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EDITORIAL

Building Bridges: The 2024 Congress of the International Society of Addiction Medicine

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Over the past 25 years, the International Society of Addiction Medicine (ISAM) has been convening annual conferences in efforts to unite global researchers and clinicians aiming to address addictions. In the spirit of ISAM and Istanbul, we gathered in this historic city for the 26th ISAM Congress, held in collaboration with the Addiction Psychiatry Foundation of Türkiye (BPV). The organization of the Congress was overseen ably by Prof. Rabia Bilici, chairing the local organizing committee, and Prof. Hamad Al Ghafri, the President of ISAM. Renowned for its role in bridging continents and cultures, Istanbul provided the ideal backdrop to explore our theme, "Building Bridges: Addiction and Recovery." This theme emphasized our commitment to collaboratively overcoming the challenges in addiction medicine. The congress successfully convened 439 experts and academics from 58 countries, fostering dialogue and innovation to address the global issue of addiction. High-level officials from the World Health Organization (WHO), United Nations Office on Drugs and Crime (UNODC), the National Institute on Drug Abuse (NIDA), European Union Drugs Agency (EUDA), International Society of Substance Use Professionals (ISSUP) and International Consortium of Universities for Drug Demand Reduction (ICUDDR) also participated, enhancing the event's inclusivity and impact.

The metaphor of building bridges was not merely symbolic; it represented a tangible goal that required our collective effort. As we embarked on this journey, we focused on five key aspects of bridge-building:

1. **Local and Global Collaboration:** We aimed to strengthen local networks, breaking down silos that isolated us within our academic and professional communities. By dismantling such silos, we can more robustly extend our reach globally, recognizing that addiction is a worldwide issue that demands a unified response. By fostering international partnerships, we can develop comprehensive strategies that address the multifaceted nature of addiction.
2. **Intergenerational Dialogue:** The future of addiction medicine lay in the hands of the next generation. We created opportunities for young professionals to engage with seasoned experts, ensuring that the wisdom of the past informs innovations of the future. This congress was a testament to the power of intergenerational collaboration, with young colleagues playing a pivotal role in its organization and implementation. Further, meetings between established and emerging investigators permitted informal question-and-answer interactions and learning opportunities. The involvement of early career investigators was facilitated by NIDA and ISAM travel awards and registration bursaries, supporting 14 early career attendees (see abstracts and titles in Supplemental Materials).
3. **Bridging Research and Policy:** The gap between scientific research and policy implementation is a significant barrier to progress. For addictions to be addressed optimally, researchers and policymakers need to work together to translate scientific findings into actionable policies

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that improve treatment and recovery outcomes. This congress provided a unique opportunity to bridge this divide, fostering dialogue and collaboration between these critical stakeholders.

4. **Public Engagement:** Science needs to be accessible to all. By building bridges with the public, we can promote scientific literacy and empower individuals to make informed decisions about refraining from engagement in addictive behaviors and decisions about engaging in recovery processes. Public involvement is essential for dismantling stigma surrounding addictions and fostering a culture of understanding and support.
5. **Using the Power of Science:** At the heart of our efforts is the power of scientific inquiry. Science serves as the bridge that connects us, transcending cultural and disciplinary boundaries. Through rigorous research and innovation, we can develop more effective solutions to the challenges we face.

The congress featured an impressive lineup of keynote speakers who shared their insights and expertise on various aspects of addiction medicine. Prof. Tom McLellan, from the University of Pennsylvania, opened the discussions with his presentation on "Pre-Addiction: An Overlooked Part of the Substance Use Disorder Continuum," emphasizing the importance of early intervention. Prof. John Strang, Head of the Addictions Department at King's Health Partners, provided an "Update on Preventive, Treatment and Recovery Strategies to Prevent Opioid-Related Deaths," highlighting the urgent need for effective strategies in the face of the opioid crisis. Prof. Marc Potenza from Yale University discussed the significance of "Publishing Addiction Medicine," advocating for the dissemination of knowledge to enhance treatment practices and providing advice to early career investigators for communicating their research findings. Dr. Ivan Montoya from NIDA, explored "The Neuroscience of Addiction Recovery."

The congress also featured Dr. Dzmitry Krupchanka (on behalf of Dr.Devora Kestel) from the WHO, who provided an update on global efforts to address substance use and addictive behaviors. Prof. Igor Koutsenok discussed effective treatment strategies within criminal justice settings, and Dr. Kristiana Siste highlighted the unique challenges faced by women in overcoming methamphetamine use. Prof. Jallal Toufiq discussed "Drugs, Challenges Facing The World: The Role of the International Narcotics Control Board" and Prof. Berna Uluğ, shared her perspective 'Seeing Affective and Psychotic Disorders Through Addictions.

Other notable presentations included that from Prof. Nesrin Dilbaz, who shared insights on "Deep Transmagnetic Stimulation Therapy and Electroconvulsive Therapy in the Treatment of Addiction and Comorbid Psychosis," showcasing innovative treatment modalities.

Dr. Anja Busse from the UNODC addressed "Priorities for Addressing Substance Use Disorder in Humanitarian Settings." Dr. Deni Carise emphasized practical approaches in "Substance Use Disorder Treatment: Top 10 Things to Ask," and Dr. Andrej Kastelic discussed the challenges of "Treating People Who Use Drugs in Custodial Settings." Dr. Marica Ferri from the EUDA, shared her knowledge on "Translating Evidence into Practice: Quality Standards, Guidelines and Training by the European Union Drug Agency."

The Congress also covered a range of other topics including co-occurring disorders and infectious diseases like HIV that often accompany injectable drug use or unprotected sexual behaviors that may be particularly common in people with addictions. Together, the Congress successfully built bridges in many ways, paving the way for a brighter future involving a more unified approach to helping people with addictions and preventing these costly disorders.

Disclosures: The authors report no conflicts of interest with respect to the content of this manuscript. Dr. Potenza has consulted for Baria-Tek and Boehringer Ingelheim; has been involved in a patent application with Yale University and Novartis; received research support from Mohegan Sun Casino and the Connecticut Council on Problem Gambling; participated in surveys, mailings, or telephone consultations related to drug addiction, impulse-control disorders, or other health topics; consulted for legal, non-profit, healthcare and gambling entities on issues related to impulse control, internet use and addictive disorders; performed grant reviews for multiple funding agencies; edited journals and journal sections; given academic lectures in grand rounds, CME events, and other clinical/scientific venues; and generated books or chapters for publishers of mental health texts. The other author reports no disclosures. The views presented in this manuscript represent those of the authors and not necessarily those of the funding agency.

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[OP-076]

How is the Quality of Life of Individuals with Substance Use Disorder in Albania?

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Introduction: Quality of life was defined by the World Health Organization's Quality of Life Group as "the individual's perception of their position in life, in the context of the culture and value system in which they live and in relation to their goals, expectations, standards, and concerns.

This concept, first developed in the social sciences, was later applied to drug addiction studies. In the early stages of treating substance use disorder, the main goal of both drug users and the clinicians was to stop drug use. However, over time, addiction researchers began to focus on satisfaction with life in general from the patient's perspective. With or without drugs, what matters is the quality of life and mental and physical health. One of the instruments to measure the quality of life is the World Health Organization Quality of Life Brief Version instrument, with its four domains: physical health, psychological health, social relationships, and environmental health.

Objectives: The main aim of the study is to assess the quality of life of individuals with substance use disorder in Albania, using the World Health Organization Quality of Life Brief Version instrument. Other objectives are to study sex differences, and the factors influencing quality of life, such as psychiatric comorbidities. The study will also examine whether there are differences between legal and illegal drug user's quality of life?

Methods: This is a cross-sectional study conducted at the American Hospital of Tirana from May 2023 to January 2024, which included individuals diagnosed with substance use disorder who presented at the outpatient addiction unit for consultation. Ninety-nine patients were enrolled in the study. The inclusion criteria included patients aged ≥18 years, who met the Fifth edition of the Diagnostic and Statistical Manual (DSM-V) criteria for substance use disorders and have the ability to understand the aim of the study and the questions of World Health Organization Quality of Life Brief Version instrument.

Demographic data, such as gender, age, relationship status (living alone or living with another person), education level, occupational status, and comorbidities, are collected.

Results: The mean age of the individuals included in the study is 37 ± 18 and the majority are males round 74% of the sample. The majority of both genders (75%) reported "poor" or "very poor" quality of life at intake. Psychiatric comorbidities especially depression and anxiety disorders showed a strong association with poor quality of life (relative risk ratio 3.3, 95% confidence interval 1.0 – 10.3) and very poor quality of life (relative risk ratio 3.8, 1.2 – 11.8) among women. Surprisingly, the perception about the quality of life increases with age. When asked about the condition of living and the transport, 85% of the individuals were satisfied (score 4 out of 5)

Conclusions: The quality of life of individuals with substance use disorders in Albania is low, especially in young ages and people with psychiatric comorbidities. Young ages result to be more aware about their health problems and accept easier the medication support. Assessing quality of life of individuals with substance use disorder may lead the medical staff and the policy makers in Albania to develop better strategies to help and improve the life of people who use drugs in the country.

Keywords: Comorbidities, drug use, illegal drugs, legal drugs, quality of life

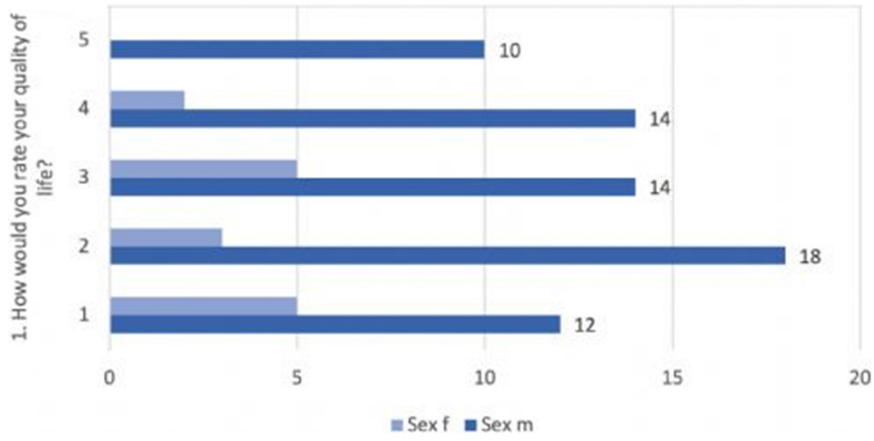

Figure 8. The Overall QOL for Male and Female.
The figure explain how the majority of male and female who use drugs have a low QOL

