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One-year sobriety improves satisfaction with life, executive functions and psychological distress among patients with polysubstance use disorder

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ABSTRACT

Introduction: Polysubstance use disorder is prevalent in treatment-seeking patients with substance use disorder (SUD), with a higher risk of developing comorbid psychiatric symptoms, more pervasive deficits in cognitive functions, and inferior treatment results. The present study investigates if individuals with polysubstance use disorder who achieve at least one year of abstinence show greater improvements in satisfaction with life, executive functions, and psychological distress, compared to relapsers and controls. The prospective recovery from polysubstance use disorder assessed with broad output indicators remains understudied. A better understanding of the pattern of recovery of the chosen output indicators could shed light on the recovery process for this group of patients.

Material and methods: We investigated changes in satisfaction with life, executive functions and psychological distress over a period of 12 months in patients who remained abstinent and in those who relapsed. Subjects with polysubstance use disorder (N = 115) were recruited from outpatient and residential treatment facilities; healthy controls (N = 34) were recruited by posters exhibited at social welfare and GP offices. Executive functions were assessed by the Behaviour Rating Inventory of Executive Function-Adult self-report version (BRIEF-A), psychological distress by the Symptom Checklist-90-R (SCL-90-R), and satisfaction with life by the Satisfaction With Life Scale (SWLS). Substance use was assessed by self-reports on the Alcohol Use Disorders Identification Test (AUDIT) and the Drug Use Disorders Identification Test (DUDIT). Participants were categorized as “relapsers” if they had AUDIT score ≥ 8 , or DUDIT score ≥ 2 for women and ≥ 6 for men.

Results: Results indicated that the abstinent group had the greatest improvement on all the indicators compared with relapsers and controls. Participants who successfully quit substance use for one year showed improved satisfaction with life, executive functions, and psychological distress compared to participants who relapsed and controls.

Conclusions: Our study provides support for the view that there is a clinically and statistically significant recovery of satisfaction with life, executive functions, and psychological distress for SUD patients following one-year of abstinence. This knowledge highlights the importance of time and continued abstinence.

Our findings suggest that a gradual and careful step-up of learning requirement should be adopted, and SUD treatment should initially focus on stabilizing the patient and achieving abstinence, while interventions for comorbid problems and more cognitively demanding treatment components are more likely to succeed later in the treatment sequence.

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Abbreviations: SUD, substance use disorder; EF, executive function; BRIEF-A, Behaviour Rating Inventory of Executive Function-Adult version; SWLS, Satisfaction With Life Scale; SCL-90-R, Symptom Checklist-90-R; AUDIT, Alcohol Use Disorders Identification Test; DUDIT, Drug Use Disorders Identification Test; WASI, Wechsler Abbreviated Scale of Intelligence; MI, Metacognition Index; BRI, Behavioral Regulation Index; GEC, Global Executive Composite.

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1. Introduction

Polysubstance use disorder is the most common diagnosis among patients seeking treatment for substance use, and polysubstance use is also associated with several challenges (Andrade, Carroll, & Petry, 2013). Compared with single-drug users, polydrug users have an earlier onset of drug use and a higher rate of dropout (King & Canada, 2004; Preti, Prunas, Ravera, & Madeddu, 2011), and they report higher levels of general psychological distress (Andreas, Lauritzen, & Nordfjærn, 2015; Quek et al., 2013; White et al., 2013). This group reports more symptoms of anxiety and depression (Booth et al., 2010; G. W. Smith, Farrell, Bunting, Houston, & Shevlin, 2011), which is clinically relevant because psychiatric comorbidity increases risk of relapse (Flynn & Brown, 2008). Furthermore, polysubstance use disorder is associated with pervasive deficits in cognitive functions, and significant impairments have been reported on neuropsychological tests of working memory, inhibition, cognitive flexibility, self-regulation, and decision-making (Moreno-López et al., 2012). Cognitive impairments and psychological distress thus place users with polysubstance use disorder at preeminent risk of impaired recovery and more treatment dropout (Preti et al., 2011). Consequently, treatment approaches for polysubstance use disorder are less effective compared with treatments for use of single substances (Connor, Gullo, White, & Kelly, 2014; Williamson, Darke, Ross, & Teesson, 2006).

A number of studies have found a co-occurrence between mental distress and dose-related polydrug use, and also a reduction of mental distress among abstinent patients (Andreas et al., 2015). However, efforts that focus on a broad spectrum of output indicators are needed to shed light on the recovery process for this important and highly vulnerable subgroup of SUD patients. Polydrug users constitute a high risk group compared with other SUD patients, with more distinct depressive and suicidal symptomatology at treatment admission (Riehm, Iguchi, & Anglin, 2002), and also more social anxiety (Bakken, Landheim, & Vaglum, 2005). Studies have shown that impaired psychiatric and cognitive functions greatly diminish satisfaction with life (Burgess et al., 2000). Satisfaction with life is also reduced among SUD patients, although it has not been thoroughly investigated in patients with polysubstance use disorder. (Donovan, Mattson, Cisler, Longabaugh, & Zweben, 2005; K. Smith & Larson, 2003). As satisfaction with life is described as a core motivator for and predictor of successful treatment, it should be included as a key outcome indicator when evaluating the success of SUD treatment (De Maeyer, Vanderplassen, & Broekaert, 2010).

