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# Interactions between substance and non-substance use disorders, dissociative disorders, and the related underlying psychological conditions – psychopathological observation, causal inferences, and treatment


Interakcje między zaburzeniami przebiegającymi z używaniem substancji psychoaktywnych, uzależnieniami behawioralnymi i zaburzeniami dysocjacyjnymi a leżącymi u ich podłoża stanami psychicznymi – obserwacje psychopatologiczne, wnioskowanie przyczynowe i leczenie

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## Abstract

**Introduction and objective:** The aim of this study is to evaluate the relationship between dissociative disorders and diverse forms of sensation seeking that characterise dual disorder, referring to the paradigm of “practice-oriented research” to bridge the gap between concrete clinical issues and empirical investigation. In psychopathological studies, dissociation has been considered as a complex reaction to an external trauma or a condition of vulnerability that increases the likelihood of its occurrence. According to the literature, dissociative disorders can be understood as pathological states that drastically modify a person’s sense of self and their experience of their body, psychological functions, and physiological reactivity. Nevertheless, this study highlights the possibility that beneath these phenomena lies a less overt condition in which dissociation affects unconscious thought processes. **Materials and methods:** With this purpose, research on three process-outcome case studies carried out in naturalistic settings is presented, integrating quantitative empirical evaluation with qualitative evaluation based on the Human Birth Theory, in order to formulate clinically relevant inferences for neuropsychological or psychotherapeutic treatment. According to the stance of evidential pluralism, multiple research designs are proposed, which emphasise intrinsic properties and contextual variations that could have an effect on the outcomes. **Results:** The results reveal strong similarities between substance and non-substance use disorders regarding the pursuit of sensory and mental stimulation due to a state of dissociation. **Conclusions:** The results support further investigation to validate the aetiopathogenetic hypothesis proposed in this research project and increase its generalisability.

**Keywords:** dissociation, dual disorders, sensation seeking, neuropsychological intervention, psychotherapy

## Streszczenie

**Wprowadzenie i cel:** Celem pracy jest ocena zależności między zaburzeniami dysocjacyjnymi a różnorodnymi formami poszukiwania doznań, które są charakterystyczne dla zaburzeń współwystępujących. Analizę przeprowadzono zgodnie z paradygmatem „badań zorientowanych na praktykę”, ukierunkowanych na zmniejszanie luki między określonymi wyzwaniami klinicznymi a ustaleniami empirycznymi. W obszarze psychopatologii dysocjacje rozpatruje się jako złożoną reakcję na traumę zewnętrzną bądź jako stan podatności zwiększający ryzyko jej wystąpienia. Zgodnie z literaturą przedmiotu zaburzenia dysocjacyjne można postrzegać jako stany patologiczne, które radykalnie przeobrażają świadomość własnego „ja”, doświadczenie ciała, funkcje psychiczne, a także reakcje fizjologiczne. Niniejsze badanie wskazuje jednak na możliwość istnienia mniej oczywistego mechanizmu, w którym dysocjacja wpływa na nieświadome procesy myślowe. **Materiał i metody:** W pracy poddano analizie trzy studia

przypadku, zgodnie z tzw. kryteriami procesu i wyniku, pochodzące z rzeczywistej praktyki klinicznej, łącząc ilościową ocenę empiryczną z oceną jakościową opartą na „teorii ludzkich narodzin” (*Human Birth Theory*), w celu sformułowania klinicznie istotnych wniosków dla leczenia neuropsychologicznego lub psychoterapeutycznego. W myśl zasad pluralizmu dowodowego postulowane są różnorodne podejścia badawcze, które uwzględniają zarówno czynniki wewnętrzne, jak i zmienne kontekstowe, które mogą potencjalnie wpływać na wyniki. **Wyniki:** Analiza danych wskazuje na istotne zbieżności pomiędzy zaburzeniami związanymi z używaniem substancji psychoaktywnych a zaburzeniami niezwiązanymi z ich stosowaniem – szczególnie w aspekcie poszukiwania doznań sensorycznych i psychicznych jako następstwa występujących u pacjentów stanów dysocjacyjnych. **Wnioski:** Wyniki przeprowadzonej analizy wskazują na potrzebę dalszych badań w celu weryfikacji zaproponowanej w niniejszym projekcie badawczym hipotezy etiopatogenetycznej oraz określenia stopnia, w jakim uzasadnione jest rozszerzenie uzyskanych wyników na szersze populacje.

