This suggests a complex interplay between financial circumstances, mental health, and substance use behavior. Pointing out the need for comprehensive support systems to address these interconnected factors during times of economic uncertainty like the COVID-19 pandemic.

Supervision

In assessing the impact of the lack of supervision during the COVID-19 pandemic on substance use behavior, a diverse range of perspectives emerged from the survey responses. A noteworthy 45.3% of participants reported that the absence of supervision had no noticeable influence on their substance use. However, a significant proportion acknowledged varying degrees of impact, with 14.7% expressing a moderate influence and 11.6% citing a minor influence. Interestingly, a smaller segment, constituting 3.2% of respondents, felt that the lack of supervision had a significant influence on their substance use behavior. However, 25.3% of participants either remained unsure or lacked sufficient information to evaluate the influence of the absence of supervision during the pandemic.

In the MMMS 2023, there is no direct mention of supervision. However, they mention that students who live alone are more likely to smoke daily and use cannabis frequently than students living with their parents or guardians. Nuijen et al. (2023) gives a possible explanation that living alone creates the opportunity to smoke out of the sight and control of the parents or guardians, who may discourage this kind of behavior.

The survey results echo the findings from Nuijen et al. (2023), which suggest that students living alone are more prone to daily smoking and frequent cannabis use due to reduced supervision and control by parents or guardians. The lack of oversight in such living arrangements may facilitate substance use behaviors, contributing to these differences in usage patterns.

Mental health

In examining the interplay between mental well-being and substance use behavior during the COVID-19 pandemic, a comprehensive analysis of survey responses reveals diverse perspectives among the 94 participants. A considerable 38.3% of respondents indicated that their mental well-being had no noticeable influence on their substance use patterns during this challenging period. In contrast, a substantial portion acknowledged varying degrees of impact: 14.9% reported a moderate influence, 21.3% identified a minor influence, and 7.4% expressed that their mental well-being significantly influenced their substance use behavior. Furthermore, 18.1% of participants were uncertain or lacked sufficient information to assess the influence of mental well-being on their substance use during the pandemic. These findings underscore the multifaceted relationship between mental health and substance use, illustrating the nuanced ways in which individuals perceive and navigate these interactions amid the unique circumstances of the COVID-19 crisis.

In the research of Nuijen et al. (2023) they uncovered that by 2023, just under half of participating students were found to no longer experience the COVID-19 pandemic impacts on their mental health (41%) and loneliness (46%). Another proportion still experiences a negative impact (40% and 30%). The research by Nuijen et al. (2023) highlights the varying impacts of the COVID-19 pandemic on students' mental health, with a significant proportion experiencing negative effects. Similarly, the study on university students from the University of Twente reveals diverse perspectives on the interplay between mental well-being and substance use during the pandemic. While a notable percentage of respondents reported no noticeable influence of mental well-being on substance use patterns, others acknowledged varying degrees of impact, highlighting the complex relationship between mental health and substance use.

These findings emphasize the importance of understanding the nuanced ways individuals perceive and navigate the relationship between mental health and substance use amid the unique circumstances of the COVID-19 pandemic.

Peer attitude

Exploring the impact of peer attitudes on substance use during the COVID-19 pandemic among the surveyed participants reveals diverse perspectives. A substantial 30.9% of respondents reported a neutral stance, indicating that the attitudes of peers—whether friends, parents, teachers, colleagues, or classmates—had neither a significant nor negligible influence on their substance use during this challenging period. Conversely, 16.0% agreed that peer attitudes had some influence, while 11.7% strongly agreed that these attitudes significantly influenced their substance use. On the contrary, 20.2% disagreed, stating that peer attitudes did not play a significant role, and 21.3% strongly disagreed, asserting that peer attitudes had no influence whatsoever on their substance use during the pandemic.

In the MMMS 2023 is stated that excessive and heavy alcohol consumption, daily smoking, and frequent cannabis use are more common among students living with others in a student house/flat or a house/apartment (Nuijen et. al. 2023). This indicates that peer influence and attitude play a significant role in substance use amongst students, particularly during challenging times like the COVID-19 pandemic. Permissive attitudes toward substance use among peers can influence perceived norms and behaviors (Layman et al., 2022). Additionally, changes in peer disapproval of substance use during the pandemic may have influenced adolescents' perceptions and behaviors (Rosenthal et al., 2024). These findings underscore the importance of considering peer dynamics and attitudes in understanding and addressing adolescent substance use behaviors.