	1		2		3		4		5	
Question	Frequency	Per cent	Frequency	Per cent	Frequency	Per cent	Frequency	Per cent	Frequency	Per cent
1. How would you rate your quality of life?	17	20,5	21	25,3	19	22,9	16	19,3	10	12,0
2. How satisfied are you with your health?	13	15,7	22	26,5	19	22,9	26	31,3	3	3,6
3. To what extent does physical pain prevent you from doing what you need to do?	7	8,4	11	13,3	16	19,3	20	24,1	29	34,9
4. How much do you need any medical treatment to function in your daily life?	22	26,5	17	20,5	13	15,7	19	22,9	12	14,5
5. How much do you enjoy life?	15	18,1	20	24,1	20	24,1	15	18,1	13	15,7
6. To what extent do you feel your life to be meaningful?	15	18,1	8	9,6	22	26,5	16	19,3	22	26,5
7. How well are you able to concentrate?	10	12,0	20	24,1	18	21,7	29	34,9	6	7,2
8. How safe do you feel in your daily life?	8	9,6	11	13,3	16	19,3	21	25,3	27	32,5
9. How healthy is your physical environment?	10	12,0	12	14,5	23	27,7	23	27,7	15	18,1
10. Do you have enough energy for everyday life?	9	10,8	22	26,5	23	27,7	22	26,5	7	8,4
11. Are you able to accept your bodily appearance?	1	1,2	5	6,0	13	15,7	34	41,0	30	36,1
12. Have you enough money to meet your needs?	6	7,2	13	15,7	21	25,3	26	31,3	17	20,5
13. How available to you is the information that you need in your day-to-day life?	8	9,6	17	20,5	18	21,7	17	20,5	23	27,7
14. To what extent do you have the opportunity for leisure activities?	10	12,0	18	21,7	22	26,5	17	20,5	16	19,3
15. How well are you able to get around?	7	8,4	5	6,0	18	21,7	22	26,5	31	37,3
16. How satisfied are you with your sleep?	28	33,7	29	34,9	12	14,5	10	12,0	4	4,8
17. How satisfied are you with your ability to perform your daily living activities?	7	8,4	20	24,1	28	33,7	21	25,3	7	8,4
18. How satisfied are you with your capacity for work?	13	15,7	21	25,3	25	30,1	15	18,1	9	10,8
19. How satisfied are you with yourself?	16	19,3	29	34,9	19	22,9	12	14,5	7	8,4
20. How satisfied are you with your personal relationships?	12	14,5	22	26,5	23	27,7	12	14,5	14	16,9
21. How satisfied are you with your sex life?	22	26,5	11	13,3	12	14,5	14	16,9	24	28,9
22. How satisfied are you with the support you get from your friends?	7	8,4	19	22,9	18	21,7	20	24,1	19	22,9
23. How satisfied are you with the conditions of your living place?	3	3,6	5	6,0	12	14,5	28	33,7	35	42,2
24. How satisfied are you with your access to health services?	2	2,4	3	3,6	12	14,5	28	33,7	38	45,8
25. How satisfied are you with your transport?	1	1,2	5	6,0	10	12,0	18	21,7	49	59,0
26. How often do you have negative feelings?	34	41,0	12	14,5	18	21,7	14	16,9	5	6,0

Figure 19. The Questions and the Answers Score. Note: This Table Contains Answers of the Questions for the Four Domains.

[OP-077]

MGLUR5 Availability in Cocaine-Use Disorder During Initial Abstinence: An [18f]FPEB Positron Emission Tomography

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Introduction/Objectives: Cocaine use disorder remains difficult to treat, with high rates of relapse and limited effective treatment options. The development and maintenance of cocaine use disorder have been linked to neuroadaptations in reward and executive control circuitry. The metabotropic glutamate 5 receptor is widely distributed throughout the brain and is a key modulator of glutamatergic neuroplasticity mechanisms implicated in addiction. Previous clinical studies report lower metabotropic glutamate 5 receptor levels in individuals with cocaine use disorder following 1 – 3 weeks of cocaine abstinence; however, evidence also suggests that metabotropic glutamate 5 levels may be rapidly decreasing during the initial days of abstinence. This study examined alterations in metabotropic glutamate 5 availability in individuals with cocaine use disorder during initial abstinence relative to healthy comparison adults using [18F]FPEB positron emission tomography and explored potential associations between receptor availability, lifetime and recent cocaine use, and self-reported cocaine craving.

Methods: Fourteen non-treatment-seeking individuals with cocaine use disorder participated in [18F]FPEB positron emission tomography following 2 – 5 (3.3 ± 0.9) days of biologically verified and inpatient-monitored abstinence. Linear mixed-effects models were performed to test group differences in [18F]FPEB distribution volumes between cocaine use disorder and healthy comparison ($n = 14$) individuals in nine addiction-related regions of interest: ventral striatum, caudate, putamen, anterior cingulate, medial orbitofrontal cortex, lateral orbitofrontal cortex, ventromedial, dorsomedial, and dorsolateral prefrontal cortex, at a significance threshold of $p < .05$. Subsequent mixed models were performed to explore associations between [18F]FPEB distribution volumes and lifetime years and past-month cocaine use, as well as self-reported cocaine craving.

Results: There was a main effect of group indicating higher metabotropic glutamate 5 receptor availability ($F(1,233) = 4.63$, $p = .032$) in cocaine use disorder relative to healthy comparison participants, with the largest group differences in the dorsomedial prefrontal cortex (19.5%, $p = .013$) and putamen (18.7%, $p = .024$). Metabotropic glutamate 5 availability was negatively associated with years of cocaine use ($F(1,116) = 8.70$, $p = .004$) and was not associated with past-month cocaine use ($F(1,116 = 0.00)$, $p = 0.99$). Individuals reporting cocaine craving on the day of their positron emission tomography scan ($n = 6$), relative to those who did not report cravings ($n = 8$), had lower metabotropic glutamate 5 availability ($F(8,108)$, $p = .002$) and did not differ in years of cocaine use ($t = 1.00$, $p = .34$).

Conclusions: Following a brief period of abstinence, metabotropic glutamate 5 receptor availability was significantly higher in individuals with cocaine use disorder relative to healthy adults. A negative correlation between years of cocaine use and metabotropic glutamate 5 availability suggests that a brief upregulation of metabotropic glutamate 5 expression, a marker of increased plasticity, may present an effective treatment window in the earlier stages of cocaine use disorder. Individuals who reported cocaine cravings on the day of their positron emission tomography scan had lower metabotropic glutamate 5 receptor availability, potentially linking reduced plasticity with increases in craving, consistent with incubation models of relapse. These data suggest that the initial days of cocaine abstinence may provide a brief period of high neuroplastic functioning, particularly in less chronic cocaine use disorder, that may be targeted with strategic interventions, potentially involving metabotropic glutamate 5-positive allosteric modulators to counteract craving incubation and improve longer-term clinical outcomes.

Keywords: Cocaine use disorder, glutamate, mGlu5 receptors, neuroplasticity, PET

[OP-050]

Naturalistically Tracking the Neurobehavioral Markers of Goals and Habits Over the Course of Inpatient Treatment in Heroin Addiction

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Introduction/Objectives: Heroin and other opiate overdose-related deaths surpassed 100,000 in 2022, necessitating the exploration of neuroscience-based addiction severity and recovery biomarkers. A potential basic-science-informed target is the motivational control over drug use, which shifts as addiction progresses from goal-directed (model-based, via ventromedial prefrontal cortex and ventral striatum) to habitual (model-free, via dorsal striatum). However, potentially because of the narrow range afforded by lab-based tasks, which are commonly used for the necessary longitudinal over-training, the evidence for this shift in humans is scarce.

Methods: Responding to the need for alternative, naturalistic efforts, we tracked motivational control using computational methods and the two-step decision task, administered via smartphone over 8 weeks in 21 inpatients with heroin use disorder and 19 healthy controls. This task can distinguish reward-guided decision-making as model-free (i.e., repeating decisions based solely on reward history) and model-based (i.e., repeating decisions based on a more sophisticated model of task structure). Participants also underwent baseline functional magnetic resonance imaging scans that estimated the neural processing of drug and nondrug cues.

Results: Consistent with previous studies that reported lower model-based choice in alcohol use disorder as associated with relapse, across all sessions, we found only model-free choice in inpatients with heroin use disorder ($p < .001$), while a hybrid model-based and free strategy was evident in the healthy controls ($p = .015$; Figure 1), similar to patterns in the general population. Trajectory analyses indicated that the overall impairment in model-based choice in inpatients with heroin use disorder vs. healthy controls ($p = .030$) was most pronounced with minimal treatment engagement in inpatients with heroin use disorder, such that this impairment was only detectable with fewer sessions completed during inpatient treatment. In contrast, the higher the model-based choice estimates, the higher the ventromedial prefrontal cortex activity during drug cue exposure in inpatients with heroin use disorder ($p = .019$, Figure

2), suggesting that improvements in this behavioral measure could confer resilience in the face of salient drug cues.

Conclusions: Using a cutting-edge approach that intersects computational, naturalistic, and longitudinal methods, our results identified a sensitive neurobiological marker of addiction severity and recovery that could inform motivation-based treatment and prevention targets to tackle the ongoing opioid epidemic.

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Keywords: Habits, motivation, naturalistic, opioid

[OP-019]

Pathways to Sustainable Recovery: Unpacking the Roles of Subjective Happiness, Daily Spiritual Experiences, and Social Support in Abstinent Substance Users

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Introduction: Substance use disorders are a global public health concern, necessitating a deeper understanding of the factors influencing sustainable recovery. This study investigates the roles of various factors influencing the recovery journey of abstinent substance users. By unravelling the roles of subjective happiness, daily spiritual experiences, and social support, we aim to contribute valuable knowledge to the fields of addiction research and social psychiatry.

Methods: The study involves 150 male participants, aged 18 – 72 years, who have successfully abstained from substance use. Sociodemographic and clinical data of adult males with a diagnosis of opioid dependence or alcohol dependence were collected. Daily spiritual experiences, recovery capital, subjective happiness, and social support were evaluated using a validated DSE questionnaire, recovery capital Questionnaire, standardized subjective happiness Scale and the Multidimensional Scale of Perceived Social Support, respectively. Mediating/moderating analysis was studied using model 5 of Hayes' Process Macros. Institutional Review Board approval was obtained prior to initiating the study.

Results: All 150 participants (100 opioid dependence, 50 alcohol dependence) had high substance use severity. The mean age was 39.8 years (±11.7). The mean age of onset of substance use was 21.6 years (±6.7), while onset of substance dependence was 24.8 years (±8.3), with an average duration of abstinence of 20 months. The correlation between social support and recovery capital was statistically significant and strong ($r = 0.6$, $p < .001$). Similarly, subjective happiness was positively correlated with both social support ($r = 0.4$, $p < .001$) and recovery capital ($r = 0.5$, $p < .001$), indicating that individuals reporting higher subjective happiness also tend to have greater social support and recovery capital (Table 1). Social support emerged as a significant predictor of recovery capital ($\beta = 0.55$, $p < .001$), explaining approximately 29.7% of the variance in recovery capital. Subjective happiness partially (complimentary) mediated 18% of the variance in the relationship between social support and recovery capital ($p < .001$), with an indirect effect of 0.1585 (0.096 – 0.2327; $p < .001$). Daily spiritual experiences moderated the relationship between social support and recovery capital ($\beta = -0.008$, $p = .036$) at both high and low daily spiritual experiences scores, and this significance was prominent when daily spiritual experiences scores exceeds 21.3 (Figure 1).

Conclusion: These findings highlight intricate pathways to sustainable recovery. This emphasizes the role of positive emotional states in recovery and conditional effect of spirituality on recovery. These insights have implications for tailored interventions and support systems to enhance recovery outcomes, promote long-term abstinence, optimizing addiction treatment and recovery programs.

Learning Objectives

1. To understand the role of positive emotional states in recovery.
2. To understand the intricate interplay of key factors, namely subjective happiness, daily spiritual experiences, and social support, in shaping recovery capital among abstinent substance users.