**Słowa kluczowe:** dysocjacja, zaburzenia współwystępujące, poszukiwanie doznań, interwencja neuropsychologiczna, psychoterapia

## METHOD AND THEORETICAL BACKGROUND

In therapeutic interventions based on the Human Birth Theory, the sensibility of the therapist is considered as an essential cognitive tool to assess the patient's initial mental condition, as well as the quality of the patient's psychological reactions to the stimuli arising from therapeutic work. This mediator<sup>1</sup> of the treatment relationship is shared by both neuropsychological intervention and psychotherapy based on the Human Birth Theory.

Regarding neuropsychological intervention, given the reduced verbalisation due to the particular mental activity of children, the intervention is conducted essentially through selective games and structured activities. Evaluation also includes unconscious mental activity expressed through drawing.

For adults, the possibility of completing the process-outcome evaluation by considering the patient's unconscious psychic activity includes dream analysis, based on the idea that a dream is a thought constructed by images. These images can be altered by the intervention of an omnipotent psychic reaction aimed at cancelling, at the intrapsychic level, the representation of certain elements that refer to human qualities and interpersonal relationships. This psychopathological reaction was defined by Massimo Fagioli in 1971 as the “annulment pulsion”. Nevertheless, *pulsion* is also a component of what Fagioli called the “disappearance fantasy”, which is the psychological reaction of the newborn when the retina is stimulated by light. In this case, the first mental act is aimed at rendering non-existent the overwhelming, non-human physical stimuli coming from the environment which the newborn, given their physical reality, cannot cope with.<sup>2</sup> At the same time, the memory of the

sensations of correspondence experienced in the uterus – due to the contact between foetal skin and amniotic liquid – constitutes, in the newborn's mind, an image of themselves in relation to a human reality capable of responding to their needs to survive and to develop, and orients the newborn to seek it. Only after a non-response from the caregiver does the newborn react with the annulment pulsion in order to mentally cancel the representation of a relationship perceived as violent. In rendering non-existent a disappointing human reality, this reaction affects the internal image of the self involved in a sound human relationship formed at birth, altering their psychophysical development.<sup>3</sup> Lacking or discontinuous relationships with non-responsive caregivers can therefore influence human psychic health, producing dissociation of verbal thinking and alteration of sensory consciousness – or latent and unconscious psychic dissociation – detectable in childhood through neuropsychological intervention using specific games and drawing, or through the evaluation of dream activity in psychotherapy.

of tissue, the depth of the penetration of light wavelengths is less than 1 mm for blue (400 nm), 2 mm for green (514 nm) and 6 mm for red (630 nm). The penetration of other light wavelengths is below 480 nm and is not diffused to the uterus (Fagnoli and Gatti, 2015). Fagioli's birth theory strongly claims the biological origin of the psyche. This theory, composed 53 years ago, has recently been corroborated by medical research. Neonatologists now know that the newborn can only survive out of the uterus if the links between the retina and the visual cortex are constituted (at about the twenty-fourth week of gestation). Recent neurophysiological research has given information on how the brain functioning is completely modified at birth through the induction of Immediate Early Genes which are not enabled in the foetus and with a short time of activation, can be aroused only by light (Vandewalle et al., 2013). Furthermore, Gatti et al. (2023) have recently pointed out how invasive foetal interventions carried out with the use of light sources don't trigger the brain activation and the consequent starting of the respiratory activity. For these last and the emergence of the pulsional reaction described by Fagioli, the loss of the intrauterine homeostasis is a fundamental condition. Conversely, the loss of the homeostasis in absence of the light stimulation cannot trigger the brain activation. Nevertheless, this process can be considered as a crucial passage which prepare the foetal brain to light stimulation at birth.

3. For more details about the theoretical background to which we refer cf. Fagioli M: *Death instinct and knowledge*. 1<sup>st</sup> English ed. Translated by Marcella Matrone. Lasino d'oro, Rome 2019; Atzori E: Psy-

1. According to Lachowicz et al. (2018), mediation analysis can be defined as the study of potential pathways through which an independent variable produces an effect on an outcome or a dependent variable. This study furthers research on *how* and *why* a determined result has been obtained.

2. At birth, light constitutes a totally new stimulus for human beings. From recent research it appears that there is a significant difference between the stimulation of the visual system present in the intrauterine and extrauterine environments. According to the type

Both interventions are aimed at stimulating the patient's internal mental world in order to evaluate and, when necessary, change it.