Previous treatment studies of impaired executive functions in SUD patients have several limitations. They have primarily dealt with the acute and subacute effects of chronic alcohol and drug use (Fernandez-Serrano, Perez-Garcia, & Verdejo-Garcia, 2011; Vik, Cellucci, Jarchow, & Hedt, 2004; Yucel, Lubman, Solowij, & Brewer, 2007), and studies of long-term recovery do not always require a 14-day drug-free period prior to baseline testing (Fernandez-Serrano et al., 2011). Other studies have small sample sizes, often with a focus on patients with one primary addiction (Badiani, Belin, Epstein, Calu, & Shaham, 2011; Buelow & Suhr, 2009; Stavro, Pelletier, & Potvin, 2013). In addition, many studies have used cross-sectional designs and are therefore unable to track changes in individual patients over time (van Holst & Schilt, 2011). There is also considerable variability in the follow-up rates, ranging from 40% to 98% (Cottler, Compton, Ben-Abdallah, Horne, & Claverie, 1996; Desmond, Maddux, Johnson, & Confer, 1995; Stinchfield, Niforopulos, & Feder, 1994), and some studies have not included a follow-up procedure for a control group (Schulte et al., 2014).

We have not been able to find other studies that have focused on satisfaction with life, executive functions, and psychological distress during the course of recovery for people with polysubstance use disorder, even though a consideration of all these variables could prove important to understand the course of recovery for these patients. The present study features a prospective design and a control group, and was used

to address the following question: Will individuals with polysubstance use disorder who achieve at least one year of abstinence show greater improvements in satisfaction with life, executive functions, and psychological distress, compared to relapsers and controls?

2. Material and methods

2.1. Participants

One hundred fifty SUD patients were recruited from 10 outpatient and residential treatment facilities within the Stavanger University Hospital catchment area (Norway) between March 2012 and May 2013. We employed broad inclusion criteria focusing on polysubstance use disorder because polysubstance use disorder is common in a clinical setting (Badiani et al., 2011; Stavro et al., 2013). The main inclusion criteria at baseline were: (a) evidence of SUD polysubstance use, operationalized as the use of more than one drug on a single occasion, or a history of abusing multiple drugs; (b) enrolled in a new treatment sequence by the substance use treatment service; and (c) at least 16 years of age.

The control group (N = 38) was a convenience sample recruited by posters exhibited at social welfare and GP offices. Controls and SUD patients were compensated with NOK 400 (~\$US 50) for the baseline testing. During the one-year follow-up period, 13 SUD patients and four in the control group withdrew or dropped out of the study. The final group included 115 SUD patients and 34 controls. This study was reviewed and approved by the Regional Ethical Committee (REK 2011/1877) and conducted according to its guidelines and those of the Helsinki Declaration (1975). Signed informed consent was obtained from all the participants.

2.2. Procedures

The study is part of a prospective cohort study of a sample of SUD patients in the Stavanger University Hospital catchment area. To minimize contamination from drug withdrawal and acute neurotoxic effects from psychoactive substances, baseline assessment was performed after two weeks of abstinence (Miller, 1985) by experienced and trained staff. Information on substance use was assessed using the Alcohol Use Disorders Identification Test (AUDIT) (Bohn, Babor, & Kranzler, 1995) and the Drug Use Disorders Identification Test (DUDIT) (Voluse et al., 2012). At the one-year follow up, patients were defined as relapsing to a significant level of use if they had an AUDIT score ≥ 8 or DUDIT score ≥ 2 for women and ≥ 6 for men (Bohn et al., 1995; Voluse et al., 2012).

2.3. Satisfaction with life

Satisfaction with life was assessed baseline and one year later with the Satisfaction With Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985). This is a self-report questionnaire including five items measuring the global life satisfaction experienced by the respondent. The SWLS has demonstrated good psychometric characteristics (Pavot & Diener, 2008). The five items are all set in a positive direction, and the total SWLS score (range = 5–35) was included in the present study. A score of 20 represents a neutral point on the scale; scores between 5 and 9 indicate that the respondent is very dissatisfied with life, while scores ranging between 31 and 35 indicate that the respondent is very satisfied with life (Pavot & Diener, 2008). In this study two patients did not complete the SWLS at the 1-year follow up, yielding a response rate was 98.2% for patients and 100% for controls.

2.4. Executive functions

This study assessed executive functions by asking the participants to complete the Behaviour Rating Inventory of Executive Function- Adult version (BRIEF-A) (Gioia, Isquith, Guy, Kenworthy, & Baron, 2000; Roth, Isquith, & Gioia, 2005) at baseline and one year later. The BRIEF-

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