Keywords: Daily spiritual experiences, recovery capital, social support, subjective happiness, substance use disorder

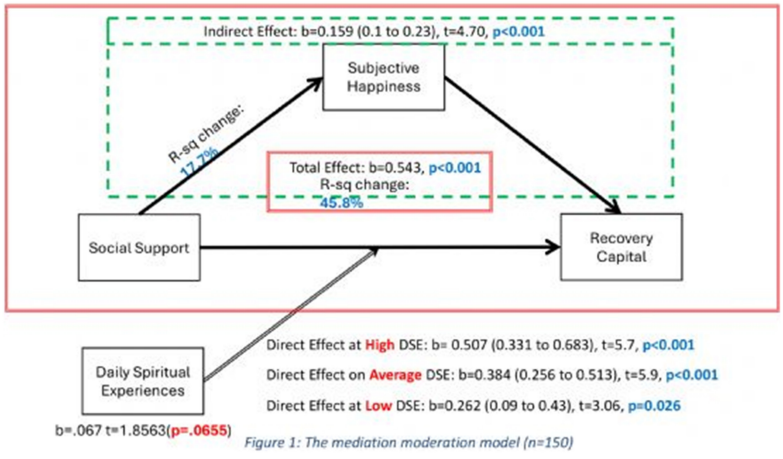

Figure 1. The Mediation Moderation Model (n = 150).

Table 1.
Pearson Correlation

	Subjective Happiness	Social Support	Recovery Capital
Social support	0.4***(p <.001)		
Recovery capital	0.5***(p < .001)	0.6***(p < .001)	
Daily spiritual experience	−0.1 (p = .414)	−0.1 (p = .453)	0.1 (p = .322)

p < 0.001

[SYMP-14]

Bridging the Global Treatment Gap for Cocaine and Stimulant Use Disorders Through Multinational Collaboration and Innovation

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Introduction/Objectives: The escalating prevalence of psycho-stimulant use, including in low-to-middle-income countries, underscores the pressing need for effective treatments for cocaine or stimulant use disorder. Despite some promising clinical trials, publication of systematic reviews, and treatment guidelines that promote the use of medications in certain jurisdictions, there are no globally approved pharmacological treatments for stimulant use disorder. The availability of evidence-based psychosocial and behavioral interventions is also severely restricted and significantly varies across countries, contributing to a substantial treatment deficit worldwide. In response, the World Health Organization recently published recommendations on effective interventions to address psycho-stimulant use and stimulant use disorder. Moreover, the United Nations Office on Drugs and Crime introduced a #ScaleUp initiative, aiming to reduce these gaps and inequalities through the development, dissemination, and promotion of implementation of scalable interventions, as well as the accumulation of data to support the approval of new evidence-based treatments.

Methods: This workshop serves as an interactive platform, convening a panel of experts in stimulant use disorder, clinical trial design, and the implementation of treatment protocols, collaborating with the World Health Organization's Mental Health Gap Action Programme and United Nations Office on Drugs and Crime's #ScaleUp initiative. The workshop will commence with an up-to-date summary of the current evidence for pharmacological, behavioral, and psychosocial interventions for stimulant use disorder, including published systematic reviews and guidelines from professional organizations. This will be followed by an overview of #ScaleUp, including its general approach, five-phase implementation plan, and anticipated impact, with an emphasis on knowledge gaps and dissemination challenges. The core of the workshop will showcase various treatment protocols integrating pharmacological (such as mirtazapine and prescription amphetamine) and non-pharmacological strategies (such as contingency management and cognitive behavioral therapy) utilized across diverse countries and clinical environments. Presentations will include description of the interventions employed, study design, and outcome measure choices while highlighting the specific healthcare, cultural, and economic contexts in which these protocols are used. In addition, presenters will explore the practicality, implementation challenges, and perspectives of healthcare providers and people with lived and living experience. Workshop participants will be encouraged to share their experiences with stimulant use disorder treatment protocols and contribute insights on protocol implementation and the integration of long-term medication management with behavioral and psychosocial interventions in various settings.

Conclusions: In light of the rising global concerns related to increasing psychostimulant use and its economic and public health impact, including in low-to-middle-income countries, there is a critical imperative for the deployment of evidence-based interventions for stimulant use disorder. The health and access inequalities between countries also call for a concerted and collaborative strategy to address knowledge gaps and the variability in the provision of safe, efficient, and acceptable interventions. The World Health Organization's Mental Health Gap Action Programme and the United Nations Office on Drugs and Crime's #ScaleUp initiative offer guidance, tools, and a collaborative framework that leverages international expertise to rapidly confront the treatment gap, potentially enhancing the impact and satisfaction levels among individuals with stimulant use disorder and healthcare providers with evidence-informed healthcare.

Keywords: Behavioral interventions, evidence-based care, pharmacological interventions, stimulant use disorder, treatment gap

[OP-124]

Functional Magnetic Resonance Imaging Drug Cue-Reactivity as a Biomarker: A Systematic Review of the Current Evidence and the Challenges Ahead

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Introduction/Objective: In the last 3 decades, hundreds of functional magnetic resonance imaging drug cue-reactivity studies in people with substance use disorders have formed an extensive body of evidence, with an increasing number of publications in recent years. Further, there should be consistent reporting standards so that results can be interpreted and synthesized. To achieve this, a systematic assessment of the available evidence and an evaluation of possible clinical uses of functional magnetic resonance imaging drug cue-reactivity-derived biomarkers is conducted by our team from inception till the end of 2022. Additionally, we developed a set of reporting standards through international collaborations within the enhanced neuroimaging genetics through meta-analyses addiction cue-reactivity initiative.

Methods: Considering the growing number of published functional magnetic resonance imaging drug cue-reactivity papers, our living systematic review aims to maintain and update a database of these papers to facilitate further syntheses based on the methodology of our published systematic review of functional magnetic resonance imaging drug cue-reactivity papers and the enhanced neuroimaging genetics through meta-analyses-addiction cue-reactivity initiative checklist. Using the two aforementioned papers, we have strived to keep them lively updated by monitoring the PubMed and Medline databases for every original functional magnetic resonance imaging drug cue-reactivity investigation every 3 months.

Results: To date, there are 435 original functional magnetic resonance imaging drug cue-reactivity studies published. Among them, most of the studies focus on alcohol (30.1%), followed by nicotine (29.1%) and cocaine (10.8%). Most of the inside scanner functional magnetic resonance imaging cue-reactivity tasks used visual cues (85.3%). Until now, there are 20,962 subjects recruited in functional magnetic resonance imaging drug cue-reactivity studies and most studies proved to be supporting evidence to suggest functional magnetic resonance imaging drug cue-reactivity as a potential biomarker. This evidence shows that functional magnetic resonance imaging drug cue-reactivity can be a potential diagnostic (141 (38.1%)), treatment response (126 (34.0%)), severity (86 (23.2%)), prognostic (31 (8.3%)), predictive (26 (7.0%)), monitoring (11 (2.9%)), and susceptibility (2 (0.5%)) biomarkers. A total of 158 interventional studies used functional magnetic resonance imaging drug cue-reactivity, mostly to investigate pharmacological (67 (42.4%)) or cognitive/behavioral (52 (32.9%)) interventions; 142 studies used functional magnetic resonance imaging drug cue-reactivity as a response measure, of which 126 (88.7%) reported significant interventional functional magnetic resonance imaging drug cue-reactivity alterations; and 27 studies used functional magnetic resonance imaging drug cue-reactivity as an intervention outcome predictor, with 26 (96.3%) finding significant associations between functional magnetic resonance imaging drug cue-reactivity markers and treatment outcomes. The adherence to the enhanced neuroimaging genetics through meta-analyses-addiction cue-reactivity initiative checklist has been also assessed, showing an average of 73% adherence to the items proposed in this checklist. The results showed no significant difference between adherence to the checklist before and after its publication.

Conclusion: Functional magnetic resonance imaging drug cue-reactivity has a rich background, and its interest among researchers is steadily increasing. It has been shown promising results to propose this imaging assessment as a potential biomarker. This presentation will summarize the most updated evidence of the functional magnetic resonance imaging drug cue-reactivity field along with the challenges faced and some solutions to improve.

Learning Objectives

The audience will learn the concepts of functional magnetic resonance imaging drug cue-reactivity along with its most up-to-date evidence.

Participants will develop ideas on the potentials of functional magnetic resonance imaging drug cue-reactivity as a biomarker along with the ways to tackle the challenges ahead.

Keywords: Addiction, biomarker, drug cue-reactivity, fMRI

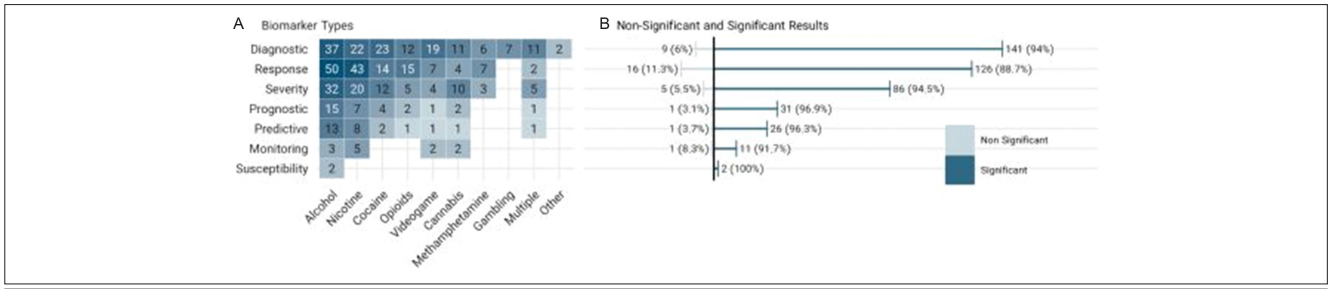

Figure 1. Biomarkers in FDCR Studies. (A) Functional Magnetic Resonance Imaging Cue-Reactivity Studies That May Lead to the Development of a Biomarker, Broken Down by Substance or Behavior of Interest in Each Study. Note that Numbers Do Not Sum to 435, and Percentages Do Not Sum to 100, Since Some Studies Fit No Biomarker Framework, For Example, Cross-Sectional Studies with a Single Group of Participants or Those That Include Only Non-Clinical Populations Without Follow-up, While Some Studies Fit Multiple Categories. (B) A Dumbbell Plot Showing the Number of Significant and Non-significant Biomarker-Related Tests.

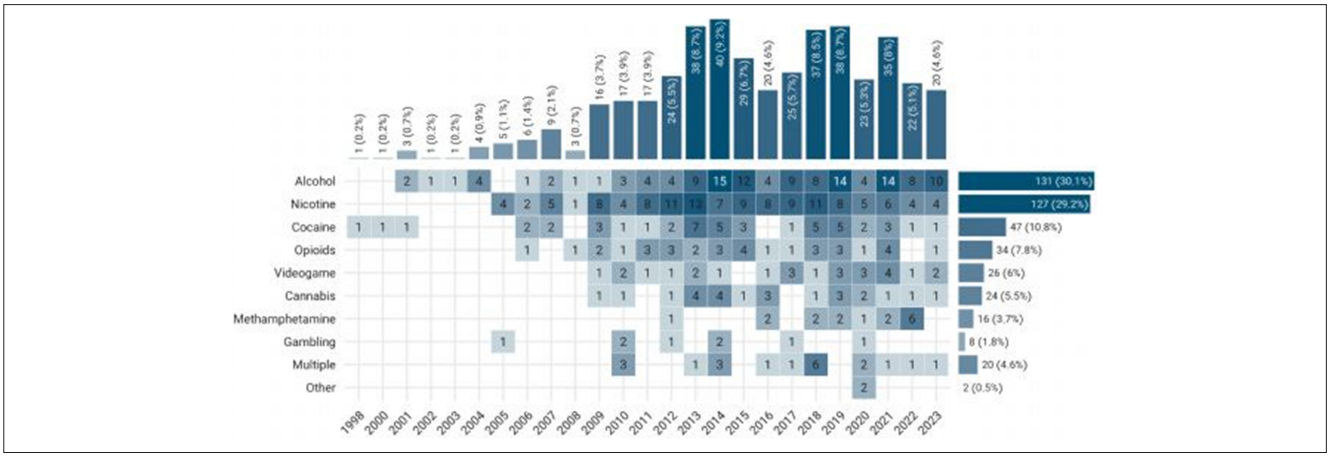

Figure 2. Functional Magnetic Resonance Imaging Cue-reactivity Studies Across Years. The Number of Functional Magnetic Resonance Imaging Cue-Reactivity Studies Published Each Year From 1998 Till the End of 2023, Broken Down By the Type of Addictive Substance/Behavior. "Multiple" Refers For Those Studies That Included More Than One Type of Addictive Substance/Behavior.

