

# **Early recovery processes of persons with substance use disorder, using novel psychoactive substances**

**PhD dissertation**

**Ferenc Császár MD, MSc**



**Doctoral School of Clinical Neurosciences (D221)**

**Head of Doctoral School: Prof. József Janszky MD, PhD, DSc**

**Psychiatry program (B-1/2012)**

**Head of Program: Prof. Tamás Tényi MD, PhD, DSc**

**Supervisor: Prof. Gábor Kelemen MD, PhD**

**Co-supervisor: Márta B. Erdős PhD**

**University of Pécs Medical School, OGYDHT Pécs**

**2024**

## **1. Introduction**

This study aims to analytically explore some aspects of the paradigm shift brought on by the use of novel psychoactive substances, as outlined by RÁCZ (2016).

The psychopathology of novel psychoactive substance (NPS) users as polydrug-dependent patients is explored, as well as the traumatic experiences they have faced both in the past and concurrently with their drug use.

Highlighting the unique nature of NPS is crucial for both healthcare and scientific research. Treatment plans are incomplete without reliable data on user habits, psychological traits, preceding life events, social circumstances, chemical properties of abused compounds, and potential recovery indicators. A comprehensive, flexibly adapted action plan is needed from the onset, extending to several years of sobriety.

As the data collected are overwhelmingly rich, the current focus is on trauma, emotional management, and early recovery processes.

## **2. NPS overview**

Novel psychoactive substances are drugs—either in pure form or in preparation—that are not controlled by international drug control conventions. Individual and community-level risks caused by their use are commensurable with or exceed those elicited by classical

substances. By 2023, NPSs have become a global concern affecting 141 countries. The several hundreds of rapidly proliferating substances are categorised by their effect or chemical composition (United Nations Office on Drugs and Crime, 2024).

The four main types of these synthetic drugs are stimulants, cannabinoids, hallucinogens, and depressants (Shafi et al., 2020). Two common NPS types are synthetic cathinones (SCH, beta-ketone amphetamine analogues) and synthetic cannabinoids (SCB) (Prosser & Nelson, 2012).

Early studies on NPSs focused on the puzzling multitude of these substances and the new risks associated with use, such as HIV-1 outbreak among synthetic cathinone users (Hanke et al., 2020), increased risk of Hepatitis C infection (McAuley et al., 2019), incidences of severe and sudden cardiac, neurological and psychiatric symptoms, and occurrences of death (Funada et al., 2019; Prosser & Nelson, 2012; Van Hout et al., 2018). Psychiatric symptoms include paranoia, bizarre and violent behaviour, and acute psychotic episodes (Bennett et al., 2017). Further, NPS use is usually polydrug use, the concomitant use of two or more psychoactive substances multiplying the serious health risks (Higgins et al., 2021; Neicun et al., 2020; Rinaldi et al., 2020).

Polydrug use entails unpredictable adverse effects and higher risks of overdose. Dependence occurs when the frequency or quantity of use leads to severe impairments in the bio-psycho-social domains (European Monitoring Centre for Drugs & Drug Addiction, 2021). Polydrug use and dependence are a feature possibly related to

patient characteristics and the addictive potentials, volatility, and unpredictability of NPSs.

### **3. NPS use, psychological trauma and emotional regulation**

Studies have suggested a strong connection between SUD, psychological trauma, and emotion regulation deficits (Van den Brink, 2015). Emotion regulation is the ability to recognise, identify, evaluate, control, or modify one's emotional reactions (Kostiuk & Fouts, 2002). Emotion regulation problems, understood as the failure to regulate or tolerate negative emotions, are closely associated with interpersonal trauma and its frequent consequence, posttraumatic stress disorder, PTSD (Dvir et al., 2014; Nagulendran & Jobson, 2020). Comorbidity between PTSD and SUD is common: amongst individuals with SUD, the prevalence of lifetime PTSD ranges from 26% to 52%" further, „Poor capacity for emotion regulation has been found to be associated with PTSD SUD comorbidity" (Roberts et al., 2015, pp. 26–27). Persons with SUD may experience emptiness, alternating with an unmanageable flood of emotions, the dissociation of emotion and thought, and problems in recognising their own emotions (Fonagy et al., 2002; Bateman & Fonagy, 2019).