## NEUROPSYCHOLOGICAL INTERVENTION

### Case report 1

In the first study, a neuropsychological intervention is described involving an eight-year-old Italian boy ("T") with social difficulties, a tendency toward isolation, dissociative disorders, and gaming disorder. When the child was four, he was diagnosed with a slight delay in the achievement of autonomy, while cognitive development was within the normal range. When he was eight, dissociation was expressed through bodily movement difficulties, incapacity to draw his body, a sense of spatial and temporal disorientation, and memory deficiency. Clinical evaluation was carried out using a qualitative method based on a relational observation and the administration of the Tower of London (TOL) and BELLS tests. At the time of the first appointment, T. had not achieved the level of autonomy typical for his age. He was unable to wash and dress himself without help, and had severe learning difficulties, especially in writing. The child wrote exclusively in block capital letters, several of them atypical, and only with pencils.

During the therapeutic process, the child appeared unwilling to engage with others. His eye contact was fleeting, and he continually tended to hide, often pretending to be dead, which was accompanied by intentional muscular hypotonia and shallow breathing. He frequently isolated himself, engaging in repetitive movements, such as jumping and moving his hands at the same time, or moving his torso in an anterior-posterior direction, while putting his hands over his face. The child had little emotional expression, keeping constantly a physical distance with a tendency to speak in a regressive way. Poor imagination was also evident in spontaneous drawings, in which he principally reproduced robots constituted by geometric forms. When asked to draw the human figure, he typically drew a circle in the centre of a sheet of paper, with stylised signs representing the limbs, and the eyes and mouth inside a circle. The body was not represented. He usually refused to draw himself, and if asked to indicate his body parts, he appeared perplexed, as if his body did not exist. It seemed that the child lacked an internal representation

chopathological effects of psychostimulant substances and psychotic onset: the difficult process of differential diagnosis between substance-induced psychosis and acute primary psychosis. *Psychiatr Psychol Klin* 2015; 15: 162–168; Atzori E: The alteration of the sensory consciousness of the Self as a trigger mechanism determining a craving in substance abuse and eating disorders. A single-case study. *Psychiatr Psychol Klin* 2019; 19: 349–355; Costantino L: Psychopathology of anorexia nervosa: a defence from depression. An interpretation according to Massimo Fagioli's Human Birth Theory-two case reports. *Psychiatr Psychol Klin* 2022; 22: 261–271.

of his body map.<sup>4</sup> In addition, he often appeared spatially disoriented. He did not feel his body, did not feel pain when injured, and did not feel his heartbeat, even when running.<sup>5</sup> He showed memory difficulties in both the short and long term, including difficulties recalling the therapeutic relationship established during the appointments of neuro-rehabilitation therapy. The boy's level of attention was weak, and intrusive thinking linked to cartoons or video games prevented him from accomplishing his tasks. His modality to play was simple and characterised by a lack of imagination. At the beginning of the intervention, video games were, indeed, the activity that occupied the vast majority of his leisure time. He tended to choose video games with minimal human interaction and was eager to increase progressively the time spent gaming. Five years later, he said that when involved in gaming, he could feel as if he was unstoppable, less alone, and – most importantly – capable of experiencing strong emotions, not experienced in other circumstances. Over time, and with constant therapeutic work, T. appeared to widen his interests and became more proactive in play. He achieved the ability to be physically close to others. The repeated movements he exhibited at the beginning of the treatment

4. The multisensory foundation of what many authors define as bodily self or somatic self-go through a prolonged period of development over early and mid-childhood going up to an adult state by ten to eleven (Cowie et al., 2016). Growing evidence supports that meta-cognitive knowledge of selfhood may rely on crucial somatic sources. The process of organization of somatic experiences with signals coming from the environment is considered to provide a non-conceptual basic form of self-awareness defined by Damasio (1999) as the "minimal self". By means of unprecedented applications of methods for set down brain activity during infancy, organization of cortical body maps has been detected in the first month of human life. It is thought that organization of body maps further detection of similarities between other and self, which are fundamental to develop social cognition. Affective touch, which is a crucial aspect of early mother–infant relationship, has an incomparable developmental function in founding the physical borders of the psychological self, considering its "dual sensory discriminatory, and affective motivational nature" (Gentsch et al., 2016). Alteration in interpersonal aspects of body representation can lead to social deficits as well as to definite neurodevelopmental disorders (Marshall and Meltzoff, 2015).

5. Interoception and in particular the perception of the own heartbeat has clinical relevance for the possibility of the human being to mentally represent their body image.