[SYMP-26]

Advancing Global Collaborations to Develop World Addiction Medicine Reports: International Society of Addiction Medicine Global Expert Network's Global Milestones and How to Get Involved

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As the latest product of the International Society of Addiction Medicine, which has aimed to extend the borders of addiction medicine through connecting experts around the world within an international network for expert elicitation, International Society of Addiction Medicine Global Expert Network has developed a global expert infrastructure which can enable valid and reliable expert elicitation and consensus-building in the various sub-disciplines of addiction sciences. Expert opinion constitutes an important source of information, especially when other types of data are scarce. The issues under discussion are complex and difficult to address with available data, or there is a need for rapid synthesis of information and intervention formulation.

Up to January 2023, International Society of Addiction Medicine Global Expert Network database of experts has been developed with a round of snowball sampling, comprising a total number of 354 experts from multiple sub-disciplines of addiction, representing 78 countries across the world. In addition, 43 national/regional addiction societies/associations are also included in the database.

International Society of Addiction Medicine Global Expert Network currently has five working groups, aiming at developing global surveys to explore a range of comorbid psychiatric disorders, emerging addictive behaviors, and novel therapeutic approaches for patients with substance use disorders. These working groups consist of: (1) Substance use disorder-psychosis (dual disorders); (2) Substance use disorder-post-traumatic stress disorder; (3) Problematic use of internet; (4) Using telemedicine to deliver medication for opioid use disorder; and (5) Substance use disorder-attention-deficit/hyperactivity disorder. This workshop will focus on updates on International Society of Addiction Medicine Global Expert Network structure and milestones along with presentations from each of the working group co-chairs on their progress within their surveys and projects in the network.

Learning Objectives

1. Having updates on ISAM-GEN milestones.
2. Receiving ISAM-GEN working groups' report.
3. Learning how to develop working groups and how to contribute in the current working groups.

Keywords: Addiction medicine, expert elicitation, global network, survey

Registration Bursaries

[OP-022]

Personality Functioning Strengths in Substance Use Disorders: Toward a New Conceptual Framework Using Multi-Stakeholder Perspectives

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Background: Focus on strengths in personality can counteract the predominant deficit-focused perspective often seen in substance use disorder recovery. Despite evidence of personality being dynamic and subject to change (Fleeson, 2004), the definition of personality strengths is mainly restricted to stable, inherent characteristics that promote adjustment and well-being. A focus on adaptive malleable and context-sensitive aspects of personality can benefit holistic understanding of individuals with substance use disorders and tailoring interventions for them. Within this context, the objective of this study is to develop an integrated conceptual framework for personality strengths in substance use disorders, using the lens of dynamic approaches to personality from multi-stakeholder perspectives.

Methods: A mix of one-to-one 10 in-depth interviews with individuals with lived experience of substance use and four focus group discussions with other stakeholders were undertaken to (a) conceptualize and define personality strengths as a multidimensional construct and its sub-constructs, and (b) identify its possible consequences and moderating variables with the context of substance use disorders. Participants for focus group discussions ($n = 20$) included experts from psychiatry, clinical psychology and psychiatric social work in addiction/personality psychology/strengths-based assessments across India and non-treatment-seeking family members, and friends of individuals with substance use disorders. Purposive and snowball sampling techniques were used to recruit the participants. In-depth interviews and focus group discussions were digitally audio recorded and transcribed verbatim, and themes were iteratively generated, partly using Atlas.ti software. The insights from interviews and focus group discussions were triangulated with existing multidisciplinary literature across personality, positive psychology, and recovery theories relevant to addiction.

Results: Qualitative data were analyzed using Braun and Clarke's (2013) reflexive thematic analysis. The study proposes a "personality functioning strengths" conceptual framework consisting of dynamic and malleable self-related and other-related socio-cognitive motivational capacities. Four major themes (and their sub-themes) were identified, namely (1) Core characteristics of personality functioning strengths. (2) Potential impacts of harnessing personality functioning strengths. (3) Contextual moderating factors in personality functioning strengths. (4) Building blocks of personality functioning strengths in substance use disorders. Stakeholders further considered these personality functioning strengths as "double-edged swords" and highlighted the flexible use of these capacities. The findings will elaborate on the sub-constructs of the framework i.e., affective, cognitive, goal-directed, interpersonal, intrapersonal, and spirituality- and culturally-specific strengths.

Conclusions: The study suggests a malleable framework to incorporate PS into assessments in substance use disorders, which can be associated with several positive outcomes in substance use disorders, such as early termination, motivation, and engagement. The integration of the perspectives of various stakeholders into the current research process can enhance the feasibility and relevance of the personality functioning strengths construct in substance use disorders relevant theoretical and practical implications will be further presented.

Keywords: conceptual framework, personality strengths, qualitative methodology, recovery capital

[OP-006]

Neuroimaging Insights into Opioid Cue Reactivity: Development of an fMRI Task Targeting Chasing as an Administration Route in Opioid Dependence

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Aim: To elucidate functional magnetic resonance imaging-based neural pathways during drug-cue reactivity chasing task.

Introduction: Variations in craving can be observed among specific types of drugs and across different routes of administration, especially in studies involving functional magnetic resonance imaging on drug-cue reactivity. To elucidate the neural pathways of craving, an functional magnetic resonance imaging task with only chasing cue pictures was designed.

Methodology: Development and validation of the functional magnetic resonance imaging visual drug cue task were done in three stages:

1. *Collection of cues:* Forty drug cue pictures (drug/*paraphernalia* (foil, smack, smack on foil) and drug usage) and 40 neutral pictures not eliciting craving in opioid users were obtained after taking informed consent (Figure 1a).
2. *Validation of pictures:* Thirty male opioid use disorder active users (diagnosed as per ICD 11) recruited from the National Drug Dependence Treatment Centre, All India Institute Of Medical Sciences (age and drug-use duration: 26.43 $\pm$ 2.94 and 6.5 $\pm$ 2.62 years, respectively, drug dosage: 1.5 $\pm$ 0.23 g), were presented with the drug and neutral pictures (Figure 1b) and were asked to report craving on a visual analog scale of 1 – 10 pre- and post-cue picture presentation.
3. A paired *t*-test was used to assess differences between pre- and post-visual analog scale craving. The top 25 drug cue pictures elucidating craving (with highest mean difference) and 25 neutral pictures (with lowest mean difference) were selected by receiver operating characteristic analysis for designing the functional magnetic resonance imaging task (Figure 1c).
4. *Functional magnetic resonance imaging task:* Drug-cue reactivity functional magnetic resonance imaging task in block design (Figure 1d) was designed in Superlab (ver. 6). Sixteen male (20 – 40 years) opioid use disorder patients were recruited from the community clinic within 2 – 3 days of initiating treatment and 17 healthy controls underwent magnetic resonance imaging scans on a 3T Ingenia MR Scanner with a 32-channel head coil (Table 1). Participants

had to report craving using an magnetic resonance imaging-compatible Lumina response pad during the task. A whole-brain 3D T1 weighted image and functional magnetic resonance imaging (TR = 1.5 seconds, TE = 24 ms, dynamics = 306) were acquired. Whole-brain Region of Interest (ROI)-to-ROI functional connectivity analysis was done using the CONN toolbox to elicit craving and drug effects within the opioid use disorder group (contrast: drug cue > neutral cue). Between group differences were analyzed in opioid use disorder patients with respect to controls.

Results: *Within group differences:* Occipital region and frontal-motor regions depicted increased connectivity ($p < .05$,uncorrected) in opioid use disorder patients (Table 2, Figure 2a). *Between group differences:* Frontal (both hemispheres) to motor and temporal regions depicted increased connectivity ($p < .05$, Family-wise error [FWE]-corrected) in opioid use disorder patients (Table 2, Figure 2b).

Discussion and Conclusion: Increased connectivity in opioid use disorder patients (drug cue > neutral cue) in the occipital fusiform gyrus, temporal occipital fusiform gyrus are linked to sensory perception and processing and may be associated with exposure to salient stimuli. Increased connectivity in sensorimotor to fronto-orbital areas between groups depicts their role in motor preparation during drug-taking and suggests that the sensorimotor region serves as a prominent neural foundation for craving and drug-use behaviors.

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Keywords: drug-cue reactivity task, drug craving, functional connectivity, opioid dependence, route of administration

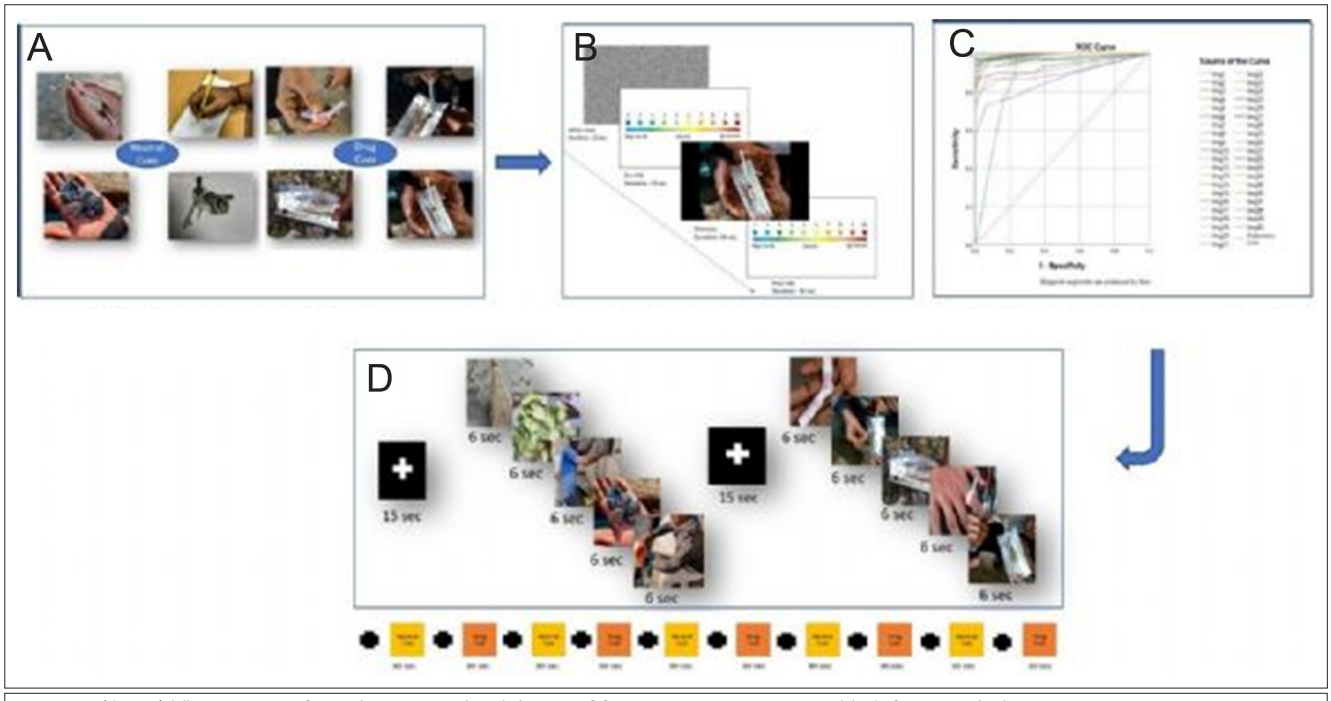

Figure 1. (A – D) Three Stages of Development and Validation of fMRI Drug Cue Reactivity Task for Opioid Chasers.