## 4. Recovery

Recovery is a process to improve one's health, wellness, and autonomy and develop one's full potential in life (SAMSHA, 2012). Anthony, highlighting the relational aspects of recovery, described it as "a deeply human experience, facilitated by the deeply human responses of others." (Anthony, 1993, p. 531). Mudry et al. (2019) explored the transformative pathways in natural recovery and the major changes in interpersonal relationships from pathologising modes to healing relational patterns.

Recovery from addictions is understood as a substantial identity transformation, a second birth or redemption leading to a personally, socially, and spiritually meaningful life (James, 1902/1982). The journey with its crises, guiding the person toward a sober identity with vital improvements that permeate all areas of life, is a demanding developmental task. It is a holistic, nonlinear process involving not only deep transformations but the restructuring of daily life as well (Betty Ford Institute Consensus Panel, 2007; Costello et al., 2020). The process requires growing commitments and an ability to learn from one's mistakes.

A constructive therapeutic change involves a growing commitment to recovery, developing healthier habits, an ability to identify the risk of relapse, asking for help when needed, and developing reflective skills. For the majority, it takes about two years to reach a stage marked by some stability. The respondents in this research were identified as patients in early recovery,

proceeding from their preparations to actions and reflections (Császár et al., 2021; Császár et al., 2024a; Császár et al., 2024b).

## **5. Objectives**

The investigation of emotionally significant episodes has been the subject of numerous studies (Cox & McAdams, 2014; Stephenson et al., 1997). What do new psychoactive substance users consider to be the high or low point in their lives? What are the emotional attitudes of new psychoactive substance users in these situations? How do these two privileged points relate to the use of NPS? Can the first research phase further nuance and support the results of previous research on trauma/re-traumatisation? Based on Hungarian scientific literature, this research phase also considers it essential to clarify the studied group's most important socio-demographic and socio-economic characteristics. To what extent is material deprivation typical of them? What is the parental pattern of substance use?

Previous evidence suggests a relationship between trauma-related substance use and severe difficulties in the processing and managing of emotional content. We plan to analyse the relationship between SUD and emotion mismanagement in NPS users.

In relation to the self-medication hypothesis, we examine the connections between emotion regulation deficiencies and the choice of substance.

No specific results concerning NPS users' use of recovery narratives are available. The third research phase summarises the

major changes in the respondents' perspectives, comprising the key changes during recovery.

## 6. Sample

The total sample of this study is a purposive sample of 77 persons, either from an in-ward environment or one of three in-patient rehabilitation centres. All of them were at the beginning of their treatment, right after the detoxification phase (about one week). This sample comprised several sub-samples in the individual research phases, from the first explorative phase, where 42 subjects were included at the beginning of their recoveries, to the second one, where we increased the sample size to 77 subjects, to the concluding one, in which the data obtained from the ten respondents in recovery who were available for repeated testing and interview were compared to their initial results.

***Table 1. Patient demographics***

	<b>n</b>	<b>%</b>
<b>Total</b>	77	100
<b>Age</b>		
Mean	29.52	
Range	18–45	
<b>Sex</b>		
Male	61	79,22
Female	16	20,78
<b>Marital status</b>		

Single	63	81,8
In relationship	2	2,6
Married	9	11,7
Divorced	3	3,9
<b>Education</b>		
Primary	20	26,0
Vocational	32	41,6
Secondary grammar	16	20,8
College	4	5,2
University	5	6,5
<b>Occupation</b>		
Nonprofessional	60	77,9
Intellectual	17	22,1
<b>Place of living</b>		
Farm	2	2,6
Village	11	14,3
Town	44	57,1
Metropolitan area	20	26,0
<b>Mother's education</b>		
Primary	18	23,4
Vocational	33	42,9
Secondary grammar	9	11,7
College	11	14,3
University	6	7,8
<b>Father's education</b>		
Primary	10	13,0
Vocational	48	62,3
Secondary grammar	4	5,2
College	5	6,5
University	8	10,4
Musical college	2	2,6
<b>Material deprivation</b>		
Yes	45	58,4
No	32	41,6
<b>Parental divorce</b>		
Yes	36	46,8

