

Charles University
First Faculty of Medicine
Doctoral study in Addictology



UNIVERZITA KARLOVA
1. lékařská fakulta

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**Individual, social and cultural factors shaping the use of
amphetamine-type stimulants in Europe**

A cumulative PhD thesis

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Prague, 2023

Statement

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Identification record

MARTENS, Marcus-Sebastian. Individual, social and cultural factors shaping the use of amphetamine-type stimulants in Europe. Prague, 2023. 90 pages plus references and two annexes. PhD thesis. Charles University in Prague, Department of Addictology, First Faculty of Medicine of the Charles University and General University Hospital in Prague. Supervisor Assoc. Prof. Viktor Mravčík, M.D., Ph.D.

Acknowledgment

I would like to express my deepest appreciation to my supervisor Assoc. Prof. Dr. Viktor Mravčík for his outstanding patience and support for my dissertation.

I am also grateful to all my colleagues for their supported in realizing the ATTUNE project.

Preliminary Note

The cumulative dissertation is mainly based on the ATTUNE project (“Understanding **Pathways to Stimulant Use**: a mixed-methods examination of the individual, social and cultural factors shaping illicit stimulant use across Europe”), supported by the European Research Area Network on Illicit Drugs (ERANID). The author of this cumulative dissertation was the main actor in setting up the research idea and its proposal, acquiring the funding, coordinating the consortium, steering the research and data collection, organizing, analysing and interpreting the data and achieving the project’s envisaged output. The dissertation is therefore cumulatively and partly based on the output and articles produced within the ATTUNE project.

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Abstract

Background: Amphetamine-type stimulants (ATS) encompass a varied assortment of substances that possess comparable pharmacological effects and stimulant characteristics. ATS display diversity in patterns of use among different substances and users' sociodemographic characteristics. The utilization of ATS is associated with both favorable and unfavourable outcomes. The biopsychosocial model of substance use provides a comprehensive framework for understanding ATS use.

Aims: The primary objective of this study is to cultivate a thorough comprehension of the motivating factors driving individuals to initiate, cease, escalate, and/or curtail their ATS use.

Material and methods: In a mixed-methods approach, qualitative interviews were conducted to explore distinct groups of ATS users and one group of non-ATS users. These qualitative interviews then informed standardized quantitative computer-assisted personal interviews that utilized a range of (standard) instruments. The interviews were carried out in five European Union member states, and a minimum of five years had to elapse between the first usage of or exposure to ATS and the conducted interview. In the qualitative study arm, a total of 279 individuals were interviewed. Among them, 17% were identified as currently dependent on ATS, 20% were formerly dependent, 17% were current frequent users, 13% were former frequent users, 18% were non-frequent users, and 15% individuals were non-ATS users who had direct exposure to ATS availability. The interviews revealed distinct characteristics unique to each group. In the quantitative study arm, a total of 1,656 individuals were included in the interviews. Among the participants, 21% were identified as non-ATS users who had been exposed to ATS, 16% as rare users, 17% as moderate users, 18% as frequent users, and 29% as users with a probable ATS dependency.

Results: Findings revealed distinct characteristics specific to each group. A considerable number of participants have developed a pattern of ATS use that can, in broad terms, be classified as non-problematic. Notably, the non-user, rare user, and moderate user groups exhibited highly similar results, while the group with likely ATS dependency displayed contrasting patterns. The frequent user group demonstrated an intermediate position, with varying proximity to both the group with ATS dependency and the other three groups. Frequent users and persons likely dependent on ATS, showed a pronounced tendency to leverage these substances as a means to enhance their functional capacity and to facilitate the execution of routine tasks and demonstrated a reduced regulatory framework when engaging with ATS. Lifetime incidences of mental health issues and current mental distress were markedly higher in the group dependent on ATS. However, when

considering the Big Five personality traits, no discernible disparities between the user groups were identified. A vast majority of ATS users, irrespective of their group designation, generally demonstrated notable temporal fluctuations in ATS use, characterized by periods of escalation and de-escalation. Factors contributing to decreased use included concerns about health effects, the subjective feeling of loss of control, as well as changes in social environment and situational determinants.

Conclusions: There are varied trajectories and driving factors associated with different patterns and stages of ATS consumption. This shows a need for tailored intervention strategies for various groups. The central emphasis at all groups should be on harm reduction in relation to ATS use.

Key words: Amphetamine-type stimulants, biopsychosocial model, life events, ATS use patterns, motives for ATS use, trajectories

1 Introduction: Amphetamine type stimulants (ATS)

Amphetamine-type stimulants (ATS) are a group of substances that include amphetamines, methamphetamines, and other related synthetic drugs that exert stimulating effects on the central nervous system.

The ATS substances are either naturally derived or synthetically produced. The substances that belong to the group of ATS include:

- Amphetamine: Amphetamine is a classic drug of abuse and a central nervous system (CNS) stimulant. It increases alertness, physical activity, and libido, while decreasing appetite and inhibitions (Lendoiro et al., 2016).
- Methamphetamine: Methamphetamine is another CNS stimulant that is closely related to amphetamine. It has similar effects on the mind and body, including appetite suppression, intense feelings of well-being, and increased energy, heart rate, and mental alertness (Mackey et al., 2014).
- Methylphenidate: Methylphenidate is a commonly prescribed medication for attention deficit hyperactivity disorder (ADHD). It is also a CNS stimulant and shares similarities with ATS in its effects (Mackey et al., 2014).
- 3,4-Methylenedioxymethamphetamine (MDMA): MDMA, also known as ecstasy, is a psychoactive compound that is classified as an amphetamine-type stimulant. It has stimulant and hallucinogenic effects and is commonly used recreationally (Mackey et al., 2014).
- Also synthetic cathinones, such as mephedrone, are considered ATS. Synthetic cathinones are derivatives of the natural stimulant cathinone, found in the Khat plant. They are classified as "new psychoactive substances" (NPS) and are often used as cheaper alternatives to traditional ATS. (Schram et al., 2021)

These substances are classified as ATS due to their structural and functional similarities to amphetamine and their effects on the nervous system. They increase the synaptic availability of catecholamines (e.g., dopamine, norepinephrine) and serotonin, leading to their stimulant effects.

1.1 Pharmacology of ATS

ATS primarily exert their effects through the modulation of monoamine neurotransmitters, particularly dopamine, norepinephrine, and serotonin. They do so by promoting the release of these neurotransmitters from their storage sites and inhibiting their reuptake into the pre-synaptic neuron, resulting in increased concentration in the synapse and thus amplifying their psychoactive effects (Sulzer et al., 2005).

The prefrontal cortex (PFC) is a region of the brain that plays a crucial role in cognitive functions such as attention, working memory, and decision-making. Psychostimulants, such as amphetamines and methylphenidate, have been shown to enhance cognitive performance in individuals with attention deficit hyperactivity disorder (ADHD) and healthy individuals. This has led to the hypothesis that the cognition-enhancing effects of psychostimulants involve direct action in the prefrontal cortex. Several studies have provided evidence supporting this hypothesis. For example, neuroimaging studies have shown that psychostimulants increase the activity and connectivity of the prefrontal cortex. This increased activity is thought to enhance cognitive functions such as attention and working memory. Additionally, studies using animal models have shown that psychostimulants increase the release of dopamine in the prefrontal cortex, which is believed to play a role in their cognition-enhancing effects. Furthermore, studies have also investigated the specific mechanisms through which psychostimulants exert their effects in the prefrontal cortex. One proposed mechanism is the modulation of neurotransmitter systems. Psychostimulants have been shown to increase the release and inhibit the reuptake of dopamine, norepinephrine, and serotonin in the prefrontal cortex. These neurotransmitters are known to be involved in cognitive processes, and their modulation by psychostimulants may contribute to the enhancement of cognitive performance. Another proposed mechanism is the modulation of neuronal excitability in the prefrontal cortex. Psychostimulants have been shown to increase the firing rate of prefrontal cortical neurons. This increased excitability may enhance the processing of information in the prefrontal cortex and improve cognitive functions. In conclusion, the cognition-enhancing effects of psychostimulants are believed to involve direct action in the prefrontal cortex. Psychostimulants increase the activity and connectivity of the prefrontal cortex, modulate neurotransmitter systems, and enhance neuronal excitability. These effects contribute to the improvement of cognitive functions such as attention, working memory, and decision-making (Spencer et al., 2015).

1.2 Effects of ATS

Therefore ATS is mainly connected with the following positive effects:

- **Increased Energy and Alertness:** ATS use often results in a temporary increase in energy and alertness, a common reason for misuse among students and professionals.
- **Improved Concentration and Cognitive Function:** Some ATS, such as Ritalin, are used in medical settings to treat conditions like Attention-Deficit/Hyperactivity Disorder (ADHD) because of their ability to improve concentration and cognitive function.

- **Elevated Mood and Confidence:** The increase in dopamine induced by ATS can create feelings of euphoria and heightened self-confidence.

Moreover, the World Anti-Doping Agency (WADA) prohibited a variety of ATS for its athletic performance-enhancing effects, such as increased endurance (Docherty, 2008)

Negative Effects of ATS use are mostly connected with:

- **Addiction and Dependence:** Chronic use of ATS can lead to physical and psychological dependence, characterized by cravings, withdrawal symptoms upon cessation, and a compulsion to continue using despite negative consequences (Degenhardt et al., 2014; Degenhardt & Hall, 2012).
- **Mental Health Problems:** ATS use can lead to various mental health issues, including anxiety, depression, paranoia, and in severe cases, psychosis (McKetin et al., 2013)
- **Neuropsychological implications of ATS abuse or dependence** has indicated a range of cognitive impairments with medium effect sizes. These deficits were identified across multiple domains, including episodic memory (the ability to recall specific events and experiences), executive functions (higher-order cognitive processes such as planning, problem-solving, and decision-making), information processing speed (the rate at which an individual can perceive and manipulate information), motor skills (coordination and control of muscle movements), language capabilities, and visuoconstructional abilities (the capacity to organize and manually manipulate spatial information to construct designs or figures) (Scott et al., 2007)
- **Physical Health Issues:** Chronic ATS use can result in physical health problems, such as cardiovascular disease, malnutrition, and dental problems (often referred to as "meth mouth") in the case of methamphetamine (Darke et al., 2008; Shetty et al., 2010). The use of amphetamine-type stimulants has been associated with negative effects on dopaminergic transmission and function, including dopamine depletion and prolonged dopamine receptor signalling in the striatum. This has raised concerns about the potential link between amphetamine-type stimulant use and the onset of Parkinson's disease (Ferreira et al., 2020).

1.3 Aetiology of ATS use disorder: the biopsychosocial model of substance addiction

Prolonged exposure to ATS can precipitate substance use disorders (SUD), encompassing dependence (Best et al., 2003).

While there exists an abundance of behavioural change intervention models, their efficacy in serving this specific purpose remains uncertain (Michie et al., 2011). Michie et al describe

that behaviour change interventions and policies can be effectively described through a Behaviour Change Wheel (BCW), encompassing a central 'behaviour system', surrounded by intervention functions and subsequently by policy categories. They conclude that research is essential to determine the extent to which the BCW can facilitate the creation of more efficient and effective interventions.

The COM-B model, standing for capability, opportunity, and motivation, is proposed as an overarching model for understanding addiction, incorporating both intra- and extra-individual factors. Addiction could be viewed in terms of psychological and physical capabilities, environmental opportunities, and competing motivations. Furthermore, the PRIME theory of motivation may provide a framework for understanding motivational aspects of addiction, integrating reflective and automatic processes (West, 2013). The report "Models of addiction" (West, 2013) highlights the importance of differentiating factors that influence the initial enactment, development, recovery attempts, and relapse phases of addiction. Finally, a comprehensive behaviour change intervention framework has been developed based on the COM-B model, identifying a range of nine intervention functions (education, persuasion, incentivisation, coercion, training, restriction, environmental restructuring, modelling, and enablement). The concept acknowledges that intervention strategies might need to be tailored to specific addictive behaviours, populations, individuals, and contexts, including environmental restructuring or enabling interventions that provide alternative sources of relief.

The COM-B model of behaviour is a widely accepted tool for designing effective behaviour change interventions, recognizing that capability, opportunity, and motivation are essential components for any behaviour to occur. This model incorporates a dynamic system perspective, acknowledging ongoing feedback loops. The PRIME Theory of motivation elucidates the interplay of planning, evaluation, and emotional and habitual processes, culminating in a particular behaviour at any given moment (West & Michie, 2020).

The COM-B model is based on the biopsychosocial concept of aetiology of addiction, providing a comprehensive framework that recognizes the interplay between biological, psychological, and social factors in understanding and explaining various phenomena, including substance use and related behaviours (Engel, 1977). This concept highlights the importance of considering multiple factors, such as pharmacological effects, emotional arousal, contextual influences, and the consequences of substance withdrawal, in understanding the link between substance use and other outcomes, such as intimate partner violence (Cafferky et al., 2018).

Biological Factors: These include genetic predisposition, gender, ethnicity, and any physical health problems. For instance, certain genetic factors might increase the risk of developing

a SUD. Additionally, substances can directly affect the body's biology, impacting the brain's reward circuitry and leading to addiction.

Psychological Factors: These refer to mental health conditions, personality traits, coping mechanisms, cognitive function, and individual beliefs and attitudes towards substances. For example, someone with a mental health condition like depression or anxiety might use substances as a form of self-medication.

Social Factors: These encompass factors like family influence, peer pressure, socio-economic status, cultural norms, and the availability of substances. A person's environment can significantly impact their substance use patterns. For example, social isolation or peer pressure can contribute to the onset of substance use.

Researchers often adopt integrative theories, such as the biopsychosocial model, to explore the complex relationship between substance use and various outcomes. For example, the biopsychosocial model has been applied to understand addiction to social networking, suggesting that excessive use of online social networking platforms may lead to symptoms similar to those experienced by individuals with substance addictions (M. D. Griffiths, 2013). Similarly, the biopsychosocial framework has been used to better understand and address HIV treatment and research, stigma among older adults, pain and substance abuse, and fatigue (Chenneville et al., 2020).

The biopsychosocial model has also been applied to explore the comorbidity between social anxiety disorder (SAD) and SUDs. A biopsychosocial model of SAD-SUD comorbidity focuses on specific facets of social anxiety that may be related to SUD risk, highlighting the utility of this model in understanding the relationship between SAD and substance-related behaviours (Buckner et al., 2012).

Furthermore, the biopsychosocial model has been used to examine substance use among healthcare professionals, emphasizing the interconnectedness of biological, psychological, and sociological factors in understanding substance abuse (Kenna & Lewis, 2008). This model recognizes that substance abuse is a result of the combination of these factors and proposes that interventions should address all three spectrums.

In the field of sexual medicine, the biopsychosocial model is also relevant. It is important to consider physical factors, such as obesity, smoking, and substance abuse, as well as psychosocial factors, such as stress, anxiety, depression, and cultural influences, when evaluating and treating individuals with sexual dysfunctions (Mollaioli et al., 2020).

The study of placebo analgesia provides another perspective on the biopsychosocial model. Placebo effects are shaped by expectations, affect, and the social context surrounding

treatment, highlighting the role of social, cognitive, and affective processes in shaping pain experiences (Atlas, 2021).

Moreover, the biopsychosocial model has been used to examine opioid misuse and use disorder. A comprehensive multivariate model incorporating biopsychosocial factors, sociodemographic characteristics, and other substance dependence or abuse has been developed to understand and predict opioid misuse and use disorder (Ishino et al., 2020)

The role of parenting, adolescent individual processes, and temperament in substance use has also been explored within the framework of the biopsychosocial model. Longitudinal studies have investigated the associations among positive and harsh parenting, adolescent sensation seeking, and substance use, considering the moderating role of adolescent temperament (Kapetanovic et al., 2023)

Neurobiological mechanisms underlying substance use have been investigated within the biopsychosocial model. Studies have examined the neural representation of prediction error signals in substance users, shedding light on the complex biopsychosocial aspects of substance use (Tolomeo et al., 2020).

The biopsychosocial model has also been applied to understand substance use among youth, with a focus on demographic factors, clinical and functional variables, and psychosocial and familial factors (Aderibigbe et al., 2022). It recognizes that substance use is influenced by a range of biological, genetic, personality, psychological, cognitive, social, cultural, and environmental factors.

The model has been used to examine the relationship between substance use and sexual and reproductive health. It recognizes the role of psychosocial factors, such as personal values and environmental influences, in the initiation of substance use and risk-taking behaviours among adolescents (Zhang et al., 2020).

Cultural models of substance use risk and attributed stigma have also been explored within the biopsychosocial framework. The way substance use is viewed and understood in different societies can influence the level of stigma associated with it (Henderson & Dressler, 2019).

The biopsychosocial model has been applied to SUD treatment, considering the role of spirituality in addressing the needs and well-being of individuals with SUDs. It emphasizes the importance of a comprehensive person-centred and holistic approach that integrates biological, psychological, social, and spiritual factors (Carelse, 2020)

In conclusion, the biopsychosocial model provides a comprehensive framework for understanding substance use and related behaviours. It recognizes the interplay between biological, psychological, and social factors and highlights the importance of considering

multiple factors in research, assessment, and treatment. This model has been applied to various contexts, including intimate partner violence, social networking addiction, HIV treatment and research, sexual medicine, placebo analgesia, opioid misuse and use disorder, parenting and adolescent substance use, neurobiological mechanisms of substance use, youth substance use, creative and arts-based therapies, sexual and reproductive health, cultural models of substance use risk and stigma, and spirituality in SUD treatment. By considering the complex interplay of these factors, the biopsychosocial model provides a comprehensive understanding of substance use and informs interventions and treatment approaches.

Concurrently, our understanding remains somewhat limited regarding the specific factors that impact individual consumption trajectories, and whether variations in consumption can be attributed to determinants such as the type of ATS substance, gender, age, or socio-economic characteristics.

The article titled "Which individual, social and environmental influences shape key phases in the amphetamine type stimulant use trajectory? A systematic narrative review and thematic synthesis of the qualitative literature" by O'Donnell et al. (O'Donnell et al., 2017, 2019) explores the various factors that influence the trajectory of amphetamine-type stimulant (ATS) use. The authors highlight that ATS users are a diverse group, and their drug use patterns are influenced by a complex interplay of individual, social, and environmental factors.

The study employs a systematic narrative review and thematic synthesis of qualitative literature to identify and analyse the key influences on different phases of ATS use. The authors emphasize the need for tailored and integrated interventions that address the multifaceted needs of ATS users, including economic, health, and social care needs, in order to support long-term abstinence.

The findings of the study shed light on the multifactorial nature of ATS use and highlight the importance of considering individual, social, and environmental factors when designing research, interventions and support systems for ATS users. By understanding the diverse influences on ATS use trajectories, policymakers, healthcare professionals, and researchers can develop more effective strategies to prevent and treat ATS addiction.

1.4 Epidemiology of ATS globally and in Europe

The global prevalence of ATS use is third only to cannabis and opioids among illicit drugs, posing significant challenges for public health and law enforcement worldwide (UNODC, 2022).

In the World Drug Report 2022 UNODC states “seizures of amphetamine and methamphetamine have skyrocketed” (UNODC, 2022). There has been a significant surge in worldwide apprehensions of ATS over the prior decade. Seizures of methamphetamine saw an increase by a factor of five; amphetamine confiscations quadrupled; and ecstasy-related seizures experienced a threefold augmentation (UNODC, 2022).

For 2020 the UNODC estimated that amphetamines were consumed by approximately 34 million individuals, corresponding to 0.7 per cent of the world's population and “qualitative assessments” imply a surge in amphetamine usage during this period. While the incidence of use peaks in North America, the most substantial demographic of amphetamine consumers is located in East and South-East Asia. Furthermore, around 20 million people are estimated to have used substances of the 'ecstasy' type in 2020, amounting to 0.4 per cent of the global populace (UNODC, 2022).

According to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), in the European Union, 0.7% of the 15- to 64-year-old population used amphetamines in the past 12 months, with a higher proportion using MDMA (0.8%). Data suggest increased prevalence of use among adolescents and young adults (EMCDDA, 2023), among 15- to 34-year-olds, 1.3% reported use of amphetamines and 1.8% reported use of MDMA in the past year. The life time use of MDMA is estimated in Europe with 4.0% and for amphetamines with 3.6%.

The EMCDDA reflects that indications are growing that synthetic stimulants are increasingly impacting Europe's overall stimulant issue, which could have significant implications. Given the dynamism of synthetic drug trends and users' potential interchangeability of stimulants based on market availability, there are rising concerns about heightened health risks and social issues with wider use. Current tracking tools, however, remain inadequately advanced to monitor usage trends or problems associated with evolving patterns of synthetic stimulant consumption (EMCDDA, 2023). Nevertheless the EMCDDA concludes that wastewater analysis data suggests that methamphetamine residuals increased in two-thirds of the 59 European cities studied in 2021 and 2022. According to the EMCDDA the prevalence of high-risk methamphetamine use ranges in the EU countries between 0.037% in Cyprus to 0,522% in Czech Republic.

Women constitute globally approximately half of ATS users and despite this, they represent merely 20 percent of those receiving treatment specifically for ATS-related issues (UNODC, 2022). Also according to UNODC, 2022 around 15% of countries report ATS as most harmful for developing drug use disorders, seven percent of countries contribute most drug related death to ATS and 16% most drug related treatments.

A 2016 estimate posited the global prevalence of amphetamine-related disorders at approximately 5 million individuals. Within the European region, the estimate approximates to 750,000 affected individuals (GBD 2016 Alcohol and Drug Use Collaborators, 2018). The European Monitoring Centre for Drugs and Drug Addiction's (EMCDDA) 2017 treatment data elucidated that around 41,614 individuals, primarily using amphetamines, sought drug treatment (Statistical Bulletin 2017 — Treatment Demand, 2017).

1.5 Patterns of ATS use

The patterns of amphetamine-type stimulant (ATS) use can vary significantly among different substances and users.

Firstly, different ATS substances, such as amphetamine, methamphetamine, and MDMA, have distinct patterns of use. For example, amphetamine is commonly used for its stimulant effects and is often taken orally or snorted. Methamphetamine, on the other hand, is known for its more potent and long-lasting effects, and it is frequently used through smoking, injecting, or oral ingestion (Galbraith, 2015). MDMA, also known as ecstasy, is often used recreationally in social settings, such as parties or music festivals (Haug et al., 2023), and is typically taken orally in the form of tablets or crystals (Edland-Gryt et al., 2017).

Furthermore, the patterns of ATS use can vary among different user populations. ATS use can range from occasional or recreational use to more frequent and problematic use (European Monitoring Centre for Drugs and Drug Addiction, 2021; P. Griffiths et al., 2008). Some individuals may use ATS infrequently, such as on weekends or during specific social events (Bade et al., 2021), while others may engage in regular or even daily use. The reasons for ATS use can also differ among users, including seeking euphoria, increased energy, enhanced sociability, or self-medication for underlying issues (De Wit & Bershad, 2020; Thurn et al., 2020).

Additionally, the context and setting of ATS use can influence the patterns of use. ATS use may be more prevalent in certain subcultures or social environments, such as nightlife scenes or among specific groups of individuals, such as club-goers or certain professions (G. C. K. Chan et al., 2019; ter Laak et al., 2022). The availability and accessibility of ATS substances can also impact the patterns of use within a given population or region (Martenson et al., 2023).

Moreover, the patterns of ATS use can change over time. Trends in ATS use may fluctuate, influenced by factors such as changes in drug availability, law enforcement efforts, public health campaigns, and cultural shifts (Grund, Zabransky, et al., 2010; Zábanský, 2007). For example, there may be periods of increased ATS use followed by periods of decline or shifts in preferred substances within the ATS category (Been et al., 2016).

1.6 Effective interventions for ATS users

Epidemiology and multiple patterns of use underscore the extensive reach of ATS usage and the consequential necessity for addiction treatment in instances of problematic usage or dependence development.

Understanding the epidemiology of ATS use is crucial for developing effective prevention and intervention strategies. The heterogeneity of ATS users challenges stereotypes, as ATS use is not limited to specific regions or cultures (Addison et al., 2021). It is important to address the global burden of ATS use and develop comprehensive approaches to reduce the harms associated with ATS use.

Effective interventions for amphetamine-type stimulant (ATS) users have been the subject of scientific investigation. Several studies have explored different approaches to address ATS use and its associated problems.

1.6.1 Pharmacological intervention

Pharmacotherapy for ATS users is currently in experimental stages with no medication demonstrating consistent effectiveness for routine treatment, although some show some limited benefits and promising clinical experience exists including in the Czech Republic (Minařík et al., 2016).

Lee et al included 49 studies in their analysis examining 20 possible pharmacotherapies, with four drugs - methylphenidate, buprenorphine, modafinil, and naltrexone - showing some evidence of reducing amphetamine use. However, due to the high dropout rates and inconsistent medication adherence, no drug has yet demonstrated robust enough effectiveness to be routinely used in treatment (Lee et al., 2018).

In another systematic review 43 studies were examined, enrolling a total of 4065 participants and testing 23 different pharmacotherapies, none produced convincing results for the treatment of amphetamine/methamphetamine dependence due to inconsistent outcomes and measures, underpowered studies, and low treatment completion rates. However, stimulant agonist treatment, naltrexone, and topiramate showed the most consistent positive findings, along with some positive indications from several other agents, warranting further investigation in larger, more robust studies (Siefried et al., 2020).

In a systematic review and meta-analysis of various data sources, one systematic review and 17 additional randomized controlled trials (RCTs) involving 17 different drugs were evaluated for effectiveness in treating methamphetamine/amphetamine use disorder. The analysis revealed that most of the evaluated medications did not show a statistically significant benefit, and many of the studies had a high or unclear risk of bias. However,

there was some low-strength evidence that methylphenidate may help reduce use (B. Chan et al., 2019).

1.6.2 Psychosocial interventions

In a comprehensive systematic review which incorporated 11 other systematic reviews and 39 primary research studies, the effectiveness of psychosocial interventions on individuals using ATS was thoroughly examined. It was found that psychological interventions significantly reduced drug use and risky behaviours compared to usual care, and the combination of therapies was more effective than cognitive behavioural therapy alone. However, retention was higher when a contingency management strategy was included, underscoring that integrated models were more successful than single-treatment strategies in reducing drug use, risky behaviours, and improving treatment adherence (Tran et al., 2021).

The systematic review “Treatment of stimulant use disorder: A systematic review of reviews” (Ronsley et al., 2020) found insufficient evidence to support or discount the use of psychosocial interventions for amphetamine type stimulant use disorder. There was sufficient evidence to support the efficacy of contingency management programs for treatment of stimulant use disorder, but psychostimulants, n-acetylcysteine, opioid agonist therapy, disulfiram and antidepressant pharmacological interventions were found to have insufficient evidence to support or discount their use. Furthermore they state that a limited proportion of individuals seeking intervention for SUDs are reported to receive treatment grounded in empirical evidence, although precise quantifications remain absent at this juncture

Cognitive-behavioural therapy (CBT) has been widely used in the treatment of SUDs, including ATS use. Baker et al. examined the characteristics of regular amphetamine users and suggested that CBT for amphetamine use should be provided within methadone maintenance treatment programs and in primary care and community settings (Baker et al., 2001).

A Cochrane review examined the efficacy of cognitive-behavioural treatment (CBT) for people dealing with Amphetamine-Type Stimulant (ATS) use disorder, which is presently lacking a universally accepted treatment despite its severe effects like anxiety, paranoia, and hallucinations. This systematic review, which includes randomized controlled trials (RCTs) and quasi-RCTs, found that evidence supporting the effectiveness of CBT is inconclusive due to the lack of high-quality research in this area. Only two studies met the criteria, yielding mixed results with non-significant overall effects, indicating a critical need

for more thorough and rigorous research in the application of CBT for ATS-use disorders.(Harada et al., 2018)

A systematic literature review was conducted, examining randomized controlled trials that compared internet interventions to control conditions in reducing substance use. In total, 17 studies with 2836 adult illicit substance users were included. The results showed that internet interventions significantly decreased opioid and overall illicit substance use at post-treatment. However, the impact of internet interventions on stimulant users was small and non-significant. Due to the limited number of studies available for certain substances, caution is advised in interpreting these findings. Nonetheless, the data suggests that internet interventions could be a viable tool in substance use reduction strategies (Boumparis et al., 2017).

1.6.3 Harm reduction

Mitigating the significantly elevated infection rates that persist among chronic substance users has long stood as a focal objective within harm-reduction strategies. Given their increased vulnerability to various infections, including HIV and hepatitis C, this population is often at the forefront of public health interventions. Therefore, comprehensive harm-reduction policies continuously strive to address and curb this health disparity, seeking to ensure a healthier and safer environment for chronic drug users. These policies not only focus on minimizing the direct harm caused by drug use but also aim to tackle the broader health and social consequences, particularly the high risk of infection, associated with chronic drug use (Grund, Coffin, et al., 2010).

Non-abstinence can indeed be considered as an outcome goal in certain contexts. While abstinence from substance use is often emphasized as the primary goal in addiction treatment, there is growing recognition that different individuals may have varying goals and definitions of recovery. For some individuals, particularly those with SUDs characterized by harm reduction approaches, reducing or moderating substance use may be a more realistic and achievable outcome. Non-abstinence goals can focus on minimizing the negative consequences of substance use, improving overall functioning and well-being, and enhancing quality of life. It is important for treatment providers to assess and respect individual preferences and tailor treatment goals accordingly (Tatarsky, 2003)

The harm reduction response to amphetamine use is underdeveloped compared to opiates, and there is an urgent need for harm reduction-focused research, evaluation of current programs, further documentation of experiences, and expansion of effective interventions (Pinkham & Stone, 2015).

Even so the report “Harm Reduction for People Who use Stimulants” (de Quadros Rigoni et al., 2018) investigates the effectiveness of harm reduction measures for people who use stimulant drugs to a problematic extent and identifies 12 different harm reduction strategies for stimulant use, including safer smoking kits, prevention of sexual risks and drug consumption rooms, concludes also that there is need for further research in preventing harms caused by stimulant drugs.

In the Czech Republic, low-threshold programs have innovated harm reduction strategies for individuals who inject methamphetamine. These strategies are centred on the distribution of gelatine capsules, presenting an oral alternative to methamphetamine injection. This approach potentially holds promise in diminishing injection frequency or deterring injection practices altogether, particularly among willing methamphetamine injectors, individuals with compromised venous systems, or even in accessing segments of the methamphetamine-using population who are traditionally challenging to engage or remain concealed (Mravčík et al., 2011).

The book chapter “Harm-Reduction Interventions” (Hedrich & Hartnoll, 2021) discusses harm-reduction measures for “opioids and the central nervous system stimulants”. It is concluded that harm-reduction interventions are effective in reducing drug-related harms and implementing multiple interventions together is more effective.

1.6.4 Natural recovery

In the journal article “Uses of self-regulation to facilitate and restrain addictive behaviour” (Baumeister & Vonasch, 2015) a theoretical paper is presented that applies self-regulation theory to understand addictive behaviour. The authors propose that self-regulation is used both to facilitate and resist addictive behaviours and suggest that a full understanding of addiction may benefit from understanding how self-regulation, volition, and controlled actions operate both for and against addictive substance use and how these processes and contingencies change over the course of addiction.

The phenomenon of self-change, where individuals recover from addiction without formal treatment, has received increasing attention in recent years. Studies have shown that many people are able to overcome substance abuse without interventions, challenging the belief that treatment is necessary. However, research in this area is still in its early stages and faces methodological and ethical challenges. The findings from various studies highlight the importance of understanding the factors that drive and maintain self-change, as well as the potential implications for developing new interventions and public policies (Klingemann & Sobell, 2001).

Through a relational perspective, exploring how identities are formed and altered within the context of relationships, drug use is presented as an embodied action with others, including both living beings and material objects. To analyse this process in a qualitative study research was conducted on the natural recovery from long-term methamphetamine use, focusing on the relational theory. The findings show that the process of recovery is natural and usually involves others. This relational perspective highlights that quitting methamphetamine involves relational change and co-creation as the main contributor to the drug cessation journey of an individual. The study suggests that this perspective can be beneficial in providing informal and formal assistance to those quitting drug use, by expanding possibilities for change and fostering relationships that facilitate transition (Nepustil, 2013; Nepustil & Camargo-Borges, 2014). From this perspective it is argued „that this kind of conceptualization of recovery acknowledges the many people who manage to recover without treatment or professional help, known as natural recovery. In addiction practices, we can see the dominance of pathologizing interpersonal patterns (PIPs) that maintain the addictive process“ (Mudry et al., 2019)

2 Research questions of the ATTUNE study

2.1 Aim of the study

The primary objective of this study initiative is to cultivate a thorough comprehension of the motivating factors driving individuals to initiate, cease, escalate, and/or curtail their ATS usage. Additionally, the project aims to ascertain the specific circumstances and conditions under which these individuals modify their consumption habits. The investigation will primarily concentrate on trajectories leading to more controlled or less problematic consumption patterns and societal integration, irrespective of the presence or absence of formal intervention strategies.