Curiosity and experimentation

Examining the impact of curiosity and experimenting on substance use behaviors during the COVID-19 pandemic among the 94 participants reveals diverse perspectives. A notable 45.7% of respondents reported that curiosity and experimenting had no noticeable influence on their substance use behaviors during this period. In contrast, 14.9% acknowledged a moderate influence, and 12.8% identified a minor influence of curiosity-driven experimentation on their substance use patterns. Interestingly, 13.8% of participants expressed that curiosity and experimenting had a significant influence on their substance use behaviors. Additionally, 12.8% of respondents were uncertain or lacked sufficient information to evaluate the influence of curiosity and experimenting on their substance use during the pandemic.

According to the research of Nuijen et. al. (2023), it is well known that many students go through an experimental phase when it comes to substance use. For example, students consume more alcohol and use more drugs than their non-student peers, particularly cannabis and ecstasy. Alcohol is still an element of student culture, and students frequently participate in social events that involve alcohol use.

Although many students stop drinking significantly after an extended period of excessive drinking without support, this does not apply to every student. However, the examination of curiosity and experimentation during the COVID-19 pandemic reveals diverse perspectives. A significant portion of respondents reported minimal to no influence of curiosity-driven experimentation on their substance use behaviors, while others acknowledged moderate or significant impacts.

6. Conclusion

This chapter serves as the conclusion of the investigation into the impact of the COVID-19 pandemic on substance use among university students in Enschede. The focus has been on assessing the extent to which the pandemic has influenced substance use behaviors within this demographic. In this final section, the findings derived from the research are synthesized to provide an objective overview of observed trends and implications. Anchoring the analysis to the main research question, the aim is to offer insights that contribute to a deeper understanding of the relationship between the COVID-19 pandemic and substance use among university students in Enschede, potentially informing future research directions and intervention strategies.

The analysis presented in this thesis reveals a clear impact of the COVID-19 pandemic on the substance use behaviors of university students in Enschede. Across different phases of the pandemic, from the initial lockdowns to the gradual easing of restrictions, we observed notable changes in how often substances were used, how much was consumed, and how accessible these substances were perceived to be by survey participants. While some patterns of substance use remained consistent, such as moderate levels of consumption being common, there were noticeable fluctuations in usage frequency and quantity. Additionally, there were shifts in how easily substances could be obtained, with some participants reporting increased difficulty during certain stages of the pandemic.

Several factors emerged as potential drivers of these changes in substance use behaviors. These included financial situations, levels of supervision, mental health, peer attitudes, and curiosity-driven experimentation. Together, these factors played a role in shaping how individuals responded to the unique challenges posed by the pandemic. In addressing the main research question, it becomes apparent that the COVID-19 pandemic had a notable impact on the substance use behaviors of university students in Enschede. The complete extent of this influence may vary among individuals and be subject to a multitude of factors.

When comparing the results of this study with those from the Trimbos Institute's monitor, it is important to highlight the differences in research design and focus. While both studies employed survey methodologies, the Trimbos Institute's monitor surveyed students in higher education, including HBO institutions, and placed a significant emphasis on mental health, substance use, and the impact of COVID-19. In contrast, this study targeted a more specific subset of participants and examined a broader range of factors beyond just mental health and substance use. These differences in focus and target population could lead to variations in findings and interpretations.

The absence of a control group in this study limits the ability to establish direct causal relationships, but it doesn't discount the potential for valuable insights. The data collected provides valuable information about the experiences and responses of the surveyed participants. However, without a control group for comparison, it's challenging to ascertain whether observed changes or outcomes are

solely due to the variables being studied or influenced by other factors. Despite this limitation, the study offers valuable qualitative and descriptive data that can inform future research directions. Therefore, while caution is warranted, the findings contribute to understanding the topic and can guide further investigations.