---



## 7. Methods

Eligibility criteria for inclusion were SCH or SCB (gas or liquid chromatographic analysis of hospital samples in the toxicology laboratory of the University of Pécs) detected in a biological sample (Engelgardt et al., 2022; Marchei et al., 2021; Majchrzak et al., 2018) or a forensic toxicological report confirming the use of SCB and/or SCH not older than six months and a concomitant diagnosis related to drug use (Nicole et al., 2020; David et al., 2023). Foley Life Interview (FLI) along with MMPI-2 were recorded on site. Several studies have used the Foley Centre's structured life interview (Cox & McAdams, 2014; Cox et al., 2019). FLI was transcribed verbatim, and MMPI-2 was recorded in pen-paper style. Results were recorded manually and evaluated using a computer program. FLI is an interview that covers life events and turning points that influence identity development, the evaluation of life events, and the development of personal values and ideologies. (McAdams & de St. Aubin, 1992; McAdams, 2006a; 2006b; McAdams & Guo, 2015). This interview scheme was translated and has been used in Hungary for almost two decades (Rácz, 2006). Socioeconomic Questionnaire was recorded in pen-paper style on-site and recorded electronically for statistical analysis. Research subjects were provided sufficient time to evaluate their responses.

Subjects consented to involvement in the study and using anonymised data for research purposes.

We analysed the results of MMPI-2 RC and PSY-5 Scales, focussing mainly on the scales directly related to emotion regulation. We aim to explore the occurrence of psychological traumas as potential themes in the emotionally valent low point episodes of NPS users' life interviews. These interrelations have not yet been explicitly explored among NPS users.

We examined changes in the three nuclear episodes between the first and second interviews. As a qualitative exploratory study, the openness of the analysis is maintained, focusing on the emerging issues—the whats and hows.

The University of Pécs issued ethical approval on the condition that respondents' anonymity is ensured (PTE KK RIKEB, 02.05.2019.).

## **8. Data analysis**

In the first phase, SPSS Statistics V26 was used to analyse socio-demographic data (descriptive statistics) and statistically analyse the results of quantitative content analysis (paired-sample t-test).

In the second phase, a qualitative thematic analysis was performed on the emotionally valent low point episode of a structured interview scheme for the study of identity (Foley Life Interview) (McAdams & de St. Aubin, 1992; McAdams, 2006a; 2006b; McAdams & Guo, 2015). ATLAS.ti 8.3 for qualitative data

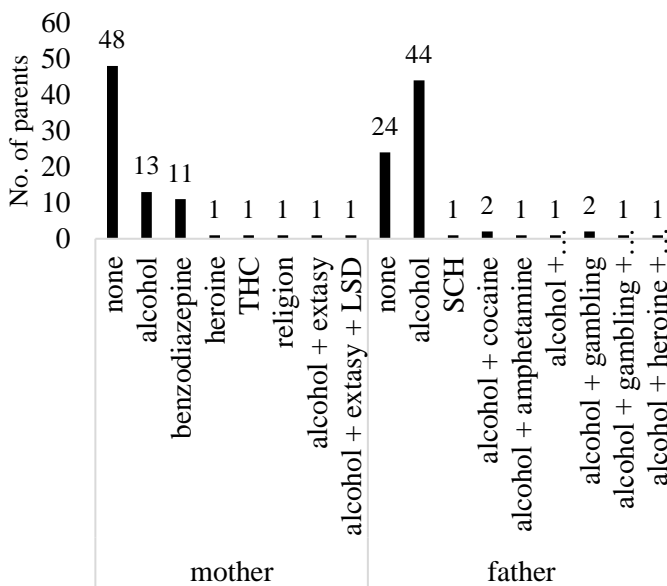
analysis was utilised to facilitate a systematic analysis. Restructured Clinical Scales and the PSY-5 Scales drawn from the Hungarian translation of the Minnesota Multiphasic Personality Inventory (MMPI-2) were used to study dysfunctions in emotion regulation. The results of the thematic analysis to elevated scores on MMPI-2 scales related to emotion regulation were connected to see if trauma-related contents are present in these texts.