The theoretical framework posits that the modification process of usage pathways is shaped by the interplay and impact of various factors. These encompass individual distinctions, social dynamics, and environmental/cultural factors (as illustrated in Figure 1). This understanding can offer invaluable insights for crafting interventions catered to specific target groups, encompassing self-help measures, preventative actions, and treatments. By supporting an enhanced understanding of which specific factors influence which types of stimulant users, the project will make a significant contribution to our understanding of the determinants of psychoactive substance use pathways (with a specific focus on ATS), and thus help to identify appropriate interventions to facilitate controlled consumption patterns and integration of those individuals affected.

The existing theoretical evidence suggests that the process of change in substance use pathways is influenced by a complex interplay of various factors. These factors include individual differences, social dynamics, and environmental and cultural influences (see Figure 1). Understanding these factors is crucial for developing targeted interventions that cater to specific groups, such as self-help programs, prevention strategies, and treatment approaches. By gaining a deeper understanding of how specific factors impact different types of stimulant users, particularly those using ATS, this project aims to contribute significantly to our knowledge of the determinants of psychoactive substance use pathways. Ultimately, this research will aid in identifying appropriate interventions that promote controlled consumption patterns and facilitate the integration of individuals affected by SUDs.

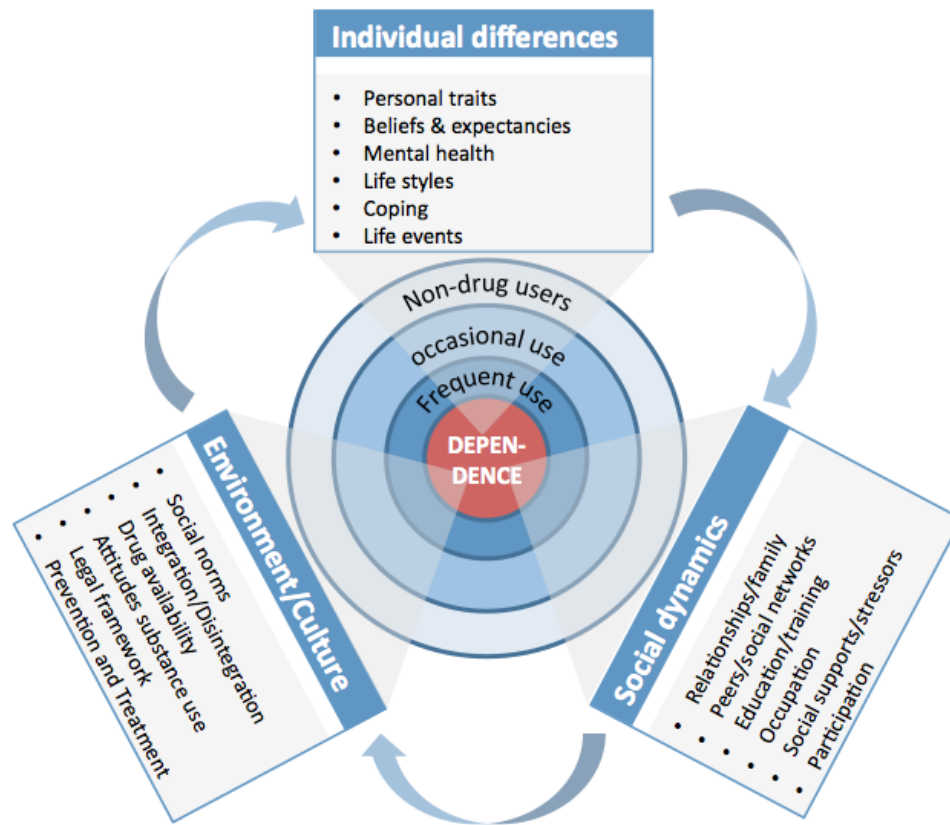


Figure 1: Theoretical model: pathways of drug use influenced by individual, social and environment dynamics (own results, source: Final Report, 2020)

2.2 Study objectives

Grounded in the biopsychosocial model of substance use and the theoretical model outlining the pathways of drug use (refer to Figure 1), this study endeavours to address the following research objectives:

- Investigate the reasons that lead individuals, who have access to Amphetamine-Type Stimulants (ATS), to abstain from their usage.
- Explore the factors that motivate individuals to limit their ATS consumption to a minimal number of instances before discontinuing its usage.
- Identify the driving forces that propel individuals towards frequent ATS consumption.
- Understand the circumstances and motivations that prompt individuals to cease usage after a period of frequent ATS consumption.
- Examine the reasons that underpin why some individuals maintain persistent, frequent ATS usage without cessation.
- Gain a comprehensive psychosocial understanding of the factors contributing to ATS dependence in individuals.

3 Methodology

The ATTUNE study, an exploratory cross-sectional investigation employing a mixed-methods approach, seeks to examine the varying consumption trajectories among ATS users. To accomplish this, five distinctive consumption types were operationalized in Module 1, and four separate consumption types were delineated in Module 2. These types vary according to their present and historical patterns of ATS usage as well as frequency of use. For comparative analysis, an additional group comprising individuals who have had the opportunity to use ATS but have abstained from doing so, has also been included in the study.

3.1 Module 1

This component of the study involved conducting semi-structured qualitative interviews with five distinct groups comprised of ATS users, in addition to a group formed of non-ATS users.

The qualitative interviews were realized in Germany, the UK, Poland, the Netherlands and the Czech Republic.

3.1.1 Sampling strategy

The recruitment of interviewees was executed through a multifaceted approach utilizing purposeful sampling. Informational materials about the study, including leaflets and posters containing contact details of the local research team and a link to the screening website, were disseminated in various institutions dealing with drug services, universities, and diverse nightlife settings such as bars and electronic music clubs.

In addition, calls for participation were placed in local advertising journals as well as on the internet. Information was propagated via online drug assistance forums, drug information/"psychonauts" forums, social media, and job portals catering to students and temporary job seekers.

The recruitment strategy also involved the direct approach of potential participants in nightlife settings and universities, and via "snowball sampling" methods (wherein interviewed individuals were encouraged to invite friends or acquaintances who might be interested in participating in the study).

The qualitative study arm endeavoured to evaluate diverse ATS user types based on their consumption patterns and the associated factors influencing these patterns. To ensure a broad spectrum of ATS usage patterns in the sample, different user categories were pre-defined based on their usage history and frequency (refer to Figure 2). Moreover, the inclusion of individuals exposed to ATS, but who have opted against its use, was

purposefully considered. Exposure to ATS was operationalized as having been offered ATS by friends or family.

3.1.2 Inclusion and exclusion criteria and criteria for ATS users' groups

A prior online screening method was established to facilitate control over the inclusion of specific user types as aiming for relatively balanced group sizes. Secondly, it provided a means to verify the inclusion criteria for each interested participant.

Qualification for inclusion in the qualitative interviews hinged on individuals having either used ATS or been presented with the opportunity to do so. To guarantee the inclusion of only those who had experienced changes in their ATS consumption trajectories, it was vital that participants' initial exposure or consumption of ATS occurred at least five years prior to the interview. To prevent conflation of pathways into opioid and ATS usage, individuals with a previous self-reported opioid addiction diagnosis were not included. This exclusion criteria further assured that the sample wasn't skewed towards former or current opioid users who primarily ingest stimulants to enhance their opioid consumption. Additional prerequisites for inclusion encompassed being at least 18 years of age, residing within one of the five designated national sampling regions, and being fit to participate in the interview (not afflicted with psychosis, severe cognitive impairments, or language barriers).

Suitable interview participants were allocated to one of the research groups, determined by their consumption pattern, ATS dependency level, and present state of use.

Table 1: Synopsis of the Operationalization of Sample Groups in module 1 (own results, source: Final Report, 2020)

<i>Study groups in Module 1</i>	<i>Name</i>	<i>past 12 months prevalence</i>	<i>≥ 10 consumption days within past 12 months</i>	<i>≥ 10 consumption days within one year (at any time except past 12 months)</i>	<i>currently ATS dependent</i>	<i>formerly ATS dependent</i>
<i>Group 1</i>	Currently dependent users	yes	yes	n.a.	yes	n.a.
<i>Group 2</i>	Formerly dependent users	n.a.	n.a.	yes	no	yes
<i>Group 3</i>	Currently frequent, non-dependent users	yes	yes	n.a.	no	no
<i>Group 4</i>	Formerly frequent, non-dependent users	no	n.a.	yes	no	no
<i>Group 5</i>	Non-frequent users (currently or formerly)	no	n.a.	no	no	no
<i>Group 6</i>	Exposed non-users	n.a.	n.a.	n.a.	n.a.	n.a.

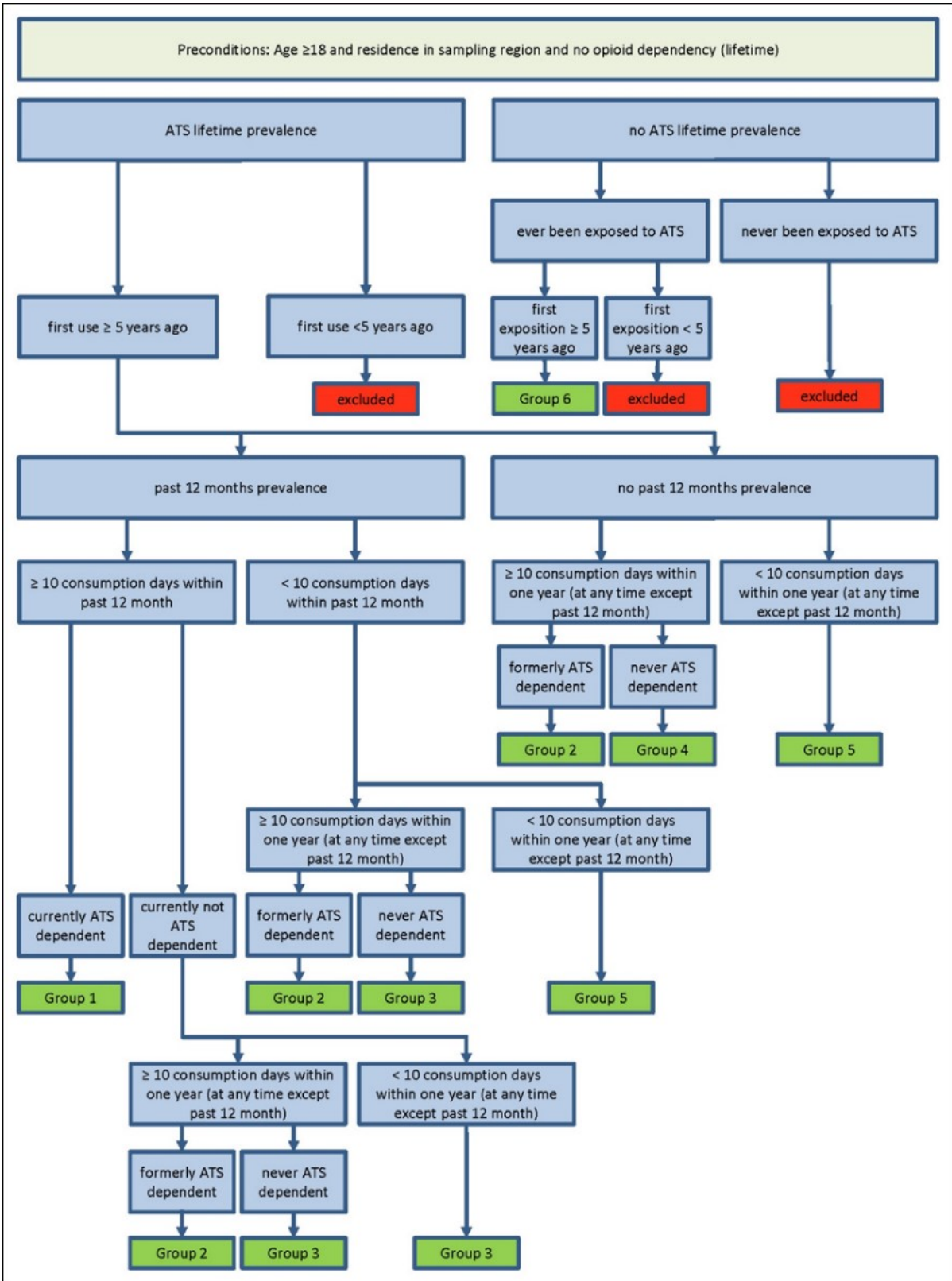


Figure 2: Flowcharts outlining the group allocation process for module 1 during the screening phase (own results, source: [Final Report, 2020](#))

3.1.3 Data collection

Dependency was gauged using the Severity of Dependence Scale (SDS), a 5-item questionnaire that yields a score indicative of the severity of dependence on amphetamines (Gossop et al., 1995). An ATS-related SDS exceeding four was approximately interpreted as dependency.

Former ATS users, classified as those who have not used ATS in the past 12 months, were instructed to complete the SDS corresponding to the period in their life when their ATS use was most intense. Current ATS users were asked to relate the SDS to the previous 12 months, and in case of a negative result, the SDS was administered again, this time relating to the most intense phase of their ATS usage.

The semi-structured interviews utilized two thematic guides: one intended for ATS users and another for non-ATS users who have been exposed to ATS (defined as being present when family or friends consumed ATS but abstained from consumption themselves, and have never used ATS throughout their life course). The thematic guides addressed facets of initiation, persistence, escalation, and reduction of ATS consumption.

In the course of these interviews, life course charts were implemented to provide a chronological framework for discussions about ATS use over time (see Annex 1). These charts were instrumental in capturing more detailed data on participants' living environments, health status, social functionality, life events, and broader lifestyle patterns. Here, the life course charts were utilized with the express aim of recording valuable contextual data in a more systematic manner.

3.1.4 Life course drug use and trajectories

Life course drug use refers to the study of drug use patterns and trajectories across an individual's lifespan. These trajectories can vary widely among individuals and can be influenced by various factors such as age, social environment, and personal characteristics. Several studies have examined different aspects of drug use trajectories and their associations with other factors.

The life course perspective offers an organizing framework for classifying varying drug use trajectories, identifying critical events and factors contributing to the persistence or change in drug use, analytically ordering events that occur during the life span, and determining contributory relationships (Hser et al., 2007).

Scholars of social mobility speculate that such life course trajectories can result in antisocial behaviour, but few have examined whether these trajectories lead to drug use (Dennison, 2018).

Researchers have analysed data from a sample of older drug users to identify transition patterns in drug use trajectories across the life course (Boeri et al., 2011).

Studies have also investigated whether early family structure and process play a role in drug use initiation throughout the life course, and whether the relationship between family factors and drug initiation differs by gender (Doherty et al., 2008).

In addition, a life course perspective has been applied to gain a further understanding of older adult drug use, specifically contrasting early- and late-onset heroin users (Boeri et al., 2008).

Current literature has shown that heroin addiction is characterized by long periods of regular use persisting over the life course, whereas the course of stimulant use is less understood (Hser et al., 2008).

Age-graded life events, such as marriage and employment, may provoke a turning point in the trajectories of substance use and motivate young adults with SUD to seek addiction treatment and cease illegal drug use (Cheng & Lapto, 2023).

Interviews with drug users having a long history of drug use allow us to examine drug patterns over the life course (Boeri et al., 2006).

Studies have also explored trajectories of injection drug use over 20 years in Baltimore, Maryland (Genberg et al., 2011).

Processes are dynamic and complex, suggesting that throughout the life course, protective factors that reduce the risk of problems emerge and change, as do critical periods for maximizing the impact of drug prevention and intervention efforts (Huang et al., 2011).

Nevertheless, there remains a paucity of empirical data concerning the natural progression and dynamic elements of individual ATS consumption. The extent to which various factors shape distinct consumption trajectories over time, and whether these patterns are influenced by specific ATS substances or user demographics like gender, age, or socio-economic status, is not elucidated

3.1.5 Data coding and analysis

The interviews, which were audio recorded and subsequently transcribed verbatim, were conducted by trained and experienced fieldworkers, typically lasting between 60 to 90 minutes. As a token of gratitude for their time and cooperation, participants were offered a small incentive upon the conclusion of the interview.

In the data analysis of the qualitative interviews conducted in Module 1, a comprehensive approach was taken. The interviews were transcribed in their entirety, ensuring that all the information and nuances captured during the interviews were accurately documented. It is

important to note that the audio recordings of the interviews were deleted after transcription, ensuring the privacy and confidentiality of the participants.

To facilitate the analysis process, a code system based on the Biopsychosocial Model was developed. This code system allowed for the exploration of individual, social, and environmental circumstances that may influence ATS use and related outcomes. The Biopsychosocial Model is a holistic framework that considers the interplay between biological, psychological, and social factors in understanding human behaviour and health.

In addition to the code system, the consumption trajectories of the participants were divided into four distinct phases: Initiation, Continuation, Increase, and Reduction or Termination. This categorization allowed for a systematic examination of the different stages and patterns of ATS use experienced by the participants.

To facilitate the analysis process, the MAXQDA qualitative research software was utilized. MAXQDA is a widely used software program that provides tools and features specifically designed for qualitative data analysis. It allows researchers to organize, code, and analyse large volumes of qualitative data efficiently and effectively.

By employing the code system based on the Biopsychosocial Model, dividing consumption trajectories into distinct phases, and utilizing the MAXQDA software, the analysis of the qualitative interviews was conducted in a rigorous and systematic manner. This approach allowed for a comprehensive exploration of the factors influencing ATS use and provided valuable insights into the complex dynamics of ATS use and its associated outcomes.

3.1.6 Ethics

Ethical clearance for data collection and usage was procured in five out of the six participating nations, with the Netherlands not necessitating such approval. All participants were provided with an information pamphlet delineating the nature of the study, following which informed consent was obtained, and measures were taken to ensure the protection of anonymity and confidentiality.

3.2 Module 2

Building on the insights derived from Module 1, the data collection methodology and the questionnaire for the quantitative component, Module 2, were developed. For the quantitative survey, a standardized questionnaire was formulated, incorporating both key themes from the qualitative interviews and a variety of standardized instruments. These instruments aimed to capture aspects including but not limited to, substance use, health and psychological determinants, and personality traits.

3.2.1 Sampling strategy

In module 2 of the study, the research focused on four distinct groups of amphetamine-type stimulant (ATS) users, as well as a non-user group. To identify potential interviewees for these groups, an online screening process was implemented. This screening process aimed to identify individuals who met the specific criteria for each group.

By implementing an online screening process, the research team was able to efficiently identify individuals who met the criteria for each group. This approach allowed for a targeted selection of participants who could provide valuable insights into the different experiences and characteristics associated with ATS use.

The recruitment process for participants in the quantitative interview was analogue to module 1. Participant solicitation utilized purposive sampling and was facilitated through a multi-pronged approach. Study details were disseminated in drug service centres, universities, and nightlife locales via leaflets, posters, and web links. Additional outreach efforts included local ads, internet postings on related forums, social media, and student job portals. Recruitment tactics also encompassed direct engagement in nightlife and academic environments and incorporated snowball sampling techniques.

3.2.2 Inclusion and exclusion criteria and criteria for ATS users' groups

The inclusion and exclusion criteria outlined in Figure 3 served as a guide for the research team to ensure that the selected participants accurately represented each ATS user group. These criteria may have included factors such as frequency and duration of ATS use, specific patterns of use, age range, and other relevant demographic or behavioural characteristics.

By carefully selecting participants based on these criteria, the study aimed to capture a diverse range of experiences and perspectives within each ATS user group. This approach allowed for a comprehensive exploration of the factors influencing ATS use and its associated outcomes.

Overall, the implementation of an online screening process and the use of inclusion and exclusion criteria for each ATS user group provided a systematic and rigorous approach to participant selection. This approach ensured that the study included individuals who met the specific criteria for each group, allowing for a detailed examination of the distinct characteristics and experiences within the ATS user population.

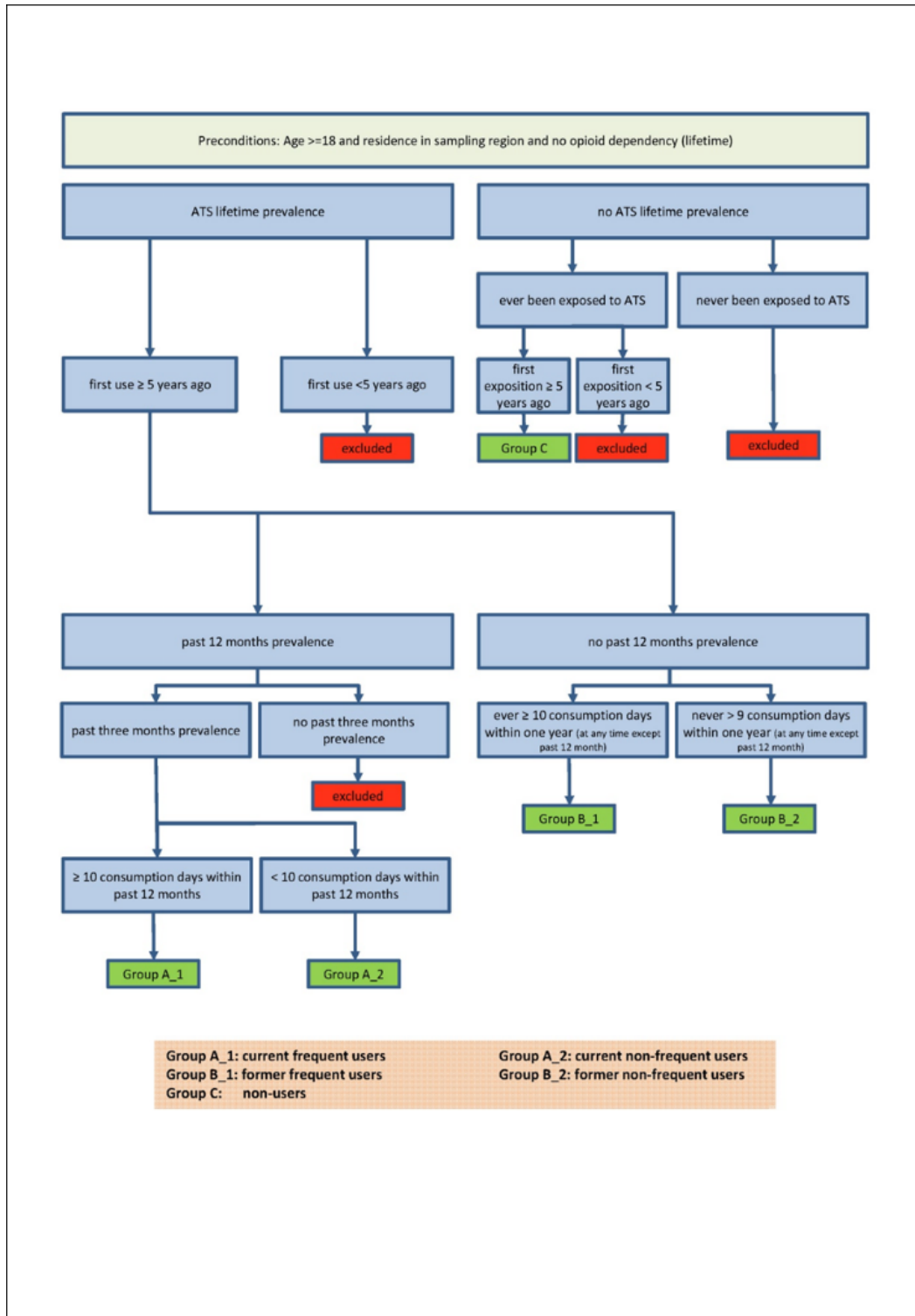


Figure 3: Diagrammatic Representation of Group Allocation in Module 2 (own results, source: Final Report, 2020)

In Module 2 of the study, the research focused on five distinct groups, each with specific characteristics and prevalence rates. The groups were categorized based on their ATS use patterns and exposure status (table 2). The prevalence rates refer to the frequency of ATS use within specific time frames.

Table 2: Synopsis of the Operationalization of Sample Groups in Module 2 (own results, source: Final Report, 2020)

<i>Study groups in Module 2</i>	<i>Name</i>	<i>past 12 months prevalence</i>	<i>past 3 months prevalence</i>	<i>≥ 10 consumption days within past 12 months</i>	<i>≥ 10 consumption days within one year (at any time except past 12 months)</i>
<i>Group A_1</i>	Currently frequent users	yes	yes	yes	n.a.
<i>Group A_2</i>	Currently non-frequent users	yes	yes	no	n.a.
<i>Group B_1</i>	Formerly frequent users	no	n.a.	n.a.	yes
<i>Group B_2</i>	Formerly non-frequent users	no	n.a.	n.a.	no
<i>Group C</i>	Exposed non-users	n.a.	n.a.	n.a.	n.a.

In the study, it was deemed crucial that the participants included in the analysis had a minimum of five years of ATS exposure or use prior to the interview. This criterion was established to ensure that the participants had sufficient experience and knowledge related to ATS use, allowing for a more comprehensive understanding of the long-term effects and patterns associated with ATS use.

By requiring a minimum of five years of ATS exposure or use, the study aimed to capture participants who had a substantial history of ATS involvement. This criterion helped to ensure that the participants had experienced a significant duration of ATS use, which could potentially impact their perspectives, behaviours, and outcomes related to ATS use.

The inclusion of this criterion also aimed to minimize potential biases or limitations associated with participants who had only recently initiated ATS use. By focusing on individuals with a minimum of five years of ATS exposure, the study sought to examine the effects and patterns that may emerge over a longer duration of ATS use.

Overall, the requirement of a minimum of five years of ATS exposure or use for participant inclusion in the study was a deliberate decision to enhance the validity and reliability of the findings. This criterion allowed for a more in-depth exploration of the long-term effects and patterns associated with ATS use, providing valuable insights into the complexities of ATS use and its impact on individuals over time.

Dependency in the study was assessed using the Severity of Dependence Scale (SDS), a 5-item questionnaire that measures the severity of dependence on amphetamines. The SDS is a validated tool that has been widely used in research to assess substance dependence (Gossop et al., 1995).

The SDS consists of five items that capture different aspects of dependence, such as the desire or craving to use amphetamines, the difficulty in controlling or cutting down on use, and the impact of amphetamine use on daily life. Participants rate each item on a scale, and the scores are then summed to yield a total SDS score.

In this study, an ATS-related SDS score exceeding four was approximately interpreted as indicative of dependency. This cut-off point was chosen based on previous research (Topp & Mattick, 1997), which suggest that a score above this threshold is indicative of a significant level of dependence on amphetamines.

3.2.3 Data collection instruments

The sociodemographic information collected in this study encompasses various factors such as sex, age, citizenship, migration background, relationship status, presence of children, living situation, educational and occupational status, and social integration. These variables provide important context for understanding the individuals participating in the study and their potential influence on drug use and related outcomes.

The assessment of drug use in this study is comprehensive and includes a detailed examination of illicit drug use throughout the participants' lifetime. This includes measures of lifetime prevalence, past 12-month prevalence, and past 30-day prevalence of drug use. Additionally, information regarding the age at first and last use of drugs is collected. The study also incorporates tests for alcohol dependence using measures such as the Cutting Down, Annoyance by criticism, Guilty feeling, Eye-Openers (CAGE) questionnaire and the Alcohol Use Disorders Identification Test- Consumption (AUDIT-C). Furthermore, the participants' tobacco smoking status is assessed.

A specific focus of this study is the assessment of amphetamine-type stimulant (ATS) use. This includes measures of ATS dependence using the SDS (Severity of Dependence Scale), as well as exploration of injecting drug use and treatment experiences. The study also investigates the usual setting of ATS use and examines patterns, motives, and consequences associated with ATS use, including any reasons for changes in ATS use.

The study also collects information on judicial problems, specifically recording the number of times and reasons for imprisonment. This allows for an examination of the potential relationship between drug use and legal issues.

In addition to drug-related assessments, this study includes an evaluation of the participants' physical and mental health using the Brief Symptom Inventory-18. This assessment provides insight into the presence of any psychological distress or symptoms experienced by the participants.

Personality assessment is another important component of this study, which includes measures such as the Big Five Inventory-10, Brief Sensation Seeking Scale-4, Generalized Self-Efficacy Scale, and Connor-Davidson Resilience Scale-10. These measures allow for an exploration of various personality traits and characteristics that may be associated with drug use and related outcomes. Furthermore, the study examines critical life events that may have influenced the participants' experiences and behaviours.

By collecting such a comprehensive range of data, this study arm reflects on the biopsychosocial model of substance use to provide a thorough understanding of the sociodemographic factors, drug use patterns, mental and physical health, personality traits, and critical life events that may contribute to substance use and related outcomes. This multidimensional approach allows for a more nuanced analysis and interpretation of the findings, providing valuable insights into the complex interplay between individual characteristics and drug use behaviours

Table 3: Measurement instruments applied in module 2 (own results, source: Final Report, 2020)

Name	Acronym	Content	Reliability: Cronbach's α	Validity: sensitivity/specificity (cut-off)
International Standard Classification of Education (UNESCO, 2011)	ISCED	Identification of highest educational level	-	-
Subjective social integration (Beste et al., 2014)	SSI	Subjective assessment of social integration	-	-
Subjective social position (Beste et al., 2014)	SSP	Subjective assessment of social position	-	-
CAGE questionnaire (Ewing, 1984)	CAGE	Alcohol problems lifetime	0.8-0.98	0.71/0.90 (2)
Alcohol Use Disorders Identification Test (Bush et al., 1998)	AUDIT-C	Alcohol problems past year	0.91	0.93/0.66 (4)
The Severity of Dependence Scale (Gossop et al., 1995)	SDS	ATS dependency lifetime	0.81–0.89	71.3/77.1 (4)
Brief Symptom Inventory-18 (Derogatis, 2001)	BSI-18	Measurement of somatisation, anxiety, depression	0.87-0.94	91.2/92.6 (63)
Satisfaction with life scale (Diener et al., 1985)	SWLS	General life satisfaction	-	-
Big Five Inventory (Rammstedt & John, 2007)	BFI-10	Assessment of five personality traits	0.58-0.84	-
Brief Sensation Seeking Scale (Stephenson et al., 2003)	BSSS-4	Measurement of sensation seeking	0.66	-
Generalized Self-Efficacy Scale (Schwarzer et al., 1995)	GSE	Measurement of self-efficacy	0.92	-
Connor-Davidson Resilience Scale (Connor & Davidson, 2003)	CD-RISC-10	Measurement of resilience	0.89	-

To facilitate the interviews and ensure consistency across participants and countries, show cards were utilized. These show cards contained relevant prompts and additional information that aided the research assistants during the interviews. For example, the show cards may have included lists of ATS to assist participants in recalling and reporting their

substance use accurately. Additionally, answering scales may have been provided on the show cards to guide participants in rating their responses on specific measures or scales.

The use of show cards served multiple purposes. Firstly, they provided a standardized approach to the interviews, ensuring that all participants received the same prompts and information. This helped to minimize potential variations in the interview process and enhance the reliability of the data collected. Secondly, the show cards acted as visual aids, aiding participants in understanding and responding to the interview questions more effectively. This visual support may have facilitated clearer communication and improved the accuracy of the participants' responses.

3.2.4 Data collection

The data was collected through the CAPI (Computer-Assisted Personal Interviewing) method, utilizing tablets. To ensure the survey instrument was accessible and appropriate for all partner countries, it underwent a process of translation and piloting. The questionnaire was translated into the respective languages of the partner countries and then tested through pilot studies. This allowed for any necessary revisions to be made to the questionnaire to ensure clarity and cultural appropriateness.

Once the final version of the questionnaire was established, it was hosted on a central server operating within the IT environment of Hamburg University. This central server served as a repository for the questionnaire and facilitated its distribution to the tablets used for data collection. The tablets were able to directly download the latest version of the questionnaire from the central server as needed.

Furthermore, the central server also played a crucial role in receiving the data uploads from the tablets. After the completion of each interview, the data collected on the tablets were uploaded to the central server. This allowed for centralized storage and management of the collected data, ensuring its security and accessibility for further analysis.