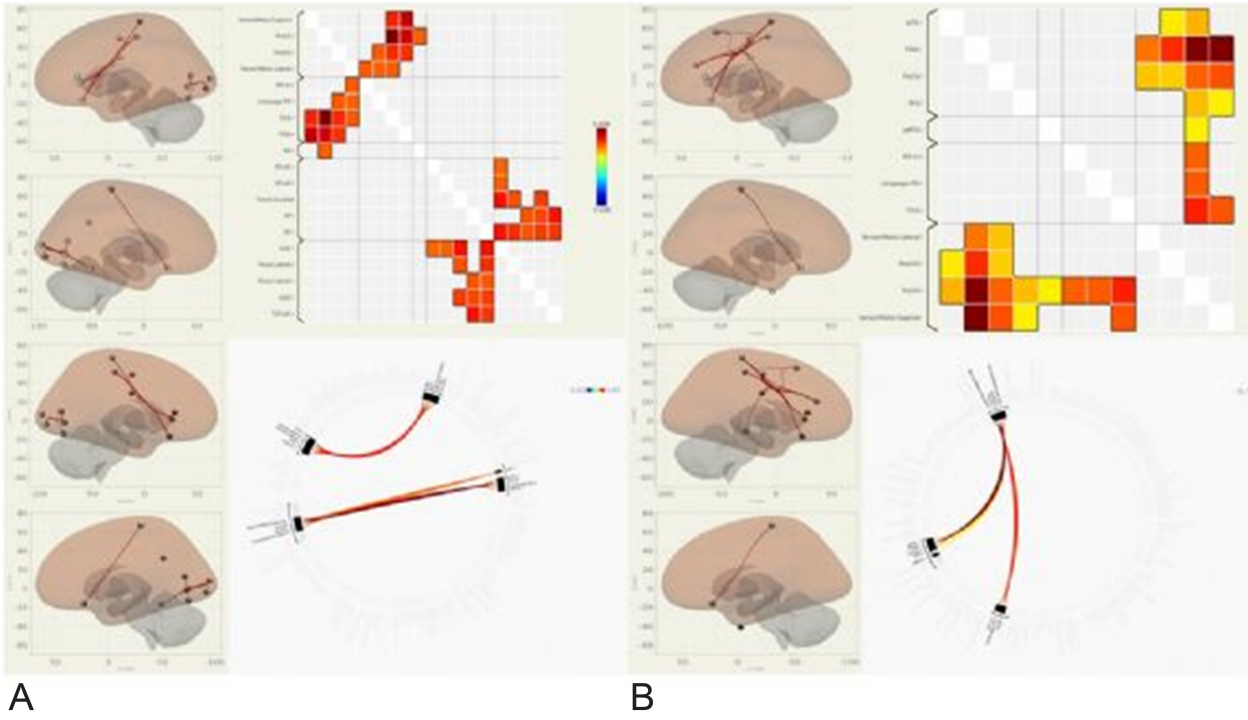

Figure 2. ROI-to-ROI Connectivity (A) Within OUD Patients, (B) Between OUD Patients vs Controls.

Table 1.
Demographics of Participants Recruited for fMRI Task Validation

Variables	OUD Patients (n = 16) Mean ± SD	Healthy Controls (n = 17) Mean ± SD	T-score	p
Age	31.25 ± 6.16	30.5 ± 3.96	0.29	.78
Education (years)	10.13 ± 2.03	11.5 ± 2.56	1.19	.25
Smoker	Yes: No (16:0)	Yes: No (5:12)	–	–
SODQ	41.52 ± 2.35	–	–	–
Drug use (years)	8.31 ± 2.96	–	–	–

Table 2.
Difference in Connectivity Within Group (Contrast Used: Drug Cue > Neutral Cue) and Between (OUD > Control) Group (Contrast Used: Drug Cue > Neutral Cue)

Within Group (OUD) differences (Contrast Used: Drug Cue > Neutral Cue) p < .05, p-FDR Corrected		**Between Group (OUD Group > Control Group) Differences (Contrast Used: Drug Cue > Neutral Cue) p < .05, p-FDR Corrected**	
ROI-to-ROI connections	Statistics (T)	ROI-to-ROI connections	Statistics (T)
Cluster 1/2		Cluster 1/2	
PreCG l—FOrb l	5.43	FOrb r— SensoriMotor.Superior	5.77
—FOrb r	4.64	FOrb r—PreCG l	5.73
PreCG l—FOrb r	4.52	FOrb r—PostCG l	4.39
SensoriMotor.Superior—FOrb l	3.7	PaCiG l— SensoriMotor.Superior	4.06
PostCG l—FOrb l	3.65	PaCiG l—PreCG l	3.94
PostCG l—FOrb r	3.56	FOrb r— SensoriMotor.Lateral (L)	3.71
PostCG l—language.IFG (L)	3.12	aITG r—PreCG l	3.07
SensoriMotor.Lateral (L)—FOrb l	3.12	SFG l—PreCG l	2.98

(*Continued*)

Table 2.
Difference in Connectivity Within Group (Contrast Used: Drug Cue > Neutral Cue) and Between (OUD > Control) Group (Contrast Used: Drug Cue > Neutral Cue) (Continued)

Within Group (OUD) differences (Contrast Used: Drug Cue > Neutral Cue) $p < .05$, p-FDR Corrected		**Between Group (OUD Group > Control Group) Differences (Contrast Used: Drug Cue > Neutral Cue) $p < .05$, p-FDR Corrected**	
SensoriMotor.Lateral (L)—IFG tri	3.08	PaCiG l—SensoriMotor.Lateral (L)	2.88
SensoriMotor.Lateral (L)—Language.IFG (L)	3.05	PaCiG l—PostCG l	2.75
PreCG l—AG r	3.03	aITG r—PostCG l	2.38
Cluster 2/2		pMTG l—PreCG l	2.35
Visual.Occipital—iLOC l	3.89	SFG l—SensoriMotor.Superior	2.34
OP r—iLOC l	3.87	Cluster 2/2	
OP l—TOFusC r	3.87	FOrb l—PreCG l	4.6
OP r—Visual.Lateral (L)	3.63	FOrb l—SensoriMotor.Superior	3.67
OP r—TOFusC r	3.5	Language.IFG (L)—PreCG l	3.56
OP r—iLOC r	3.44	IFG tri l—PreCG l	3.54
Visual.Occipital—iLOC r	3.41		
OP l—iLOC r	3.33		
Visual.Occipital— Visual.Lateral (L)	3.22		
OP l—Visual.Lateral (R)	3.16		
OP r—Visual.Lateral (R)	3.14		
OFusG l—iLOC l	3.07		
OFusG r—iLOC l	3		

Note: aITG, inferior temporal gyrus, anterior division; Forb, frontal orbital Cortex; IFG, inferior frontal gyrus; iLOC, lateral occipital cortex, inferior division; OFusG, occipital fusiform gyrus; OP, occipital pole; PaCiG, paracingulate gyrus; pMTG, middle temporal gyrus, posterior division; PostCG, postcentral gyrus; PreCG, precentral gyrus; SFG, superior frontal gyrus; TOFusC, temporal occipital fusiform cortex

[OP-026]

Evaluation of Clinical and Hypothalamic – Pituitary – Adrenal Axis Hormones in Response to Stress Challenge in Buprenorphine-Maintained Patients: An Exploratory Study

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Introduction: Chronic opioid use alters the brain's response to stress, which diminishes with methadone maintenance. The long-term effect of buprenorphine on the hypothalamic – pituitary – adrenal axis is unknown. Corticotrophin releasing factor levels have not been evaluated in buprenorphine-maintained patients. The involvement of corticotrophin releasing factor in the brain's response to stress makes it a valuable marker to evaluate, especially in response to a stress challenge.

Methods: Males aged 18 – 35 years were recruited in two groups: healthy controls (n = 28) and opioid-dependent subjects (n = 32), who had been on buprenorphine for at least 3 months with more than 80% compliance (confirmed by UDS cassette and medical records). The levels of biochemical (serum corticotrophin releasing factor and plasma adrenocorticotropic hormone, measured using enzyme-linked immunosorbent assay) and clinical (subjective stress measured using a visual analog scale; mood assessed via the Bond and Lader mood visual analog scale) variables were compared between the two groups after induced stress. The variables were measured four times: immediately before and after the Trier social stress test, 20 minutes (T3), and 40 minutes (T4) after the Trier social stress test. Patients with significant traumatic events, comorbid substance use disorders (except tobacco), and other medical disorders were excluded. Generalized estimating equations were used to assess repeated measures, and Spearman's correlation was used to find associations between variables.

Results: The study found no significant difference in sociodemographic variables between controls and cases (mean age being 30.6 and 29.1 years, respectively), except for a higher socioeconomic status in controls. Most cases had used heroin in the past, typically via the chasing route, for an average of 10.66 years. They were on Opioid-Assisted Treatment (OAT) for an average of 21.53 months, with a buprenorphine dose of 16.75 mg and a compliance rate of 97.33% (past 3 months). Serum corticotrophin releasing factor levels were higher in the controls (51.52 (IQR = 33.285) pg/mL) than in the cases (38.22 (IQR = 24.88) pg/mL), as shown in Figure 1. At all time points, plasma adrenocorticotropic hormone levels (24.04 (IQR = 13.62) pg/mL) were lower in the cases than in the controls (29.43 (IQR = 17.26) pg/mL), as depicted in Figure 2. By T4, both groups' levels returned to baseline. However, the levels showed significant differences at T1 for both corticotrophin releasing factor and adrenocorticotropic hormone. Over time (with Trier social stress test), levels rose noticeably in both groups, and their responses to stress were similar, since there was no significant group-time interaction. A positive correlation was observed at T2 between corticotrophin releasing factor and visual analog scale-stress and all domains of the mood scale, and at T2 and T3 between adrenocorticotropic hormone and visual analog scale-stress and the alertness domain of the mood scale.

Conclusions: These results imply that buprenorphine may continue to affect corticotrophin releasing factor and adrenocorticotropic hormone levels even after consistent doses and extended use. Although buprenorphine is categorized as a partial agonist, its significant reduction in corticotrophin releasing factor and adrenocorticotropic hormone levels indicates that it may have a significant impact on the stress response system, similar to what happens with methadone or heroin. This is the first study to assess serum corticotrophin releasing factor levels in buprenorphine patients and evaluate their response to a stress challenge.