In the third phase, FLI was repeated a year later. Narrative-Oriented Inquiry (NOI) was used as a qualitative framework for emotionally valent nuclear episodes (high point, nadir point) and the turning point (Hiles & Čermák, 2013, p. 158). To support the analysis, ATLAS.ti 8.3, a tool for qualitative data analysis, was used afterwards.

## **9. Results**

The respondents are polydrug users, and their preferred substances include new and classical, illicit, and legal psychoactive substances such as SCB, SCH, ecstasy, amphetamine, cocaine, cannabis, and alcohol. This confusing pattern was also found in a previous study with NPS users by Higgins et al. (2021). Material deprivation was present in more than half of the patients, but many had an adequate level of education. This could challenge the idea that NPS use is mainly the result of material deprivation (Csák et al., 2020). Parental substance use is another important factor. Parental divorce rate in the sample roughly corresponds to the Hungarian average.

Respondents reported frequent parental substance use, especially alcohol use – a source of childhood traumatisation, neglect, and abuse. Alcohol use is a traditional and heavy problem in Hungary (Elekes, 2014). In this sample, both parents’ substance (alcohol) use is above the average, and parents probably serve as role models for substance-related problems.



**Figure 1. Parental substance use**

The suicide-equivalent, self-destructive features of NPS use are pronounced. Entrapment as a component of the Cry of Pain (COP) model (Perczel, 2001; Williams, 2001; Scoliers, 2009; Slade, 2012), the hopelessness following the failure of envisioned solutions, and

the experience of “it will never end” motivate drug users to end conscious experiences. The contents of the “negative code” (Kézdy, 1995; Fekete, 2001) (negative structures and self-reference), together with signs of entrapment and no escape, as well as necessity, substance use, negative contents (“bad”), and search for explanations were related to the low point texts, while the stability of situations and temporal states and generalisations were less characteristic of these texts.

This population’s problems in emotion regulation are salient. Elevated scores may indicate a problem that existed prior to or is parallel with substance use. More than half of the respondents had high scores on RCd and RC7. Nearly half of the sample, 36 of the 77 patients, also scored high on NEGE. These scales are strongly associated with PTSD, primarily with internalising psychopathology. The results are consistent with the studies connecting substance use (Van den Brink, 2015; Roberts, 2021; Hein et al., 2022), or more specifically, NPS use (Kassai et al., 2017; Csák et al., 2020) to psychological trauma.

**Table 2.**  
***Frequency of trauma-related contents***

Respondents (77)	<b>Speakers with 3 elevated scales on the scales connected to emotion regulation (29)</b>
<b>Parental dysfunction</b>	
<b>Gr=10</b>	3

<b>Criminalisation</b>	2
<b>Gr=10</b>	
<b>Death/grief/loss</b>	6
<b>Gr=13</b>	
<b>Existential crisis</b>	2
<b>Gr=4</b>	
<b>Homeless life</b>	2
<b>Gr=6</b>	
<b>Physical/sexual abuse</b>	5
<b>Gr=14</b>	
<b>Psychiatric treatment</b>	2
<b>Gr=7</b>	
<b>Self-harm</b>	2
<b>Gr=6</b>	
<b>Severe physical problems</b>	3
<b>Gr=8</b>	
<b>Sex worker</b>	4
<b>Gr=5</b>	
<b>Substance use</b>	18
<b>Gr=43</b>	
<b>Suicide</b>	4
<b>Gr=11</b>	
<b>Wish to kill/aggression</b>	3
<b>Gr=8</b>	
<b>Totals=145</b>	<b>56</b>