By utilizing a central server for hosting the questionnaire and receiving data uploads, the research team was able to streamline the data collection process and maintain consistency across all partner countries. The use of technology, such as tablets and a central server, not only enhanced the efficiency of data collection but also facilitated data management and analysis.

Overall, the translation, piloting, and hosting of the questionnaire on a central server operating in the IT environment of Hamburg University provided a robust and standardized approach to data collection in this multi-country study. The use of technology and centralized data management systems ensured the reliability and integrity of the collected data, contributing to the overall rigor and validity of the research findings.

In each country involved in the study, the recruitment of participants and the conduct of interviews were carried out by trained research assistants. These research assistants played a crucial role in ensuring the smooth implementation of the study protocol.

The interviews were conducted either face-to-face or via video-telephony using platforms such as Skype®. This allowed for flexibility in the interview process, accommodating participants who may have been geographically distant or unable to attend in-person interviews. The use of video-telephony platforms ensured that the interviews could still be conducted in a personal and interactive manner, despite the physical distance.

By employing trained research assistants, conducting interviews either face-to-face or via video-telephony, and utilizing show cards with relevant prompts and additional information, the study aimed to optimize the data collection process. These strategies ensured consistency, accuracy, and participant engagement throughout the interviews, contributing to the overall quality and validity of the study findings. Interviews typically spanned a duration of 45 to 60 minutes. To incentivize participation, an initial remuneration of 10 euros was provided at the commencement of the interview phase. This amount was subsequently increased to 25 euros, particularly aimed at encouraging participation from specific and hard-to-reach demographics.

3.2.5 Data analysis

In the analysis of the quantitative data in Module 2, several steps were taken to ensure data quality and to examine the consumption patterns of the participants. The data were cleaned and checked for plausibility to identify and address any errors or inconsistencies. This process involved reviewing the data for missing values, outliers, and other data quality issues.

The analysis of the quantitative data was conducted using SPSS 25, a statistical software package widely used for data analysis in social sciences. SPSS provides a range of tools and techniques for data manipulation, descriptive statistics, and inferential analysis. The level of measurement was adhered to, and both non-metric and metric tests were selected and chi-square test, analysis of variance (ANOVA), t-test and Mann-Whitney U test applied accordingly.

A central aspect of the analysis in Module 2 was to determine group-specific variables that would represent the consumption patterns of the participants as homogeneously as possible. The goal was to differentiate the groups from one another based on the frequency and intensity of ATS consumption. This involved creating new variables or grouping existing variables to capture the relevant aspects of ATS consumption.

By examining the frequency and intensity of ATS consumption, the analysis aimed to identify distinct patterns and variations within the sample. This approach allowed for a more nuanced understanding of the different consumption profiles and behaviours among the participants.

The formation of new groups based on consumption frequency and intensity enabled a more focused analysis of the data. By differentiating the groups, the analysis could explore the unique characteristics and outcomes associated with each consumption pattern. This approach provided valuable insights into the heterogeneity of ATS use and its implications.

3.2.6 Ethics

Ethical approval for the execution and utilization of data was successfully acquired in five of the six contributing countries, with the exception being the Netherlands, where such endorsement was not deemed requisite. All subjects involved were furnished with a detailed informational document, elaborating on the purpose and implications of the research endeavour. Subsequent to this, informed consent was procured, and rigorous precautions were implemented to safeguard participant anonymity and confidentiality.

4 Results

4.1 Results from the qualitative study arm

4.1.1 The study population

In the qualitative module of the study, the sample characteristics were based on the screening data of the participants. This section will first describe the sample characteristics, followed by the presentation of the results from the structured face-to-face interviews.

Our research entailed in-depth interviews with a substantial pool of 279 participants, of which 41% identified as female. This demographic composition underscores a diverse representation of gender perspectives within our study, offering varied insights into ATS usage.

It's interesting to note that the distribution of gender was not uniform across the different nations participating in the study. In the Netherlands, our approach was successful in accomplishing an intended balance in gender representation with an equal number of male and female respondents.

However, the gender representation skewed more towards males in Germany, Poland, and the Czech Republic. The reasons for this skewed gender distribution might be attributable to cultural factors, accessibility, or the outreach strategies employed, and warrant further investigation to better understand the nuances of ATS use in these regions. Contrarily, in the United Kingdom, our study saw a greater number of female participants engaging in the interviews.

Table 3 provides a detailed breakdown of the gender distribution within each country. It highlights the variations in the proportion of male and female participants across the different study locations.

The gender distribution within the sample is an important characteristic to consider, as it may influence the findings and interpretations of the study. Understanding the gender distribution allows for a more comprehensive analysis of the experiences and perspectives of both males and females within the context of ATS use.

It is worth noting that the gender distribution observed in the sample may reflect the underlying patterns of ATS use within each country. The higher representation of males in some countries and females in others may be indicative of gender-specific differences in ATS use prevalence or accessibility.

Table 4: Interview participants by gender and European country (own results, source: Final Report, 2020)

Country		Group 1 (ATS dependent)	Group 2 (ATS dependent; remitted)	Group 3 (frequent ATS use)	Group 4 (former frequent ATS use)	Group 5 (non- frequent ATS use)	Group 6 (no ATS use)	Total
Germany	male	4	9	9	4	6	5	37
	female	5	8	3	2	3	2	23
United Kingdom	male	5	8	5	3	6	3	30
	female	7	6	4	8	5	8	38
Poland	male	7	5	11	3	11	9	46
	female	3	5	1	2	4	0	15
Netherlands	male	5	6	6	6	4	3	30
	female	5	4	4	4	6	7	30
Czech Republic	male	4	3	5	4	2	3	21
	female	2	2	0	1	2	2	9
Gender	male	25	31	36	20	29	23	164
	female	22	25	12	17	20	19	115
Total		47	56	48	37	49	42	279
%		17%	20%	17%	13%	18%	15%	100%

On average, the participants in the interviews had an age range between 30.1 years in Germany and 32.8 years in the Netherlands. The age distribution varied significantly among the six groups and across the countries. The youngest participants were found in group 6 and group 3, with an average age of approximately 29 years. On the other hand, the former dependent users in group 2 were the oldest, with a mean age of 33.6 years.

Differences in the initiation age of ATS usage were observed among the different groups and countries involved in the study. The average commencement of ATS use generally fell between the ages of 17 to 19. Notably, however, groups 1 and 4 embarked on ATS use at an earlier age relative to the other three groups. For instance, in Germany and the Netherlands, individuals in group 1 began using ATS just slightly past the age of 16. Similarly, in the UK and Poland, group 4 users initiated ATS consumption around the age of 16.

More than a third of the entire sample reported ATS dependency, as evaluated using the Severity of Dependence Scale (SDS). The prevalence of this dependency was not consistent across all countries, demonstrating a range from 21% in Poland to a higher 48% in Germany. Most ATS-dependent interviewees were categorized within groups 1 and 2, which corresponds well with the designated target group definitions.

During the course of the interviews, participants employed lifetime charts to record the variety of substances they had ingested and the respective consumption frequencies. As per these charts, 'speed' emerged as the most prevalently used ATS, with a reporting rate of 28% among ATS users. The combination of 'speed' and MDMA was the second most

commonly reported, noted by 17% of participants. Country-specific patterns also emerged; in the Czech Republic, methamphetamine was the dominant ATS, consumed by 60% of the Czech respondents. In Poland, the second most frequently consumed ATS was classified under New Psychoactive Substances (NPS).

Table 5: Age, age at ATS onset and ATS dependence of interview participants by European country (own results, source: Final Report, 2020)

Country		Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Total
Germany	Mean							
	- age	28.2	30.2	27.2	34.7	33.8	28.9	30.1
	- age of ATS onset	16.3	17.6	18.3	21.2	21.8		18.7
	SDS positive %	100	82.4	16.7	0	0		48.3
United Kingdom	Mean							
	- age	37.2	35.4	32.6	30.5	28.1	29.9	32.5
	- age of ATS onset	18.0	16.2	18.2	15.8	17.2		17.0
	SDS positive %	100	85.7	11.1	18.2	18.2		42.6
Poland	Mean							
	- age	30.1	32.7	25.3	33.2	33.3	27.0	30.2
	- age of ATS onset	18.1	17.3	17.7	16.4	18.1		17.7
	SDS positive %	60.0	70.0	0	0	0		21.3
Netherlands	Mean							
	- age	34.9	35.2	31.0	35.9	28.9	30.8	32.8
	- age of ATS onset	16.4	17.6	19.3	17.3	19.8		18.1
	SDS positive %	80.0	100	0	0	0		30.0
Czech Republic	Mean							
	- age	26.8	38.2	34.6	27.4	29.5	25.4	30.2
	- age of ATS onset	17.5	26.8	23.0	17.8	19.5		20.8
	SDS positive %	83.3	100	0	0	0		33.3
Total	Mean							
	- age	32.1	33.6	29.3	32.6	31.0	28.8	31.3
	- age of ATS onset	17.3	18.0	18.8	17.4	19.0		18.2
	SDS positive %	85.1	85.7	6.3	16.2	4.1		35.5

Beyond the consumption of ATS, our study discovered that a significant proportion of respondents, regardless of their country of residence or group designation, reported usage of a variety of additional substances. This finding emphasizes that ATS use often doesn't occur in isolation but coexists with the consumption of other substances, suggesting a polydrug use pattern.

The frequency of this additional substance use, however, was not uniform and demonstrated considerable variation in relation to the specific substance and the country. This variation can be attributed to a range of factors such as the differential availability of certain substances, variations in societal attitudes towards drug use, disparities in enforcement and legislation, as well as cultural norms and practices across different nations.

The nuanced understanding of the prevalence of substance use, along with its geographical and demographic variations, is crucial as it paints a more comprehensive picture of the

intricacies of drug consumption behaviours. This insight can guide the design of more context-specific and effective interventions aimed at mitigating the associated risks and harms.

In addition to ATS, our study revealed the concurrent and significant use of other substances among respondents. Foremost among these was cannabis, emerging as the most frequently consumed substance across all participant groups and countries. The extent of cannabis use presented a wide range, with anywhere between 57% to a full 100% of respondents across different groups and countries affirming its use at least once in their lives. This illuminates the pervasive nature of cannabis use in this population and its potential interplay with ATS usage.

Substances such as cocaine and hallucinogens also showed substantial usage, particularly in the Netherlands. Here, 75% of participants reported using cocaine, while hallucinogens were consumed by 70% of respondents. Similarly, in Germany, over half of the participants (62%) had used cocaine, and half had experimented with hallucinogens. In the Czech Republic, a significant proportion (60%) of respondents reported having used hallucinogens, demonstrating a relatively high prevalence of these substances.

In addition to these illicit substances, also the consumption patterns of alcohol, a legal and widely accessible substance was assessed. A specific focus was given to daily use of alcohol, an indicator of potentially problematic consumption. The highest incidence of daily alcohol use was observed in the Netherlands, with 57% of Dutch respondents admitting to a period of daily alcohol consumption. Nearly half of the Czech respondents (47%) similarly reported a period of daily alcohol use. In other countries, about one-third of respondents indicated a phase of daily alcohol consumption in their lives.

Taken together, these findings underscore the pervasive use of substances beyond ATS among our study's participants. This trend of polydrug use underscores the complexity of addressing substance use and dependency, requiring a comprehensive, multi-faceted approach to prevention, harm reduction, and treatment strategies.

4.1.2 Commencement of ATS use

The biographical background of individuals has a significant influence on the onset and course of ATS consumption. Based on the interviews conducted, three different developmental conditions were identified before the initiation of ATS use.

Individual Circumstances:

a) Normal and stable developmental conditions: A considerable proportion of respondents grew up in stable family conditions characterized by parental care and strong family ties. Some parents were liberal towards their children's first drug experiences due to their own

experimentation. While some respondents experienced ADHD or eating disorders, these conditions were not related to the initiation of ATS use. All interviewees had either completed or begun schooling or training. Most respondents with stable developmental conditions were found in groups 3, 5, and 6.

b) Conflict-ridden developmental conditions: High-conflict conditions arose from difficult family relationships due to a parent's alcohol dependency, constant parental quarrels, severe bullying at school, or the respondents' own psychological problems. Due to the high potential for conflict in the family, some respondents felt neglected or extremely stressed, leading to depression or anxiety during adolescence. However, all respondents in this group had graduated from school, started an education, had a solid circle of friends, and/or were in a long-term partnership. Conflict-ridden developmental conditions were exhibited by respondents from all groups, but primarily by those with ATS abstinence at the time of the interview (groups 2 and 4).

c) Very poor developmental conditions: These conditions were characterized by critical life events such as a parent's mental illness or alcohol dependence, domestic violence by the father, and/or sexual violence by family members. Some women became pregnant while still minors, resulting in placement by child welfare services. The majority of respondents with such biographies suffered from depression, eating disorders, anxiety, paranoia, or schizophrenia. Many also lacked a high school diploma or education. These challenging circumstances predominantly affected ATS dependents (groups 1 and 2) and a disproportionate number of women.

Motives for ATS Use:

The first-time use of ATS was primarily motivated by hedonistic or social motives. Hedonistic motives included curiosity about the drug's effects, the desire for pleasure in nightlife or at festivals, the desire to stay awake for extended periods, and experiencing stronger empathy when using ecstasy.

Social motives often involved the direct influence of close friends or trusted individuals who offered speed, ecstasy, or methamphetamine. This was not always due to social pressure but could also be seen as a recommendation to use ATS to cope with separation pain or sadness. This type of self-medication as a trigger for first-time ATS use was reported exclusively by respondents with subsequent ATS dependence (groups 1 and 2).

Respondents from groups 1 and 2 also reported starting ATS use to better cope with low self-esteem, depression, social anxiety, or experiences of violence. Using ATS as a coping mechanism implied the expectation of feeling more relaxed due to the drug's effects and experiencing psychological problems less intensely.

Some respondents reported using ATS for functional reasons, such as enhancing performance in a stressful job or university. Students used Ritalin to increase their ability to concentrate, while methamphetamine was used to endure long work hours. One respondent mentioned using ecstasy purposefully to enhance sexual experiences.

Reasons for Non-ATS Use:

The non-ATS users provided various reasons for never trying this substance, despite its availability in their environment. ATS were perceived as having incalculable risks, and there was a fear of losing control due to their mode of action. All respondents in this group had a negative attitude toward ATS, even if they used other drugs such as cannabis. Their desire to maintain control and anticipate negative effects of ATS use led them to resist using it.

Social Circumstances:

The circle of friends played a crucial role during the initiation of ATS use, as they provided information about the correct dosage and effects of the substance. Peers, often older and more experienced with ATS, were trusted by the respondents, who obtained their first drugs from them.

Shared ATS use among friends created a sense of belonging through the collective practice of rituals, such as sharing a line of speed. For some women, ATS use served as a coping mechanism for separation from their partners or to compensate for ongoing experiences of violence within the family or partnership.

Lifestyle and Environmental Circumstances:

At the initiation of ATS use, a hedonistic and pleasure-oriented lifestyle predominated. ATS use was part of nightlife and was regularly consumed on weekends, often in combination with cannabis and alcohol.

The availability of the preferred substance depended on the network in which leisure time was spent. Respondents typically bought drugs through their social network or acquaintances who had contacts with a dealer. Initially, the cost of ATS was low, and financing was straightforward.

It is worth mentioning that Ritalin was predominantly obtained on the black market from teenagers who were prescribed Ritalin and supplemented their pocket money by selling it. Respondents with occasional ATS use reported not always having immediate access to ATS and only consuming when invited by friends. This behaviour contributed to their ability to maintain occasional ATS use.

4.1.3 Continuation of ATS consumption

In the stage of sustained consumption of ATS, a striking pattern emerged predominantly among those respondents who did not markedly escalate their usage over time. This consistent pattern of consumption was particularly salient among individuals identified as frequent users (group 3) and occasional users (group 5). Despite the continued use of ATS, their frequency of consumption remained relatively unaltered, implying a level of control or stability in their usage patterns. This observation suggests a particular consumption trajectory wherein these individuals have managed to maintain a steady level of ATS use without progressing towards increased frequency or intensity.

In terms of individual circumstances, ATS use was continued for the motives of escaping from everyday life and breaking out of the boredom associated with daily routines such as work or university. Respondents reported that ATS, especially speed and MDMA, provided a sense of momentum and a different perspective on things. It allowed them to look past things differently and brought excitement into their lives.

Another motivation for ATS use during this phase was sociability and fellowship. Many respondents reported using ATS when partying together on weekends. However, even during this phase, regular ATS use led to sleep disturbances and required recovery periods of several days. The use of MDMA or ecstasy, in particular, was associated not only with fatigue when the effects wore off but also with feelings of sadness and depressive moods.

Many respondents also reported adverse health effects from snorting speed, such as problems with the nasal mucosa and a loss of the sense of taste. Some respondents preferred to consume speed by swallowing it in "bombs" wrapped in cigarette paper to avoid these issues.

In terms of social circumstances, ATS use continued because respondents wanted to experience the stimulant or entactogenic effects of the substances. Consumption typically occurred during leisure time on weekends, often in a party setting, symbolizing a lifestyle separate from everyday life. Peers continued to play an important role, as weekends were spent with them and ATS use was integrated into leisure activities.

Partners also had a significant influence. In cases where only one partner consumed ATS while the other did not, conflicts arose in the relationship due to the ATS-consuming partner staying out all night on weekends. However, in cases where only one partner used ATS, the non-using partner had an influence on reducing and controlling ATS use.

Regarding environmental circumstances, availability of ATS was easier during this phase compared to the initial stage. Respondents stated that they could obtain ATS within two hours, and the substances were considered affordable. Respondents from group 3 and

especially group 5 continued to adhere to their rule of not actively seeking out ATS. They took the opportunity to consume when the setting was right and they were with friends.

4.1.4 Escalation in ATS use

Throughout the phase characterized by escalating ATS consumption, a range of patterns surfaced among the different respondent groups. Specifically, respondents from groups 1 and 2 followed a path of gradual escalation in their ATS use, transitioning from frequent consumption to a problematic pattern and eventually culminating in dependency. This progressive escalation suggests a cumulative and potentially insidious pathway towards addiction for these users.

Moreover, the pattern was even more pronounced among methamphetamine users, who demonstrated a tendency to increase their consumption at a faster pace. This led to daily use of high doses, indicating a rapid trajectory towards intense substance use and increased risk for health and social consequences.

Among those respondents who primarily consumed ATS in the context of party or nightlife scenes, an increase in consumption was primarily associated with an escalation in their social and recreational activities. The more time they spent in party environments and socializing with other drug users, the greater their ATS consumption became. This points to the influence of the social context and the potential normalization of drug use within these settings on individual consumption patterns.

In terms of individual circumstances, the increase in ATS use among respondents from groups 1 and 2 was often driven by problematic experiences. These experiences included emotional stress from separation, social isolation, social anxiety, or a general sense of disorientation in life. ATS use was perceived as a relief to increase self-confidence, reduce anxiety, or escape from personal life challenges. Some respondents increased their ATS use to alleviate mental health problems such as depression.

Excessive ATS use resulted in various health and psychological problems among the respondents. Sleep disturbances, memory loss, concentration disorders, and significant weight loss were commonly reported. Additionally, depressive moods, anxiety, and paranoia intensified as a result of ATS use. To mitigate the side effects and aid sleep, some respondents turned to cannabis or sedatives.

In terms of social circumstances, the social dynamics during the phase of increasing ATS use were closely linked to the specific substance used and associated lifestyles. Respondents who used MDMA or ecstasy reported consuming these substances at high frequencies or doses every weekend. Speed users often consumed large amounts of alcohol, and some developed alcohol dependence. Daily use of speed and

methamphetamine became more prevalent, with a focus on the next use even during the day. Many respondents described how their ATS use interfered with their daily lives and commitments, leading to difficulties in education, employment, childcare, and relationships. Social contacts with non-users were often avoided, and obligations were increasingly neglected.

Regarding environmental circumstances, ATS users had established social networks or contacts with dealers that ensured easy availability of the drug. Some respondents engaged in drug dealing to finance their own consumption. Financing ATS use varied, with some respondents able to afford it through their own income, while others incurred debts or engaged in theft or burglary.

The analysis of the life course charts revealed that the groups differed in terms of positive and negative life events. After ATS use initiation, the groups with ATS dependence experienced a higher number of negative events compared to other groups. ATS dependence was associated with significant stress in various areas of life. Additionally, women experienced significantly more negative events throughout their life course compared to men.

4.1.5 Diminution or Cessation of ATS use

During the phase characterized by a decrease in ATS use, or a transition to total abstinence, there typically was a prolonged process that paved the way for this change in consumption habits. This process was usually marked by multiple attempts to reduce ATS consumption before a definite shift towards controlled or sporadic use, or complete cessation, was achieved.

Among the ATS user cohort, nearly all reported experiencing at least some periods where they intentionally reduced their consumption. This includes even those respondents in group 5 who were already categorized as occasional users; these individuals made further efforts to decrease their already sporadic use.

Uniquely, all respondents who were part of group 4 had completely ceased their ATS use by the time of their interviews. This cessation was not an abrupt event, but rather the result of a series of efforts and a commitment to change. This observation underscores the fact that the path towards cessation of ATS use is rarely linear and often entails multiple attempts and strategies to finally achieve abstinence.

Concerning personal circumstances, a critical factor that motivated the dependent and frequent ATS users to decrease their consumption involved the escalation of adverse effects and the onset of significant health issues. As the negative impacts of their substance

use began to overshadow the initial benefits, these users found themselves pushed towards reconsidering their consumption patterns.

Among the adverse effects reported, a considerable number of users experienced fatigue and sleep disturbances, which severely impacted their daily functioning and quality of life. These disruptions to normal sleep patterns, in conjunction with frequent use, created a vicious cycle of dependence on the stimulant properties of the substances to maintain daily activities.

Furthermore, respondents also reported suffering from panic attacks, a condition which not only caused distress but also posed a serious risk to their mental and physical health. Memory lapses were another common issue, leading to concerns about cognitive decline and potential long-term impairment.

In addition, symptoms of depression were commonly reported, further exacerbating the users' suffering and potentially acting as an additional barrier to seeking and adhering to treatment. Paranoia was also a recurring theme among the respondents, resulting in heightened stress levels and potential social isolation.

Another significant event often played a role in reducing or completely stopping ATS use. This could be a new job, the completion of studies, moving to another city, or going abroad. For some women, their consumer-driven lives became disastrous, leading to a loss of direction or an inability to care for their children. Many women abstained from drugs during pregnancy but resumed their previous patterns of use after giving birth.

For partygoers, the reduction in consumption often occurred naturally as they grew out of the lifestyle. After spending many years in nightlife, they became bored with the same activities, clubs, and people. This outgrowth was particularly observed among frequent ATS users in group 3.

Giving up ATS was especially challenging for addicts, as it required reorganizing their lives and setting new priorities. This was done gradually, often by taking up new leisure activities or hobbies. In contrast, hedonistic ATS users found it easier to reorient themselves, devoting more time to work, university, or career plans.

In terms of social circumstances, dependent and excessive ATS users reported difficulties in changing their social networks. Often, their only contacts were drug-related, and they kept their distance for self-protection. Some respondents avoided certain areas of the city, and some even moved to another city. Frequent ATS users reactivated their circle of friends, which consisted of non-ATS users. These contacts played a central role in successful consumption reduction.

Some respondents had been in long-term partnerships despite ATS use, while for others, the reduction in use or abstinence led to a separation resulting from the previous intensive use phase. A few respondents found new partners after abstaining from ATS, who were often former ATS users themselves.

In terms of environmental circumstances, some respondents, all from group 2, experienced ATS abstinence due to incarceration. Most ATS dependent people (groups 1 and 2) sought professional support during the reduction phase. Drug counselling, outpatient psychotherapy, or inpatient drug treatment followed by adaptation were sought to aid in reducing consumption. Therapy played a central role for some ATS addicts on the path to abstinence.

Counselling or therapy was often sought not only for ATS problems but also for alcohol dependence or cannabis use. Additionally, treatment was needed for mental health problems or illnesses. Some respondents sought psychiatric treatment due to mental disorders and/or long-term dependence on methamphetamine.

4.1.6 Results from the life course charts

In the scientific article titled "Using life course charts to assess and compare trajectories of amphetamine type stimulant consumption in different user groups – a cross-sectional study" (Martens et al., 2020), the researchers systematically analysed the life course charts from module 1. These life course charts were utilized during the interviews to capture important life events and substance use histories of the participants. The recorded life events were then categorized as neutral, positive, or negative.

The researchers documented a total of 3547 life events, with 1523 categorized as neutral, 1005 as positive, and 1019 as negative. After adjusting for age, the analysis revealed that both current and formerly dependent ATS users experienced a higher number of negative life events throughout their entire life course. It is important to note that most of these negative life events were associated with periods of ATS usage.

Furthermore, a detailed analysis was conducted to determine the specific life domains that were predominantly affected by these negative life events. The findings indicated that the social environment was the most impacted domain. However, for non-dependent, frequent, and non-frequent ATS users, the negative life events from the period of ATS use did not show significant effects in the analyzed data.

In terms of gender differences, the study did not find any statistically significant disparities between males and females regarding positive, neutral, and negative life events. This suggests that the impact of life events on ATS trajectories is not influenced by gender.

The use of life course charts as a research tool proved to be valuable in capturing key life events and substance use histories. This approach provided a more comprehensive understanding of the factors that shape ATS trajectories. The findings of this study have important implications for policy and practice in the field of substance use prevention and treatment, particularly in relation to ATS use. By identifying the association between negative life events and ATS consumption, interventions and treatment strategies can be developed to address these factors and mitigate the potential harm associated with ATS use.

4.2 Results from the quantitative study arm

The preliminary dataset, employed as the basis for the current analysis, was composed of a total of 2058 cases, as graphically illustrated in Figure 4. Prior to initiating the analysis, however, an essential preparatory step involved the careful scrutiny and processing of the dataset to ensure its quality and reliability.

This was initiated by removing the test cases - those data points collected for initial testing purposes or trials, not meant for the final analysis. Such cases do not represent actual respondents and including them could lead to distorted analysis results.

In addition to this, interviews that were interrupted or left incomplete were excluded from the dataset. The incomplete nature of these data points renders them unsuitable for analysis, as they may not fully capture the responses or characteristics of the respondents, potentially leading to inaccuracies in interpretation and findings.

Lastly, the presence of duplicate entries was assessed. Duplicate entries could occur due to various reasons, such as system errors or respondents unintentionally completing the survey more than once. These duplicates were identified and purged from the dataset, as their inclusion would artificially inflate the sample size and could potentially bias the results.

During the analysis phase, one interview had to be completely excluded from the dataset due to inconsistencies in the participant's responses. This participant initially reported no lifetime use of ATS during the screening process. However, during the interview itself, it was revealed that the participant was, in fact, an ATS user. Since the interview was structured in a way that non-users were not asked questions related to ATS use, there were a significant number of missing responses for this particular case. As a result, this record was deemed unsuitable for further analysis.

In addition to the exclusion of the aforementioned case, 15 additional cases were removed from the dataset. These cases exhibited either a high number of missing responses or documented issues related to the participants' comprehension of the interview questions.

The decision to exclude these cases was made in order to maintain data integrity and ensure the validity of the analysis.

Furthermore, it was necessary to delete 54 interviews from the dataset due to their very short duration, specifically less than 15 minutes (for group C, which received fewer questions, the threshold was 10 minutes). This indicated either irregular interviews or poor data quality. The mean duration of all interviews was 50 minutes. Ultimately, a dataset containing N=1656 cases served as the foundation for all subsequent analyses.

In summary, the exclusion of cases with inconsistencies, missing responses, comprehension issues, and short interview durations was crucial to ensure the reliability and validity of the dataset used for the subsequent analyses. These data cleaning procedures are standard practice in research to maintain the integrity of the findings.

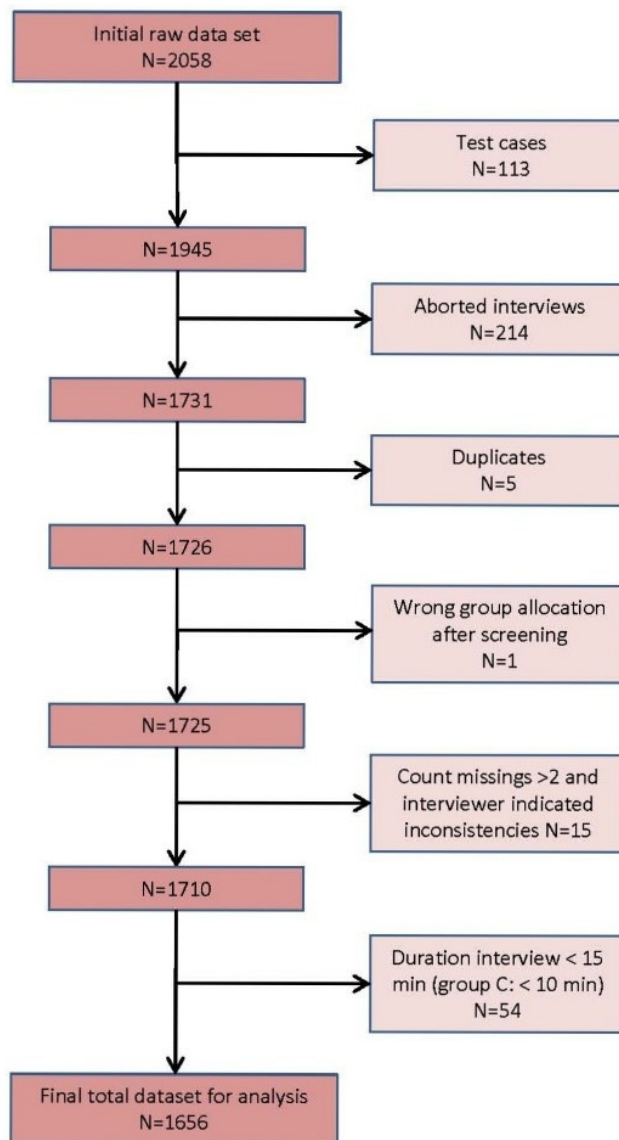


Figure 4: Flowchart data cleaning in module 2 (own results, source: Final Report, 2020)

The distribution of the total sample by sampling group and country is presented in Table 6. To account for variations in sample size across countries, row percentages were calculated to demonstrate the distribution of sampling groups within each country. Analysing the total percentages in the last row provides an overview of the overall distribution of the sampling groups.

Based on the analysis, the most effectively reached group was the current frequent-user group A_1, which comprised 30% of the total sample. The former frequent user group B_1 and the non-ATS-user group C each accounted for approximately one-fifth of the sample. In contrast, the former non-frequent-user group B_2 represented only 12% of the total sample, making it the most challenging group to reach.

This distribution reveals the varying representation of different ATS-user groups within the sample. It is important to consider these proportions when interpreting the findings and generalizing the results to the larger population. The inclusion of a substantial number of current frequent users provides valuable insights into this specific group. However, the smaller representation of the former non-frequent users may warrant further investigation to ensure a comprehensive understanding of ATS use patterns.

Acknowledging the distribution of sampling groups within the sample enhances the interpretation of the findings and allows for a more nuanced understanding of ATS use trajectories.

Table 6: The total sample of the quantitative study arm by sampling groups and countries (own results, source: Final Report, 2020)

	current frequent user		current non-frequent user		former frequent user		former non-frequent user		exposed non-user		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
CZ	74	37.2	32	16.1	21	10.6	17	8.5	55	27.6	199	100.0
GER	146	32.7	89	19.9	67	15.0	57	12.8	88	19.7	447	100.0
UK	84	22.4	59	15.7	114	30.4	41	10.9	77	20.5	375	100.0
NL	62	24.9	44	17.7	50	20.1	45	18.1	48	19.3	249	100.0
PL	127	32.9	74	19.2	74	19.2	32	8.3	79	20.5	386	100.0
Total	493	29.8	298	18.0	326	19.7	192	11.6	347	21.0	1656	100.0

The initial screening was carried out to achieve a sample that reflected the diverse patterns of amphetamine-type stimulant (ATS) usage, and to assess additional eligibility criteria. Prospective participants primarily engaged in self-administered online screenings. In the subsequent in-depth interviews, screening questions were reiterated to enable the collection of more nuanced information concerning the frequency and specific instances of ATS use. When juxtaposing the screening data with the interview data, inconsistencies

surfaced in some instances. Given the higher degree of validity assigned to interview data, these were utilized to evaluate the recency and regularity of each participant's ATS consumption.