Recognizing these differences allows for a more comprehensive comparison, highlighting the different research's characteristics in contributing to a better understanding of student experiences during the COVID-19 pandemic. Understanding the design differences is essential for properly comprehending the results. The Trimbos Institute's monitor's focus may uncover more specific patterns and connections in areas of mental health and substance use, whereas this study's approach may highlight a broader range of student trends and behaviors. This contextual knowledge enables an expanded investigation of the influence of the COVID-19 pandemic on substance use among students of the University of Twente.

7. Discussion

In this chapter, the limitations of this research will be discussed. Section 7.1 will address the limitations of this study. Subsequently, in section 7.2, possibilities for future research will be explored. Finally, in section 7.3, the recommendations arising from this research will be discussed.

7.1 Limitations

Even though the survey was conducted with the uttermost care, it is essential to acknowledge its limitations. Despite efforts to ensure accuracy and reliability, inherent biases and constraints persist within the survey methodology.

Following the careful conduct of the survey, it is important to note the presence of certain biases that may influence the accuracy and interpretation of the results. One such bias is self-report bias, which refers to the tendency of respondents to provide socially desirable or inaccurate responses. In the context of substance use among University of Twente students during COVID-19, self-report bias may lead to underreporting or overreporting of substance use behaviors. Students may feel inclined to downplay their substance use due to perceived social stigma or pressure to conform to societal norms. Conversely, some individuals may exaggerate their substance use to appear more socially acceptable or to conform to perceived expectations.

Additionally, the survey's reliance on self-reported data may limit the depth of understanding regarding the complexities of substance use behaviors among university students. While surveys provide valuable quantitative insights, they often lack depth and nuance afforded by qualitative methods such as interviews or focus groups. Consequently, the survey may not capture the underlying motivations, contextual factors, or individual experiences that shape substance use patterns during the COVID-19 pandemic. This limitation underscores the need for complementary qualitative research to gain a more comprehensive understanding of students' substance use behaviors and coping mechanisms in response to the pandemic.

Furthermore, volunteer bias is another potential limitation to consider, particularly in surveys conducted with university students. Volunteer bias occurs when individuals who participate in the survey differ systematically from those who do not, leading to skewed or unrepresentative results. In the context of substance use research among University of Twente students during COVID-19, volunteer bias may arise if certain groups of students are more likely to participate in the survey than others. For example, students who are more actively involved in campus activities or who have strong opinions about substance use may be overrepresented in the sample, while those who are less engaged or who have different perspectives may be underrepresented. As a result, the findings may not accurately reflect the substance use behaviors and attitudes of the broader student population at the University of Twente.

An important limitation of this study pertains to the methodology employed in data collection. Despite efforts to design the survey to assess specific aspects of substance use behaviors during the COVID-19 pandemic, certain limitations arose due to the survey's structure. The original intention was to assess changes in substance use behaviors across different phases of the pandemic in a more detailed manner. However, the survey's design constraints and the manner in which questions were formulated may have hindered the comprehensive assessment of these changes. As a result, the depth of insight into the nuanced shifts in substance use patterns among university students in Enschede may have been limited. Future research endeavors should carefully consider survey design and methodology to ensure that data collection strategies align closely with research objectives, thereby enhancing the validity and reliability of study findings.

7.2 Possibilities for future research

Possible future studies could focus on evaluating the effectiveness of the implantations that affected university students during the COVID-19 pandemic. Specifically, researchers could assess the impact of various initiatives, including online counseling services, virtual support groups, educational programs, and campus policies, in mitigating substance use risks and promoting healthier coping mechanisms. By conducting rigorous evaluations, researchers can determine the extent to which these interventions contribute to reducing risky substance use behaviors among university students in Enschede during times of crisis. Through systematic investigation, insights gained from these future studies could inform the development of evidence-based strategies to support student well-being in the face of unforeseen challenges and crises. This proactive approach to research can help universities and policymakers better prepare and respond effectively to future crises, ensuring the well-being of students and the resilience of the university community.