---

**Note:** Gr (groundedness): frequency of the code

In light of previous results on the etiological role of psychological trauma in SUD (Van den Brink, 2015), also supported by our research, NPS use corresponds to re-victimization. Respondents' experiences could meet the rigorous definition of psychological trauma by DSM-5 (Pai et al., 2017). This population suffered severe traumas, such as the loss of a parent at an early age, neglect and abuse, criminalisation, sex work, rape, homelessness,

social isolation, aggression, and severe mental and physical conditions associated with drug use. These traumatic experiences existed either as inner narratives in the domain of the not-yet-said when the respondents entered treatment or their first stories were chaotic, self-centred, and polarised. Balanced reflections were missing. These features indicate the high emotional significance and low levels of integration of the traumatic experience, which explains speakers' inability to structure and narrate their life stories adequately. Later, respondents were able to restructure the disorganised and dissociated narratives that had existed only as inner narratives. The recovery journey is unique and cannot be described as a simple linear movement between the different stages. As relapse is frequent in persons with SUD, respondents' nuclear episodes may reflect varied levels of commitment to treatment. At the beginning of the treatment, substance use was strongly attached to high-point experiences in life, even if ambivalence was present. However, the turning point stories, predominantly negative events in the first excerpts, were exchanged for positive experiences and commitment to treatment. Speakers mentioned few relationships in the first episodes, and the social connections they reported were either fellow users or close family members. Most low-point stories were about substance use-related personal losses or betrayals. A year later, a healing social network was formed, and sober fellows, friends, and colleagues populated the recovering persons' lifeworld. In their second nuclear episode, the respondents related substance use to their other difficulties in life. Changes in the narrative mode

included more emotional and self-reflective contents. Reflections on others' emotions and behaviours and efforts to reconstruct interpersonal relationships were key contents in the second nuclear episodes. Respondents were willing to consider other people's perspectives, conforming themselves to shared social realities. These changes can best be described as developments in mentalisation, an ability to assess, interpret, and adequately respond to others' and our own mental states and connect these to our experiences (Fonagy et al., 2002). As a result, guilt and shame were exchanged for responsibility, and respondents could accept their imperfections.

**Table 3.**

*Major changes in the fabula/sjuzet in high point excerpts in the 1<sup>st</sup> and 2<sup>nd</sup> interviews*

<b>Patient</b>	<b>1<sup>st</sup> interview</b>	<b>2<sup>nd</sup> interview</b>
<b>Aiden</b>	being clean, works, mother helps/ <i>"it (high point) is now"; "at the top"</i>	completing treatment, changes/chances in life, wide social network/ <i>"this gives me goosebumps"; "another chance in life"</i>
<b>Patrick</b>	first son's birth/mentioning the exact date and his attempt to reduce drinking/ <i>"a child will be given in my hands, and I cannot wobble"; "surely I drank a little as I was so excited"; "I drank more than necessary."</i>	a visit to his kids/self-reflection: <i>"the elder son was a bit distancing himself from me, but it was my fault and I have to work hard to prove..."</i>
<b>Rory</b>	substance use (SU) / <i>"bad direction"; "from my grey</i>	own accomplishments: leaving the TC and



	<i>self into a much more colourful self"</i>	entering the halfway house/ <i>"my fellows were waiting for me (...) my happiest moment so far."</i> ; <i>"I was even crying"</i> ; <i>"I stepped out of the house as, so to say, a winner."</i>
<b>Charles</b>	A pilgrimage to El Camino /absolution, catharsis <i>"after the first whirlpool"</i>	returning to TC/self-reflective, committed: <i>"has changed a thousand times since last year"</i> ; <i>"my genuine way"</i> ; <i>"such a good place"</i>
<b>Devin</b>	SU/ <i>"the first shot gave me such, such a good feeling that, that, that, that I cannot describe it"</i> ; <i>"the most, most, the best, the most liberating, the most joyful, the most enhanced, the warmest, the most, the best."</i>	entering rehabilitation/self-reflection: <i>"then, I did not think that it was the best thing, but I had fears"</i> ; <i>"this is where change began, the whole thing, that is, my life."</i>
<b>Chloe</b>	romantic love, son's birth/ <i>"it was wonderful when I could hold him in my hands"</i> ; <i>"I was completely out."</i>	son's birth/self-reflective: <i>"I was using. I could not really experience that happy moment."</i> ; <i>"I missed it because I numbed it with drugs."</i>
<b>Alex</b>	a satisfactory life, meeting own needs, working, own home, girlfriend; controlled use/ <i>"I felt like a king. I did not need the substance."</i>	a satisfactory life by meeting own needs, happy moments of life; being related/more emotional and spiritual: <i>"I have life, I have feelings, I have a meaning in life."</i>
<b>Pete</b>	own family/speaking about the future <i>"I do not</i>	becoming a father again/responsible