Addressing the research query regarding trajectories of amphetamine usage necessitated the formation of analytical groups distinct from the original sample subsets. These analytical categories were formulated with several factors in mind. Foremost, each participant's ATS usage trajectory was defined by their ATS usage status within the year preceding the interview. Concurrently, the mean ATS consumption over each participant's history of ATS use was taken into account. This span, termed as the "ATS use career" encapsulated the timeframe from the participant's first encounter with ATS up to the latest instance of its use. This chronology is comprehensive, covering periods of active usage, potential reductions, cessation, and any variations in consumption patterns over time. In order to derive an estimate of the mean consumption frequency the total sum of days wherein ATS was used throughout a participant's lifetime was calculated. This cumulative figure was then divided by the overall number of years in the participant's ATS use career. This operation yielded an average yearly frequency of ATS consumption for each participant. It is noteworthy that this methodology could possibly factor in years of abstinence into the ATS use career duration. However, upon considering alternative methods, it was determined that this approach offered the closest approximation to a participant's mean consumption frequency. This decision was driven by the objective of capturing a thorough and accurate portrayal of a participant's interaction with ATS throughout their lifetime, as opposed to focusing solely on periods of active consumption.

Another crucial aspect considered was the identification of individuals demonstrating particularly severe ATS usage patterns. The Severity of Dependence Scale (SDS) was employed to gauge the severity or dependency of ATS usage. Participants displaying past or current dependent ATS usage were aggregated into an additional 'SDS group,' irrespective of their consumption patterns across their ATS use career (the SDS group was constituted by frequent users in over 95% of cases). By focusing on heavier and/or more problematic users, group assignments were adjusted based on the past year's usage if it exceeded the average usage over their career.

Taking the above factors into account, the study subjects were segregated into five distinct analytical clusters: (1) 'Never Used,' (2) 'Rarely Used' signifying an average ATS usage ranging between 1-5 days per year, (3) 'Moderately Used' denoting an average ATS usage within the window of 6-20 days per year, (4) 'Frequently Used' implying an average ATS usage of 21-365 days per year, and (5) 'SDS Positive,' which corresponds to those obtaining an SDS score for ATS equal to or surpassing four. A pivotal distinction to remember is that the 'Never Used' cluster pertains exclusively to individuals who have not partaken in ATS

consumption, albeit their potential engagement with other psychoactive substances such as cannabis or alcohol. All subsequent analyses were conducted incorporating these newly defined analytical subgroups.

The revamped classification of consumption clusters informs the distribution of the entire sample set as depicted in Table 7, organized by country. The most substantial analytical cluster is the SDS group, which comprises nearly 30% of the total sample. Following this is the 'Never Used' group accounting for 21% of the sample. The remaining three clusters - 'Rarely Used,' 'Moderately Used,' and 'Frequently Used' - display comparable representation within the sample, each embodying 16% to 18% of the sample's total makeup.

This refined understanding of consumption habits, classified into identifiable clusters, aids in a more granular analysis of the study's findings, ensuring a more nuanced perspective on ATS use trends and patterns.

Distinct differences in consumption patterns based on country demographics are evident from the data. For instance, the UK displays the smallest percentage of 'Rare Users,' accounting for a mere 9% of the sample, while simultaneously hosting the largest proportion of 'SDS Positive' respondents at a striking 40%. In contrast, the Czech Republic presents a unique picture where the 'Moderate Users' group forms the smallest fraction of the sample at just 6%, whereas the 'Never Used' and 'SDS Positive' groups emerge as the most widespread categories within the sample. Interestingly, the distribution among the analytical groups in the German and Dutch samples appears to be relatively well-balanced, highlighting a degree of uniformity in consumption patterns.

Table 7: The total sample of the quantitative study arm by user groups for the analysis and countries (own results, source: Final Report, 2020)

	never used		rarely		moderately		frequently		SDS positive		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
CZ	55	27.6	38	19.1	12	6.0	37	18.6	57	28.6	199	100.0
GER	88	19.7	81	18.1	97	21.7	85	19.0	96	21.5	447	100.0
UK	77	20.5	32	8.5	39	10.4	77	20.5	150	40.0	375	100.0
NL	48	19.3	51	20.5	58	23.3	48	19.3	44	17.7	249	100.0
PL	79	20.5	57	14.8	73	18.9	51	13.2	126	32.6	386	100.0
Total	347	21.0	259	15.6	279	16.8	298	18.0	473	28.6	1656	100.0

4.2.1 The study population

Upon analysing the gender distribution within the sample, it surfaces that there is a fairly balanced distribution, albeit with slight variations noted across different ATS usage groups. Of particular note, the 'Frequent Users' and 'SDS Positive' groups predominantly comprise

males, representing approximately two-thirds of these groups. In contrast, the 'Non-Using' group shows a greater representation of females. In a move toward recognizing gender diversity, an additional category labelled 'Other' was included, which represented about 0.5% of the total respondents.

The sample's age profile reveals an average age of 31.4 years, which however varies slightly among different usage groups. Specifically, the 'Moderate Users' group is found to be younger, averaging at around 28.6 years, while the 'SDS Positive' group exhibits a somewhat older demographic. The age range within the sample is broad, spanning from 18 to an upper age limit of 77 years. This age diversity underscores the wide-ranging appeal of ATS across various age groups.

Upon examining the social and living conditions of the respondents, it becomes apparent that half of the overall sample is involved in a romantic relationship. This is most common among the 'Non-Users', with 61.7% of this group in a relationship, and decreases with increasing consumption intensity, as highlighted by the smaller percentage of the 'SDS Positive' group involved in a relationship, standing at 39.4%.

Interestingly, despite a lower proportion being involved in romantic relationships, the 'SDS Positive' group reported the highest instances of parenthood at 42.5%. This may be attributed to an age effect, as this group also represents the oldest cohort in the sample. Contrastingly, the 'Moderate Users' group, which is the youngest demographic within the sample, has the lowest rate of parental status, with just 20.1% reporting having children.

Concerning living conditions, a substantial majority (84.9%) live in stable accommodations. However, individuals with precarious living conditions were significantly associated with the SDS group (32.3%).

The sample's self-perceived social integration, assessed on a 1-10 scale, averaged a reasonably high 6.6, though it showed a negative correlation with ATS usage—greater usage was linked to lower perceived integration.

An additional social index used in the survey requested respondents to rank their social position on a 1-10 scale, with the mean for the total sample being 6.0. The pattern observed mirrored that of the social integration index, although less pronounced.

When considering educational attainment, the International Standard Classification of Education (ISCED) levels were utilized, as referenced in the Methodology section. The nine levels provided by the ISCED were further simplified into three broader categories for a more streamlined analysis. Nearly half (48.6%) of the sample falls within the middle category, with a third holding a university degree. Significant group disparities are evident; over half of the rare-user group possess a university degree, but this proportion decreases

with increased ATS usage throughout the career, with only 14.4% of the SDS group indicating a bachelor's degree or higher.

As expected, educational attainment correlates with income and employment status, reflected in the ATTUNE dataset. Over half of the SDS group selected the lowest income category, and this group also had the highest unemployment rate (60.9%). In contrast, unemployment rates among non-users to moderate-users ranged from around 16% to 20%.

These social and educational indicators may contribute to life satisfaction. The non-user through to moderate-user groups showed satisfaction rates between 75% and 82%, dropping to approximately two-thirds in the frequent-user group and under half in the SDS group. However, it should be emphasized that overall life satisfaction among ATS users in the total sample is relatively high, with roughly two-thirds expressing satisfaction with their life.

Table 8: The user groups by socio-demographic characteristics (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Gender, % ***						
female	60.5	45.6	41.9	32.9	35.3	42.9
male	38.9	54.1	57.3	67.1	64.1	56.6
other/ preferred not to indicate	0.6	0.4	0.7	0.0	0.6	0.5
Age, mean (SD) ***	31.4 (10.4)	31.7 (8.8)	28.6 (7.9)	31.5 (9.6)	32.8 (9.3)	31.4 (9.4)
Currently in relationship, % ***	61.7	58.3	52.0	47.0	39.5	50.5
Having children, % ***	27.7	27.4	20.1	30.9	42.5	31.2
Current living situation, % ***						
stable	95.4	93.8	93.2	84.6	67.7	84.9
precarious	4.6	6.2	6.8	15.4	32.3	15.1
Highest completed educational status, % ***						
below upper secondary	4.9	10.0	7.9	24.2	35.5	18.4
upper secondary through short-cycle tertiary	48.7	38.6	47.7	55.4	50.1	48.6
bachelor through doctoral	46.4	51.4	44.4	20.5	14.4	33.0
Low income, % ***	25.6	23.6	40.1	36.9	51.2	37.1
Currently unemployed, % ***	15.9	17.8	20.4	39.6	60.9	34.1
Social integration index, mean (SD) ***	7.2 (2.0)	7.1 (2.1)	6.9 (2.2)	6.7 (2.4)	5.6 (2.5)	6.6 (2.4)
Social position index, mean (SD) ***	6.4 (1.7)	6.4 (1.8)	6.3 (1.9)	6.0 (2.1)	5.2 (2.3)	6.0 (2.1)
(Rather) satisfied with life in general, % ***	76.9	74.9	82.1	63.8	44.8	65.9

*Level of significance for Chi²-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001*

4.2.2 Life events

To better understand the role that significant biographical stressors may play in shaping the trajectories of ATS consumption, respondents were asked to provide details about their

experiences with a range of adverse life events. Where applicable, they were also asked to specify the age at which these events first occurred. The aim of this line of questioning was to understand the temporal relationship between these stressors and the initiation of ATS use. Therefore, the timing of these negative life events was categorized in relation to the respondent's initial encounter with ATS, as either 'prior to', 'concurrent with', or 'subsequent to' their first usage or exposure to ATS. This method of data collection and categorization offers a nuanced perspective on the potential influence of individual life stressors on ATS usage patterns.

An inclusive summary of the adverse life events encountered by the study participants is provided in Table 9. The event that was most frequently reported by participants as having a significant impact on their lives was the 'death of a close acquaintance,' which was experienced by 58.5% of the total sample. Following closely behind was 'physical assault,' which had been experienced by 40.7% of the participants. The third most commonly reported significant life event was 'separation from a long-term partner or divorce,' which had occurred in the lives of 35.9% of those surveyed. Additionally, almost one-third of participants reported having been through a 'serious illness of a parent' or a 'serious accident.'

Other notable life events, which were experienced by 15% to 25% of respondents, include unexpected occurrences such as sudden 'job loss,' the 'experience of substance dependency in a parent while cohabitating,' instances of 'homelessness,' 'forced departure from parents' home,' a 'life-threatening illness,' and periods of 'incarceration'.

In this study, it was found that sexual assault, both before and after turning 16 years old, was reported by 11% and 12% of participants, respectively. Additionally, fewer than 10% of respondents indicated they had experienced causing 'serious injury, harm, or death to someone else' or had suffered 'the death of a parent during their childhood.' Only a small segment of participants, approximately 9%, stated that they had not experienced any significant negative life events. On an average basis, each participant reported having experienced around four adverse life events, with this number displaying an increase corresponding to a higher frequency of ATS use throughout their lifetime.

An examination of the differences among the analytical groups at the individual event level revealed notable statistical discrepancies concerning many of the events across the ATS-use career groups. For instance, upon comparing the group of rare users to the SDS-positive group, it was found that the latter group reported experiencing events like 'physical assault' and 'unexpected job loss' at rates 15 to 20 percentage points higher. Similarly, the occurrence of 'living with a substance-dependent parent' was reported by the SDS-positive group at a rate 15 percentage points higher than the rare-user group. For events such as

'homelessness,' being 'expelled from the parental home,' 'incarceration,' and 'growing up in public institutions,' the SDS-positive group reported a rate that was four times higher than that of the rare-user group.

Participants were also given the opportunity to rate the level of 'love and care received during childhood' on a scale ranging from 1 (not at all) to 10 (completely). The mean score for the entire sample came out to be 7.0. The average score depicting experiences of love and care during childhood across the groups showed a decrease correlating with an increase in the frequency of ATS usage.

Table 9: Negative life events experienced (multiple response) and index of love and care in childhood by ATS user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Experience of negative life events (multiple response), %						
death of someone close ^{n.s.}	58.5	54.8	54.8	58.4	62.7	58.5
physical assault***	33.1	36.7	28.7	43.2	54.0	40.7
separation from long term partner/divorce***	33.4	30.1	29.7	38.5	43.0	35.9
parents' serious illness ^{n.s.}	33.4	29.0	26.2	31.8	32.8	31.0
serious accident**	27.4	22.4	24.7	28.7	35.2	28.6
unwanted job loss***	19.9	20.8	12.9	24.7	38.8	25.1
parent's substance dependency while living together with***	16.7	15.8	15.4	26.7	31.4	22.3
other very stressful event ^{n.s.}	22.8	20.5	24.7	19.3	17.4	20.6
having become homeless***	5.5	8.9	7.9	25.3	40.0	19.8
being kicked out from parent's home***	6.9	9.7	12.2	22.0	33.9	18.6
life-threatening illness***	15.3	11.6	14.3	19.3	24.4	17.8
Imprisonment***	2.3	6.6	4.7	18.2	29.9	14.1
sexual assault after age of 16**	6.9	11.2	10.8	10.8	15.9	11.5
sexual assault before age of 16***	7.8	10.4	5.7	9.5	16.1	10.5
serious injury, harm, or death caused to someone else***	5.2	5.0	5.7	9.5	17.8	9.6
death of a parent in childhood**	6.1	4.2	5.0	9.8	10.2	7.4
growing up in public institution***	4.3	3.5	2.9	8.4	12.7	7.1
no stressful life event specified**	11.0	10.8	13.3	7.4	5.1	9.0
Count of negative life events dimensions affected, mean (SD)***	3.2 (2.4)	3.2 (2.3)	3.0 (2.3)	4.1 (2.7)	5.3 (3.0)	4.0 (2.8)
Experience of love and care in childhood (1-10), mean (SD) ***	7.6 (2.3)	7.4 (2.3)	7.4 (2.4)	6.8 (2.7)	6.1 (3.0)	7.0 (2.6)

*Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001, n.s. =not significant*

Additional biographical stressors considered were criminal convictions and experiences of incarceration. These results are illustrated in Table 10. Approximately 71% of the participants reported having never been convicted, thus inferring that nearly 30% have had encounters with the legal system related to offenses. About 16% of the sample has experienced incarceration at some point in their lives.

The distribution of these aspects, convictions and incarceration, varies across the ATS-career groups. All group differences, save for instances of sexual assault, are statistically significant. Two principal differences were identified: the first pertains to the frequent users (both groups) relative to those who have never used or are moderate users of ATS. The frequent-use groups exhibit a higher prevalence of convictions for offenses and instances of incarceration. The second distinction is observed within the frequent-use groups, where the SDS-positive group displays even higher rates of convictions compared to the frequent-user group without SDS, a trend also mirrored in instances of incarceration.

In a detailed examination of specific offenses, the previously identified pattern surfaced again across the ATS-use career groups. For example, around one in every ten individuals in the total sample had been convicted for 'possession of illicit drugs.' This rate was significantly higher in the SDS-positive group, which saw an incidence of this offense that was twenty times higher than that of the group of rare users. This suggests a distinct correlation between increased frequency of ATS use and likelihood of legal issues, especially related to drug possession. It underscores the potential legal implications tied to escalated use of ATS and reiterates the importance of understanding and addressing this issue within the broader context of societal consequences.

Table 10: Delinquency by ATS user groups (own results, source: Final Report, 2020)

	never used	rarely	mode rarely	frequ ently	SDS positive	total
Convictions for offenses, %						
shoplifting***	1.2	3.5	5.7	13.4	23.7	10.9
other offense***	3.2	7.3	7.2	12.1	18.0	10.3
possession of illicit drugs***	0.9	4.2	5.0	14.1	19.9	9.9
physical violence/affray***	3.8	2.7	5.7	11.4	19.0	9.7
thefts (of property or from person) ***	0.9	3.1	2.5	11.1	17.8	8.2
robbery***	0.3	0.8	2.2	5.7	12.1	5.0
selling or distributing drugs***	0.6	2.3	1.4	5.4	9.1	4.3
fraud, forgery***	0.3	0.8	0.7	4.0	7.2	3.1
sexual assault / sexual violence ^{n.s}	0.0	0.0	0.0	0.3	0.6	0.2
never convicted***	91.6	85.3	79.9	62.4	46.7	70.6
Imprisonment lifetime, %***	2.6	8.1	6.8	19.5	31.7	15.5

*Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001, n.s. =not significant*

4.2.3 Mental & physical health and personality traits

In the following findings, the focus shifts to health-related concerns and specific psychological factors that are pivotal in comprehending an individual's personality. As part of the assessment, participants were instructed to self-evaluate their physical and mental health status on a scale of 1 (indicating poor health) to 10 (indicating excellent health). On average, participants self-rated their physical health at 7.1 and their mental health at 6.7, indicating a moderately positive assessment overall.

However, an analysis of the self-reported physical health status revealed only minimal variations across the different ATS-use career groups, with one notable exception. The SDS-positive group, those with a score of four or higher on the Severity of Dependence Scale, demonstrated a significantly lower self-assessment of their physical health. This difference was statistically significant and suggested a more adverse physical health impact for this group of respondents.

When examining self-reported mental health status, significant disparities emerged across the ATS-career groups. The SDS-positive group, in particular, rated their mental health considerably lower than the average across the total sample. This finding further underlines the gravity of the mental health implications associated with more severe and frequent ATS usage, reinforcing the need for comprehensive mental health support in interventions targeting such populations.

A more nuanced understanding of the sample's mental health was provided through the exploration of "lifetime diagnosed mental health problems". Approximately 52.8% of the sample reported no diagnosed mental health problems, with a minimum of life time mental health diagnosis among the rarely users and a maximum among the SDS positive users.

In examining the prevalence of diagnosed mental health conditions among the participants, depression emerged as the most commonly reported ailment, impacting 36.0% of the respondents. This highlights the substantial overlap between SUDs and mood disorders.

Further analysis aimed at distinguishing differences among the various ATS-career groups revealed that the frequency of self-reported mental health diagnoses varied substantially. It was observed that the frequent user groups—those classified as frequent users and those who tested positive on the Severity of Dependence Scale (SDS)—reported notably higher rates of various diagnosed mental health problems. This difference was statistically significant, reinforcing the strong correlation between frequent or severe ATS use and the prevalence of mental health conditions.

Interestingly, certain diagnoses, specifically Attention Deficit Hyperactivity Disorder (ADHD) and eating disorders, exhibited a greater prevalence among the moderate user group as opposed to the rare and never user groups.

Table 11: Self-assessed physical and mental health, diagnosed mental health problems by ATS user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Self-assessed health condition, mean (SD)						
physical health condition (1-10) ^{***}	7.5 (1.7)	7.3 (1.7)	7.3 (1.7)	7.1 (1.8)	6.5 (2.1)	7.1 (1.9)
mental health condition (1-10) ^{***}	7.2 (2.0)	7.3 (1.8)	7.2 (1.9)	6.8 (2.2)	5.7 (2.3)	6.7 (2.2)
Diagnosed mental health problems lifetime (multiple response), % (N=781)						
depression ^{***}	32.3	27.5	29.0	34.7	48.3	36.0
other disorder ^{n.s}	8.9	8.9	5.7	9.8	11.0	9.1
psychosis ^{***}	2.9	2.7	3.9	6.1	20.1	8.5
ADHD ^{**}	4.3	4.7	9.0	8.4	11.2	7.9
eating disorder ^{n.s}	6.3	5.8	7.5	6.7	10.6	7.7
borderline ^{***}	2.6	4.7	5.0	6.7	12.5	6.9
obsessive-compulsive disorder ^{**}	4.0	3.9	2.5	4.0	8.5	5.0
no diagnosed mental health problem ^{***}	59.7	64.0	63.1	54.5	34.3	52.8

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$, n.s. =not significant

The mental well-being of the participants was more extensively evaluated utilizing the Brief Symptom Inventory (BSI). This established instrument for measuring psychological distress evaluates three core symptoms, specifically somatization, depression, and anxiety. The decision to resort to German norms in the calculation of T-values was a pragmatic one, rooted in the unavailability of alternate norms.

The BSI enables the generation of a Global Severity Index (GSI), a comprehensive measure encompassing all symptom dimensions. For the sample, the average scores for the three dimensions of somatization, depression, and anxiety were determined to be 53.5, 56.3, and 58.1 respectively, with the GSI score averaging at 57.1. These values suggest a moderate level of psychological distress overall.

A more granular examination of these metrics across the delineated ATS-career groups revealed a noticeable upward trend in scores correlating with increased frequency of ATS use. Specifically, the frequently using group and notably the SDS-positive group exhibited significantly higher scores across all three BSI dimensions and consequently on the GSI. These elevated scores represent an enhanced degree of psychological distress, underscoring the mental health implications of frequent and severe ATS use.

Further into the exploration, it was found that the SDS-positive group reported experiencing a broader range of symptoms (an average of 9.4 distinct symptoms, as per the Positive Symptom Total or PST), and these symptoms were associated with a higher average level of distress (1.9 on a scale of 0 to 4). This indicates not only a higher symptom load but also a more intense experience of distress, underlining the significant mental health burden associated with severe ATS use.

Table 12: The Brief Symptom Inventory and its subscales by ATS user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Brief Symptom Inventory, mean (SD)						
Somatization (t-values : 38-80) ***	51.9 (10.8)	51.1 (9.9)	50.7 (9.7)	53.5 (11.0)	57.8 (11.6)	53.5 (11.1)
Depression (t-values : 38-80) ***	54.4 (9.8)	54.0 (9.5)	54.0 (9.8)	55.5 (11.2)	60.9 (9.8)	56.3 (10.4)
Anxiety (t-values : 37-80) ***	56.8 (10.7)	54.6 (11.6)	54.8 (11.4)	57.4 (12.0)	63.4 (11.1)	58.1 (11.8)
Total (Global Severity Index; t-values : 30-80) ***	55.3 (10.2)	54.0 (10.1)	54.1 (10.3)	56.5 (11.3)	62.3 (10.0)	57.1 (10.9)
Positive Symptom Total (PST, number of symptoms; 0-18) ***	6.6 (4.6)	5.5 (4.1)	5.8 (4.2)	6.7 (4.9)	9.4 (5.0)	7.1 (4.9)
Positive Symptom Distress Index (average level of distress; 0-4) ***	1.5 (0.7)	1.4 (0.7)	1.4 (0.7)	1.6 (0.8)	1.9 (0.8)	1.6 (0.8)

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$, n.s. = not significant

The study utilized the BFI-10 measurement instrument to evaluate the Big Five personality traits, namely extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness.

Extraversion as a personality trait refers to a person's inclination to be outgoing and sociable, as opposed to being reserved or introverted. In this sample, the average score for extraversion was established at 3.4. Interestingly, no noteworthy differences were detected across the various ATS-career groups in terms of this trait.

Neuroticism, on the other hand, refers to the tendency to experience negative emotions such as anxiety, depression, or anger. It distinguishes between individuals who are generally secure and confident and those who tend to be more sensitive and nervous. The mean score for neuroticism in the sample was 3.0. A significant observation here was that individuals in the SDS-positive group had a considerably higher score, suggesting a heightened likelihood of experiencing emotional distress.

The trait of openness to experience encompasses an appreciation for a wide range of experiences, including art, emotion, adventure, and curiosity. The mean score for this trait across the sample was 3.6, with no substantial differences detected among the various ATS-career groups.

Conscientiousness, which denotes a predisposition towards self-discipline and goal-oriented behaviour, had a mean score of 3.4 across the sample. It is worth noting that individuals who have never used ATS tended to score higher on conscientiousness, suggesting a greater tendency towards organization and efficiency.

Agreeableness, reflecting the extent to which individuals value social harmony, had a mean score of 3.4 across the entire sample. Again, no significant differences were identified among the various ATS-career groups for this trait.

Beyond these core personality traits, the study also explored additional personality dimensions using other metrics, including the Brief Sensation Seeking Scale (with an average score of 3.4), the General Self-Efficacy Scale (average score of 3.0), and the Connor-Davidson Resilience Scale (average score of 26.2). In these explorations, meaningful differences were found among the groups.

On the Brief Sensation Seeking Scale, a less pronounced tendency for seeking thrilling experiences was detected among individuals who have never used ATS, marking the only statistically significant difference identified on this scale.

In terms of the General Self-Efficacy Scale, a weaker sense of self-efficacy was evident among the SDS-positive group.

And on the Connor-Davidson Resilience Scale, the SDS-positive group reported a lower resilience score, while the frequent user group reported a higher score. These disparities in resilience scores among the ATS-career groups were found to be statistically significant.

Table 13: Personality traits by ATS user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Big Five personality traits (1-5), mean (SD)						
Extraversion (solitary/reserved vs. outgoing/energetic) ^{n.s.}	3.3 (0.9)	3.4 (0.9)	3.5 (1.0)	3.5 (1.0)	3.4 (1.1)	3.4 (1.0)
Neuroticism (secure/confident vs. sensitive/nervous) ***	3.1 (1.1)	2.9 (1.0)	2.9 (1.0)	2.8 (1.1)	3.3 (1.0)	3.0 (1.0)
Openness to experience (consistent/cautious vs. inventive/curious) ^{n.s.}	3.6 (1.0)	3.7 (1.0)	3.7 (0.9)	3.7 (1.0)	3.6 (1.0)	3.6 (1.0)
Conscientiousness (easy-going/careless vs. efficient/organized) ***	3.7 (0.9)	3.4 (0.9)	3.3 (0.9)	3.4 (0.9)	3.4 (1.0)	3.4 (0.9)
Agreeableness (challenging/detached vs. friendly/compassionate) ^{n.s.}	3.4 (0.9)	3.3 (0.8)	3.4 (0.8)	3.3 (0.9)	3.4 (0.9)	3.4 (0.9)
Personality characteristics, mean (SD)						
Brief Sensation Seeking Scale (1-5) ***	3.1 (0.9)	3.5 (0.9)	3.6 (0.9)	3.6 (0.9)	3.5 (1.1)	3.4 (1.0)
General Self-Efficacy Scale (1-4) ***	3.0 (0.5)	3.0 (0.5)	3.0 (0.5)	3.1 (0.5)	2.8 (0.6)	3.0 (0.5)
	N=88	N=81	N=97	N=95	N=96	N=447
Connor-Davidson Resilience Scale (0-40) ***	25.8 (7.2)	27.1 (5.7)	26.0 (6.8)	28.5 (5.3)	23.8 (7.4)	26.2 (6.7)

*Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001, n.s. =not significant
Note: The Connor-Davidson Resilience Scale was only applied to the German sample*

4.2.4 Substance use characteristics

The results presented in Table 14 provide an overview of the use of different ATS in terms of lifetime use (LT), last year's use (LY), and last month's use (LM). Variations in the prevalence ATS consumption are observed across different user groups as analysed in this study.

Considering the lifetime use, amphetamine and MDMA emerged as the most widely consumed ATS substances, with approximately 90% of the total ATS sample acknowledging their usage. These two substances seem to dominate the ATS use scene, marking their high popularity among users. In addition, the use of amphetamine-simulating New Psychoactive Substances (NPS) was reported by 42.2% of the sample, indicating a significant portion of ATS users have explored these substances.

In comparison, the non-prescribed use of ATS medication and methamphetamine were less common, being reported by slightly over one-fourth of the total sample. This could suggest that these substances may be seen as more dangerous or less desirable among ATS users, or it might be related to their accessibility.

It's interesting to note that the differences in lifetime prevalence rates weren't largely noticeable across the different user groups, with a few exceptions. The group of users who reported rarely using ATS had consistently lower rates of lifetime prevalence in comparison to the other groups. This could be indicative of their more infrequent encounters with these substances or their less explorative nature in terms of substance use.

On the other hand, the use of methamphetamine and non-prescribed ATS medication appeared to be more common among the moderate and frequent user groups. This could possibly be attributed to the fact that these substances may be used as alternatives or supplements to traditional ATS substances by these more regular users, or it might indicate a tendency for more risky or experimental behaviour within these groups.

Upon investigating the usage patterns of ATS from the last year, it is observed that the prevalence pattern largely mirrors the pattern observed in lifetime usage data. However, the proportion of users consuming amphetamine and MDMA within the past year is approximately half of those who reported lifetime usage. For the other three ATS substances, the corresponding last year's usage represents just one-third of the lifetime use figures, suggesting a reduction in consumption over time.

The allocation of last year's amphetamine use across the analysis groups was largely consistent with the distribution observed in lifetime use, implying that the users' preferences for this substance have remained steady over time.

However, in the case of MDMA, the highest rate of usage within the past year was discovered within the moderate user group, where 58% reported usage. Interestingly, the rates within the frequent-user and SDS-positive groups were noticeably lower by 14 and 23 percentage points, respectively, when compared to their reported lifetime usage. This finding may suggest a decreasing usage trend or an evolving preference among these groups.

Last year's methamphetamine use was reported by 20% of those in the SDS-positive group, highlighting a potentially higher propensity for its use among those exhibiting SDS positive behaviours. In contrast, the prevalence of methamphetamine use was significantly lower in the group of rarely used ATS, with only 2% reporting its usage in the past year. This trend may hint at a correlation between the severity of substance dependence and the propensity to consume methamphetamine.

In terms of last year's use of non-prescribed ATS medicine, it was found that the second-lowest prevalence rate was within the SDS-positive group (8%), while the highest prevalence rate was observed in the frequent-user group (16%). This contrasting pattern indicates the diverse consumption trends across different user groups, possibly reflecting their individual circumstances, needs, and preferences.

A closer look at the usage patterns within the most recent 30-day period prior to the survey reveals that nearly a quarter of the total participant pool reported active consumption of any Amphetamine-Type Stimulant (ATS). This observation is particularly striking within the frequent-user and the Substance Dependence Syndrome (SDS) groups, where 32% and 31% respectively reported current usage. In stark contrast, the rarely user group reported a significantly lower rate of recent ATS usage, with a mere 4% indicating use in the past 30 days. Amphetamine and MDMA continued to be popular choices among the users, underscoring their prevalence in the overall usage patterns. However, it's noteworthy that MDMA appeared to be consumed more frequently in the moderate and frequent-user groups as compared to the SDS-positive group. This may imply a difference in substance preferences between the regular users and those with a diagnosis of Substance Dependence Syndrome.

On the other hand, methamphetamine seemed to be more popular among the SDS-positive group. This finding is significant as it indicates a possible correlation between the severity of substance dependence and a higher propensity for methamphetamine usage, a trend that necessitates further examination for understanding the complex dynamics of ATS consumption behaviours.

The portion labelled "Types of ATS used lifetime" enumerates the five individual ATS substances that were most often reported by respondents as having been consumed at

least once in their lifetime. Among the sample set consisting of ATS users, a vast majority, approximately 88%, had tried more than just one type of ATS during their lifetime. For those who had experimented with multiple ATS, about 23% of the total sample indicated consumption of both amphetamine and MDMA, with only minor variances noticed among the different analysis groups.

The first consumption of any ATS was reported to occur on average around the age of 18.1 years. A slightly later initiation was reported by the rarely user group, where the average age was 19.1 years. On the contrary, the frequently user group reported a younger average age of onset, being 17.6 years. When examining the ages of onset for specific substances like amphetamine and MDMA, no significant differences were noted among the groups. However, it is noteworthy that the frequent-user and SDS-positive groups were relatively older when they first tried NPS, suggesting a later introduction of these substances into their drug use trajectories.

In the concluding segment of Table 14, one can observe an analysis of the duration of ATS use careers. This duration refers to the time period extending from the initial consumption of any ATS substance up until the most recent instance of usage. The composition of the sample was as intended, consisting of individuals with substantial ATS use experience, following the prerequisite of first use of ATS at least five years prior to the interview.

On average, the sample group reported an ATS use career lasting 10.7 years. This duration, however, varied among the different user groups. The rarely user group and the moderate-user group had relatively shorter ATS use careers, averaging around 7.9 years and 8.2 years respectively. Conversely, the frequent-user group and the group who once met the criteria for ATS dependency according to the Severity of Dependence Scale (SDS) had more extended careers, averaging 11.3 years and 13.2 years respectively.

Additionally, the average duration of current abstention from ATS was noted. Abstention here implies the ongoing period of non-use following the last reported use of ATS. Among all the user groups, the rarely user group exhibited the longest duration of current abstention from ATS use, maintaining a period of non-use for an average of 4.6 years. This metric highlights the transition away from ATS use for varying lengths of time across the different user groups.