In human beings the awareness of one's body is profoundly connected to self-identity and the sense of body-ownership. Using a multisensory induced manipulation of body ownership, after having measured interoceptive awareness with a heartbeat monitoring task, Tsakiris et al. (2011) found that interoceptive sensitivity predicts the malleability of body representation. Results suggested that interoceptive awareness has a fundamental role in modulate the integration of multisensory body perception. C.f. also Damasio AR: *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. Harcourt, San Diego 1999 (trad. it. *Emozione e coscienza*, Adelphi, Milano 2000); Gentsch A, Crucianelli L, Jenkinson P et al.: *The touched self: affective touch and body awareness in health and disease*. In: Olausson H, Wessberg J, Morrison I (eds.): *Affective Touch and the Neurophysiology of CT Afferents*. Springer, New York 2016: 355–384; Porciello G, Bufalari I, Minio-Paluello et al.: *The "enfacement" illusion: a window on the plasticity of the self*. *Cortex* 2018; 104: 261–275.

appeared rarely, and when involved in a relationship he was able to interrupt them. At that time of the therapeutic process, he was also able to verbalise, when asked, that the purpose of the repeated movements was an attempt to feel his body. His ability to draw, either spontaneously or in guided drawing, had improved. In particular, he achieved the ability to draw the human figure with colour, and in a more complex way. At the age of ten, during a session, he drew himself spontaneously for the first time, representing his figure in the centre of the sheet of paper. In the torso, he included his internal organs and his heart.

When the boy was eleven, his abilities at school had improved significantly. He was more autonomous and concentrated, even though he still needed to improve his capability to execute his school tasks within the time frame requested. During a session, he told his therapist that at school something completely new had happened to him. His gaze met a schoolgirl's eyes, and he felt his heartbeat.

The modality of evaluation, at the beginning of the treatment, was only qualitative. Nevertheless, when T. was nine, it was supplemented by the administration of the TOL test to assess his planning skills and his problem-solving ability. Furthermore, at the start of secondary school, the BELLS test was administered in order to allow an intersubjective evaluation of the boy's persistent learning difficulties and to develop a personalised learning programme.

The treatment modality was based on the quality of the relationship with the patient. It was crucially mediated by playing selective games, which were gradually modified over the course of therapy through the introduction of variables.<sup>6</sup> The fundamental objective of this treatment was to reconstruct the patient's solid inner image of his body and his person, together with an inner image of a sound human relationship, using interpersonal structured play and body-centred structured activities. The results, observed through qualitative evaluation and test–retest comparisons, corroborated the effectiveness of this treatment, which lasted five years.

### Psychotherapeutic treatment

In the following case studies, patients' reactions to therapeutic treatment based on the interpretation of nonconscious psychological dynamics underlying the risk of disintegration of mental activity are described. These studies illustrate the impact that the application of Human Birth

6. At the beginning of the treatment, the boy played functional and simple games lacking in fantasy. He used to propose games poor in imagination as, for instance, to line up little toy cars, or to spatially organise puppets he liked. Starting from these boy's interests the therapist introduced new elements. Whereas the child was repeatedly lining up cars, the therapist, for example, introduced a toy garage in which the car "could rest a little while". Subsequently, the therapist and the child built together a path with occasional objects, to allow the car to reach the garage. With the passage of the time, the path took different shapes, through which it has been possible to define new targets. They involved more time of planning, cooperating and allowed more time to share in the relationship.

Theory has had on our clinical practice, including in remote settings. The evaluation of the studies was carried out using a mixed-method approach, for which the use of standardised instruments – such as the SCL-90-R, TAS-20 and Spy-Cy for the second case, and EDI-3 for the third case – was integrated with qualitative evaluation of the relational modality and oneiric activity.<sup>7</sup>

### Case report 2

The following clinical case study describes the psychotherapeutic intervention with a 16-year-old Italian male ("A."), carried out in the form of weekly sessions of fifty minutes, during the first wave of COVID-19 pandemic in the second year of the treatment, partly in person and partly online. The patient was affected by schizotypal personality disorder, cannabis use disorder, gaming disorder, and dissociative disorder characterised by depersonalisation, derealisation, and dissociation of thought. Administration of the Spy-Cy interview revealed an alteration in sensory consciousness, with distorted body perception, somatopsychic depersonalisation, and derealisation. The reduction in perceived personal strength also emerged, together with lowered mood, reduced stress tolerance, loss of interests, and changes in emotional resonance. An interruption in thought flow emerged, along with thought crowding, difficulty to sense, and receptive and expressive speech disorders. A high risk of transition into psychosis was principally evidenced by symptomatology in the cognitive-perceptive domain. Result of the TAS-20 assessment showed the presence of alexithymia (70). SCL-90-R scores indicated that the patient's disease was severe and warranted clinical attention. The condition, associated with an alteration in the patient's body perception, was clinically relevant and included cardiovascular, gastrointestinal, muscular, and respiratory manifestations. The patient attempted to control difficulties with memory and concentration through compulsive and obsessive rituals. He also reported severe anxiety, expressed through tremors and palpitations, and the tendency toward isolation.