	<i>want to see in my daughter's eyes that Daddy is drinking again."</i>	parenting: <i>"not like before"; "I can become a responsible father now"; "see the world differently"</i>
<b>Zach</b>	SU/reflecting on the transformation of previous self: <i>"it gave me what I had always wanted to become"; "high-spirited, open, talkative, determined, self-assured" "easy-going with women"</i>	SU, cool life/ reflecting on the illusion: <i>"this was just a dream, this was not real"; "I felt as if I were God. Lots of money. Always drugs. Always a drink in my hand."</i>
<b>Archie</b>	admitted to a good school/ <i>"What else should I tell you?"</i>	being with the mother, a momentary relief from father's physical and psychological abuse/ more emotional and reflective: <i>"I could see my mother and I hugged her, and this was one of my happiest moments"; "I was entirely lost when I was with my father and my life was miserable."</i>



## 10. Discussion, conclusions

This dissertation has explored some psychological, psychopathological and socioeconomic characteristics of NPS users, employing strict exclusion criteria and biological testing to eliminate the distortions of self-reporting. The two main types of substances were SCB and SCH, the most popular NPS groups in Hungary, but polydrug use was common in the sample, indicating that NPS users who reached the level of addiction do not have a drug of choice anymore. The majority of respondents used multiple drugs, with preferences ranging from both new and traditional psychoactive substances, both legal and illicit. Their socio-economic status was close to the domestic average. More than half of the subjects experienced material deprivation, but many had an adequate level of education. Concerning parental substance use in this particular sample, both parents' alcohol use exceeded the average. It is a source of traumatising and also indicates a transgenerational transfer of coping patterns.

The second phase of study focussed on the role of trauma and the management of emotions. Respondents' experiences could meet the rigorous definition of psychological trauma by DSM-5 (Pai et al., 2017). The group has experienced severe traumas.

These experiences have had a profound emotional impact, making it difficult for individuals to express their personal narratives. A self-destructive pattern is present in the sample. Our

findings indicate that NPS use shares similarities with the consumption of traditional substances in terms of challenges in emotion regulation and association with psychological traumatisation. Users do not appear to address their emotional dysfunctions through the targeted selection of specific NPS rather than resorting to conventional self-medication practices.

The successful recovery of individuals was associated with the reorganisation of their fragmented personal narratives, the replacement of negative experiences with positive ones, and a demonstrated commitment to treatment. Furthermore, the social networks of recovering addicts exhibited a shift towards the prevalence of supportive and therapeutic relationships in subsequent interviews. Additionally, the narrative discourse of participants underwent notable changes, featuring increased emotional and self-reflective elements.

The longitudinal study highlights that individuals with polydrug dependence who engage in NPS use can integrate the conventional narrative resources of sober communities, with the AA story being particularly influential (Hanninen & Koski-Jannes, 1999). Despite the diverse initial experiences and erratic usage patterns associated with NPS, users commonly face underlying issues of dependence and engage in similar constructive meaning-making processes observed with recovering users of traditional substances. The volatile and unpredictable nature of NPS use presents challenges in accurately assessing a respondent's stage of recovery.

Recovery can be conceptualised as post-traumatic growth, involving the reassessment of significant life events and social networks, the appreciation of everyday pleasures, and the cultivation of self-reflection.