Table 14: The user groups by ATS use characteristics (own results, source: Final Report, 2020)

		rarely	moderately	frequently	SDS positive	total
Prevalence ATS: lifetime, last year, last month						
Any ATS, %	LT	100.0	100.0	100.0	100.0	100.00
***	LY	32.0	70.6	63.1	68.3	60.4
***	LM	4.2	26.2	31.9	30.7	24.8
Amphetamine, % ***	LT	66.0	90.3	95.0	93.4	87.7
***	LY	11.2	54.8	51.0	53.1	44.7
***	LM	1.2	15.8	20.5	19.9	15.4
MDMA, % **	LT	84.9	92.1	89.9	84.8	87.5
***	LY	22.4	58.1	44.3	35.7	39.8
***	LM	1.5	12.9	13.4	9.5	9.5
Methamphetamine, % ***	LT	15.4	15.8	31.2	38.9	27.6
***	LY	1.9	4.3	13.1	20.3	11.6
***	LM	0.4	1.1	5.4	8.7	4.7
NPS, % ***	LT	21.6	46.6	46.3	48.2	42.2
***	LY	2.7	16.1	20.8	20.7	16.2
n.s.	LM	0.8	1.4	4.0	2.5	2.3
ATS medicine, % ***	LT	17.8	34.1	34.9	22.8	27.0
***	LY	3.1	10.0	15.8	7.6	9.1
*	LM	0.4	1.1	3.4	1.9	1.8
Types of ATS used lifetime (five most frequently indicated) ***						
Amphetamine, MDMA		25.5	26.9	18.8	21.1	22.7
Amphetamine, MDMA, NPS		8.9	17.2	17.1	17.5	15.7
Amphetamine, MDMA, NPS , ATS medicine		1.9	15.8	13.8	7.8	9.7
Amphetamine, MDMA, ATS medicine		6.6	12.9	11.1	6.3	8.9
Amphetamine, MDMA, Methamph., NPS		3.1	5.4	8.4	11.8	7.9
Age at first use of ATS						
Any ATS, mean (SD) ***		19.1 (4.8)	18.5 (4.4)	17.5 (4.2)	17.6 (4.5)	18.1 (4.5)
Amphetamine, mean (SD) , ***		20.0 (3.8)	20.0 (5.1)	18.2 (3.9)	18.2 (4.6)	18.9 (4.5)
MDMA, mean (SD) ***		20.8 (4.3)	20.0 (4.5)	18.9 (4.4)	18.6 (4.2)	19.4 (4.4)
Methamphetamine, mean (SD) n.s.		21.6 (6.5)	23.1 (8.4)	22.2 (8.3)	22.0 (7.5)	22.1 (7.7)
NPS, mean (SD) **		22.7 (4.8)	21.0 (5.5)	22.8 (7.1)	24.4 (8.2)	23.0 (7.2)
ATS medicine, mean (SD) n.s.		19.9 (8.9)	20.4 (5.7)	20.7 (6.0)	22.2 (6.9)	21.0 (6.7)
Duration ATS use career (years)						
Duration of ATS use, mean (SD) ***		7.9 (6.5)	8.2 (6.4)	11.3 (8.0)	13.2 (8.2)	10.7 (7.8)
Duration of current ATS abstinence						
Years after last ATS use, mean (SD) ***		4.6 (6.2)	1.9 (4.9)	2.7 (5.8)	2.0 (4.7)	2.6 (5.4)

Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001, n.s. =not significant

This study expanded its scope beyond ATS to incorporate the exploration of use patterns related to other illicit substances and alcohol, with each ATS career group serving as the basis for comparison. These patterns are comprehensively outlined in Table 15.

Cannabis usage was prevalent amongst the sample population, with close to 90% acknowledging at least one instance of usage during their lifetime. The past year witnessed cannabis consumption by approximately two-thirds of the sample, while a little over a third (38%) reported usage in the month preceding the interview. There were no discernible differences in the cannabis consumption patterns among the different ATS career groups that had experienced ATS consumption (ranging from rarely to frequently, inclusive of the SDS-positive group). However, the group that had never consumed ATS in their lifetime exhibited lower rates of cannabis consumption. About three-thirds of this group admitted to lifetime usage of cannabis, one-third had used it in the past year, and 15% were current users. The narrative shifts when examining cocaine use. Nearly two-thirds of the total sample admitted to lifetime usage of cocaine, approximately one-third had used it in the past year, and one-tenth had used it in the month leading up to the interview. Patterns of cocaine usage differed among the ATS career groups. The groups with frequent usage (both frequently and SDS-positive) shared a similar, but more intense, pattern of cocaine consumption compared to the remainder of the sample. Notably, the moderate-user group also exhibited significant cocaine consumption, with half of the group admitting to cocaine use in the past year. The rarely used group reported a prevalence of cocaine use that was only half that of the moderate-user group. Only a small fraction (12%) of the group with no lifetime experience of ATS admitted to having experience with cocaine.

More than half of the total sample admitted to lifetime consumption of hallucinogens, although the figure drops to less than a fifth for usage in the past year. This pattern was mirrored across the ATS career groups, with the exception of the group with no history of ATS use. Interestingly, the group with frequent ATS usage had the highest reported lifetime consumption of hallucinogens, at 75%. The SDS-positive group reported a significantly lower rate of hallucinogen usage in the past year (18%), in contrast to the higher rates reported by both the moderate and frequent ATS user groups.

Approximately a third of the total sample reported lifetime consumption of non-prescribed tranquilizers, with about half of these respondents admitting to use in the past year, and 6% acknowledging use in the month before the interview. Tranquilizers emerged as particularly relevant substances for the group with frequent ATS usage, with close to half of this group reporting lifetime use and a quarter acknowledging use in the past year. As one might anticipate, the consumption of tranquilizers was less significant within the moderate ATS user group, with just 20% reporting lifetime usage.

The patterns of non-prescribed opioid use were found to mirror those of tranquilizer use, albeit at lower levels. Nearly one-fourth of the total sample reported consuming these substances at least once in their lifetime, while around one-tenth admitted to using them in the past year. With respect to the different ATS career groups, opioids held greater

significance for the groups of frequent ATS users and those who were SDS-positive. Approximately one-fifth of these groups reported using opioids in the past year, with about one-tenth acknowledging usage in the month preceding the interview.

When it comes to the first instance of drug use, cannabis emerged as the substance with the earliest mean age of initiation (16.2 years). This was followed by hallucinogens, which were typically first tried at around 19.8 years. The initiation into the use of cocaine, non-prescribed tranquilizers, and opioids tended to occur approximately two years later. Upon examining the ATS career groups, there appeared to be a slight trend towards an earlier initiation into drug use across all substances in those groups characterized by higher frequency of ATS consumption throughout their ATS careers. On the contrary, the group with no history of ATS use tended to have a higher age of initiation, particularly with respect to cocaine and non-prescribed opioids.

In terms of tobacco smoking, approximately 90% of the total sample reported at least one instance of lifetime usage, which dropped to 76% when considering only the group with no history of ATS use. Almost the entire sample (98%) reported lifetime alcohol consumption, with little variation among the different groups.

Table 15: Use of non-ATS substances by the user groups (own results, source: Final Report, 2020)

		never used	rarely	mode rately	frequ ently	SDS positive	total
Prevalence ATS: lifetime, last year, last month							
Cannabis, % ***	LT	74.9	96.9	96.8	98.7	95.1	92.1
***	LY	35.7	63.3	78.5	73.5	67.2	63.0
***	LM	15.3	40.5	48.4	51.3	37.4	37.6
Cocaine, % ***	LT	12.1	61.0	74.2	85.6	81.6	63.3
***	LY	3.7	25.9	50.2	53.4	46.3	36.1
***	LM	0.6	5.4	12.9	17.4	18.4	11.5
Hallucinogens , % ***	LT	11.2	61.0	62.4	74.8	65.5	54.6
***	LY	4.0	15.8	30.8	30.9	17.5	19.1
***	LM	0.9	3.9	6.5	6.7	2.5	3.8
Non-prescribed tranquiliser, % ***	LT	9.2	20.1	30.5	44.3	46.7	31.5
***	LY	3.5	5.8	15.8	24.8	24.9	15.9
***	LM	0.9	0.4	3.9	9.4	11.0	5.7
Non-prescribed opioids, % ***	LT	2.9	12.4	16.5	36.2	39.1	23.0
***	LY	1.4	2.7	6.8	18.5	21.4	11.3
***	LM	0.6	1.2	2.2	9.1	11.2	5.5
Age at first use of other drugs							
Cannabis, mean (SD) ***		17.6 (4.4)	16.6 (3.0)	16.2 (3.3)	15.3 (3.5)	15.7 (4.5)	16.2 (4.0)
Cocaine/Crack, mean (SD) ***		25.6 (8.2)	22.8 (3.9)	21.8 (4.5)	21.0 (5.2)	21.6 (6.2)	21.8 (5.5)
Hallucinogens, mean (SD) **		21.3 (6.4)	20.4 (4.0)	20.5 (3.7)	19.6 (4.3)	19.1 (4.5)	19.8 (4.4)
Non-prescribed tranquilizer, mean (SD) *		23.6 (6.3)	24.0 (6.2)	23.2 (6.7)	21.3 (5.6)	21.9 (7.0)	22.3 (6.5)
Non-prescribed opioids, mean (SD) ^{n.s.}		26.2 (7.5)	24.6 (7.5)	23.6 (7.3)	23.0 (6.5)	22.2 (6.5)	22.9 (6.7)

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$, n.s. =not significant

Evaluations of alcohol abuse and potential dependency were carried out using the CAGE questionnaire (lifetime) and AUDIT-C (past year). Notably, half of the total sample acknowledged lifetime alcohol abuse as indicated by the CAGE. This proportion significantly escalated to 60% among the SDS-positive individuals, whereas it was markedly lower, at 37%, in the group without a history of ATS use. Around 72% of the total sample scored positively on the AUDIT-C over the past year, indicating a propensity towards problematic alcohol use. This statistic was generally representative of all ATS career groups, excluding the moderate-use group, which displayed an increased frequency of positive results.

Opioid dependency was reported by 8% of the total sample, with these cases predominantly found within the frequent ATS user groups (frequent users and SDS-positive). The specific scores achieved on the Severity of Dependence Scale (SDS) are not presented in this table since the SDS diagnosis contributed to the group classification. However, a country-specific analysis of the ATS SDS diagnosis revealed the following distribution: United Kingdom: 40%, Poland: 33%, Czech Republic: 29%, Germany: 22%, and Netherlands: 18%.

Regarding the overall lifetime prevalence of injecting drug use, the figure stands at 14%. The SDS-positive group reported a considerably higher rate of nearly one-third (31%), while more than one-fifth (23%) of the frequent ATS user group acknowledged the same. Injecting drug use seemed to hold lesser relevance for the other groups. Nonetheless, when it comes to lifetime injecting ATS use, the overall rate is 4%, with the highest proportion found in the frequent ATS user group (7%).

In the total sample, one-third reported experiences with drug treatment at some point in their life. When considering the ATS user groups, two-thirds of those who had undergone treatment were from the SDS-positive group, followed by 42% from the frequent ATS user group. In contrast, in the group that reported never using ATS, less than one-tenth reported having been in treatment.

Table 16: Indicators of problematic substance use by user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
Misuse of alcohol and opioids						
CAGE: alcohol abuse lifetime, % ***	37.2	43.0	49.1	48.0	60.1	48.5
AUDIT_C positive LY (♂ >3, ♀ <2), % ***	69.9	72.8	81.2	70.9	67.8	71.8
Opioid dependency lifetime, % ***	1.4	1.9	1.8	11.4	16.7	7.7
Injecting drug use						
Injecting drug use lifetime, % ***	0.6	3.5	4.3	22.8	31.3	14.4
Injecting ATS use lifetime, % ***	0.6	2.3	2.5	7.1	6.1	3.9
Treatment						
Addiction treatment/counselling lifetime, % ***	8.8	12.4	17.3	41.9	66.3	33.2

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.2.5 ATS use trajectories and motives

This section presents an array of findings, delineating several facets that typify and illustrate each group's engagement with ATS. These dimensions encompass self-described ATS consumption trajectories, rationales for use, usage timing, self-imposed consumption boundaries, and the ATS usage patterns within their social networks.

Respondents were solicited to retrospectively typify their ATS use and the evolution of their consumption behaviours throughout their period of active ATS involvement. In the realm of self-described ATS usage patterns, respondents were prompted to identify the most prevalent pattern type.

Predominantly, a "recreational" characterization of ATS career emerged as the most salient typology (41% of respondents). This category, however, was least likely to be chosen by members of the SDS group. Approximately one-fifth of the total sample respectively characterized their usage as "situational", implying ATS use exclusively in particular contexts (such as partying, working, or engaging in sports), and "experimental", indicating a brief foray into ATS use, confined to a singular or limited number of instances, subsequently discontinued.

A noteworthy 25% of the sample revealed a pattern of "compulsive" ATS use, while one out of ten participants classified their consumption pattern as "intensive". Given the fact that the amount of ATS usage plays a central role in grouping respondents into different ATS career categories, these group distinctions may be somewhat attributable to the quantity of ATS consumed. It is essential to mention that all these discrepancies have reached a level of statistical significance.

Primarily, those groups identified by sporadic and moderate ATS use reported their patterns of usage as recreational, situational, or experimental. These groups infrequently fell into the categories of compulsive or intensive use. Upon examining the group defined by frequent ATS use, an interesting contrast emerges: while one-fifth of these individuals categorize their usage as compulsive or intensive, a more prominent pattern within this group's ATS career is characterized by recreational and socially contextualized, controlled usage, as reported by 52% of its members.

A distinct transition towards compulsive use (marked by extremely frequent or daily doses, or withdrawal symptoms) and intensive use (characterized by high doses or binge patterns) is apparent within the SDS-positive group. A significant percentage of this group's respondents, nearly 57%, described their consumption patterns in these terms. However, it's crucial to note that even within this group, over a fifth of respondents described their ATS usage history as predominantly recreational.

Table 17: Circumstances of ATS use by user groups (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
Self-labelled type of ATS use, % ***					
Recreational/social (controlled use in social setting)	39.4	61.3	52.3	21.8	40.6
Situational (use for specific reason)	13.9	18.3	18.8	17.1	17.1
Experimental (single or short-term use)	46.3	19.0	8.7	4.4	16.8
Compulsive (very frequent or daily doses/withdrawal)	0.4	0.0	8.1	37.2	15.4
Intensive (high doses/binge)	0.0	1.4	12.1	19.5	10.1

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

To gain a more holistic and personalized view of each participant's history with ATS, the study included a unique exercise in which individuals were encouraged to align the course of their own ATS use with one of six graphically depicted ATS consumption patterns. These visual representations were carefully designed to encapsulate an array of potential ATS use trajectories, from the most sporadic and infrequent use to a pattern of increasingly intensive and persistent consumption.

This innovative approach was intended to offer a visual element to the understanding of substance use behaviours, making it easier for participants to identify and communicate their personal experience. Instead of relying solely on verbal or written responses, the graphic illustrations were used to prompt deeper introspection and provide a more nuanced perspective on the individual's consumption pattern.

This task required respondents to evaluate each of the six visual diagrams and select the one that best mirrored their own pattern of ATS use throughout their history. By relating their personal experiences to these schematics, participants could more effectively communicate the intricacies of their consumption behaviours, providing a more precise, comprehensive, and nuanced representation of their personal ATS use history.


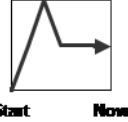
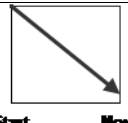
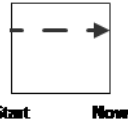
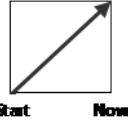
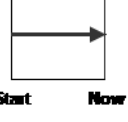
The "highly variable" pattern was chosen most frequently, being identified by approximately one-third of the overall sample. This was closely followed by a trajectory demonstrating an escalation to a peak level of consumption, which then reduced to a lower, more stable level, chosen by 17% of respondents.

Equally noteworthy were trajectories illustrating substantial ATS use in the early stages of consumption, with a gradual decline over time, and a trajectory of discontinuous use marked by substantial periods of abstinence.

The remaining two trajectories—one representing gradually escalating use, and another representing consistent ATS consumption in terms of both quantity and frequency—were each chosen by about one-tenth of the overall sample.

Upon examining differences between the groups, the distinctions were not as clear-cut as those observed for self-labelled types of ATS use, although group differences were statistically significant. Minor variations were observed regarding the variable pattern among different groups. The trajectory demonstrating an escalation to a peak and then a reduction was more frequently selected by the frequent-user group. The trajectory indicating a slow decline was most popular within the rare-user group, a trend that was also evident for the trajectory illustrating phases of abstinence, where the moderate-user group reported a similar proportion. The most striking group difference was observed for the gradually escalating use trajectory, with a prevalence of 20% within the SDS-positive group, in stark contrast to minimal representation in all other groups.

Table 18: Trajectories of ATS use by user groups (own results, source: Final Report, 2020)

		rarely	moderately	frequently	SDS positive	total
Development of ATS use (graphs), % ***						
	My ATS use has been very unstable.	29.3	34.1	32.6	34.0	32.8
	My ATS use increased after I started, until I reached a certain peak. After that, my ATS use reduced to a certain level.	11.2	19.0	24.5	14.8	17.2
	After I had tried ATS, I immediately started to use large quantities, but my use has slowly decreased.	21.6	14.7	15.4	12.5	15.4
	I started at about the same level as I now use ATS, but I had repeated and significant phases of abstinence all along.	21.2	19.0	11.4	8.2	13.8
	My ATS use has grown slowly.	1.9	7.5	7.4	20.1	10.9
	I started at about the same level as I now use ATS. Both quantity and frequency of use are (rather) unchanged.	14.7	5.7	8.7	10.4	9.9

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

In an effort to gain a comprehensive understanding of the factors influencing the consumption of ATS, study participants were invited to engage in retrospective self-reporting, elucidating the motivations that underpinned their ATS use throughout their consumption history. They were presented with a variety of choices, each corresponding to different stages of their ATS use journey. The stages were as follows: "never", "in the beginning", "after a while", "in the latest or current ATS-phase" or "almost every phase".

For the purpose of this analysis, the focus is on all the motives that were recognized as pertinent at any phase of the ATS use career. Therefore, all motivations for ATS use reported by participants at any stage of their consumption history are considered in this context. These motivations, which span the breadth of individual experiences, are documented and ranked according to their overall importance for the entire sample.

This approach is intended to create a more inclusive and thorough understanding of the range of motivations for ATS use. By taking into account the complexities of these motivations, this method of analysis helps provide a detailed picture of the influences and reasons that guide and shape individuals' use of ATS throughout different periods of their consumption careers.

Close to 90% of respondents identified "euphoria and relaxation" as the primary motive for ATS use. This was followed by the desire to "counteract fatigue and maintain alertness at social gatherings" (68%). Social dynamics played a role as well, with three fifths citing a desire for "better connection to peers or partners", and nearly the same proportion attributing their ATS use to its perceived "normality within their social circle". Half of the respondents each mentioned "alleviating boredom", "stress management/escape from problems", and "enhancing social confidence" as key drivers. "Mitigating intoxication" was cited by 42%, while roughly one-third each identified "enhancing sexual pleasure", "coping with mental health issues", or "stimulating creativity" as motivations. Comparable proportions pointed to "peer or partner pressure", "work performance", and "loss of control" as catalysts for ATS use. Lesser percentages cited "managing family and household duties" or "weight loss" as motives.

When examining the variation of motives across ATS-use career groups, several notable aspects emerged. Firstly, the SDS-positive group reported a wider array of motives compared to other groups (see Table 19; all findings are statistically significant), accounting for the generally higher proportions of various motives in this group. Secondly, there was a distinct differentiation between frequent-user groups (frequent and SDS-positive) and those with lower frequency (rare or moderate use), with the former attributing more significance to all motives. Finally, group-specific differences for individual motives were apparent: Motives such as "alleviating boredom", "stress coping", "enhancing social confidence",

"managing mental health", "losing control", "household management", and "resisting hunger or cold" were especially prevalent in the SDS-positive group relative to other groups.

To provide a broader perspective on motivation, individual motives were classified into four categories: "hedonism", "coping", "functionality", and "external/environmental". The hedonism category was the most significant across all groups, with no group differences observed except for the rare-user group. The coping category, relevant to over four-fifths of the overall sample, was particularly pertinent to the SDS-positive group and less so for the rare-user group. Similar patterns were observed for the functionality and external motive categories. It is worth noting that the pronounced differences in motives among groups could be attributed to the sheer number of motives reported by each group. However, this also suggests that the SDS-positive group, with its higher degree of ATS involvement and resultant experience, may possess a more nuanced understanding of personal and social dynamics driving ATS use.

Table 19: Motives of ATS use by user groups (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
Motives for ATS use (multiple response), %					
to feel euphoric and relaxed ***	84.1	90.3	89.2	86.0	87.3
to go out despite tiredness/ stay awake at parties ***	45.8	66.3	74.1	77.9	68.3
to have a better connection with my peers/partner ***	48.2	57.3	57.6	69.4	60.0
because it is "normal" in my social environment ***	40.2	54.8	64.3	67.7	58.9
to beat boredom ***	32.3	34.1	52.2	71.5	51.5
to cope with stress/ forget about problems ***	20.7	29.4	51.5	77.3	50.2
to be more secure in social situations ***	28.3	38.7	44.8	67.1	48.4
to feel less drunk ***	21.1	38.0	48.5	51.2	41.9
to enhance sexual pleasure ***	22.7	26.9	39.1	48.0	36.5
to cope with mental health issues ***	13.5	16.8	33.3	56.9	34.5
to increase my creativity ***	20.3	25.1	33.3	48.4	34.5
because of pressure (by peers/partner) to consume ***	24.3	27.2	26.6	39.7	31.0
to increase my performance at work/education ***	11.2	20.4	37.0	43.1	30.7
because I lost control and could not help to consume ATS ***	2.4	12.2	19.9	61.1	29.8
to manage family life and housekeeping ***	4.8	8.2	15.2	38.6	20.2
to cope with hunger or cold ***	2.8	6.1	13.1	30.4	15.9
because of no danger of police enforcement **	8.8	10.0	11.1	17.2	12.6
to lose weight ***	3.2	6.1	13.1	20.4	12.3
other *	10.4	6.1	4.7	4.5	6.0
Motives for ATS use categorised (multiple response), %					
Coping ***	63.5	80.6	89.9	96.6	85.3
Functionality ***	67.5	76.0	84.8	93.6	82.8
Hedonism ***	91.2	97.5	98.3	98.1	96.7
External/environmental ***	61.0	79.6	79.7	85.8	78.3
Number of motives, mean (SD) ***	4.5 (2.7)	6.1 (2.9)	7.3 (3.2)	9.6 (3.5)	7.3 (3.7)

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

In an attempt to gather detailed insights into the specific periods and patterns of ATS use, participants were asked to indicate the days of the week (whether workdays or off days) and the time of day (daytime or night-time) they typically consumed ATS. A range of response categories was provided, including "never", "in the beginning", "after a while", "in the latest or current ATS-phase", or "almost every phase". This was designed to capture the nuanced evolution of their ATS use patterns across different stages of their consumption careers. Table 20 documents any affirmative responses for all possible combinations of days and times, regardless of the specific phase of ATS use.

An analysis of the responses reveals that ATS consumption was most common during off days, with night-time usage reported by 95% of respondents, and daytime usage reported by 72%. On workdays, the prevalence of ATS consumption dropped to between 42-49%, regardless of whether usage occurred during the day or at night. This pattern was consistent across the sample, suggesting that off days are a prime time for ATS consumption for most users.

When examining the differences between the various ATS career groups, minor variations become evident for ATS use during off days at night. However, other consumption patterns, particularly use on workdays during both daytime and night-time, were reported more frequently among those groups characterized by frequent ATS use, especially those scoring positively on the Severity of Dependence Scale (SDS). These patterns suggest that the frequency and context of ATS use are intricately linked, with more habitual or dependent users exhibiting a broader range of usage patterns.

Table 20: Days with ATS use by user groups (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
on days off during daytime, % ***	44.8	62.7	78.2	88.6	72.0
on days off during night-time, % **	90.3	96.1	96.3	96.2	95.0
on working days during daytime, % ***	10.4	15.8	48.0	70.6	41.9
on working days during night-time, % ***	18.5	30.5	52.0	74.2	48.8

*Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001*

The research also delved into participants' use of self-imposed consumption rules as part of their ATS use history. It is noteworthy that a small subset of the sample (12%) reported not following any consumption guidelines whatsoever, pointing to an absence of self-regulation in their ATS use patterns.

However, the most common rule, adhered to by over half of the participants (52%), was the decision to abstain from ATS usage when in the presence of family or children. This underscores a degree of consciousness among users about the potential social implications and harm reduction associated with their drug use.

Other rules, which were adhered to by between 41% and 47% of the respondents, included strategies to limit harm and manage use in a way that minimized disruption to their everyday lives. These included constraining the quantity of ATS used during each consumption episode, abstaining from ATS during work or academic commitments, and scheduling deliberate periods of non-use of ATS. Moreover, there was an emphasis on ensuring that basic needs such as food, shelter, and other essentials were secured prior to indulging in ATS use, suggesting a degree of prioritization and responsibility among these users. Another rule that was quite commonly followed involved restricting ATS consumption to familiar social settings, indicating a desire for safety and control over the consumption environment.

Nearly two-fifths of the participants also reported adhering to the rule of consuming ATS only on specific occasions, such as festivals, holidays, or selected parties. This suggests that for a significant portion of the sample, ATS use was linked with specific social events or special occasions, further indicating the role of social context in shaping drug use behaviours.

Approximately one-third of the participants reported adhering to more specific self-imposed guidelines regarding ATS use. These rules involved restricting use to weekends, consciously avoiding ATS use when in a negative emotional state or physically unwell, and avoiding consumption during the daylight hours. These additional guidelines reveal a greater level of caution among these respondents, highlighting their attempts to limit potential harm by defining conditions under which ATS use is considered acceptable.

In-depth exploration of adherence to consumption rules across different ATS career groups revealed fascinating variations that reached statistical significance. The groups characterized by rare and moderate ATS use were observed to report the highest number of self-imposed rules. This suggests a heightened consciousness and intentionality around managing their ATS use among these groups, perhaps as a means to control the potential impacts on their daily lives and health.

Conversely, the number of reported rules was found to have an inverse relationship with the intensity of ATS use over a respondent's ATS career. This implies that those who used ATS more intensively or frequently tended to adhere to fewer self-imposed guidelines, potentially reflecting less control or more harmful patterns of ATS use. However, the frequent-user group also reported a higher number of consumption rules compared to the SDS-positive group, which is characterized by persistent and frequent usage. Notably, one-fifth of the SDS-positive group reported not following any consumption rules, indicating that the remaining four-fifths did impose certain rules on their consumption. Across all rule categories, groups with less intensive ATS usage reported higher rule adherence.

Particularly significant differences were observed for rules related to life priorities such as work, academic engagements, or everyday routines. Differences were also seen in rules limiting ATS usage to specific settings, like festivals, parties, or contingent upon one's mood.

Table 21: Self-imposed consumption rules for ATS (multiple response) by user groups (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
ATS consumption rules (multiple response), %					
I don't use when my kids/family are around***	52.1	59.5	55.7	44.6	51.8
I limit the amount of ATS which I am consuming***	54.4	59.1	49.7	33.0	46.6
I do not use ATS during work or during courses at university***	56.0	67.4	45.3	27.9	45.8
Between phases of ATS use I always observe rules to have phases without ATS use. ***	47.9	52.0	45.0	35.9	43.8
I only use ATS if the use is compatible with my everyday life. ***	52.5	59.5	45.3	27.9	43.5
I only use ATS when I can afford it and have money left after paying for my basic necessities. ***	41.7	58.1	45.0	30.9	42.0
I only use ATS with people whom I know personally. ***	54.8	49.5	36.9	30.7	40.9
I use ATS only on specific occasions such as festivals, holiday, or selected parties. ***	49.4	55.9	38.3	21.6	38.2
I use ATS only on weekends.	34.0	33.0	32.9	19.2	28.2
I never use ATS when I am feeling bad or when I am in a bad mood. ***	34.4	38.4	26.8	16.3	27.0
I do not use ATS in the daytime ***	34.4	35.8	23.2	18.4	26.4
Other consumption rules ^{n.s.}	8.5	7.5	6.7	5.1	6.6
I follow no consumption rules/no consumption rule specified***	9.7	4.3	9.7	19.7	12.1
Number of consumption rules, mean(SD) ***	5.2 (3.6)	5.8 (3.2)	4.5 (3.2)	3.1 (2.9)	3.5 (3.5)

*Level of significance for Chi2-test and ANOVA: * p<0.05 **p<0.01 ***p<0.001*

In a closer examination of the social environment surrounding the segment of the sample engaging in ATS, slightly more than a fifth reported currently having a partner who also uses ATS. The group reporting no history of ATS use displayed a notably low rate (5%) of partner ATS use. This low prevalence was echoed in the group reporting rare ATS usage, with a low percentage of 19%. All other ATS career groups, spanning from moderate to SDS-positive users, reported statistically significant higher rates of current partner ATS use. On average, participants reported having 2.2 friends who also use ATS. Among the ATS career groups, the moderate- and frequent-user groups reported a greater number of friends using ATS compared to the rare user and SDS-positive groups. The group reporting no history of ATS use recorded the lowest number of ATS-using friends, with an average of 1.2.

Table 22: ATS use in the social environment by user groups (own results, source: Final Report, 2020)

	never used	rarely	moderately	frequently	SDS positive	total
If in relationship: partner's ATS use	N=193	N=121	N=124	N=118	N=151	N=707
Partner is currently using ATS, %***	5.2	19.0	41.1	42.4	38.4	22.9
If having close friends: friend's ATS use	N=290	N=226	N=254	N=248	N=358	N=1376
Friends who use ATS currently, %***	47.9	58.4	78.3	72.2	57.5	62.1
Number of ATS-using friends, mean (SD) ***	1,2 (2,3)	1.6 (2.4)	3.1 (3.8)	3.3 (5.2)	1.8 (3.4)	2.2 (3.6)

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.2.6 Exposition of the non-ATS users to ATS and motives for not consuming ATS

For those participants who had not personally used ATS but had been in situations where the substance was being used, further information was sought about their experiences. The aim was to better understand the extent and nature of their exposure to ATS use within their social environment.

The initial questions focused on how often they found themselves in situations where ATS was being used. Interestingly, the data showed that exposure to ATS use was not a one-off occurrence for most of these individuals. Instead, it was a repeated event, typically occurring within certain social settings. Just a small percentage of this group, about 10%, reported only being exposed to ATS use on a single occasion. On the other hand, more than half of the respondents from this subset revealed that they had been around ATS use multiple times, indicating that it was a recurring phenomenon in their social lives.

When it came to the types of situations or environments where they experienced exposure to ATS, certain scenarios were more commonly reported. Specifically, being in a club, at a party, or attending a festival, as well as socializing with friends or peers, were the primary situations where exposure to ATS was reported. Each of these settings was identified by over two-fifths of those who abstained from ATS, indicating that these social gatherings often served as a backdrop for ATS use.

Intriguingly, more than half (57%) of the respondents who had never used ATS reported that they had been encouraged or pressured to try the substance by people within their social circles. This finding illustrates the extent of the social pressure that can exist within certain environments or groups.

Finally, about a third of the participants in this subgroup reported feeling some level of temptation to try ATS. This was either on one occasion or on several different instances, demonstrating the allure or curiosity that can arise even among individuals who have

decided not to engage in ATS use. These findings highlight the complex interplay between personal decisions, social environments, and the dynamics of substance use.

Table 23: Exposition to ATS use: frequency, situations and temptation (own results, source: Final Report, 2020)

	never used ATS
Frequency of expositions, %	
once	10.1
few times	54.5
often	27.4
almost all the time	8.1
Situations of exposition, %	
when I was hanging out with friends	40.6
when I was at a club/party/festival	45.0
when I was at work	1.7
at a dealer's place where I wanted to purchase other substances than ATS	0.9
other situations	11.8
Attempts by the social network to persuade me of ATS consumption?	
yes, once	18.7
yes, several times	38.3
no	42.9
Ever been tempted to use ATS after all?	
yes, once	17.3
yes, several times	15.6
no	67.1

For those individuals within the sample who had never used ATS, an investigation was carried out to uncover the reasons behind their decision to refrain from consuming the substance. The responses were diverse, but some common themes emerged.

The most frequently cited reason, endorsed by three-quarters of these participants, was a concern over the potential 'health risks' associated with ATS use. This highlights the importance that individuals place on their health and the perceived detrimental effects that they associate with ATS.