7.3 Recommendations

Recommendations based on the findings of this study include the implementation of targeted support programs tailored to the needs of university students in Enschede, as well as education and awareness campaigns to inform students about the risks of substance use during times of crisis. Additionally, efforts should be made to enhance access to support services such as counseling, mental health resources, and substance abuse treatment programs, both on and off campus. Furthermore, establishing peer support networks can provide students with a supportive environment to discuss substance use concerns and seek advice. Collaboration and coordination among university administrations, student organizations, healthcare providers, and community agencies are essential to develop comprehensive approaches to addressing substance use issues among students. Finally,

conducting longitudinal research can provide valuable insights into the long-term impacts of the COVID-19 pandemic on substance use behaviors, informing future prevention efforts and interventions.

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Appendix

a. Questionnaire survey questions

Q1. What kind of substances have you used or are you using? Select all the substances that apply for the corresponding timeframe. So, for example, if you used alcohol and cocaine before COVID-19, you select those. If you stopped using cocaine during COVID-19, but started marijuana and kept on

drinking alcohol you select alcohol and marijuana under 'During COVID-19', and you do the same for after COVID-19.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
Alcohol (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tobacco/Nicotine products (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marijuana/Cannabis (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prescription drugs (not as prescribed) (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opioids (e.g. heroin, fentanyl) (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cocaine/crack (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Methamphetamine (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hallucinogens (e.g. LSD, mushrooms) (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inhalants (e.g. solvents, aerosols) (9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrous oxide (10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have never used substances (11)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely (12)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2. How frequently do or did you use these substances? Please select one for the categories 'before COVID-19', 'during COVID-19' and 'after COVID-19'.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
On a daily basis (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-6 times a week (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-4 times a week (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-2 times a week (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-3 times a month (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-5 times per 6 months (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-2 times per 6 months (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Never (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q3. What was or is the amount of substances you were or are using in one sitting? Please select one for each of the categories 'before COVID-19', 'during COVID-19' and 'after COVID-19'.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
None/Abstainer (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimal Amount (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate Amount: within the recommended limits (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Amount: moderate to larger quantities, without reaching extreme levels (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High Amount: exceeding recommended limits and potentially affecting well-being (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Binge Amount: beyond safe levels, which may have serious consequences for health and functioning (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q4. How did or do you obtain your preferred substances? Select all of those that applied to your situation before, during, and after COVID-19.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
Supermarket (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Online (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Via friends (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On the streets (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Darkweb (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dealer (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q5. How easily is or was it for you to access and find your preferred substances? Please select one for each of the categories 'before COVID-19', 'during COVID-19' and 'after COVID-19'.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
Very easily (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate easily (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderately difficult (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficult (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extremely difficult (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q6. To what extent did the implementation of COVID-19 restrictions and policies influence your substances use? Think of social isolation, lockdowns, remote work, and online learning, closure of campus facilities, and gathering restrictions.

- Not at all: The COVID-19 restrictions and policies have had no influence on my substance use. (1)
- Slightly: The implementation of COVID-19 restrictions and policies has had a minor influence on my substance use. (2)
- Moderately: The COVID-19 restrictions and policies have moderately influenced my substance use. (3)
- Significantly: The implementation of COVID-19 restrictions and policies has had a significant influence on my substance use. (4)
- Extremely: The COVID-19 restrictions and policies have had an extreme influence on my substance use. (5)

Q7. Have you ever considered or felt that your substance use might be becoming problematic or causing negative effects in your life? Please select one for each of the categories 'before COVID-19', 'during COVID-19' and 'after COVID-19'.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
No (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Somewhat (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderately (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To notable extent (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very much (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q8. Have you encountered any support systems or resources specifically addressing substance use during the COVID-19 pandemic? Think of counseling services, support groups, online resources, student health centers, but also family and friends.

- Yes, and it had no influence: I have encountered support systems or resources specifically addressing substance use during the COVID-19 pandemic, but they had no influence on my substance use behaviors. (1)
- Yes, and it provided information: I have encountered support systems or resources specifically addressing substance use during the COVID-19 pandemic, and they provided me with valuable information that influenced my substance use behaviors. (2)
- Yes, and it offered counseling or therapy: I have encountered support systems or resources specifically addressing substance use during the COVID-19 pandemic, and they offered counseling or therapy services that positively influenced my substance use behaviors. (3)
- No, there were no specific resources: I have not encountered any support systems or resources specifically addressing substance use during the COVID-19 pandemic. (4)

Q9. Did your financial situation during the COVID-19 pandemic have an influence on your substance use?