Keywords: ACTH, buprenorphine, CRF, opioid agonist treatment, stress challenge

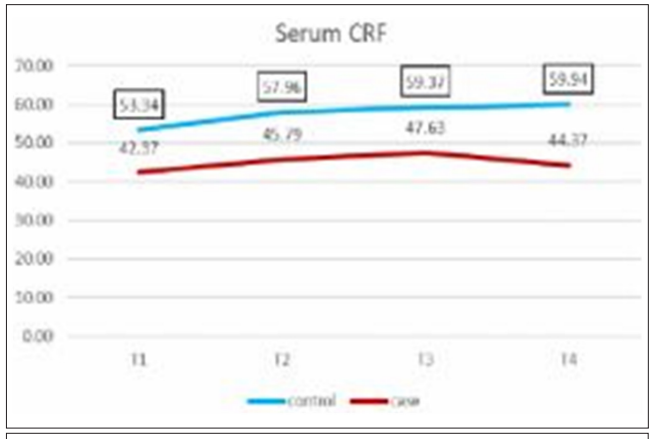

Figure 1. Time × Group Interaction for Serum CRF with Estimated Means.

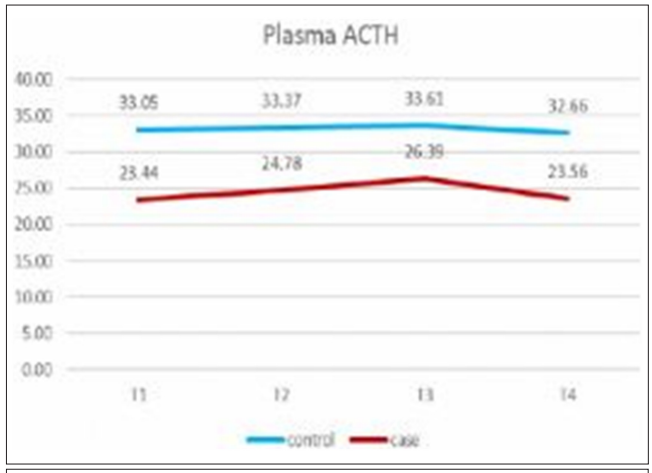

Figure 2. Time × Group Interaction of Plasma ACTH with Estimated Means.

[OP-015]

Do People with Opioid Dependence Who Initiate Treatment Differ From Those Who Do Not? Findings From A Prospective-Cohort Study

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Learning Objectives

1. Identifying and understanding socio-clinical differences between people with opioid dependence who are seeking treatment and those who do not seek treatment.

2. Discussing measures required for addressing these differences, which may help to further tailor opioid dependence management in a holistic manner at a community level in a lower middle-income country. Community-based programs have been found to be associated with high retention rates and positive community-wide results, like by decreasing crime rates, reducing child protection cases, increasing school attendance rates, etc.

Methods: We analyzed data from a prospective cohort study that assessed mortality in people with opioid dependence syndrome. The study recruited treatment-naïve individuals with opioid dependence syndrome (n = 398), residing in an impoverished urban locality of Delhi, India, and followed them up every 6 months. A semi-structured questionnaire assessed socio-demographic profile, peer-related history, and substance use pattern. Opioid dependence severity, high-risk behavior, and functionality were assessed through Leeds Dependence Questionnaire, high risk behavior scale and functional, respectively. Comorbid psychiatric symptoms were assessed using GAD-7, PHQ-9, and Ask Suicide Screening Questions. Subsequent follow-ups showed that some individuals had registered for opioid agonist treatment. In this paper, we compared baseline profile of treatment seekers with non-treatment seekers using logistic regression model. Institutional Review Board clearance was secured.

Results: The participants' mean age was 26.3 ± 13.6 years. One-third (n = 136) had injected opioids, 19% (n = 60) tested human immunodeficiency virus positive, and 27% (n = 107) hepatitis C positive. Over 1 year of follow-up, 40% (n = 161) people registered for opioid agonist treatment. On logistic regression analysis, factors significantly associated with non-treatment seeking behavior were: being unmarried (relative ratio: 10.6, 95% CI 8.5 – 16.3), non-employment (10.9, 8.8 – 15.1), longer duration of opioid use (3.2, 1.2 – 5.0), found positive for hepatitis C infection (3.91, 1.08 – 6.44), greater deterioration in functioning (5.1, 3.8 – 7.8), incarceration history (8.7, 6.0 – 14.8), depressive symptoms (1.9, 1.1 – 3.9), and larger drug-using network size (1.8, 1.2 – 1.9).

Conclusions: We found that individuals who would not turn up for opioid agonist treatment despite being made aware of the availability of treatment, had poor social support, financial difficulties, conflicts with law, and have larger peer networks with opioid use, addressing these factors would be important to increase treatment seeking in this vulnerable population. Individuals with opioid dependence syndrome who do not initiate treatment also have greater adverse events in the form of co-morbid infections of Hepatitis C and human immunodeficiency virus, psychiatric symptoms like depression. Specific interventions targeting this sub-group need to be developed at community level to bring this sub-group into treatment.

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Keywords: Opioid agonist treatment, opioid dependence, opioid substitution treatment

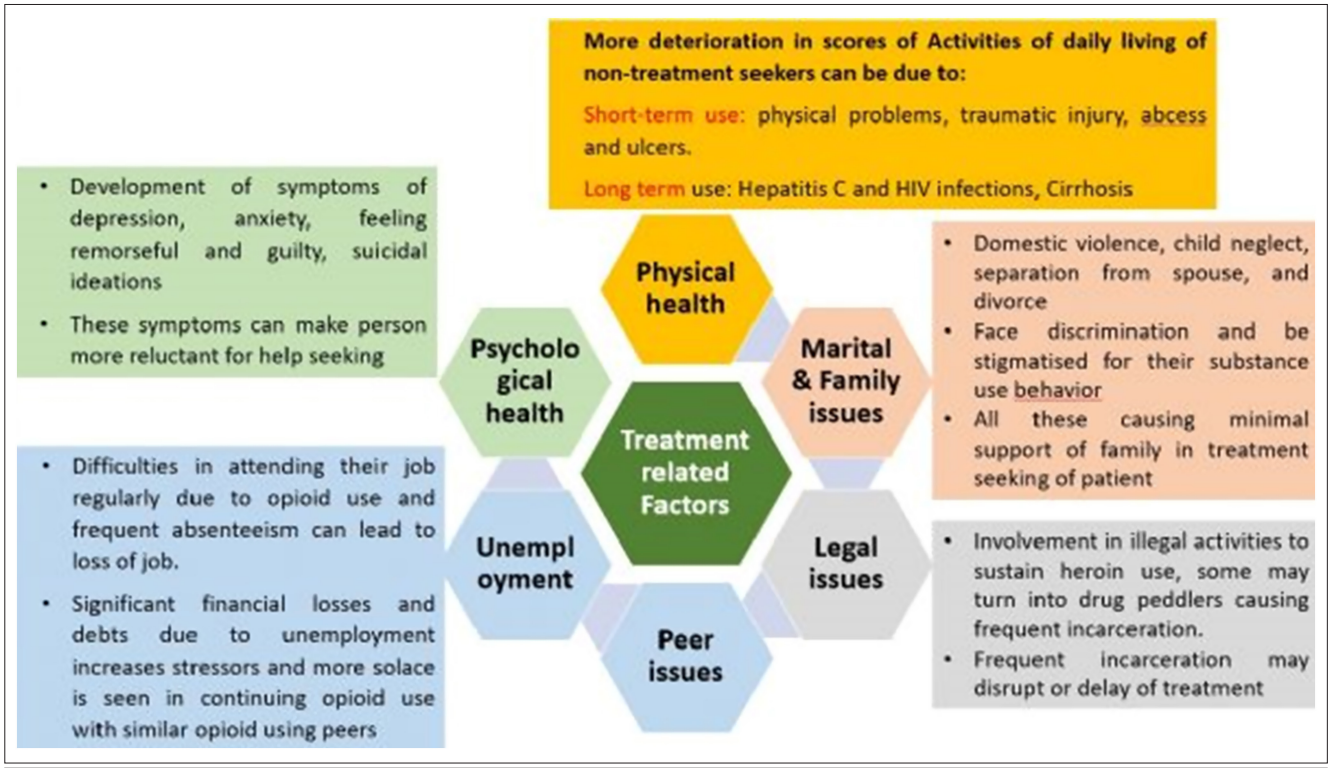

Figure 1. Various Inter-Related Factors of Opioid Use and Treatment Seeking Behavior.

[OP-134]

Treatment Approaches for Problematic Use of Internet: A Systematic Review of Clinical Trials

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Introduction: Problematic use of internet has emerged as a global public health concern, affecting individuals' physical, psychological, and social well-being. Despite its increasing prevalence, there is a significant gap in understanding and evaluating effective treatment interventions for problematic internet use. This systematic review aims to address these knowledge gaps in the current literature by providing a comprehensive evaluation of treatments for problematic internet use. By elucidating treatment efficacy, identifying optimal intervention strategies, and highlighting areas for future research, this study contributes to the advancement of effective strategies for managing problematic internet use and promoting digital well-being.

Objectives

1. To systematically review the existing literature on treatments for problematic internet use.
2. To assess the efficacy of different treatment approaches in reducing problematic internet use symptoms.
3. To identify gaps in the current literature and provide recommendations for future research.

Methods: This is a two-stage review in which a synthesized search strategy will be employed to identify relevant studies from PubMed/Medline databases, based on the preferred reporting items for systematic reviews and meta-analyses checklist. The first step was finding systematic reviews and meta-analyses existed in the field through a comprehensive systematic search aiming to derive any original studies assessing the effectiveness of any treatment for related online misbehaviors. For the second step, all original studies that evaluated the effectiveness of treatment for any aspects of problematic internet use (including internet addiction, gaming, online shopping, online pornography, online gambling, cyberbullying, smartphone addiction, and social media addiction) was of interest. Inclusion and exclusion criteria were applied to select studies, followed by data extraction and quality assessment. The protocol paper is available online on Open Science Framework (https://osf.io/8uc2w/?view_only=39285313ffb242f385722c64110aa9ff).

Results: Included studies spanned from 2005 to 2023, revealing an increasing trend in research focus on Internet and gaming-related disorders over the years. China led in-country contributions with 33 studies, followed by Korea with 19. The majority of studies were randomized controlled trials, with 51 studies, predominantly using single arm designs. Most studies did not specify a control condition (63), and blinding was largely unreported (40). Behavioral interventions were predominant, featured in 78 studies, with cognitive behavioral therapy being the most commonly utilized treatment type in 48 studies. Poblematic internet use scales could be categorized into three dimensions of: (1) symptom severity (61%), (2) consumption-related (29%), and (3) craving (5%). The most used problematic internet use scale for each dimension were the Young Internet Addiction Scale, measures of internet use and online gaming time, and craving for online gaming, respectively. Treatment interventions were either behavioral, pharmacotherapy, neuromodulation, or combination strategies from which cognitive behavioral therapy was the most commonly utilized treatment type, indicating its effectiveness and acceptance in managing these disorders.

Conclusions: In conclusion, the review highlights diverse and promising approaches for treating Internet and gaming-related disorders, including behavioral, pharmacological, and neuromodulation interventions. Cognitive behavioral therapies, group therapies, telemedicine interventions, and pharmacological treatments like bupropion and escitalopram have shown consistent efficacy. Neuromodulation techniques offer innovative avenues for addressing these disorders. Personalized and integrative treatment approaches are emphasized, underscoring the need for continued research to enhance treatment effectiveness and inform prevention strategies.