This research's mixed methodology emphasises that language, like various human behaviours, reflects one's personality, unique life circumstances, and the accompanying social conditions.

Integrating the research methods, however, was challenging as the amount of data well exceeded the frameworks of any qualitative analysis.

FLI is a rich resource of data to be explored in future studies from many different perspectives, e.g., analysing childhood episodes in the light of a recent theoretical concept, Complex PTSD.

Comparing the group of respondents with the least/most progress is another feasible possibility; however, the cyclic nature of recovery renders such grouping rather difficult.

Additional research is required, ideally with larger and international samples to allow for cross-country comparisons. Case-based in-depth analyses focussing on the interrelations between all the data could deepen our understanding of the theme, and this data set would facilitate such studies.

As for limitations, persons with lower levels of education and/or living in rural areas had fewer chances to be included in the sample. A future study could focus on the differences between this sample and a group of more marginalised users. The broad age range implies diverse paths and stages in the development of SUD

and recovery, but reaching a more homogenous sample or more persons is much beyond the scope of a PhD dissertation.

The study did not include questions on behavioural addictions or the illicit use of prescription drugs, and only one legal substance (alcohol) was included, which again opens new research directions.

The relationship between SUD and the difficulty in managing emotions related to trauma, along with the suggestion that NPS use contributes to users' re-victimisation, was confirmed in the qualitative content analysis results in the second phase of this research. Further research comprising a larger sample could focus on the evolving pattern that involves elevations in three scales of MMPI-2, namely RCd, RC7, and NEGE.

Pharmacotherapy is difficult, as polydrug users consider prescription medication another cheap substance to be mixed with the ones they usually use or a dangerous method for self-medication to alleviate drug-induced psychotic states (Valeriani et al., 2015). Psychotherapy could target the management of emotions and the development of reflective functions as in mentalization-based treatment, an evidence-based practice in the treatment of SUD and the accompanying conditions such as borderline personality disorder (Bateman & Fonagy, 2019). Roberts et al. (2022) found trauma-focused cognitive behavioural therapy (TF-CBT) beneficial when addressing SUD and PTSD concomitantly. Kang et al. (2019) found that SUD interventions, especially affect-regulation treatments, significantly reduce negative emotions and emotional distress.

Special services for women with SUD struggling with excessive stigmatisation should be introduced, as Kaló (2020) suggested. To prevent transgenerational transfer of the problems, treating parental alcohol-related disorders and access to services for children and adolescents should be improved.

## **11. Novelty of the study**

- This study used a controlled sample of NPS users who are difficult to reach. Confirming the respondents' NPS use and abstinence to eliminate self-report bias is a novelty in domestic studies. The data is a rich source for future research. A longitudinal study of respondents who were in early recovery and were available for this study.
- Methodological triangulation and integration. 1. Data collection: quantitative and qualitative directions (MMPI-2, Foley Life Interview, and a sociodemographic questionnaire). Methodological triangulation during the analysis: qualitative and quantitative content analyses. Connecting the results of the thematic analysis focussing on trauma (as defined in DSM-5) to elevated scores on MMPI-2 scales related to emotion regulation (RCd, RC2, RC7, NEGE and LPE)
- Researcher and disciplinary triangulation to further enhance validity.



- Applying the negative code theory (Kézdi, 1995) to this group of NPS users characterised by self-destruction and repeated crises. The results – significant differences between the low/high point texts – indicate that the negative code is related to life events and situations rather than to personality.
- The results indicate that trauma-focused methods are applicable to treatment. Repetition compulsion, the tendency to recreate traumatising childhood situations, is manifested in repeated crises with elements of arrested flight/no escape.
- Poverty is one significant component in this repeated traumatising, as identified in the previous studies, but does not fully explain heavy NPS use and addiction as it is present in different social groups.
- Description of early recovery processes from NPS dependence.