- No, it did not have an influence: My financial situation during the COVID-19 pandemic did not cause any noticeable change in my substance use. (1)
- No, it had a slight influence: My financial situation during the COVID-19 pandemic led to a minor decrease in my substance use. (2)
- No, it had no noticeable effect: My financial situation during the COVID-19 pandemic had no discernible impact on my substance use. (3)
- Yes, it had a slight influence: My financial situation during the COVID-19 pandemic resulted in a slight increase in my substance use. (4)
- Yes, it had a significant influence: My financial situation during the COVID-19 pandemic led to a substantial increase in my substance use. (5)

Q10. How was/is your living situation?

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
With my parents (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In a student flat or residence of a student housing organization (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In a private student residence (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On my own in a private house/apartment (sale or rent) (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
With my partner in a private house/apartment (sale or rent) (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q11. Where did/do you live? Please select one for each of the categories 'before COVID-19', 'during COVID-19' and 'after COVID-19'.

	Before COVID-19 (1)	During COVID-19 (2)	After COVID-19 (3)
City (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Town (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suburb (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rural area (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q12. To what extent did the lack of supervision during the COVID-19 pandemic influenced your substance use behaviors? Consider factors such as reduced oversight at school or/and at home, limited in-person interactions with peers that would usually correct you and caregivers that might have fewer opportunities to supervise.

- The lack of supervision during the COVID-19 pandemic had a significant influence on my substance use behavior. (1)
- The lack of supervision during the COVID-19 pandemic had a moderate influence on my substance use behavior. (2)
- The lack of supervision during the COVID-19 pandemic had a minor influence on my substance use behavior. (3)
- The lack of supervision during the COVID-19 pandemic had no noticeable influence on my substance use behavior. (4)
- I am unsure or do not have enough information to evaluate the influence of the lack of supervision on my substance use behavior during the COVID-19 pandemic. (5)

Q13. To what extent has your mental well-being influenced your substance use behavior during the COVID-19 pandemic? Consider factors such as increased stress, anxiety, loneliness, or depression that have impacted your substance use patterns.

- Mental well-being significantly influenced my substance use behavior during the COVID-19 pandemic. (1)
- Mental well-being moderately influenced my substance use behavior during the COVID-19 pandemic. (2)
- Mental well-being had a minor influence on my substance use behavior during the COVID-19 pandemic. (3)
- Mental well-being had no noticeable influence on my substance use behavior during the COVID-19 pandemic. (4)
- I am unsure or do not have enough information to evaluate the influence of mental well-being on my substance use behavior during the COVID-19 pandemic. (5)

Q14. Did the attitude that your peers (friends, parents, teachers, colleagues, classmates) had towards substances influence your substance use during the COVID-19 pandemic?

- Strongly Agree: Yes, their attitudes significantly influenced my substance use during the pandemic. (1)
- Agree: Yes, their attitudes had some influence on my substance use during the pandemic. (2)
- Neutral: Their attitudes had neither a significant nor negligible influence on my substance use during the pandemic. (3)
- Disagree: No, their attitudes did not play a significant role in influencing my substance use during the pandemic. (4)
- Strongly Disagree: No, their attitudes had no influence whatsoever on my substance use during the pandemic. (5)

Q15. To what extent have curiosity and experimenting influenced your substance use behaviors during the COVID-19 pandemic? Consider factors such as a desire for new experiences, curiosity-driven experimentation, boredom.

- Curiosity and experimenting had a significant influence on my substance use behaviors during the COVID-19 pandemic. (1)
- Curiosity and experimenting had a moderate influence on my substance use behaviors during the COVID-19 pandemic. (2)

Curiosity and experimenting had a minor influence on my substance use behaviors during the COVID-19 pandemic. (3)

Curiosity and experimenting had no noticeable influence on my substance use behaviors during the COVID-19 pandemic. (4)

I am unsure or do not have enough information to evaluate the influence of curiosity and experimenting on my substance use behaviors during the COVID-19 pandemic. (5)