Keywords: Behavioral addiction, gaming addiction, internet addiction, problematic internet use

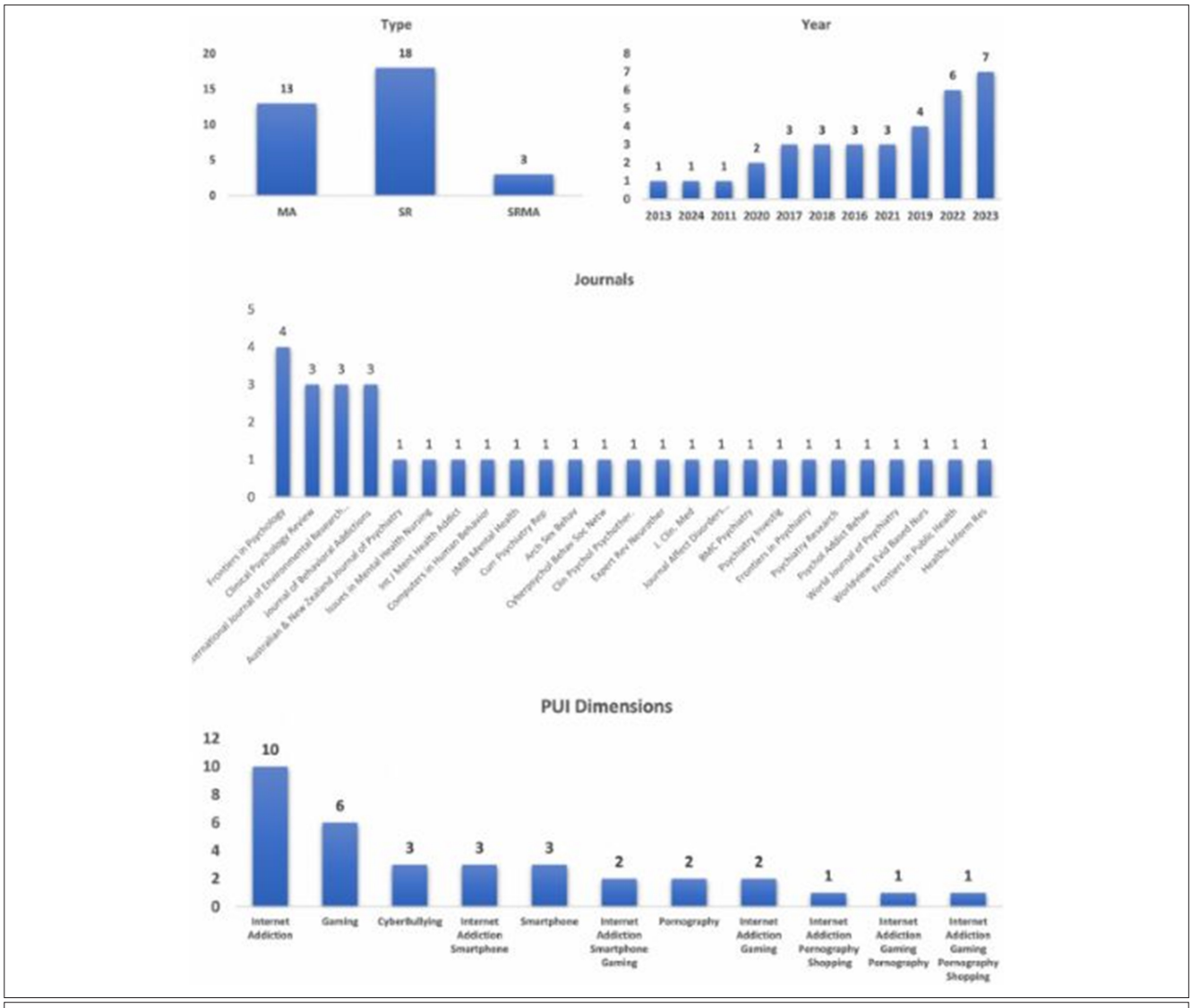

Figure 1. Descriptive Analysis of Eligible Systematic Reviews and Meta-Analyses. Distribution of Included Systematic Reviews and Meta-Analyses in the First Stage Based on Study Type (Top Left), Year Published (Top Right), Journals (Middle), and Aspects of Problematic Use of Internet (PUI) (Bottom). MA, Meta-analysis; SR, Systematic Review; PUI, Problematic Use of Internet.

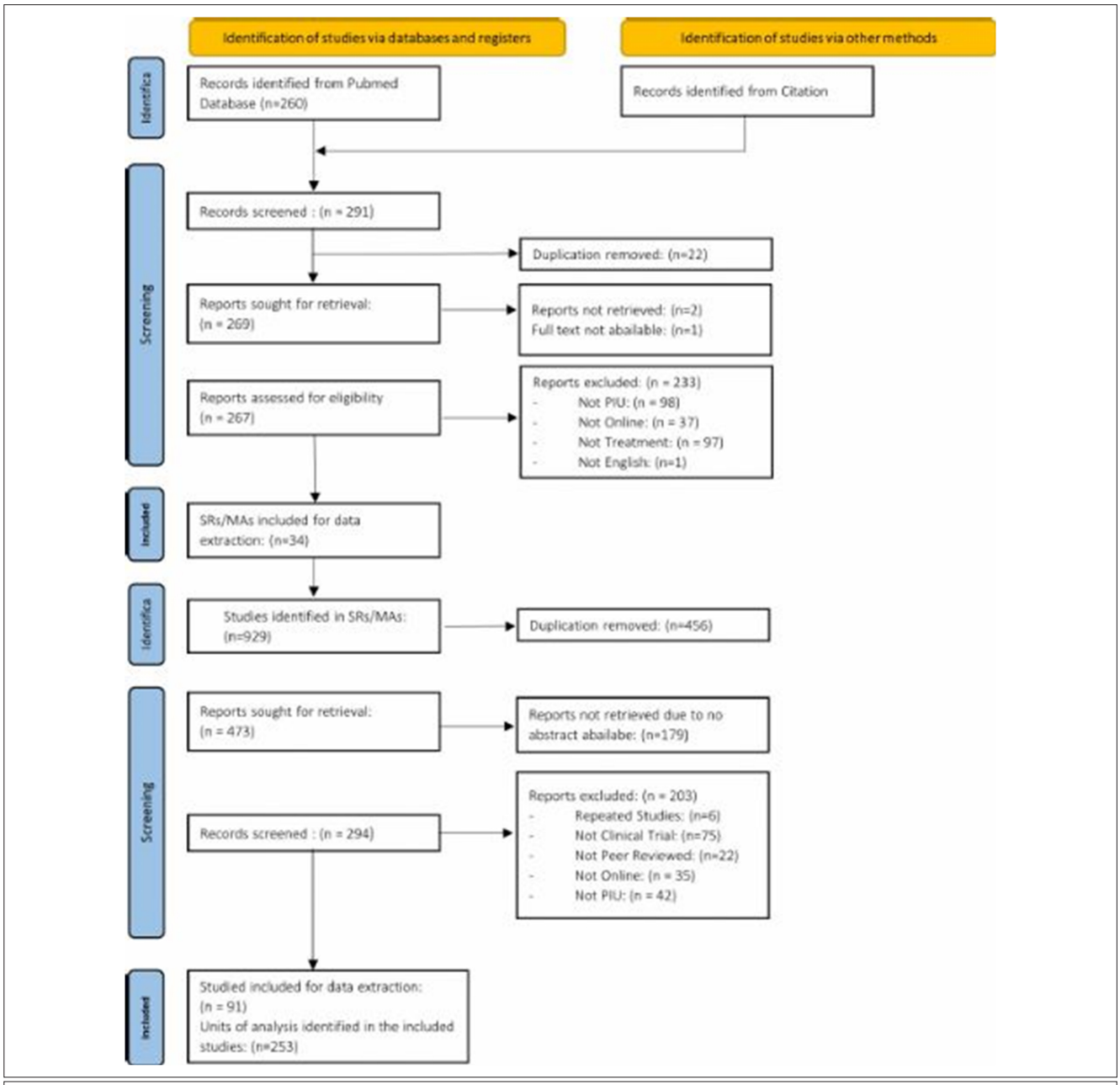

Figure 2. Two-Stage PRISMA Chart.

[OP-126]

Retrospective Cohort Study to Examine the 12-Month Retention and Abstinence Rate on Various Long-Term Pharmacological Treatments Among Treatment-Seeking Opioid-Using Adolescents

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Introduction: Opioid use among children and adolescents poses a significant public health challenge. Although opioid agonist treatment with buprenorphine is considered one of the safest and most effective long-term treatment strategies among adults, its use in adolescents is not common. There may be many reasons for the same. Abstinence, rather than recovery, as the primary goal for adolescent opioid users, a paucity of evidence on effectiveness and safety in this population, and issues with regulatory approval are some important reasons. There are very few studies on adolescents that have compared the outcome among adolescents on various long-term agonist and antagonist medications. The aim of the study was to assess and compare the outcome of treatment among opioid-using adolescents. Factors affecting retention and outcome shall be discussed.

Methods: This study is a retrospective cohort study of opioid-dependent adolescents (10 – 19 years) attending a specialized deaddiction clinic at a tertiary-level center over a period of 4 years, from January 2016 to December 2019. The subjects have been followed until September 2022. The outcome has been assessed for at least two specific time points since treatment entry: 2 months and 12 months. Retention has been defined for the study as at least one treatment contact within 1 month of the assessment, and the rest were considered "drop-out" for the study. Among the retained, those who denied primary opioid use were considered abstinent. Cross-over from one treatment to another have been analyzed. It is defined as change of medication from the last follow-up to the current.

Results: A total of 210 opioid-dependent adolescent subjects were enrolled in the study. The mean age of initiation of opioid use and dependence was 14.31 (S.D. 1.93) and 14.89 (S.D. 1.82), respectively. The predominant route of opioid use was inhalational; with only 20.5% used by injecting route. Nearly all (n = 202) subjects were initiated on one of the pharmacological treatments for 2 months (Table 1). The majority (39.5%) were initiated on naltrexone. No significant differences were noted in sociodemographic and clinical variables between the three groups, apart from in-patient admission (naltrexone better than buprenorphine, $p < .001$), the number of in-patient admissions, family type, and the number of patients using the inhalational route at baseline. Retention and abstinence rates among those retained on naltrexone and buprenorphine at 2 months and 12 months showed significant differences, with post hoc analysis revealing that patients on naltrexone fared better than those on buprenorphine ($p < .001$). Over 39.5% of the cases crossed over to a different treatment group during the first 12 months (Figure 2). A significant decrease in retention was also seen with both buprenorphine and naltrexone over 12 months ($p < .05$).

Conclusions: Antagonist treatment for adolescent opioid use shows effectiveness in the short term. Longer follow-up with more outcome variables needs to be done to ascertain the effects of pharmacological treatment effectively.

Keywords: Adolescent, buprenorphine, naltrexone, opioid use disorder, retention

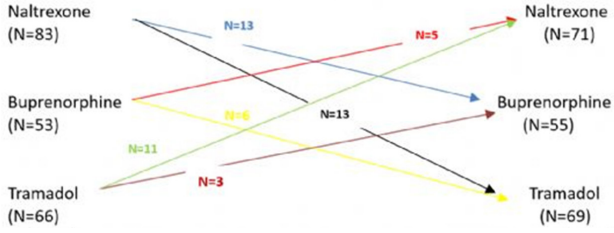

Figure 1. Crossover from Different Treatment Groups Between 2 Months and 12 Months.