## **12. Publication list**

### *Articles related to the thesis*

- Császár, F., Marta B. Erdos., Javor, R., & Kelemen, G. (2024). Narrative Means to Recovery Ends. Novel Psychoactive Substance Users in Early Recovery. *Journal of Loss and Trauma*, 1–24. **IF: 4,7**
- Csaszar, F., Marta B. Erdos., Ellis, R., Kelemen, G., & Javor, R. (2024). Novel Psychoactive Substance Use and Psychological

Trauma: A Multimethodological Analysis. *Substance Use & Misuse*, 1–9. **IF: 2,1**

- Császár, F., Rebeka, J., Kelemen, G., B.Erdős Márta. (2021). Új pszichoaktív szer-használók érzelmileg telített élettörténeti epizódjainak tartalomelemző vizsgálata. *Psychiatria Hungarica: A Magyar Pszichiatriai Társaság tudományos folyóirata*. 36. 167-179. **IF: 0,32**

### ***Oral presentations related to the thesis***

- B.Erdős Márta, Jávor Rebeka, Császár Ferenc. „Itt kezdődik mindenem”. Nukleáris epizódok változásai a felépülés korai szakaszában lévő új pszichoaktív szer (ÚPSz) használóknál (2023) Magyar Pszichológiai Társaság (MPT) XXX. Országos Tudományos Nagygyűlése. Pécs, HU.
- Császár Ferenc, Jávor Rebeka, B.Erdős Márta. Paradigmaváltók? Új pszichoaktív szerhasználók demográfiai háttere és élettörténeti traumái (2023) Magyar Pszichológiai Társaság (MPT) XXX. Országos Tudományos Nagygyűlése. Pécs, HU.
- Császár Ferenc, Marta B. Erdos, Jávor Rebeka. "Early recovery from novel psychoactive use dependence" (2023). QRMH9: Qualitative Research in Mental Health Conference in Budapest, Budapest 2023.08.30-2023.09.02, HU.

- Császár Ferenc. Obesity: A perspective of dependency (2019). Kanizsai Dorottya Kórház Tudományos Ülése (2019.04.11); Nagykanizsa, HU.
- Császár Ferenc. NPS: myths and facts (2019). V. Határon Túli Konferencia Dr. Tomka Miklós Emlékére, Szervedélybetegségek, (2019.04.12-04.14), Dobranak, SI.

***Articles unrelated to the thesis***

- Balint, I.B., Csordas, J., Csaszar, F. Is endoscopic approach superior to laparoscopic surgery for gastric plication in terms of complications and efficacy? A systematic review including meta-analysis. *Minerva Surg* 2023;78:283-92. **IF: 1,4**
- Balint, I.B., Csaszar, F., Orban, L. et al. A safety study of laparoscopic single anastomosis duodeno-ileal bypass with gastric plication (SADI-GP) in the management of morbid obesity. *Langenbecks Arch Surg* 407, 845–860 (2022). **IF: 2,895**
- Farics, A., Csaszar, F., Csordas, J., Manfai, G., Bálint, I.B. Trend Analysis for the Treatment of Incompetent GSV. *Surg Insights* [Internet]. 2022 Apr. 23 **IF: 0,7**

- Balint, I.B., Csaszar, F., Somodi, K. et al. Is duodeno-jejunal bypass liner superior to pylorus-preserving bariatric surgery in terms of complications and efficacy? *Langenbecks Arch Surg* 406, 1363–1377 (2021). **IF: 2,895**

*Impact factor of scientific articles related to the thesis: 7,12*

*Impact factor of all scientific articles: 15,1*

### **13. Acknowledgements**

I want to thank my supervisor, Prof. Gábor Kelemen, for his helpful ideas and for providing me access to therapeutic communities.

I want to thank my co-supervisor, Dr. Márta B. Erdős PhD, for her continuous support and great effort in this project. I am grateful.

I want to thank Prof. Roger Ellis OBE, who has been a resourceful external source of feedback and motivation while on this path. His perspective on the research approach will always amaze me.

I want to thank Dr Rebeka Jávör, PhD for her knowledge of statistics and its practical use during close deadlines.

I want to thank my family for their constant support even when this all seemed impossible to achieve.