Almost on par with health risks, another dominant reason for not using ATS was having 'heard adverse accounts of ATS effects.' Endorsed by 72% of this subgroup, this suggests that the experiences of others, particularly negative ones, have a significant influence on individuals' decisions to abstain from ATS use.

Another considerable proportion of the respondents, between 60 to 70 percent, expressed three main deterrents to ATS use: a 'lack of interest in such substances,' 'disapproval of ATS-induced behavioural alterations,' and a 'lack of familiarity with ATS and its effects.' This group of participants were driven by a range of factors, from personal preferences and principles to a lack of knowledge about the substance and its potential impacts.

Interestingly, more than half of this subgroup cited broader reasons for abstaining. These included a refusal to consume any substances classified as 'chemical,' 'psychoactive,' or

'illegal,' highlighting an overarching approach to substance use and abstinence that was not solely confined to ATS.

Further reasons underpinning the decision not to use ATS included fear of 'dangerous adulterants' (endorsed by 60% of respondents) and concern over 'developing dependency' (53%). This indicates that the potential for the substance to be mixed with harmful adulterants and the risk of addiction were considerable deterrents for a majority of these respondents.

Lastly, there were other influential deterrents, such as the desire 'not to consume more or other drugs than currently consumed,' and explicit discouragement from family members like 'parents, siblings, or partner' against ATS usage. Each of these reasons resonated with more than a fifth of this subgroup, underscoring the impact of personal drug use boundaries and the influence of loved ones in shaping individual decisions about ATS use.

Table 24: Motives for not using ATS (own results, source: Final Report, 2020)

	never used ATS
Reasons for the decision not to use ATS (multiple response), %	
I am afraid of hazard to my health	74.9
I heard bad things about the effects of ATS	72.0
I wasn't interested in these substances	68.8
I didn't like the behaviour of people on ATS which I observed earlier	65.9
I was afraid because I didn't know ATS and its effects	61.5
I didn't know if the available ATS was without hazardous extenders	59.5
I don't use "chemical substances" in general	58.9
I don't use any psychoactive substances in general	58.3
I don't use illegal substances in general	53.6
I was afraid of getting dependent	53.1
I don't want to take more/other drugs than I already do	29.4
because my parent/sister/brother told me so	26.5
a friend/my partner told me not to do it	21.6
not the right people present	21.6
not the right setting	21.3
because of my parental responsibility	12.2
other reasons	3.2

4.2.7 Reported consequences of ATS use and reasons reduction or cessation of ATS use by user groups

An inquiry was carried out among all ATS users within the sample to gain insights into any negative consequences they may have experienced as a result of their ATS consumption. It's noteworthy that only a small fraction of the entire sample, just 6%, reported having encountered no adverse effects.

The three most commonly reported adverse effects, experienced by over four-fifths of the respondents, fell under the category of 'psychosomatic' issues. At the top of this list was 'insomnia and fatigue,' a reflection of the direct impact that ATS usage can have on users'

sleep patterns and energy levels. This was closely followed by 'physical effects such as loss of energy or diminished appetite,' another direct, tangible consequence of substance use. 'Emotional disturbances such as nervousness, depression, and impaired concentration' rounded out the top three, indicating the significant mental health implications that can accompany ATS use.

A distinct set of adverse consequences, experienced by a quarter to half of the respondents, was linked to social and environmental factors. At the forefront of these was the 'disruption of daily routines,' highlighting the pervasive impact of ATS use on the regular activities and obligations of users. This was closely trailed by 'loss of social contacts,' revealing the potential for substance use to create rifts in personal relationships and lead to social isolation. The additional adverse impacts within this category included 'financial distress' and 'legal conflicts,' shedding light on the potential economic burdens and legal troubles that can come hand in hand with drug use.

Finally, the last group of adverse effects revolved around instances of physical and/or sexual violence, either experienced by or perpetrated by the users. Approximately one fifth of the sample reported such experiences.

Analysing the distribution of these negative impacts across different ATS career groups, all of which display statistically significant differences, one can see that psychosomatic repercussions are not confined to any particular group. Rather, they appear across the spectrum of ATS users, regardless of the frequency or intensity of usage. However, the incidence of these psychosomatic effects increases progressively from the group of rare users, among whom approximately two-thirds report such consequences, to the SDS-positive group where more than 90% have experienced psychosomatic issues due to their ATS consumption.

Turning to other adverse effects such as disruptions in day-to-day life, social disconnections, and financial issues, the disparities among the different ATS career groups become even more pronounced. The spread of these detrimental effects is not evenly distributed across all ATS users, but instead, it varies noticeably based on the frequency and intensity of ATS use.

This pattern of increased divergence among different groups is also observed when considering legal troubles. The rates of legal issues resulting from ATS use differ substantially between groups, suggesting that the risk of encountering legal problems increases with the severity of ATS usage.

The same holds true when examining experiences or acts of violence associated with ATS use. This category of negative impacts, which includes both personal experiences of violence and instances of perpetrating violent acts, also displays significant variations

among different ATS career groups. Again, these differences suggest that the risk of violence increases with the intensity of ATS use.

In summary, while some negative impacts, such as psychosomatic issues, are experienced broadly across all ATS career groups, other adverse effects appear to be more strongly associated with the frequency and intensity of ATS use.

Additionally, participants were questioned as to whether they utilized other substances to mitigate these negative consequences. Recognizing the existence of statistically significant disparities between the various groups, it should be noted that overall, about 30% of the participants did not resort to any additional substances as a coping mechanism for dealing with the adverse consequences of ATS usage. This means that a significant portion of the respondents chose to face the negative impacts of ATS without leaning on other substances for relief or mitigation.

However, this was not the case for the remaining 70% of participants. A substantial number of respondents did report resorting to additional substances as a means of managing the harmful effects of their ATS consumption. The substances that they turned to varied, but a clear pattern emerged from the data.

Cannabis was the most commonly used substance among this group. Respondents indicated that they frequently used cannabis as a way of coping with the negative consequences associated with their ATS usage. The prevalence of cannabis use as a coping mechanism was noticeable, but it should be noted that the proportion of respondents resorting to cannabis varied considerably across the different user groups, with the highest prevalence among the SDS positive users. This suggests that the role of cannabis as a coping mechanism is not uniform across all ATS users and is influenced by other factors such as the frequency and intensity of ATS use.

Following closely behind cannabis, alcohol was the second most commonly used substance among respondents trying to cope with the adverse impacts of ATS. Much like with cannabis, the extent to which respondents turned to alcohol varied across different groups, again with the highest prevalence among SDS positive users.

Table 25: Negative consequences of ATS use (multiple response) and use of additional drugs to handle negative consequences (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
Negative consequences of ATS use (multiple response), %					
insomnia/ fatigue***	68.7	82.8	87.6	90.7	84.0
physical effects such as having no energy / loss of appetite***	58.7	78.1	79.2	91.3	79.3
emotional effects such as nervousness low mood / lacking in concentration***	57.1	76.7	76.2	90.5	77.7
unable to manage daily routines***	19.3	31.5	40.3	70.0	45.0
losing social contacts***	8.9	12.5	30.9	61.5	33.7
financial problems***	8.5	12.5	27.2	59.2	31.9
getting in trouble with police	5.4	7.2	24.5	40.4	22.8
own experience of violence (sexual and/or physical) ***	9.3	11.8	17.8	35.7	21.3
own use of violence (sexual and/or physical) ***	5.8	10.8	14.8	31.5	18.2
other negative consequences*	4.2	7.2	5.0	9.3	6.9
no negative consequences indicated***	17.0	6.5	2.7	1.5	5.9
Use of other drugs to handle negative consequences of ATS use (multiple response), %					
	N=211	N=260	N=289	N=461	N=1221
Cannabis***	39.3	50.4	63.0	55.5	53.4
Alcohol***	18.0	21.2	34.9	38.2	30.3
Non-prescribed tranquilizer***	3.3	8.1	18.7	22.6	15.2
Non-prescribed opioids***	0.9	1.9	7.3	11.5	6.6
Cocaine***	2.4	2.7	6.9	9.8	6.3
none***	53.6	36.9	20.8	20.8	29.9

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The participants were solicited to divulge the motivations behind reducing or ceasing ATS usage over their ATS career duration. The subsequent proportions are based on the sample that specified reasons for reduction, with most group differences demonstrating statistical significance. Echoing the aforementioned negative consequences of ATS usage, the two primary reasons for reduction, each represented by half of the total sample, are psychological - "to alleviate negative mental health repercussions" - and physical - "to mitigate negative physical health consequences." The remaining reasons trail these significantly. For 27% of the sample, feelings of "dependency" or "loss of control" motivate the reduction or cessation of ATS use. For nearly one-fifth, factors such as social network disconnect, expectations from friends, family, or partners to reduce use, or incongruity with work and study demands, act as triggers. "Entering treatment" is a reason expressed by one-seventh of the sample overall. Other less prevalent, but still significant, reasons include the advent of a new romantic relationship, pregnancy or parenthood, incarceration, or the fear of legal action.

In analysing the distinctions among various ATS career groups in relation to the motivations for reducing or entirely stopping ATS use, it becomes clear that both mental and physical

considerations are brought up more commonly by the two categories marked by regular usage (frequent and SDS-positive). However, it's worth noting that these motivations are by no means exclusive to these groups, as they also resonate significantly with those who use ATS less frequently.

Interestingly, the discrepancies among groups become particularly apparent when addressing more specific reasons that led individuals to decrease or halt their ATS consumption. These more particular reasons might include undergoing a treatment program, having a family that expresses an expectation for the person to quit using, or facing legal consequences such as incarceration.

In the course of the study, questions were also posed regarding whether participants augmented their use of other substances after they had cut down on their ATS consumption. The responses received were diverse. Over half of the sample confirmed that they did not increase the consumption of any other substance following a decrease in their ATS usage, indicating that a substantial number of respondents managed to reduce their ATS use without substituting it with other substances.

However, it's also essential to mention that a considerable portion of the sample reported heightened use of other substances after reducing ATS consumption. Approximately 27% of participants indicated an escalated consumption of alcohol, while 23% reported increased cannabis use. Interestingly, for about every tenth participant, the same trend was observed with cocaine. Other substances that saw a rise in consumption included non-prescribed opioids, tranquilizers, and hallucinogens.

When assessing the differences among various ATS career groups, it became evident that the groups characterized by frequent ATS use were more prone to increased usage of other drugs following a reduction or cessation of ATS. This suggests that for these groups, substance use could possibly be a coping mechanism or an attempt to replace the stimulant effects of ATS, underscoring the complex interplay between the use of ATS and other substances.

Table 26: Reasons for reduction or cessation of ATS use (multiple response), number of reasons and enhanced use of other substances after reduction of ATS (own results, source: Final Report, 2020)

	rarely	moderately	frequently	SDS positive	total
Reasons for reduction or cessation of ATS use (multiple response), %					
I wanted to get rid of the negative mental health consequences of ATS use***	40.0	52.8	47.1	58.8	51.3
I wanted to get rid of the negative physical health consequences of ATS use*	39.5	50.9	46.7	51.2	47.9
I felt I was dependent and/or lost control, so I wanted to stop/reduce the consumption***	10.0	10.8	25.8	46.3	27.6
I disconnected from my social network**	15.2	18.9	20.1	28.5	22.1
other people (friends, family, partner) expected me to do so***	9.5	13.7	22.1	32.7	22.0
other reasons***	35.2	25.5	24.2	12.0	21.9
ATS consumption was not compatible with my job/studies n.s.	11.4	19.3	19.7	19.8	18.0
I entered treatment***	6.7	7.1	9.0	32.4	17.1
I found a new romantic partner n.s.	11.0	11.3	13.9	12.2	12.2
I could not afford it anymore***	3.3	5.2	7.0	17.8	10.0
I became pregnant / parent n.s.	6.7	8.5	9.0	11.2	9.3
I had to go to prison***	1.0	2.4	5.3	11.5	6.2
I was afraid of law enforcement***	1.4	5.2	3.3	9.0	5.5
Number of reasons for reduction, mean (SD) ***	1.9 (1.2)	2.3 (1.4)	2.5 (1.5)	3.4 (2.2)	2.7 (1.8)
Enhanced use of other substances after reduction of ATS (multiple response), %					
Alcohol***	12.0	21.8	28.8	36.0	26.8
Cannabis***	15.8	15.2	26.7	29.6	23.4
Cocaine***	3.8	7.1	14.8	14.8	11.1
Non-prescribed opioids***	1.4	0.9	7.8	11.8	6.7
Non-prescribed tranquilizer***	0.0	2.4	4.9	9.6	5.2
Hallucinogens n.s.	3.3	3.3	4.5	4.4	4.0
No enhancement of any non-ATS substance***	74.2	61.6	42.8	39.4	51.4

Level of significance for Chi2-test and ANOVA: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$, n.s. =not significant

5 Discussion

Many respondents have evolved an ATS use pattern that can generally be categorized as unproblematic. For a significant proportion of sporadic, moderate, and even frequent ATS users, the consumption behaviour has not disrupted their daily life routines. However, a different scenario unfolds for those ATS users who have experienced significant physical and mental repercussions as a consequence of ATS use, coupled with severe negligence of daily responsibilities. Secondary preventive interventions should, therefore, be directed towards various groups of ATS users, and customized in accordance with the associated risk factors (Addison et al., 2021).

The early stages or the initiation phase of ATS use is a critical period for the imparting of information on the myriad effects, appropriate dosage, and potential risks that accompany the use of various amphetamine-type substances. Though this kind of information is, from a theoretical perspective, easily accessible (for example, through agencies dedicated to prevention efforts), it has been observed that individuals who are new to ATS use often place a higher degree of trust in information derived from their peers (Allman et al., 2006; Ford et al., 2021).

There exists a significant opportunity in nightlife settings to distribute comprehensive, user-friendly, and unbiased information about ATS usage, all facilitated by trained individuals who are part of the same peer group as the target audience. This method is likely to enhance the reach of information dissemination and foster better acceptance among those at whom the information is aimed (Bolier et al., 2011). Services offered in such environments could further include on-site facilities for substance testing, commonly referred to as 'drug checking' (Brunt, 2017; Guirguis et al., 2020).

As individuals transition from an occasional use of ATS to a more frequent pattern—a shift that tends to occur swiftly, especially in the case of methamphetamine—implementing harm reduction measures becomes an imperative. These measures ought to empower users to put in place rules and guidelines that help them control the frequency and intensity of their consumption. Strategies could include the establishment of guidelines for reducing dosage, prolonging the time between subsequent doses, and pinpointing particular situations and contexts where consumption of ATS should be completely avoided (Zurhold et al., 2021).

When it comes to those who engage in problematic and/or dependent use of ATS, it's crucial that they have access to counselling services and treatment programs aimed at assisting them to significantly cut down on their consumption or even attain temporary or permanent abstinence. One of the current deficiencies in the treatment landscape is the noticeable dearth of specialized treatment modalities specifically designed for those who are

dependent on ATS. Given the vast range of adverse effects associated with dependency—which include physical health concerns like sleep disorders, concentration deficits, and fatigue; mental health burdens such as paranoia, depression, and anxiety (Best et al., 2003); and social issues like being part of a drug-focused social network (Popiel, 2014), unemployment, and childcare issues—a tailored approach to treatment would prove beneficial. Ideally, such treatment should account for these unique factors and be multi-professional, involving a team of healthcare providers from different disciplines.

Through the amalgamation of both qualitative and quantitative research findings, it becomes possible to glean insights regarding the determinants that mould the assorted pathways and trajectories of ATS use, as identified in the results section (Guetterman et al., 2015). The qualitative information offers a granular view of the individual stages of ATS use: the initiation stage, the continuation phase, and the reduction stage, which can sometimes lead to complete cessation. These stages are studied in depth through the experiences of individuals who serve as quintessential representatives of specific categories of ATS users.

Certain subjects of conversation were established in advance through the interview guideline, but the interviewees were always granted the latitude to place emphasis on the themes they deemed most important. Their personal perceptions and the insights drawn from their unique experiences were then incorporated into the subjects covered by the quantitative survey.

Through the qualitative data, we can gain a more nuanced understanding of the individual experiences of ATS users, hearing directly from them about the factors that led them to start using, what kept them using, and what eventually led them to reduce or cease usage. We can explore in detail how their personal and social contexts, as well as broader societal conditions, influenced their usage patterns. This in-depth personal perspective can shed light on the complexities of ATS use that might not be captured in quantitative data.

At the same time, the quantitative data provides a broader overview, offering the ability to identify trends and patterns across a large sample of ATS users. It allows for a systematic categorization of different types of users and trajectories of usage, and statistical analysis of the correlations between different variables. These patterns can be used to inform prevention and intervention strategies, identifying which groups are most at risk and what factors are most strongly associated with problematic usage.

By combining these two forms of data, it's possible to generate a rich, multi-faceted understanding of ATS use. The qualitative data brings the individual stories and experiences to light, while the quantitative data provides the broader context in which these stories occur. This integrated approach allows for a more comprehensive understanding of the complex phenomenon of ATS use, and can inform more effective responses to it

The quantitative study module allowed for precise determination of consumption career types, using comprehensive consumption data, analysed based on a large, stratified sample. The intensity and duration of the respective ATS consumption career could be established through information on lifetime consumption days, consumption in the last year and month, as well as age at first and (current) last consumption. The frequency of occurrence of four distinct types of consumption careers, as well as copious information that relates to and could influence ATS careers, could be quantified and generalized using a large sample. The findings from both modules will be summarized and discussed in light of the research questions.

5.1 Who constitutes the ATS user demographic, and what prevalent patterns of consumption careers exist?

ATS users are an exceedingly diverse group. In addition to the usual suspects such as "clubbers" and young adults experimenting with various illicit substances, the user population also includes individuals not typically associated with ATS use, such as full-time employed middle-aged individuals and young mothers with small children. ATS consumption is not restricted to one gender; both the qualitative and quantitative samples were nearly gender-balanced, an intended outcome of the sampling strategy. The average age hovers around thirty years, with a range from 18 to 77 years. Most users are well-integrated socially, living under stable circumstances. Educational attainment is comparatively high amongst users, with a majority in paid employment.

ATS consumption careers vary, characterized by infrequent, moderate, and frequent consumption. The latter group, in some instances, progresses to ATS dependency. Across all consumption career types, there are individuals who continue to use ATS, while others have achieved abstinence. On average, the sample included ATS users with relatively long consumption careers, especially prevalent in the frequent user group. Consumption trajectories typically display considerable fluctuations over time. Some respondents reported an initial surge in consumption, which subsequently stabilized at a certain level, while others exercise control over their consumption by intentionally incorporating periods of abstinence. A majority of users regard their ATS use as recreational, with some reporting experimental use, implying single or short-term use. Compulsive or intense use is reported least frequently as the dominant pattern during the consumption career.

5.2 What prompts individuals to begin using ATS, which varieties are commonly used, and what other substances are associated with ATS use?

Diverse primary motives for ATS consumption have been identified, which can be broadly categorized into "hedonistic" (desire to experience euphoria and relaxation, stay awake at parties, enhance sexual pleasure), "functional" (to boost work or educational performance, manage family life), "coping" (to handle physical and mental health issues, forget about problems, compensate for social insecurity), and several "external" motives, such as peer pressure or the absence of law enforcement risk. Frequently, hedonistic and functional motives dominate the early phase of an ATS career, while coping-related motives tend to emerge in later phases. The onset age for ATS use is generally around 18 years, with frequent user groups demonstrating an earlier onset.

Exploring the motivations and rationales for the consumption of amphetamine-type substances necessitates a corresponding investigation into the reasons that drive abstention from these substances. This line of questioning was directed towards individuals who have never consumed ATS. Despite facing exposure to ATS use in various social settings, such as parties or casual gatherings with friends, and even after being subjected to multiple persuasive attempts, these individuals managed to maintain their abstention from consumption. A few prominent factors stood out as primary reasons for their decision to refrain from experimenting with ATS. These included concerns about potential health implications, negative observations of the effects of ATS on others, or a wholesale rejection of substances categorized as chemical, psychoactive, or illegal. The apprehension of a possible escalation in drug use or the development of a dependency on these substances was also a common deterrent.

When examining the specific preferences for ATS substances among the different categories of users, a clear pattern emerges. Amphetamine and MDMA, which also tend to serve as the most common introductory ATS substances, are particularly popular among users who exercise a degree of control over their recreational consumption. This is then followed by a preference for amphetamine-type New Psychoactive Substances (NPS). Methamphetamine consumption, on the other hand, is more common, although not exclusive, among groups characterized by higher levels and sustained instances of ATS use. An additional group that tends to favour methamphetamine are marginalized individuals who resort to this particular form of ATS as a coping mechanism for dealing with adverse living conditions or to combat feelings of hunger and cold. Non-prescribed ATS-containing prescription drugs such as methylphenidate are predominantly consumed by

those seeking to enhance their work performance or by students who are preparing for exams.

The concurrent use of other substances is also fairly prevalent. This includes not only legal substances like alcohol and tobacco, but also illicit substances such as cannabis, cocaine, and hallucinogens. This trend of polydrug use is apparent among the ATS-consuming sample, and also interestingly, among the non-ATS-using group. While these individuals abstain from ATS use, their behaviour does not indicate a universal rejection of all drugs. Consumption of alcohol and cannabis is noticeably significant among non-ATS users. Some individuals within this group reported experiencing problems associated with these substances, which acted as a deterrent against using ATS to avoid compounding risks. Particularly for individuals with frequent or dependent ATS use, the consumption of other substances is often used as a means to alleviate the negative aftermath of ATS use, such as insomnia or anxiety. In these instances, cannabis, alcohol, and non-prescribed tranquilizers are the most common choices.

5.3 What perpetuates ATS use (and instigates escalation at some junctures), and what problematic drug use patterns emerge?

In the initial phases of amphetamine-type substance consumption, a large proportion of users find themselves captivated by the manifold effects of these substances. Effects such as a heightened sense of energy and vigilance, disinhibition, an amplified sense of self-esteem, and decreased physical necessities can all be particularly attractive. For users who fall into the categories of rare or moderate consumption, these effects tend to persist over time, thereby maintaining a continued interest in use. The consumption of ATS is often perceived by these individuals as an integral component of their partying or socializing experiences. The absence of consumption during these occasions can sometimes lead to a sense of emptiness or a feeling of something missing.

However, when it comes to instances of more frequent ATS use, users start to notice a reduction in the potency of these effects. This could, in turn, prompt them to increase their consumption in an attempt to re-experience the initial intensity of effects. However, the situation is more nuanced when examining the escalation of consumption for different types of ATS substances.

Many users of MDMA, for instance, tend to realize quite quickly that simply increasing the frequency or dosage of their consumption fails to recreate the initial effects they enjoyed. The desired impact of MDMA diminishes rapidly following repeated use, particularly if this use doesn't involve periods of abstinence. This is due to the fact that the serotonin (or the serotonin transporter) that is released as a response to MDMA consumption needs time to

replenish. At the same time, with the increased frequency of use, there's an escalation in the likelihood of experiencing adverse side effects. The repercussions of such escalated use can range from temporary discomfort to long-term health implications, underscoring the importance of regulated consumption and regular periods of abstinence to allow the body to recover (Parrott, 2005; Scholey et al., 2004; S.J. Kish et al., 2000). It appears that occasional, controlled MDMA users consider this experience when determining their consumption frequency. In contrast, some heavy users endeavour to sustain the effect by repeatedly escalating MDMA doses (Parrott et al., 2002). The (psychological) addiction potential of methamphetamine markedly exceeds that of MDMA (van Amsterdam et al., 2015), owing, for instance, to its sudden onset and shorter duration of effects when administered nasally (Harris et al., 2003).

Upon returning to a sober state, many of these individuals often encounter a significant sense of exhaustion or energy depletion. To counteract this feeling of fatigue, they might resort to further substance use, thereby potentially exacerbating a cycle of consumption and withdrawal. It was noted that individuals who have developed a dependency on ATS, as well as those who use these substances frequently but have not developed a full-fledged dependency, report their consumption habits to be frequently driven by an inability to resist or abstain from use.

Approximately one third of the overall sample reported having experienced a level of dependency on ATS. This illustrates the pervasiveness of the dependency issue among ATS users. Furthermore, the data suggest that those users who are dependent on ATS, and also those who are categorized as frequent users, are disproportionately impacted by the experience of critical and stressful life events. These can range from personal losses, job-related stress, or significant changes in life circumstances, to name a few.

Notably, the burden of these experiences seems to become progressively heavier, particularly when such events accumulate over time. This could suggest a potential correlation between the accumulation of stressful life events and the prevalence or intensity of ATS use. This highlights the importance of providing appropriate support mechanisms, not just to help individuals cope with their ATS use, but also to address and manage the underlying stressors and life events that may be contributing to their consumption patterns

Pertaining to the use of other substances, it is noteworthy to highlight that a significant proportion of individuals involved in the study have encountered difficulties associated with consumption, implying potential issues of substance misuse or dependency. These problems could encompass a range of circumstances, such as frequent overconsumption, rapid escalation of use, or inability to cut back on usage, all of which can signify underlying consumption-related issues.

Alcohol, in particular, has been observed to present substantial challenges for a broad spectrum of study participants. Problematic alcohol use, be it current or at any previous point throughout their lifetime, has been reported by a notable proportion of individuals across all identified groups of ATS usage. This consistent prevalence underscores the far-reaching implications of alcohol use in the context of broader substance use patterns, suggesting the necessity for further research and interventional efforts addressing this specific aspect of polysubstance use.

In contrast, the lifetime prevalence of opioid dependency shows a different pattern, only being significantly apparent in groups characterized by frequent ATS use, specifically the frequent user group and the SDS-positive group. This observation points towards a potentially heightened vulnerability towards opioid misuse within these subsets of ATS users.

Similarly, patterns of injecting drug use, which carries its own unique set of risks and complications, as well as past experiences with addiction treatment, are predominantly reported within these frequent-use groups (frequent and SDS-positive). This suggests a greater propensity towards riskier forms of substance use, and a potentially higher burden of substance-related issues within these groups. These findings underscore the complexity of polysubstance use patterns and their implications, necessitating comprehensive, multi-faceted approaches in research, prevention, and treatment efforts.

Users who maintain comparatively controlled ATS careers typically see no reason to cease their use, as they appreciate the effects and seldom experience negative consequences. They seemingly manage to incorporate ATS use into their lives as a special indulgence for extraordinary occasions, avoiding consumption when it interferes with everyday responsibilities such as work or family commitments. The experience of negative consequences is frequently associated with changes in consumption patterns, for better or worse, as discussed in the subsequent section.

5.4 What factors lead users to reduce or completely cease ATS use?

Participants were queried about the reasons for curbing or discontinuing ATS use. The primary concern involved health implications (encountering negative mental or physical health outcomes), followed by the self-perceived sensation of losing control over drug use. Moreover, social context (alteration of social networks, new romantic partners, expectations from social networks to cut back) and situational factors such as entering treatment, incarceration, or the incompatibility with professional demands led individuals to curtail or halt ATS use. The majority of ATS users who reduced their use accomplished this without professional intervention, such as addiction treatment or counselling. Some reported

growing weary of ATS use eventually. This frequently coincides with a lifestyle transformation and shifts in life priorities: After years of partying every weekend, people become disinterested, decrease their social outings, and consequently cut back on or completely cease their ATS use. This often corresponds with significant life changes, such as graduating from university or starting a family. This phenomenon is referred to as "maturing out" of drug use in addiction research (Labouvie, 1996; Weber & Schneider, 1992).

Similar to the reasons for reduction, the adverse consequences of ATS use primarily relate to physical and mental health problems and predominantly affect frequent and SDS-positive users. The most frequently reported issues included insomnia, fatigue, loss of appetite, and emotional effects such as anxiety, low mood, and concentration deficits. Social or financial problems and run-ins with law enforcement were less commonly experienced. Users' responses to negative outcomes do not always involve a reduction or cessation of consumption, even though such a decision seems rational. If reducing consumption is unachievable or undesired, an alternative coping strategy is to utilize other drugs to mitigate the uncomfortable side effects of ATS use. In response to the predominant health outcomes of insomnia and low mood, they opt for cannabis, alcohol, and non-prescribed tranquilizers to address these issues. Evidently, the need for sleep aids is not significant if ATS is used infrequently or moderately. However, tranquilizers can serve other purposes, such as self-medication for comorbid psychiatric disorders, which are more prevalent among ATS-dependent individuals. Approximately half of the ATS users stated that, despite reducing their ATS use, they subsequently escalated the use of other substances. Again, alcohol and cannabis are the preferred choices, complemented by cocaine, which might function as a substitute for the lacking stimulant effects of ATS.

5.5 Factors of Risk and Protection

Through an integrative analysis of the qualitative and quantitative data obtained in this research, numerous factors have been recognized that could potentially steer the course of amphetamine-type substance (ATS) use. These factors may dictate whether the trajectory of ATS consumption remains controlled and devoid of issues, or whether the pattern of use evolves into a more problematic form, potentially culminating in dependency.

It is vital to comprehend that risk and resilience factors exist in a symbiotic relationship. The lack of a risk factor essentially functions as a resilience factor, and vice versa. This interdependence suggests that the absence or presence of certain factors could have significant implications on the trajectories of substance use.

However, it is worth mentioning that the temporal sequence of these factors and the manifestation of problematic or dependent ATS consumption could be a complex interaction. For example, the presence of mental health issues in an individual could potentially spur a more uncontrolled use of ATS as a strategy for coping. On the flip side, these mental health issues could emerge as a consequence of consistent or dependent ATS use. In this context, the cause-effect relationship is somewhat intricate.

Given the limitations imposed by time and financial resources, the adoption of a longitudinal study design, which could potentially clarify these causal relationships, was not feasible in this research. When deploying a retrospective, cross-sectional study design, the issue of the causality dilemma remains a challenge. Disentangling the temporal relationship between certain variables remains a complex task in such studies, and definitive conclusions regarding causality cannot be drawn unequivocally (Lash et al., 2021).

Table 27: Factors of risk and protection of problematic ATS use (own results, source: Final Report, 2020)

Risk factors	Possible link to problematic ATS use
<ul style="list-style-type: none"> • Low educational level • Low income 	ATS might be used to escape from rather difficult socioeconomic conditions of life for a moment. Users being confronted with such living conditions might have the feeling to have nothing to lose, i.e. uncontrolled ATS use cannot endanger occupational success or social prestige.
<ul style="list-style-type: none"> • Biographical burden (stressful life events) • ATS use motive coping • Mental health problems 	Users try to cope with the long term impact of stressful life events on their mental health condition by using ATS and perceive this self-medication as (short-term) effective.
<ul style="list-style-type: none"> • Problematic alcohol use in life 	This could be an indication that problems with controlling the use of psychoactive substances already existed before or that substance use was perceived as successful in terms of a (maladaptive) coping strategy.
<ul style="list-style-type: none"> • Continuation of ATS use despite negative consequences 	Some users ignore negative consequences of ATS use and consequently do not reduce their use. If a dependency is subsequently developed, consumption cannot be reduced easily despite negative consequences.
<ul style="list-style-type: none"> • Use of methamphetamine • Injecting drug use 	Methamphetamine use has a high potential of dependency because of its specific drug properties (short duration of effect, sudden onset, strong effect). Injecting drug use is the most risky route of administration in terms of dependency and harms to users' health.
Protective factors	Possible link to controlled ATS use
<ul style="list-style-type: none"> • Following consumption rules • No ATS use on workdays during daytime 	Following self-imposed consumption rules might help users to organize their ATS use in a way that it does not endanger important obligations in everyday life (job, studies, family life). A crucial rule seems to be the limitation of use on leisure time.
<ul style="list-style-type: none"> • Having not only an ATS consuming social network • Limited availability of ATS 	If the social network does not comprise only of ATS users it is easier not to use drugs every time when meeting the social network. The decision not to purchase ATS itself, but only to consume when being invited, can help to control the use.
<ul style="list-style-type: none"> • Higher self-efficacy • Reduced sensation seeking 	A higher self-efficacy obviously supports the control of ATS use and helps to reach phases of abstinence every once in a while, just as reduced urge for sensation-seeking.

6 Conclusions

ATS stimulants represent a diverse group of substances that share similar pharmacological effects and stimulant properties. ATS utilization patterns exhibit heterogeneity across substances and user profiles. Our research elucidates that the availability of ATS does not fully explain its consumption, and a significant cohort of ATS users demonstrates a controlled consumption pattern within recreational contexts, devoid of dependency or problematic usage manifestations. In addition, we've identified a segment of consumers who cease ATS intake following an extended usage period. Moreover, a distinct group that develops problematic usage tendencies and SUD was also discerned.