Table 1.
Comparison of Treatment Outcomes Between naltrexone (NTX), buprenorphine (BPN), and tramadol (TMD)

	Naltrexone	Buprenorphine	Tramadol	Other	Test Statistic	*p*
n (%) at 2 months	83 (39.5)	53 (25.2)	66 (31.4)	8 (3.8)		
Retention* at 2 months	61 (73.5)	28 (52.8)	24 (36.4)	1 (12.5)	26.788	<.001
n (%) at 12 months (as per last observation)	71 (33.8)	55 (26.2)	69 (32.9)	15 (7.1)		
Retention at 12 months	22 (31.0)	15 (27.3)	6 (8.7)	1 (6.7)	14.056	.002
Abstinence$ rates (at 12 months; out of those retained)	19 (86.4)	6 (40.0)	1 (16.7)	0 (0.0)	17.842	<.001

Note: *At least one follow-up in last 1 month.
$No opioid use in last follow-up as per self/caregiver report.

[OP-096]

A Cross-Sectional Community-Based Study Using Modified Social Stress Model to Understand Substance Use Among Street Children In Delhi

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Introduction: Substance use in street children is likely to interfere with the normal child development, threatening their health and affects their integration into society. Modified social stress model explains the complex relationship between factors that influence the onset and continuation of substance use.

Objectives: To use modified social stress model to understand substance use among street children in Delhi, India.

Methods: This survey used respondent driven sampling in nine districts of Delhi to obtain a representative sample of street children (n = 766, 7 – 18 years) after obtaining institutional ethics clearance. A semi-structured questionnaire was used based on modified social stress model with six major components: stress (major life events, enduring life strains, everyday problems, life transitions, lack of guidance/support), normalization of substance use by family/friends, experience of substance used (type, perceived benefits, negative consequences), skills (occupational), attachments, and resources (education and help seeking) (Figure 1). Statistical analysis was performed using the statistical package for social sciences software, version 21.0.

Results: Substance-using street children constituted 49% (n = 375) of the sample. The majority of them were aged 10 – 14 years (55.2%), males (93.3%), school dropouts (87.7%), low-skilled (81.6%), living with family/relatives (63.4%), had both positive and negative attachments, and were not looked after by their family (50.93%).

Components assessed in the modified social stress model are given in Table 1. Majority have experienced stressful life events like physical abuse (76.5%), sexual abuse (39.2%), and death in family (35.5%). Abuse by family (75.2%), poverty (65.3%), lack of education (35.2%), and health problems (19.2%) constituted enduring life strains. Majority lacked basic amenities (food = 53.3%, shelter = 46.4%, clothes = 39.7%). High prevalence of substance use in family (87.5%) and friends (97.9%) indicates normalization of drug use.

The majority used legal, cheaper, and easily available substances (tobacco = 59.5%, inhalants = 40%, alcohol = 17.9%). Perceived benefits of drug use included experience of high, sense of belonging, getting rid of negative emotions, and to forget about family. Perceived benefits unique to street children were to deal with hunger (30.2%) and cold (24.3%). Negative consequences included experiencing withdrawal, negative emotions, harmful behavior, and health problems.

About 97.9% were in close contact with friends who used substances, as opposed to only 58.9% whose friends did not use substances. A significant proportion (29.1%) did not consider substance use a problem. Although, 46.4% were willing to quit drugs and stated a need for help, only 18.4% have ever received medical help. About 7.7% also had assistance for various reasons, not limited to substance use.

Conclusion: This study helps to understand the vulnerability of street children to drug use in terms of major life stressors, normalization of substance use, negative attachments, perceived benefits of drug use, low skills, and resources. Interventions for this population need to focus on motivational enhancement sessions to enhance treatment seeking, provision of access to resources, enhancing skills, family-based interventions to address drug use in family, and to use positive attachments wherever possible. Trauma-based interventions should be incorporated, as a high proportion of them experienced abuse.

Learning objectives

1. Understanding the factors that make street children vulnerable to substance use.
2. Recommend tailored interventions based on their needs and the factors affecting them.

Keywords: addiction, street children, stressors, trauma, treatment services

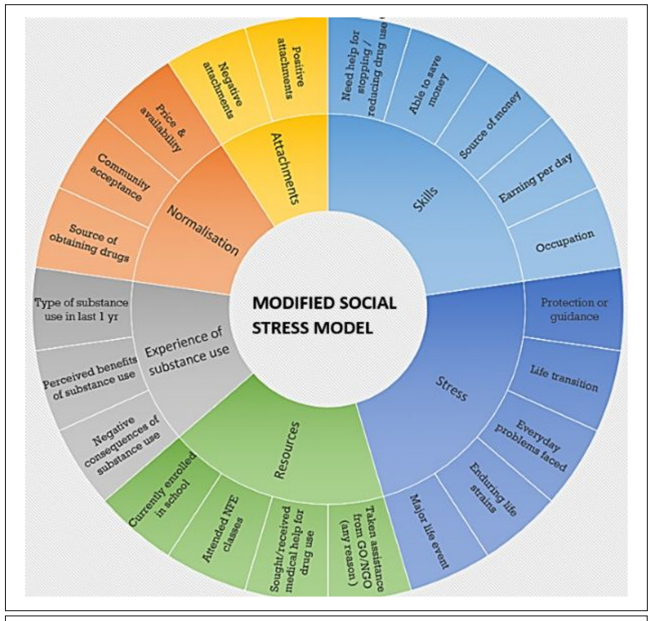

Figure 1. Modified Social Stress Model: Various Components.

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4. IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.

Table 1.
Components assessed in the modified social stress model

1. Stress		
Major life events	*n*	%
Physical abuse	287	76.5
Sexual abuse	147	39.2
Death in family	133	35.5
Parents separated	51	13.6
Orphaned	15	4
Abandoned by family/relatives	8	2.1
Got lost	1	0.3
Victims of disaster	1	0.3
Enduring life strains	*n*	%
Poverty	245	65.3
Lack of education	132	35.2
Physical/health problems	72	19.2
Bullying by peers at school	26	6.9
Often beaten up or verbally abused by the family	282	75.2
Everyday problems	*n*	%
Lack of food	200	53.3
Lack of shelter	174	46.4
Lack of clothes	149	39.7
Harassment by police/public	100	26.7
Family not looking after daily basic needs such as food, clothing, etc	191	50.93
Life transitions	*n*	%
Shifted location of stay in last 1 year	141	37.6
Dropped out from school	329	87.8
Protection/guidance	*n*	%
Family is concerned about how child spends time	200	53.3
Family is aware of how child spends time	188	50.1
2. Normalization		
Community acceptance	*n*	%
Drug use by family member	328	87.5
Drug use by friends	367	97.9
Source of obtaining drugs	*n*	%
From friends	274	73.1
Any other shop	228	60.8
From a drug peddler	197	52.5
Pharmacy or chemist shop	55	14.7
Any other	11	2.9
3. Experience of substance use		
Type of substance use in last 1 year	*n*	%
Tobacco	223	59.5
Inhalants	150	40
Alcohol	67	17.9
Cannabis	58	15.5
Heroin	11	2.9
Opioids (pharmaceutical)	2	0.5
Opium	1	0.3
Perceived benefits of substance use	*n*	%
Experience high	302	80.7
Sense of belonging to a group/peers	119	31.7
Get rid of fear/anxiety/sadness/anger	116	31
Handle hunger	113	30.2
Deal with cold	91	24.3
To forget about family	26	6.9
Negative consequences of substance use	*n*	%
Experience withdrawal	246	65.6
Experienced sadness/anxiety due to drug use/ problems due to drug use	241	64.3
Got into a fight under drug/alcohol effect	200	53.3
Intoxication that led to fall/injury/accident/loss of consciousness	173	46.1
Experienced some physical/health problems due to alcohol/drug use	154	41.1
Got into legal problems	103	27.5
Indulged in sexual behavior under drug/alcohol effect	49	13.1
Indulged in sex to get drugs/money for drugs	45	12.0
4. Attachments		
Positive attachments	*n*	%
In contact with family	320	85.3
Being looked after by family	184	49.1
In close contact with friends who do not use substances	221	58.9
Has trusted and dependable friends	292	77.9
Negative attachments	*n*	%
In close contact with friends who use substances	367	97.9
Substance use present in family	328	87.5
Beaten and abused by family	282	75.2
5. Skills		
Occupation	*n*	%
Unskilled/semiskilled	306	81.6
Any other work	40	10.7
Do not work	20	5.3
Skilled	9	2.4
Money earned per day in Indian rupees	*n*	%
<100	39	10.4
101 – 300	185	49.3
301 – 500	69	18.4
>500	9	2.4
Not working/not filled	73	19.5
Source of money	*n*	%
Earned money	317	84.5
Given/borrowing money from family	163	43.5
Borrow from friends	145	38.7
Take money from family by lying to them	76	20.3
Begging	75	20.0
Stealing from outside	50	13.3
Steal from home/selling household items	41	10.9
Snatching money from others	27	7.2
Other means	13	3.5
Helping sell articles stolen by others	9	2.4
Are you able to save money?	*n*	%
Yes	41	10.9
No	334	89.1
Need help for stopping/reducing drug use	*n*	%
No, I do not think that I have a problem	109	29.1
Yes, I have a problem but I can quit on my own	66	17.6
Yes I want to quit and would need help for quitting	174	46.4
Any other	26	6
6. Resources		
	n	%
Currently enrolled in school	41	10.9
Attended NFE classes	119	31.7
Sought/received medical help for drug use	69	18.4
Taken assistance from GO/NGO (any reason)	29	7.7

Note: Components of MSSM that were assessed represented as frequency (*n*) and proportion (%).

Supplemental Materials 2024 Travel Awardees

NIDA Travel Awardees 2024

Sonila Bitri (Albania)
How is the quality of Life on individuals with substance use disorder in Albania?

Anna Borelli (USA)
mGluR5 availability in cocaine-use disorder during initial abstinence; an [18F]FPEB positron emission tomography

Ahmet Ceceli (USA)
Naturalistically tracking the neurobehavioral markers of goals and habits over the course of inpatient treatment in heroin addiction

Rahul Mathur (India)
Pathways to Sustainable Recovery: Unpacking the Roles of Subjective Happiness, Daily Spiritual Experiences, and Social Support in Abstinent Substance Users

Vitor Tardelli (Brazil)
Bridging the global treatment gap for cocaine and stimulant use disorders through multinational collaboration and innovation

Mehran Zare-Bidoky (Iran)
fMRI Drug Cue-Reactivity as a Biomarker: A Systematic Review of the Current Evidence and the Challenges Ahead

Arash Zonoozi (Iran)
Advancing Global Collaborations to Develop World Addiction Medicine Reports; ISAM-GEN's Global Milestones and How to Get Involved

ISAM Travel Awardees 2024

Fateme Abolghasemi (Iran)
Treatment approaches for problematic use of Internet: A systemic review of clinical trials

S Shukla
Retrospective cohort study to examine the 12-month retention and abstinence rate on various long-term pharmacological treatments among treatment-seeking opioid-using adolescents

V Sriperambudoori
A cross-sectional community-based study using Modified Social Stress Model to understand substance use among street children in Delhi

ISAM registration bursaries

Shikha Ahuja
Nisha Chauhan
Manmeet Kaur Brar
Pooja Shakya