The ATTUNE study identified unique characteristics among the different ATS user groups. A significant portion displayed a broadly non-problematic ATS use pattern. Non-user, rare user, and moderate user groups showed similar trends, whereas likely ATS dependent individuals differed significantly. Frequent users had an intermediate position, showing tendencies towards both ends. Increased ATS use was noted among those needing to enhance functionality or control routine tasks, particularly in the ATS-dependent group, which also showed higher instances of mental health issues. However, no differences were identified regarding the Big Five personality traits across groups. Most ATS users experienced cyclical usage patterns, influenced by health concerns, feelings of lost control, and changes in social and situational factors.

These findings suggest that diverse stages of ATS consumption necessitate distinct intervention strategies.

Initiation of ATS use serves as a prime intervention point for imparting education about the effects, dosages, and risks associated with various amphetamine-type substances. While such information is largely available, the majority of nascent and inexperienced users tend to rely on the knowledge imparted by their peers. Peer-led interventions in nightlife settings offer an avenue for the dissemination of user-friendly, factual data, which could potentially enhance acceptance and reach. Such on-site services should further incorporate substance testing initiatives, also referred to as "drug checking", as one of the greatest harms related to ATS use derives from unknown substances, adulterants in substances and overdose.

As users transition from infrequent to regular consumption—a shift that often transpires rapidly, particularly with methamphetamine—harm reduction strategies are valuable in assisting users to establish rules for governing the frequency and intensity of their use. These rules might include lowering the dosage, extending intervals between subsequent doses, and capping expenditure on drugs.

For users with problematic and dependent ATS use, counselling and therapeutic services are vital in facilitating a substantial decrease in use or complete abstinence. The current treatment landscape exhibits a paucity of therapy forms specifically designed for ATS addiction. Given the unique set of challenges associated with addiction, such as adverse physical health effects (e.g., sleep disturbances, concentration difficulties, fatigue), psychological symptoms (e.g., paranoia, depression, anxiety), and social problems (e.g., unemployment, childcare issues), specialized therapeutic interventions are necessary. These interventions should acknowledge these specific factors and adopt a multiprofessional approach when required.

7 References

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8 Annex 1: Example of the applied life course charts

ID of respondent

Insert the Frequency: 0=no use; 1=less than monthly; 2= monthly; 3= weekly; 4= daily / nearly daily

– if one of the substances was never used, insert a cross (X) in column B (never used)

Type of substance	Never used	until age of 13	14-16	17-19	20-25	26-30	31-39	40-49	50+
Amphetamines									
Methamphetamine									
NPS									
MDMA / Ecstasy									
Alcohol									
Cocaine									
Cannabis									
Opiates									
Nicotine									
Hallucinogenes/LSD									
Other									

Indicate important positive or negative life events – by short explanation (max. 100 characters)

Life events	until age of 13	14-16	17-19	20-25	26-30	31-39	40-49	50+
Parents / Family								
School								
Education/Work								
Friends								
Living								
Romantic partner								
Illness								
Prison/criminal justice								
Treatment								
Religion / Spirituality								
Leisure								

9 Annex 2: Example of the applied CAPI Questionnaire

Use for groups 1-5:
dependent; remitted; frequent; non-dependent; formerly frequent non-dependent, non-frequent

Interview Guideline 'A' – Attune

Interviewer:

This study is about understanding pathways to stimulants use across Europe. You have agreed to participate in an interview as part of this study because you feel you would identify with one of the following statements, would you agree?

- a) Are **currently** using amphetamines (Group 1, 2, 3 and 5)
- b) **Stopped** using amphetamines (Group 2, 4 and 5)
- c) Never used amphetamines but have had the **opportunity** to in the past (Group 6 – USE Guideline B)

Introduction

Tell me a little about yourself and your life now.

(Prompts – Age, individual situation (job, housing, income, education, health situation, emotional well-being), social life (partnership, family, friends) positive and negative impacts)

Drugs and alcohol

What is your experience of drug and alcohol use? [Interviewer use CHART tool for reporting on substances used in life until today]

(Prompts: *personal usage including: age of first use; type of drugs, frequency and quantity, motivations for use/non-use, levels and routes of use; negative impact (dependence, offending, imprisonment)*)

What effect are you hoping for from use of these substances?

(Prompts: socialising, coping strategy, behaviour change, health)

Tell me more about the circumstances of your drug and alcohol use since your first use [plot significant moments in the life events CHART]

(Prompts: *use of drugs/alcohol by others around them; any drug/alcohol offers; individual situation (work, housing, income, health), relationships (family, friends, romantic partners); critical life events (violence, separation from significant other, death, illness, chronic disease)*)

What is your use of drug and alcohol like now? Has this changed over time? [CHART tool for substances]

(Prompts: *type of substance and frequency of use; circumstances for changes (living, employment, education, income, health), lifestyle (leisure), relationships (friends, family, romantic partner, marriage, birth of children)*)

Stimulants – Firsts, effects, perceptions

What is your experience of Amphetamine Type Substances? E.g. amphetamine, ecstasy, MDMA, methamphetamine [REFER to ATS card and CHART for substances]

(Prompts: *personal usage including: age of first use; type of drugs; frequency levels and routes of use; and surrounding circumstances of use/non-use, motivations for use/non-use*)

Use for groups 1-5:
dependent; remitted; frequent; non-dependent; formerly frequent non-dependent, non-frequent

What was life like leading up to Amphetamine Type Stimulants being first used? [plot significant moments in the life events CHART]

(Prompt around family, friendships, relationships, education, employment, and social, offending behaviour, health and emotional well-being, housing, significant events)

What effect were you hoping for from these Amphetamine Type Stimulants? Why did you want this effect?

(Prompt: feelings, positive and negative experiences, change inhibitions, focus, control, euphoria)

What was happening in your life when you continue to use XXX (specify the different ATS the person has discussed)? [plot significant moments in the life events CHART]

(Prompts: *use of ATS by others around them, any ATS offers or availability people in their social network and their use/non-use of ATS, individual situation (work, housing, income, health), relationships (family, friends, romantic partners); critical life events (violence, separation from significant other, death, illness, chronic disease)*)

What do you personally think about ATS use?

(Prompts around positive and negative views- physical and mental health, lifestyle, personal plans, offending, social relations)

Stimulants – Source, availability, funding

How would/do you usually get Amphetamine Type Stimulants?

(Prompt: buy from/share with friends, dealer-user interactions, ease of interaction/introduction to dealer)

How easy or difficult are they to get? Give examples

How do you fund your use? Does funding imply any legal problems?

(Prompt: employment, welfare, criminal activity, deal, trouble with the police, criminal justice system)

Stimulants – lifestyle and relationships

How does your ATS use impact on your relationships with others? Give examples

How has your lifestyle changed since you started/stopped using ATS? [plot significant moments in the life events CHART]

(Prompt: significant life events (individual, social, lifestyle, health and well-being), increases/decreases in substance use since first usage of ATS; protective or harmful factors (dependence, offending)

How has your use of ATS changed over time? [Plot CHART for substances]

(Prompt: *type of substance and frequency of use, increase in levels, decrease in levels, poly-substance use, changes in routes of administration, context of use*)

What was happening at the time of the change in use? [plot significant moments in the life events CHART]

(Prompt: treatment, other service use, circumstances (living, employment, education, income, health), lifestyle (leisure), relationships (friends, family, romantic partner, marriage, birth of children), significant events)

What is important for your life now?

Use for groups 1-5:

dependent; remitted; frequent; non-dependent; formerly frequent non-dependent, non-frequent

(Prompt around family, marriage, children, romantic partners, friends, education, employment, social, offending behaviour, health and emotional well-being, housing, positive and negative impacts)

What do you hope for/expect for your life in the next 5-10 years?

(Prompt: change in substance use (including ATS), change in relationships, health, employment career, lifestyle)

Thank you for taking part in interview

(Check have consent form)

Use for group 6:

Non-stimulant user

Interview Guideline 'B' – Attune

Interviewer:

This study is about understanding pathways to stimulants use across Europe. You have agreed to participate in an interview as part of this study because you feel you would identify with one of the following statements, would you agree?

- a) Are **currently** using amphetamines (Group 1, 2, 3, 5 – use Guideline A)
- b) **Stopped** using amphetamines (Group 2, 4 and 5 – use Guideline A)
- c) Never used amphetamines but have had the **opportunity** to in the past (Group 6 – USE Guideline B)

Introduction

Tell me a little about yourself and your life now.

(Prompts – Age, individual situation (job, housing, income, education, health situation, emotional well-being), social life (partnership, family, friends) positive and negative impacts)

What is your experience of drug and alcohol use? [Interviewer use CHART tool for reporting on substances used in life until today]

(Prompts: *personal usage including: age of first use; type of drugs, frequency and quantity motivations for use/non-use, levels and routes of use; negative impact (dependence, offending, imprisonment)*)

What effect are you hoping for from use of these substances?

(Prompts: socialising, coping strategy, behaviour change, health)

Drugs and alcohol

Tell me more about the circumstances of your drug and alcohol use since your first use [plot significant moments in the life events CHART]

(Prompts: *use of drugs/alcohol by others around them; any drug/alcohol offers; individual situation (work, housing, income, health), relationships (family, friends, romantic partners); critical life events (violence, separation from significant other, death, illness, chronic disease)*)

What is your use of drug and alcohol like now? Has this changed over time? [CHART tool for substances]

(Prompts: *type of substance and frequency of use; circumstances (living, employment, education, income, health), lifestyle (leisure), relationships (friends, family, romantic partner, marriage, birth of children)*)

Stimulants – Firsts, protective factors, perceptions

What is your experience with the use Amphetamine Type Substances? E.g. amphetamine, ecstasy, MDMA, methamphetamine in your social network?

(Prompts: *use of ATS by others around them, any ATS offers or availability*)

Use for group 6:
Non-stimulant user

What was happening in your life when XXX (specify the different ATS the person has discussed by using the ATS card) was offered to you (ATS substances)? [plot significant moments in the life events CHART]

(Prompt: individual and social circumstances surrounding the non-use health and wellbeing, people in their social network and their use/non-use of ATS, specific life events)

Are others in your networks continuing to use ATS? How does this use impact on your relationship with them? Give examples

(Prompt: changes, life events, availability)

What was it like being around others who were using ATS?

(Prompt: impact on relationships, socialising, networks, and employment)

Has there ever been a situation where you thought about using ATS? [Plot [plot significant moments in the life events CHART] What was happening at this time for you?

(prompt: lifestyle, relationships, networks, employment, significant events)

How would you explain that you never used these ATS

(Prompt: costs, availability, opportunity, age, circumstances, health, fear of legal problems, fear of dependence, protective factors such as partner, employment, lifestyle, negative impact on other people)

What do you think about ATS use? Has that perception changed or stayed the same over time?

(Prompt around positive and negative views- physical and mental health, lifestyle, personal plans, offending, social relations)

Stimulants – Source, availability, funding

Would you know how to buy Amphetamine Type Stimulants?

(Prompt: buy from/share with friends, dealer-user interactions, ease of interaction/introduction to dealer)

How easy or difficult do you think they are to get? Give reasons

Lifestyle

What is important for your life now?

(Prompt around family, marriage, children, romantic partners, friends, education, employment, social, offending behaviour, health and emotional well-being, housing, positive and negative impacts)

What do you hope for/expect for your life in the next 5-10 years?

(Prompt: change in substance use (including ATS), change in relationships, health, employment career, lifestyle)

Thank you for taking part in interview

(Check have consent form)

Quantitative questionnaire module 2

block_all

nation

nation [singleq]

- 1:
- 2:
- 3:
- 4:
- 5:

name_interviewer

name_interviewer [openq]

Interviewer: Please insert your identifier or first name here.

welcome

Thank you very much for showing interest in participating in our survey. This study is about understanding pathways to stimulants use across Europe. Further we are interested in the development of ATS consumption. We would like to learn about the different ways people use or have used amphetamine type stimulants (ATS), about their motives and how their use developed over the course of life. I will ask several questions about you and your life as well as about your substance use. Please be open and honest when answering the questions. The survey is completely anonymous, we will not ask for your name, address or anything else that might enable someone to identify you as a specific person. If an answer option does not fully apply to you, please choose the most appropriate answer. First of all I will ask you several questions in order to find out if you are eligible to participate in the main interview. If you don't have any questions yourself, let us start. Otherwise, please feel free to pose your questions now.

welcome [textq]

privacy

Interviewer: Please confirm that you handed over data protection declaration to respondent and that she/he consented to the declaration.

If respondent does not agree with the declaration she/he cannot participate in the interview.

privacy [singleq]

I hereby confirm that I have handed over to the interviewee the informed consent declaration (including the data protection information) and the interviewee orally explicitly declared its consent with the declaration.

- 1: yes
- 2: no

assert((privacy eq 1)) "Are you sure? Otherwise the interview ends here." exit 3 attempts 2

<p>gender_age</p> <p>How old are you?</p> <p>S1 [numq]</p> <p>1: indicate age</p> <p>S2 [singleq]</p> <p>What is your gender?</p> <p>1: female 2: male 3: other/ preferred not to indicate</p>
<p>S3</p> <p>Have you ever in your life consumed amphetamine type stimulants (ATS) such as...</p> <p>S3 [singleq]</p> <p><i>Interviewer: Hand over show card No. 2 to respondent</i></p> <p>1: yes 2: no</p>
<p>S4_1</p> <p>How old were you, when you consumed ATS for the first time?</p> <p>S4_1 [numq] Fit = (S3 eq 1)</p> <p>1: indicate age</p>
<p>S4_2</p> <p>Have you ever been present while people you know (partner, family, friends, acquaintances) consumed ATS?</p> <p>S4_2 [singleq] Fit = (S3 eq 2)</p> <p>1: yes 2: no</p>
<p>S4_3</p> <p>How old were you when you were present for the first time while people you know consumed ATS?</p> <p>S4_3 [numq] Fit = (S4_2 eq 1)</p> <p>1: indicate age</p>
<p>S5</p> <p>Have you consumed ATS within the past 12 months?</p> <p>S5 [singleq] Fit = (S3 eq 1)</p> <p>1: yes 2: no</p>

<p>S6</p> <p>Have you consumed ATS within the past 3 months? If you are in treatment and do not consume ATS currently, please answer this question in respect to the 3 months before entering treatment</p> <p>S6 [singleq] Fit = (S5 eq 1)</p> <p>1: yes 2: no</p>
<p>S7</p> <p>Within the past 12 months, did you consume ATS on 10 days or more?</p> <p>S7 [singleq] Fit = (S6 eq 1)</p> <p>1: yes 2: no</p>
<p>S8</p> <p>Has there been a year in the past (more than 12 months ago), in which you consumed ATS on 10 days or more?</p> <p>S8 [singleq] Fit = (S5 eq 2)</p> <p>1: yes 2: no</p>
<p>S9</p> <p>Have you ever been in contact with drug treatment or drug counseling centers?</p> <p>S9 [singleq]</p> <p><i>Interviewer: "treatment" means inpatient and outpatient drug treatment as well as low-threshold services but no self-help groups.</i></p> <p>1: yes 2: no</p>
<p>S10</p> <p>Have you consumed (non-prescribed) opioids more than 10 times in your life?</p> <p>S10 [singleq]</p> <p>1: yes 2: no</p>
<p>S11</p> <p>Have you ever been dependend from (non-prescribed) opioids (e.g. heroin, fentanyl, codein) or been in treatment because of opioid use (e.g. substitution treatment, residential rehab)?</p> <p>S11 [singleq] Fit = (S10 eq 1)</p> <p>1: yes 2: no</p>
<p>S12</p> <p>What are the first three digits of the postal code of your residence?</p> <p>S12 [openq]</p> <p><i>If you do not know your post code, do not have a current fixed address or would prefer not to disclose your post code, please enter 'XX99' here instead.</i></p>

S13

How did you learn about this website/study?

S13 [multiq]

Multiple answers possible

1: I was asked by a member of the research team, if I am interested in participating
 2: flyer/poster
 3: friends/family told me about it
 4: consultant/staff at drug help facility/ low threshold service told me about it
 5: I read about it in a webforum/social network
 6: a person I know shared the link to the study website
 7: other, please specify (max three)

S14

Did you conduct the online screening on the study website www.attune-study.eu?

S14 [singleq]

1: yes
 2: no

lime_ID

Please tell me the number that was shown at the end of the screening questions

lime_ID [openq] Fit = ((S14 eq 1) and (nation ne 2))

Interviewer: If respondent forgot her/his screening ID, leave this field blank and go to next question.

exclusion

Thank you very much for showing interest in participating. Unfortunately, you don't meet the inclusion criteria of this survey and therefore we cannot offer you the possibility to participate.

Interviewer: Interview ends here, please thank the respondent and tell her/him that she/he is welcome to tell friends who might be interested in participating about the study.

Exclusion criterion/s:

@insert(te_exit1)
 @insert(te_exit2)
 @insert(te_exit3)
 @insert(te_exit4)
 @insert(te_exit5)
 @insert(te_exit6)
 @insert(te_exit7)

exclusion [textq] Fit = (excl ge 1)

assert((excl lt 1)) "exit interview" exit 2

studygroups

Internal information for interviewer: Please confirm group allocation below by indicating the group, then go to next question.

studygroups [singleq]

1: Group A_1: current frequent user
 2: Group A_2: current non-frequent user
 3: Group B_1: former frequent user
 4: Group B_2: former non-frequent user
 5: Group C: exposed non-user

start_interview

Thank you very much so far. You are eligible to take part in the interview. So let's start with the main interview!

start_interview [textq]

Q3
What is your citizenship/nationality?

Q4_1
What is your country of birth?

Q4_2
What is your father's country of birth?

Q4_3
What is your mother's country of birth?

Q5
What is your ethnicity?

Q5 [singleq] *Fit = nation eq 3*

1: White British
2: Irish
3: Gypsy or Irish Traveller
4: Other White
Mixed/Multiple ethnic group
5: White and Black Caribbean
6: White and Black African
7: White and Asian
8: Other Mixed
Asian/Asian British
9: Indian
10: Pakistani
11: Bangladeshi
12: Chinese
13: Other Asian
Black/African/Caribbean/Black British
14: African
15: Caribbean
16: Other Black
Other ethnic group
17: Arab
18: Any other ethnic group

Q6
Are you currently in a relationship?

Q6 [singleq]

1: yes, living together
2: yes, but not living together
3: no

Q7
What is your current marital status?

Q7 [singleq]

1: married
2: not married
3: widowed/divorced/separated

Q8
How many children do you have? Please indicate not only biological children, but all children you have parental duties for (e.g. stepchildren, foster children, adopted children)

Q8 [numq]

Interviewer: indicate number. If no children indicate 0.

1: indicate number

Q8_1

How many of them are under 18 years old?

Q8_1 [numq] Flt = (Q8 ne 0)

Interviewer: indicate number. If no children under 18 indicate 0.

1: indicate number

Q9

Who do you live with currently?

Q9 [singleq]

1: alone
 2: alone with child(ren)
 3: with partner and (child(ren))
 4: with partner/spouse
 5: with parents
 6: with friends/flatmates
 7: other, please specify (max three)

Q11

Which of the following best describes your current living situation?

Q11 [singleq]

1: Fixed registered address (e.g. house/flat)
 2: No fixed abode / address (e.g. sofa surfing)
 3: Temporary accommodation (shelter / hostel / B&B / supported accommodation)
 4: Treatment facility
 5: Street / homeless

Q12

What is your highest completed educational status?

Q12 [singleq]

1: none
 2: Primary education
 3: Lower secondary education
 4: Upper secondary education
 5: Post-secondary non-tertiary education
 6: Short-cycle tertiary education
 7: Bachelor's or equivalent level
 8: Master's or equivalent level
 9: Doctoral or equivalent level

Q13

What is your current employment situation?

Q13 [multiq]

Multiple answers possible

1: Have paid job - full time (30+ hours per week)
 2: Have paid job - part-time (8-29 hours per week)
 3: Have paid job - part time (under 8 hours per week)
 4: Self - employed
 5: Unpaid domestic work
 6: Full time student
 7: Still at school
 8: Unemployed and seeking work
 9: Retired
 10: Not in paid work because of long term illness or disability
 11: Not in paid work for other reason

Q15

What is your average monthly combined household income?

Q15 [singleq]

Interviewer: this means total net income before having paid rent or other running costs. Respondents who live in shared accomodation are supposed to indicate only their personal income. Hand over show card No 1 to respondent.

1: **(1)** up to 1000€
 2: **(2)** up to 1500€
 3: **(3)** up to 2000€
 4: **(4)** up to 2500€
 5: **(5)** up to 3000€
 6: **(6)** up to 3500€
 7: **(7)** more than 3500€

Q16

One may have the feeling to be integrated into normal social life and to be a proper part of society or one may rather feel excluded. What about your case? How far do you feel to be part of it or do you rather feel excluded? Please use the numbers from 1 - 10 for the rating your opinion. 1 means that you feel excluded from social life. 10 means, that you feel part of it. The numbers from 2 to 9 allow you to grade your assessment.

Q16 [numq]

1: indicate number (1-10)

Q17

There are groups in our society, which tend to be rather at the top and other groups, which are at the bottom. How would you rank yourself using the numbers 1 to 10? 1 means that you are at the very bottom, 10 means, that you are positioned at the very top. The numbers from 2 to 9 allow you to grade your assessment.

Q17 [numq]

1: indicate number (1-10)

block_group_A1A2B1B2_1 Flt = studygroups It 5

b2

drug_use

Now we will ask about ATS use and other substance use during your life. Which of the ATS substances listed here have you ever consumed in your life? *Interviewer: Hand over show card No. 2. Please indicate number of consumption days and age at first use. Interviewer: Hand over show card No. 3 and No. 4 to respondent. Point out that No.2 is related to lifetime use and No. 3 is related to past year use. Repeat the explanation occasionally.*

drug_use_introduction [textq]

Q18 [singleq]

On how many days have you consumed Amphetamine (speed, whizz, phet) in your life?

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q18_1

How old were you when you first consumed Amphetamine?

Q18_1 [numq] Fit = (Q18 ne 1)

1: indicate age at first use

Q18_2

On how many days have you consumed Amphetamine within the past 12 months?

Q18_2 [singleq] Fit = (Q18 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q18_3

How old were you when you last took Amphetamine?

Q18_3 [numq] Fit = (Q18_2 eq 1) and (Q18 ne 1)

1: indicate age at last use

Q18_4

How many months ago did you last take Amphetamine?

Q18_4 [numq] Fit = (Q18_3 eq 0) and (Q18 ne 1)

1: indicate months (0-11)

Q18_5

On how many days have you consumed Amphetamine within the past 30 days?

Q18_5 [numq] Fit = (Q18_4 eq 0) and (Q18_3 eq 0) and (Q18 ne 1)

1: indicate consumption days (1-30)

b3

Q19

On how many days have you consumed MDMA/Ecstasy (e's, pills, mandy, cowies) in your life?

Q19 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q19_1

How old were you when you first consumed MDMA/Ecstasy?

Q19_1 [numq] Fit = (Q19 ne 1)

1: indicate age at first use

Q19_2

On how many days have you consumed MDMA/Ecstasy within the past 12 months?

Q19_2 [singleq] Fit = (Q19 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q19_3

How old were you when you last took MDMA/Ecstasy?

Q19_3 [numq] Fit = (Q19_2 eq 1) and (Q19 ne 1)

1: indicate age at last use

Q19_4

How many months ago did you last take MDMA/Ecstasy?

Q19_4 [numq] Fit = (Q19_3 eq 0) and (Q19 ne 1)

1: indicate months (0-11)

Q19_5

On how many days have you consumed MDMA/Ecstasy within the past 30 days?

Q19_5 [numq] Fit = (Q19_4 eq 0) and (Q19_3 eq 0) and (Q19 ne 1)

1: indicate consumption days (1-30)

b4

Q20

On how many days have you consumed Methamphetamine (Crystal Meth, Ice) in your life?

Q20 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q20_1

How old were you when you first consumed Crystal Meth?

Q20_1 [numq] Fit = (Q20 ne 1)

1: indicate age at first use

Q20_2

On how many days have you consumed Crystal Meth within the past 12 months?

Q20_2 [singleq] Fit = (Q20 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q20_3

How old were you when you last took Crystal Meth?

Q20_3 [numq] Fit = (Q20_2 eq 1) and (Q20 ne 1)

1: indicate age at last use

Q20_4

How many months ago did you last take Crystal Meth?

Q20_4 [numq] Fit = (Q20_3 eq 0) and (Q20 ne 1)

1: indicate months (0-11)

Q20_5

On how many days have you consumed Crystal Meth within the past 30 days?

Q20_5 [numq] Fit = (Q20_4 eq 0) and (Q20_3 eq 0) and (Q20 ne 1)

1: indicate consumption days (1-30)

b5

Q21

On how many days have you consumed new synthetic stimulants: cathinones, phenethylamines, mephedrone and similar substances ('legal highs', 'bath salts') in your life?

Q21 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q21_1

How old were you when you first consumed new synthetic stimulants?

Q21_1 [numq] Fit = (Q21 ne 1)

1: indicate age at first use

Q21_2

On how many days have you consumed new synthetic stimulants within the past 12 months?

Q21_2 [singleq] Fit = (Q21 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q21_3

How old were you when you last took new synthetic stimulants?

Q21_3 [numq] Fit = (Q21_2 eq 1) and (Q21 ne 1)

1: indicate age at last use

Q21_4

How many months ago did you last take new synthetic stimulants?

Q21_4 [numq] Fit = (Q21_3 eq 0) and (Q21 ne 1)

1: indicate months (0-11)

Q21_5

On how many days have you consumed new synthetic stimulants within the past 30 days?

Q21_5 [numq] Fit = (Q21_4 eq 0) and (Q21_3 eq 0) and (Q21 ne 1)

1: indicate consumption days (1-30)

b6

Q22

On how many days have you consumed non-prescribed amphetamine-type medication such as methylphenidate (Ritalin®), modafinil (Vigil®) in your life?

Q22 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q22_1

How old were you when you first consumed non-prescribed ATS?

Q22_1 [numq] Fit = (Q22 ne 1)

1: indicate age at first use

Q22_2

On how many days have you consumed non-prescribed ATS within the past 12 months?

Q22_2 [singleq] Fit = (Q22 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q22_3

How old were you when you last took non-prescribed ATS?

Q22_3 [numq] Fit = (Q22_2 eq 1) and (Q22 ne 1)

1: indicate age at last use

Q22_4

How many months ago did you last take non-prescribed ATS?

Q22_4 [numq] Fit = (Q22_3 eq 0) and (Q22 ne 1)

1: indicate months (0-11)

Q22_5

On how many days have you consumed non-prescribed ATS within the past 30 days?

Q22_5 [numq] Fit = (Q22_4 eq 0) and (Q22_3 eq 0) and (Q22 ne 1)

1: indicate consumption days (1-30)

block_group_A1A2B1B2C_1

b7

Q23

Now we come to other substances than ATS. On how many days have you consumed Cannabis (marijuana, hash, weed, skunk, ganja, pot) in your life?

Q23 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q23_1

How old were you when you first consumed Cannabis?

Q23_1 [numq] Fit = (Q23 ne 1)

1: indicate age at first use

Q23_2

On how many days have you consumed Cannabis within the past 12 months?

Q23_2 [singleq] Fit = (Q23 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q23_3

How old were you when you last took Cannabis?

Q23_3 [numq] Fit = (Q23_2 eq 1) and (Q23 ne 1)

1: indicate age at last use

Q23_4

How many months ago did you last take Cannabis?

Q23_4 [numq] Fit = (Q23_3 eq 0) and (Q23 ne 1)

1: indicate months (0-11)

Q23_5

On how many days have you consumed Cannabis within the past 30 days?

Q23_5 [numq] Fit = (Q23_4 eq 0) and (Q23_3 eq 0) and (Q23 ne 1)

1: indicate consumption days (1-30)

b8

Q24

On how many days have you consumed Cocaine (Coke, Charlie, rocks, crack) in your life?

Q24 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q24_1

How old were you when you first consumed Cocaine?

Q24_1 [numq] Fit = (Q24 ne 1)

1: indicate age at first use

Q24_2

On how many days have you consumed Cocaine within the past 12 months?

Q24_2 [singleq] Fit = (Q24 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q24_3

How old were you when you last took Cocaine?

Q24_3 [numq] Fit = (Q24_2 eq 1) and (Q24 ne 1)

1: indicate age at last use

Q24_4

How many months ago did you last take Cocaine?

Q24_4 [numq] Fit = (Q24_3 eq 0) and (Q24 ne 1)

1: indicate months (0-11)

Q24_5

On how many days have you consumed Cocaine within the past 30 days?

Q24_5 [numq] Fit = (Q24_4 eq 0) and (Q24_3 eq 0) and (Q24 ne 1)

1: indicate consumption days (1-30)

b9

Q25

On how many days have you consumed Hallucinogens (LSD, 'Magic Mushrooms') in your life?

Q25 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q25_1

How old were you when you first consumed Hallucinogens?

Q25_1 [numq] Fit = (Q25 ne 1)

1: indicate age at first use

Q25_2

On how many days have you consumed Hallucinogens within the past 12 months?

Q25_2 [singleq] Fit = (Q25 ne 1)

- 1: (1) no use
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-300 days
- 9: (9) >300 days

Q25_3

How old were you when you last took Hallucinogens?

Q25_3 [numq] Fit = (Q25_2 eq 1) and (Q25 ne 1)

1: indicate age at last use

Q25_4

How many months ago did you last take Hallucinogens?

Q25_4 [numq] Fit = (Q25_3 eq 0) and (Q25 ne 1)

1: indicate months (0-11)

Q25_5

On how many days have you consumed Hallucinogens within the past 30 days?

Q25_5 [numq] Fit = (Q25_4 eq 0) and (Q25_3 eq 0) and (Q25 ne 1)

1: indicate consumption days (1-30)

b11

Q27

On how many days have you consumed non-prescribed tranquiliser (benzodiazepines, Valium®) in your life?

Q27 [singleq]

- 1: (1) never used
- 2: (2) one day
- 3: (3) 2-5 days
- 4: (4) 6-10 days
- 5: (5) 11-20 days
- 6: (6) 21-50 days
- 7: (7) 51-100 days
- 8: (8) 101-500 days
- 9: (9) 501-1000 days
- 10: (10) >1000 days

Q27_1

How old were you when you first consumed non-prescribed tranquiliser?

Q27_1 [numq] Fit = (Q27 ne 1)

1: indicate age at first use

Q27_2

On how many days have you consumed non-prescribed tranquiliser within the past 12 months?

Q27_2 [singleq] Fit = (Q27 ne 1)

- 1: (1) no use
 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-300 days
 9: (9) >300 days

Q27_3

How old were you when you last took non-prescribed tranquiliser?

Q27_3 [numq] Fit = (Q27_2 eq 1) and (Q27 ne 1)

1: indicate age at last use

Q27_4

How many months ago did you last take non-prescribed tranquiliser?

Q27_4 [numq] Fit = (Q27_3 eq 0) and (Q27 ne 1)

1: indicate months (0-11)

Q27_5

On how many days have you consumed non-prescribed tranquiliser within the past 30 days?

Q27_5 [numq] Fit = (Q27_4 eq 0) and (Q27_3 eq 0) and (Q27 ne 1)

1: indicate consumption days (1-30)

b12

Q28

On how many days have you consumed non-prescribed opioids (heroin, smack, gear, morphine, methadone) in your life?

Q28 [singleq]

- 1: (1) never used
 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-500 days
 9: (9) 501-1000 days
 10: (10) >1000 days

Q28_1

How old were you when you first consumed non-prescribed opioids?

Q28_1 [numq] Fit = (Q28 ne 1)

1: indicate age at first use

Q28_2

On how many days have you consumed non-prescribed opioids within the past 12 months?

Q28_2 [singleq] Fit = (Q28 ne 1)

- 1: (1) no use
 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-300 days
 9: (9) >300 days

Q28_3

How old were you when you last took non-prescribed opioids?

Q28_3 [numq] Fit = (Q28_2 eq 1) and (Q28 ne 1)

1: indicate age at last use

Q28_4

How many months ago did you last take non-prescribed opioids?

Q28_4 [numq] Fit = (Q28_3 eq 0) and (Q28 ne 1)

1: indicate months (0-11)

Q28_5

On how many days have you consumed non-prescribed opioids within the past 30 days?

Q28_5 [numq] Fit = (Q28_4 eq 0) and (Q28_3 eq 0) and (Q28 ne 1)

1: indicate consumption days (1-30)

b13

Q29_sub

Did you ever consume further substances (except alcohol and tobacco) in your life?

Q29_sub [singleq]

- 1: yes
 2: no

Q29_0

Please indicate substance, number of consumption days and age.

Q29_0 [openq] Fit = (Q29_sub eq 1)

Interviewer: Please insert respondent's self-chosen substance here

Q29

On how many days have you consumed @insert(Q29_0) in your life?

Q29 [singleq] Fit = (Q29_sub eq 1)

- 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-500 days
 9: (9) 501-1000 days
 10: (10) >1000 days

Q29_1

How old were you when you first consumed @insert(Q29_0)?

Q29_1 [numq] Fit = (Q29 ne 1) and (Q29_sub eq 1)

1: indicate age at first use

Q29_2

On how many days have you consumed @insert(Q29_0) within the past 12 months?

Q29_2 [singleq] Fit = (Q29 ne 1) and (Q29_sub eq 1)

- 1: (1) no use
 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-300 days
 9: (9) >300 days

Q29_3

How old were you when you last took @insert(Q29_0)?

Q29_3 [numq] Fit = (Q29_2 eq 1) and (Q29 ne 1) and (Q29_sub eq 1)

1: indicate age at last use

Q29_4

How many months ago did you last take @insert(Q29_0)?

Q29_4 [numq] Fit = (Q29_3 eq 0) and (Q29 ne 1) and (Q29_sub eq 1)

1: indicate months (0-11)

Q29_5

On how many days have you consumed @insert(Q29_0) within the past 30 days?

Q29_5 [numq] Fit = (Q29_4 eq 0) and (Q29_3 eq 0) and (Q29 ne 1) and (Q29_sub eq 1)

1: indicate consumption days (1-30)

b14

Q30_sub

Did you ever consume further substances (except alcohol and tobacco) in your life?

Q30_sub [singleq] Fit = (Q29_sub eq 1)

1: yes
 2: no

Q30_0

Please indicate substance, number of consumption days and age.

Q30_0 [openq] Fit = (Q30_sub eq 1) and (Q29_sub eq 1)

Interviewer: Please insert respondent's self-chosen substance here

Q30

On how many days have you consumed @insert(Q30_0) in your life?

Q30 [singleq] Fit = (Q30_sub eq 1) and (Q29_sub eq 1)

- 2: (2) one day
 3: (3) 2-5 days
 4: (4) 6-10 days
 5: (5) 11-20 days
 6: (6) 21-50 days
 7: (7) 51-100 days
 8: (8) 101-500 days
 9: (9) 501-1000 days
 10: (10) >1000 days

Q30_1
How old were you when you first consumed @insert(Q30_0)?

Q30_1 [numq] Fit = (Q30 ne 1) and (Q30_sub eq 1) and (Q29_sub eq 1)

1: indicate age at first use

Q30_2
On how many days have you consumed @insert(Q30_0) within the past 12 months?

Q30_2 [singleq] Fit = (Q30 ne 1) and (Q30_sub eq 1) and (Q29_sub eq 1)

1: (1) no use
2: (2) one day
3: (3) 2-5 days
4: (4) 6-10 days
5: (5) 11-20 days
6: (6) 21-50 days
7: (7) 51-100 days
8: (8) 101-300 days
9: (9) >300 days

Q30_3
How old were you when you last took @insert(Q30_0)?

Q30_3 [numq] Fit = (Q30_2 eq 1) and (Q30 ne 1) and (Q30_sub eq 1) and (Q29_sub eq 1)

1: indicate age at last use

Q30_4
How many months ago did you last take @insert(Q30_0)?

Q30_4 [numq] Fit = (Q30_3 eq 0) and (Q30 ne 1) and (Q30_sub eq 1) and (Q29_sub eq 1)

1: indicate months (0-11)

Q30_5
On how many days have you consumed @insert(Q30_0) within the past 30 days?

Q30_5 [numq] Fit = (Q30_4 eq 0) and (Q30_3 eq 0) and (Q30 ne 1) and (Q30_sub eq 1) and (Q29_sub eq 1)

1: indicate consumption days (1-30)

Q34
Have you ever smoked tobacco (cigarettes, cigars, shisha, e-cigarettes)?

Q34 [singleq]

1: no, I never smoked
2: yes, I currently smoke on a daily basis
3: yes, I currently smoke, but not on a daily basis
4: yes, I previously smoked on a daily basis, but now I don't smoke at all
5: yes, I previously smoked irregularly, but now I don't smoke at all
6: yes, I just tried smoking but never smoked regularly or on a daily basis

Q35
Have you ever had a drink containing alcohol in your life?

Q35 [singleq]

1: yes
2: no

b1 Fit = (Q35 eq 1)

alc_life
Please refer the following four questions to your entire life: Have you ever felt you needed to cut down on your drinking?

Q36_1 [singleq]

1: yes
2: no

Q36_2 [singleq]
Have people annoyed you by criticizing your drinking?

1: yes
2: no

Q36_3 [singleq]
Have you ever felt guilty about drinking?

1: yes
2: no

Q36_4 [singleq]
Have you ever felt you needed a drink first thing in the morning (Eye-opener) to steady your nerves or to get rid of a hangover?

1: yes
2: no

Q37_1
Now we come to some further questions about alcohol use. Please refer the following three questions to the last 12 months. How often did you have a drink containing alcohol in the last year?

Q37_1 [singleq]

1: never
2: monthly or less
3: 2-4 times a month
4: 2-3 times per week
5: 4 or more times a week

Q37_2
How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?

Q37_2 [singleq] Fit = (Q37_1 ne 1)

1: 1 or 2 drinks
2: 3 or 4
3: 5 or 6
4: 7 to 9
5: 10 or more

Q37_3
How often did you have six drinks or more on one occasion in the past year?

Q37_3 [singleq] Fit = (Q37_1 ne 1)

1: never
2: less than monthly
3: monthly
4: weekly
5: daily or almost daily

Q38

Here are a number of graphs that show the possible developments in ATS use. *Interviewer: Hand over show card No. 5 to respondent. At the far left is the point where you started using ATS and the far right is how you use ATS at the moment. If you don't use ATS at the moment, the right side is how you used ATS just before you stopped. Please indicate which pattern is most similar to the development of your ATS use.*

Q38 [singleq] Flt = (studygroups ne 5)

1: (1) My ATS use has grown slowly.
 2: (2) After I had tried ATS, I immediately started to use large quantities, but my use has slowly decreased.
 3: (3) I started at about the same level as I now use ATS. Both quantity and frequency of use are (rather) unchanged.
 4: (4) I started at about the same level as I now use ATS, but I had repeated and significant phases of abstinence all along.
 5: (5) My ATS use has been very changeable.
 6: (6) My ATS use increased since I started, until I reached a certain peak. After that, my ATS use reduced to a certain level.

Q39

Have you ever injected one of the drugs for which you reported consumption?

Q39 [singleq]

1: never
 2: yes, but not within the last 12 months
 3: yes, within the last 12 months but not within the last 30 days
 4: yes, within the last 30 days

Q39_inject_new

Which of the drugs for which you reported consumption have you ever injected?

Q39_inject_new [multiq] Flt = (Q39 ne 1)

1: Amphetamine
 2: MDMA/Ecstasy
 3: Methamphetamine/Crystal Meth
 4: new synthetic stimulants
 5: non-prescribed amphetamine-type medication
 6: Cocaine
 7: Non-prescribed tranquilliser
 8: Non-prescribed opioids
 9: other drugs

Q40_i_new

In the beginning you said that you accessed treatment services to manage substance use once. Please indicate if you accessed treatment services because of alcohol or because of illicit drugs and indicate the age at first treatment entering.

Q40_1_new [numq] Flt = (S9 eq 1)

Interviewer: treatment means inpatient and outpatient drug treatment as well as low-threshold services but no self-help groups

1: Because of my use of alcohol I entered treatment at the age of

2: Because of my use of illicit drugs I entered treatment at the age of

Q41

Does your partner use ATS currently?

Q41 [singleq] Flt = (Q6 ne 3)

1: yes
 2: no
 3: not anymore

Q42

How many close friends do you have currently?

Q42 [numq]

If no close friends, indicate 0.

1: indicate number of friends

Q44

How many of them consume ATS currently?

Q44 [numq] Flt = (Q42 ne 0)

NoAnswerLabel: 999 "don't know"

1: indicate number of friends

Q46

How often do you see your family on average?

Q46 [singleq]

1: never
 2: less than monthly
 3: monthly
 4: weekly
 5: (almost) daily

Q47

How many of them consume ATS currently?

Q47 [numq] Flt = (Q45 ne 0)

NoAnswerLabel: 999 "don't know"

1: indicate number of members

Q48

How would you describe the level of love and care you received in your childhood? 1 means 'no love and care' 10 'much love and care'

Q48 [numq]

1: indicate number (1-10)

block_group_A1A2B1B2_2 Flt = studygroups lt 5

Q49

You mentioned before that you used @insert(ATS) in your life. Did you use different ATS together on the same day?

Q49 [singleq]

Fit = ((Q18 ne 1) and (Q19 ne 1)) or ((Q18 ne 1) and (Q20 ne 1)) or ((Q18 ne 1) and (Q21 ne 1)) or ((Q18 ne 1) and (Q22 ne 1)) or ((Q19 ne 1) and (Q20 ne 1)) or ((Q19 ne 1) and (Q21 ne 1)) or ((Q19 ne 1) and (Q22 ne 1)) or ((Q20 ne 1) and (Q21 ne 1)) or ((Q20 ne 1) and (Q22 ne 1)) or ((Q21 ne 1) and (Q22 ne 1))

1: yes
2: no

Q49_1

What was the typical combination of ATS, when you used more than one type on the same day?

Q49_1 [multiq]

Fit = (Q49 eq 1) and (((Q18 ne 1) and (Q19 ne 1) and (Q20 ne 1)) or ((Q18 ne 1) and (Q19 ne 1) and (Q21 ne 1)) or ((Q18 ne 1) and (Q19 ne 1) and (Q22 ne 1)) or ((Q18 ne 1) and (Q20 ne 1) and (Q21 ne 1)) or ((Q18 ne 1) and (Q20 ne 1) and (Q22 ne 1)) or ((Q19 ne 1) and (Q20 ne 1) and (Q21 ne 1)) or ((Q19 ne 1) and (Q20 ne 1) and (Q22 ne 1)) or ((Q19 ne 1) and (Q21 ne 1) and (Q22 ne 1)) or ((Q20 ne 1) and (Q21 ne 1) and (Q22 ne 1)))

1: Amphetamine
2: MDMA/Ecstasy
3: Methamphetamine/ Crystal Meth
4: new synthetic stimulants
5: non-prescribed amphetamine-type medication

Q50

What was/were your favourite ATS and in which consumption phase? Please choose one of the following options and indicate in this way for what point of your ATS use your answer is true. Interviewer hand over show card No. 6 and explain the meaning of it. Respondent is supposed to use the scale separately for each ATS listed. Users with lifetime ATS use less than 6 times are supposed to choose between "never" and "in the beginning"

Q50 [singlegridq]

Fit = ((Q18 ne 1) and (Q19 ne 1)) or ((Q18 ne 1) and (Q20 ne 1)) or ((Q18 ne 1) and (Q21 ne 1)) or ((Q18 ne 1) and (Q22 ne 1)) or ((Q19 ne 1) and (Q20 ne 1)) or ((Q19 ne 1) and (Q21 ne 1)) or ((Q19 ne 1) and (Q22 ne 1)) or ((Q20 ne 1) and (Q21 ne 1)) or ((Q20 ne 1) and (Q22 ne 1)) or ((Q21 ne 1) and (Q22 ne 1))

Interviewer: hand over show card No. 6 and explain the meaning of it one more time. Respondent is supposed to use the scale separately for each ATS listed.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
1: Amphetamine					
2: MDMA/Ecstasy					
3: Methamphetamine/ Crystal Meth					
4: new synthetic stimulants					
5: non-prescribed amphetamine-type medication					

Restrict = fav_ATS

Q51

Did you typically use any of the following substances together with ATS, on one occasion?

Q51 [multiq]

Interviewer: Multiple answers possible. Tobacco is not relevant.

1: Alcohol
2: Cannabis
3: other, please specify (max three)
4: never took any other substance (apart from tobacco) together with ATS

SOS

For the following questions, please think about the 12 months you used ATS most often. For each of the five questions, please indicate the most appropriate response.

txt1 [textq]

Interviewer: Please hand over show card No. 7 to respondent and explain that the first set of answer options belongs to the following four questions and the second one to the fifth question.

Q52 [singleq]

In those 12 months did you ever think your use of ATS was out of control?

1: (1) never/almost never
2: (2) sometimes
3: (3) often
4: (4) always/nearly always

Q53

In those 12 months did the prospect of missing a shot/snort (or dose) ever make you anxious or worried?

Q53 [singleq]

1: never/almost never
2: sometimes
3: often
4: always/nearly always

Q54

In those 12 months did you ever worry about your use of amphetamines?

Q54 [singleq]

1: never/almost never
2: sometimes
3: often
4: always/nearly always

Q55

In those 12 months did you ever wish you could stop?

Q55 [singleq]

1: never/almost never
2: sometimes
3: often
4: always/nearly always

Q56

In those 12 months how difficult did you find it to stop or go without amphetamines?

Q56 [singleq]

Interviewer: Please remind respondent to use the second set of answer options.

1: not difficult
2: quite difficult
3: very difficult
4: impossible

Q57_new

How would you describe your ATS use in general?

Q57_new [singleq]

1: Experimental (single or short-term use)
2: Recreational/social (controlled use in social setting)
3: Situational (use for specific reason)
4: Intensive (high doses/binge)
5: Compulsive (very frequent or daily doses/ withdrawal)

Q59

On what days and at what time did you consume ATS? Please indicate all applicable.

Q59 [singlegridq]

Interviewer: Please hand over show card No. 6 to respondent and let the respondent indicate point of ATS use separately for each answer option.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
1: on days off during daytime					
2: on days off during night time					
3: on working days during daytime					
4: on working days during night time					

Q60

With whom did you consume ATS usually? Please indicate all applicable.

Q60 [singlegridq]

Interviewer: Let respondent use show card No. 6 and let respondent indicate point of ATS use separately for each answer option.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
1: alone					
2: with (sex) partner/spouse					
3: with friends/peers					
4: with family members					
5: with colleagues					
6: other, please specify (max three)					
<input type="text"/>					

Q61

In which setting or context did you consume ATS? Please indicate all applicable.

Q61 [singlegridq]

Interviewer: Let respondent use show card No. 6 and let respondent indicate point of ATS use separately for each answer option.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
1: at parties					
2: at work					
3: at home					
4: in the streets (not in context of festival/party)					
5: other, please specify (max three)					
<input type="text"/>					

Q62

There are different reasons, why people consume ATS. We list some typical reasons. Please indicate all reasons, why you consumed ATS.

Q62 [singlegridq]

Interviewer: Let respondent use show card No. 6 and let respondent indicate point of ATS use separately for each answer option.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
2: to feel less drunk					
24: to better enjoy music					
25: to feel euphoric and relaxed					
26: to have a better connection with my peers/partner					
4: to beat boredom					
5: to cope with hunger or cold					
6: to go out even though I was tired / to stay awake at parties					
7: to be more secure in social situations					
8: to enhance sexual pleasure					
9: to cope with stress/ forget about problems					
10: to cope with mental health issues					
11: to increase my creativity					
13: because I lost control and could not help to consume ATS					
15: to manage family life and housekeeping					
17: because of pressure (by peers or partner) to consume					
18: to increase my performance at work/education					
19: because it is 'normal' in my social environment					
20: to lose weight					
21: because of no danger of police enforcement					
23: other, please specify (max three)					
<input type="text"/>					

Q63

Did you experience one or more of the following negative consequences of ATS use? Please indicate all applicable.

Q63 [singlegridq]

Interviewer: Let respondent use show card No. 6 and let respondent indicate point of ATS use separately for each answer option.

	(1) never	(2) in the beginning	(3) after a while	(4) in the latest or current ATS phase	(5) almost every phase
1: insomnia/ fatigue					
2: emotional effects such as nervousness / irritability / loneliness / angeriness / guiltiness / low mood / lacking in concentration / suicidal					
3: physical effects such as having no energy / loss of appetite / insomnia					
4: own use of violence (sexual and/or physical)					
5: own Experience of violence (sexual and/ or physical)					
7: unable to manage daily routines					
8: financial problems					
9: losing social contacts					
10: getting in trouble with police					
12: other, please specify (max three)					
<input type="text"/>					

Q64_new

Which of the substances you mentioned before, i.e. @insert(non_ATS) did you mostly use, in order to deal with negative consequences of ATS use, e.g. insomnia, nervousness?

Q64_new [multiq]

Multiple answers possible

- 1: Alcohol
- 2: Cannabis
- 3: Cocaine
- 4: Hallucinogenes
- 6: Non-prescribed tranquilliser
- 7: Non-prescribed opioids
- 8: @insert(Q29_0)
- 9: @insert(Q30_0)
- 10: none

Q66_new

Some people give themselves specific 'consumption rules' which they usually follow. Here are some of those rules. Please indicate all rules you usually follow.

Q66_new [multiq]

Multiple answers possible

- 1: I do not use ATS in the daytime
- 2: I limit the amount of ATS which I am consuming
- 3: I do not use ATS during work or during courses at university
- 4: Between phases of ATS use I always observe rules to have phases without ATS use.
- 5: I use ATS only on weekends.
- 6: I use ATS only on specific occasions such as festivals, holiday, or selected parties.
- 7: I never use ATS when I am feeling bad or when I am in a bad mood.
- 8: I only use ATS with people whom I know personally.
- 9: I don't use when my kids/family are around
- 10: I only use ATS if the use is compatible with my everyday life.
- 11: I only use ATS when I can afford it and have money left after paying for my basic necessities.
- 12: other, please specify (max three)

Q67

What were the reasons, why you reduced or stopped your ATS use at some point?

Q67 [multiq]

Multiple answers possible

- 1: I never reduced/stopped my ATS use
- 2: I wanted to get rid of the negative physical health consequences of ATS use
- 3: I wanted to get rid of the negative mental health consequences of ATS use
- 4: I could not afford it anymore
- 6: other people (friends, family, partner) expected me to do so
- 7: I felt I was dependent and/or lost control, so I wanted to stop/reduce the consumption
- 8: I became pregnant / parent
- 10: I entered treatment
- 11: I had to go to prison
- 12: I disconnected from my social network
- 13: I found a new romantic partner
- 15: ATS consumption was not compatible with my job/studies
- 17: I was afraid of law enforcement
- 18: other, please specify (max three)

Q68

Did you enhance your consumption of other non-ATS substances like @insert(non_ATS) after you reduced or stopped your ATS consumption?

Q68 [singlegridq] Fit = (Q67 ne 1)

	yes	no
1: Alcohol		
2: Cannabis		
3: Cocaine		
4: Hallucinogenes		
5: Ketamine		
6: Non-prescribed tranquilliser		
7: Non-prescribed opioids		
8: @insert(Q29_0)		
9: @insert(Q30_0)		
10: @insert(Q31_0)		
11: @insert(Q32_0)		
12: @insert(Q33_0)		

Restrict = non_ATS

Q69

Why didn't you increase your consumption of ATS?

Q69 [multiq] Fit = ((studygroups eq 2) or (studygroups eq 4))

Multiple answers possible

- 1: I wanted to keep control
- 2: I wanted to keep ATS consumption as something special not for every day/every party
- 3: I heard that the effects will get weaker the more you consume
- 5: I was afraid that a higher consumption would lead to physical problems
- 6: I was afraid that a higher consumption would lead to mental problems
- 7: I was afraid that a higher consumption would lead to problems in my job/studies
- 8: I was afraid that a higher consumption would lead to problems with my partner/friends/family
- 9: I could not financially afford a higher/more frequent use
- 11: I felt better/good with less use
- 12: other, please specify (max three)

block_group_C_1 Fit = studygroups eq 5

Q85

Now I will ask you some questions about about your exposition to ATS. In what situation have you been exposed to ATS for the first time?

Q85 [singleq]

- 1: when I was hanging out with friends
- 2: when I was at a club/party/festival
- 3: when I was at work
- 4: at a dealer's place where I wanted to purchase other substances than ATS
- 5: other, please specify (max three)

Q88

How many times in your life have you been exposed to ATS?

Q88 [singleq]

- 1: once
- 2: several times
- 3: often
- 4: almost all the time

Q87_often
When you were exposed to ATS use for the first time, why didn't you try ATS?

Q87_often [singlegridq] Fit = (Q88 ne 1)

Multiple answers possible

	(1) never	(2) at the first exposition	(3) at later expositions	(4) at almost every exposition
1: I don't use any psychoactive substances in general				
2: I don't use illegal substances in general				
3: I don't use 'chemical substances' in general				
4: I was afraid of getting dependent				
5: I heard bad things about the effects of ATS				
6: I was afraid because I didn't know ATS and its effects				
7: I didn't like the behaviour of people on ATS which I observed earlier				
8: I didn't know if the available ATS was without hazardous extenders				
9: I wasn't interested in these substances				
10: a friend/my partner told me not to do it				
11: not the right people present				
12: not the right setting				
13: because my parent/sister/brother told me so				
14: because of my parental responsibility				
15: I don't want to take more/other drugs than I already do				
16: I am afraid of hazard to my health				
17: other, please specify (max three) <input type="text"/>				

Q87_once
When you were exposed to ATS use for the first time, why didn't you try ATS?

Q87_once [multiq] Fit = (Q88 eq 1)

Multiple answers possible

1: I don't use any psychoactive substances in general
 2: I don't use illegal substances in general
 3: I don't use 'chemical substances' in general
 4: I was afraid of getting dependent
 5: I heard bad things about the effects of ATS
 6: I was afraid because I didn't know ATS and its effects
 7: I didn't like the behaviour of people on ATS which I observed earlier
 8: I didn't know if the available ATS was without hazardous extenders
 9: I wasn't interested in these substances
 10: a friend/my partner told me not to do it
 11: not the right people present
 12: not the right setting
 13: because my parent/sister/brother told me so
 14: because of my parental responsibility
 15: I don't want to take more/other drugs than I already do
 16: I am afraid of hazard to my health
 17: other, please specify (max three)

Q89
How old were you, when you were last exposed to ATS?

Q89 [numq]

1: indicate age

Q90
Did somebody from your social network (peers, partner, family) try to persuade you to try ATS?

Q90 [singleq]

1: yes, once
 2: yes, several times
 3: no

Q91
Have you ever been tempted to use ATS after all?

Q91 [singleq]

1: yes, once
 2: yes, several times
 3: no

block_group_A1A2B1B2C_2

Q58_new
Currently, how difficult or easy is it for you personally to get ATS within 24 hours, if you wish to?

Q58_new [singleq]

1: impossible
 2: difficult
 3: neither easy nor difficult
 4: rather easy
 5: easy

Q82
How many times have you been imprisoned in your life?

Q82 [numq]

Interviewer: If never enter 0

1: times imprisoned

Q83
How long have you ever been imprisoned?

Q83 [numq] Fit = (Q82 ne 0)

Interviewer: If imprisonment lasted less than 1 month indicate 0 months

1: months in total

Q84
Have you ever been convicted of any of these offenses? Please indicate all applicable.
Q84 [multiq]
 Multiple answers possible
 10: Never convicted
 1: Possession of illicit drugs
 2: Selling or distributing drugs
 3: Fraud, forgery
 4: Shoplifting
 5: Thefts (of property or from person)
 6: Robbery
 7: Sexual assault / sexual violence
 8: Physical violence
 9: Other offense, please specify (max three)

Q70
Do you have any medical problems, which continue to interfere with your life?
Q70 [singleq]
 1: yes
 2: no

Q70_1
If yes, please specify
Q70_1 [openq] Fit = (Q70 eq 1)

Q72_1
Please assess your current physical health condition on a scale from 1 to 10 from your point of view. 1 means you think your physical health condition ist very bad, 10 means you think your physical health condition is excellent.
Q72_1 [numq]
 1: indicate number (1-10)

Q72_2
Please assess your current mental health condition on a scale from 1 to 10 from your point of view. 1 means you think your mental health condition ist very bad, 10 means you think your mental health condition is excellent.
Q72_2 [numq]
 1: indicate number (1-10)

Q73
Did a physician or another specialist tell you that you have any of the diseases listed here? Or have you been in treatment for the disease, e.g. in a hospital or in an emergency department? Please indicate all applicable.
Q73 [multigrdq]
Interviewer: Please ask for each disease first lifetime and then past 12 months. Then go to next disease.

	no	lifetime	past 12 months
1: Attention deficit hyperactivity disorder (ADHD)			
2: Depression			
3: Obsessive-compulsive disorder			
4: Eating disorder			
5: Psychosis			
6: Borderline			
7: other, please specify (max three) <input type="text"/>			

Q74
Have you been treated medically with any of the following prescription drugs?
Q74 [multigrdq] Fit = (nation ne 4)
Interviewer: Please ask for each medication first life-time and then past 12 months. Then go to next medication. Multiple answers possible

	no	lifetime	past 12 months
1: Medications to treat ADHD: Methylphenidate (Ritalin, Medikinet)			
2: Sedatives / anxiolytics like Benzodiazepines (Valium, Tavor)			
3: Antidepressants			
4: Antipsychotics or neuroleptics: Haldol, Seroquel, Zyprexa			
5: other, please specify (max three) <input type="text"/>			

Q75

Here I have a list of problems people sometimes have. As I read each one to you, I want you to tell me how much that problem has distressed or bothered you during the past 7 days including today. These are the answers I want you to use. Interviewer: Please hand over show card No. 8 to respondent.

Q75 [singlegrid]

During the past 7 days, how much were you distressed by...

	(1) Not at all	(2) A little bit	(3) Moderately	(4) Quite a bit	(5) Extremely
1: Faintness or dizziness					
2: Feeling no interest in things					
3: Nervousness or shakiness inside					
4: Pains in heart or chest					
5: Feeling lonely					
6: Feeling tense or keyed up					
7: Nausea or upset stomach					
8: Feeling blue					
9: Suddenly scared for no reason					
10: Trouble getting your breath					
11: Feelings of worthlessness					
12: Spells of terror or panic					
13: Numbness or tingling in parts of your body					
14: Feeling hopeless about the future					
15: Feeling so restless you couldn't sit still					
16: Feeling weak in parts of your body					
17: Thoughts of ending your life					
18: Feeling fearful					

Q76_new

Please tell me how much you agree or disagree with the following statement using this 1 - 7 scale: Interviewer hand over show card No. 9 . 'In general, I am satisfied with my life.'

Q76_new [singleq]

1: (1) Strongly disagree
 2: (2) Disagree
 3: (3) Slightly disagree
 4: (4) Neither agree nor disagree
 5: (5) Slightly agree
 6: (6) Agree
 7: (7) Strongly Agree

lifeevents

Did you experience one of the following stressful events in your life? If yes, please indicate your age at the point where the event first happened to you. Please indicate all applicable.

Q77_1 [numq]
 Serious accident at work, home, or during recreational activity or serious car accident?

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_3 [numq]
 Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_4 [numq]
 Sexual assault before age of 16 (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_5 [numq]
 Sexual assault after age of 16 (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_6 [numq]
 Life-threatening illness or injury

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_7 [numq]
 Death of a parent in childhood

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_8 [numq]
 Growing up in an orphanage, public institution, foster parents

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_9 [numq]
 Death of someone close to you

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_10 [numq]
 Serious injury, harm, or death you caused to someone else

NoAnswerLabel: 99 "no"

1: Yes, at age _____

Q77_11 [numq]
Parent's substance dependency while living together with parents

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_12 [numq]
Parent's serious illness (physical or mental)

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_13 [numq]
unwanted job loss

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_14 [numq]
Imprisonment

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_15 [numq]
Separation from long term partner/divorce

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_16 [numq]
Became homeless

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_17 [numq]
Being kicked out from parent's home

NoAnswerLabel: 99 "no"

1: Yes, at age

Q77_18 [numq]
Any other very stressful event or experience, please specify. *Interviewer: Respondent is allowed to report up to 3 self-chosen events here*

NoAnswerLabel: 99 "no"

1: Yes, at age specify event:

Q77_19
Any other very stressful event or experience, please specify.

Q77_19 [numq] Fit = ((Q77_18 ne 99))

NoAnswerLabel: 99 "no"

1: Yes, at age specify event:

Q77_20
Any other very stressful event or experience, please specify.

Q77_20 [numq] Fit = ((Q77_18 ne 99)) and ((Q77_19 ne 99))

NoAnswerLabel: 99 "no"

1: Yes, at age specify event:

Q78
How well do the following statements describe your personality? Please use the following scale.
Interviewer: please hand over show card No. 10 to respondent .

Q78 [singlegridq]
I see myself as someone who...

	(1) disagree strongly	(2) disagree a little	(3) neither agree nor disagree	(4) agree a little	(5) agree strongly
1: ... is reserved					
2: ... is generally trusting					
3: ... tends to be lazy					
4: ... is relaxed, handles stress well					
5: ... has few artistic interests					
6: ... is outgoing, sociable					
7: ... tends to find fault with others					
8: ... does a thorough job					
9: ... gets nervous easily					
10: ... has an active imagination					

Q79
How much do you agree or disagree to the following statements?

Q79 [singlegridq]
Interviewer: please let respondent use show card No. 10 again .

	(1) disagree strongly	(2) disagree a little	(3) neither agree nor disagree	(4) agree a little	(5) agree strongly
1: I would like to explore strange places					
2: I like to do frightening things					
3: I like new and exciting experiences, even if I have to break rules					
4: I prefer friends who are exciting and unpredictable					

Q80

How true or not true are the following statements for you?

Q80 [singlegridq]

Interviewer: please hand over show card No. 11 to respondent .

	(1) Not true at all	(2) Hardly true	(3) Moderately true	(4) Exactly true
1: I can always manage to solve difficult problems if I try hard enough.				
2: If someone opposes me, I can find the means and ways to get what I want.				
3: It is easy for me to stick to my aims and accomplish my goals.				
4: I am confident that I could deal efficiently with unexpected events.				
5: Thanks to my resourcefulness, I know how to handle unforeseen situations.				
6: I can solve most problems if I invest the necessary effort.				
7: I can remain calm when facing difficulties because I can rely on my coping abilities.				
8: When I am confronted with a problem, I can usually find several solutions.				
9: If I am in trouble, I can usually think of a solution.				
10: I can usually handle whatever comes my way.				

Q81

Please indicate how much you agree with the following statements as they apply to you over the last month. If a particular situation has not occurred recently, answer according to how you think you would have felt.

Q81 [singlegridq] Fit = nation eq 2

Interviewer: please hand over show card No. 12 to respondent .

	(1) Not true at all	(2) Rarely true	(3) Sometimes true	(4) Often true	(5) True nearly all the time
1: I am able to adapt when changes occur.					
2: I can deal with whatever comes my way.					
3: I try to see the humorous side of things when I am faced with problems.					
4: Having to cope with stress can make me stronger.					
5: I tend to bounce back after illness, injury, or other hardships.					
6: I believe I can achieve my goals, even if there are obstacles.					
7: Under pressure, I stay focused and think clearly.					
8: I am not easily discouraged by failure.					
9: I think of myself as a strong person when dealing with life's challenges and difficulties.					
10: I am able to handle unpleasant or painful feelings like sadness, fear, and anger.					

block_end

Q92

That was the last question. Thank you very much for your participation and for sharing your experiences! Interviewer: Please give incentive to respondent and receipt the payment on the receipt list. After that, please fill in the next questions about the setting of the interview

Q92 [textq]

Q93

Setting of recruitment?

Q93 [singleq]

1: respondent conducted online screening and/or contacted research team on it's own initiative
 2: drug service
 3: open drug scene
 4: university campus
 5: (electronic) music club
 6: pub, bar or café
 7: on the street
 8: other, please specify

Q94

Setting of interview?

Q94 [singleq]

1: private
 2: drug service
 3: public indoor (e.g. café)
 4: public outdoor (e.g. park)

Q94_1

Please specify the setting '@insert(Q94)'

Q94_1 [openq]

Q95

Third person present?

Q95 [singleq]

1: yes
 2: no

Q96

Please insert a comment here regarding the recruitment, the interview, the respondent or anything else. If everything was fine please insert `ok`

Q96 [openq]

Q97

That was it. When you are done with all interviews for the day, please remember to connect your tablet with a WiFi network and transfer the data. Thank you very much!

Q97 [textq]