Reconstruction of his clinical story revealed that, at his birth, his older brother was diagnosed with severe epilepsy, which distressed his mother, who subsequently concentrated her attention on him. Nevertheless, the relational style of A's mother was described as overinvolved, whereas the father figure was described as distant and inaccessible. During prepuberty, A. masturbated compulsively, and when he was thirteen, he quit swimming because he was ashamed about his nipples, which he perceived as abnormally large. In that period, his

7. The dreams reported out of the whole oneiric activity of the patients has been chosen and discussed in this paper because they have been considered of particular relevance for this research. They are strongly representative of the patients' modalities of relationship and the substantial complexity of the changes taking place on the dream production which accompanied the patients' talking about and working on their life and identity.

attraction to videogames became more intense, especially during the night. At the same time, his academic performance decreased, and he eventually stopped going to school. His progressive withdrawal from human relationships induced his parents to suggest psychotherapy. A.'s first reaction to the therapeutic relationship was intense oneiric activity in which the patient represented symbolically experiences that he was unable to verbalise, such as depersonalisation. In one dream, he woke up to go to the bathroom and he saw his penis in the sink; he dreamt that he had fainted and could no longer feel his body, while remaining conscious. He also represented derealisation and control of thinking in the following oneiric images: he dreamt that a possessed girl conditioned him to behave automatically, without thinking; he dreamt that the police stopped him, but he could not hear their voices; he dreamt that there was a blackout, after which he saw himself fat and black in the mirror. After a year of psychotherapy, A. seemed more able to engage in human relationships and began making friends. Nevertheless, the COVID-19 pandemic lockdown triggered another psychopathological breakdown. On that occasion, he dreamt that he was swallowed up by a hole in his bed, falling into a void. Obligated by his parents to stop gaming, he became addicted to cannabis and started engaging in pornographic chatting. Given A.'s difficulty to relate through remote sessions, psychotherapy was carried on in a hybrid setting. Nevertheless, A.'s relational difficulties, observed in the remote modality, also became evident in person. He started to cancel appointments, and during the sessions attended, he appeared mentally absent, anguished, and unreceptive to the therapist's interpretations. He also attempted to form a relationship with a young woman, with whom he lived for a few months. After the split from his girlfriend, in a state of apparent euphoria, he also interrupted the psychotherapy.

### Case report 3

The last case study presented was conducted in individual psychotherapy, in the form of sessions of fifty minutes, once a week, during the first year of treatment. After one year, the treatment continued in the form of group psychotherapy, held for two hours per week. Group psychotherapy was conducted remotely from the beginning of the pandemic. This is a replication series intensive design conducted on a 27-year-old Italian man ("D."), affected by major depression, depersonalisation/derealisation disorder, and cocaine abuse, and transitioned to remote modality during the COVID-19 pandemic.

The patient sought psychotherapy after breaking up with a woman with whom he was in an intimate relationship. The reactive depression due to the separation concealed a very deep nucleus of depression, pre-existent to the relationship with the woman, characterised by dissociation of thoughts, difficulty perceiving his body, particularly his heartbeat, and the physical component of emotions. These difficulties were the reason for severe anguish, panic attacks, and tachycardia. During the anamnestic reconstruction, it emerged that the relationship between D. and his parents

was very difficult due to his father's alcohol abuse and depression, despite the fact that D. was living far from them while completing his studies.

He said that under the influence of binge drinking, his father became dysphoric and, during his childhood, used to beat him and his brother. Indeed, some aspects of the patient's dissociation, as well as depersonalisation and difficulty perceiving his body, seem to have started during that period of repeated physical and emotional trauma. He began studying medicine, but stopped after the fourth year of the course, when a close young friend of his suddenly died of a heart attack. During that period, D. began abusing cocaine, which he used three times a week "in a desperate attempt to counter the absence of himself", to use his words. Nevertheless, the physical and psychological consequences of cocaine abuse, resulting in dramatic difficulties with both his studies and interpersonal relationships, eventually drove him to seek psychotherapy.

The results from the first administration of the SCL-90-R in April 2018, at the beginning of treatment, indicated that the patient's disease required significant clinical attention and involved a severe alteration of his body perception together with cognitive and somatic depressive symptoms.

The EDI-3 results indicated that the patient reacted to feelings of psychological distress and disorientation toward interpersonal relationships with binge eating, and suffered from low self-esteem and a sense of emotional void. Feelings of detachment and mistrust towards human relationships were also present, along with self-harming behaviour and cocaine abuse. The alexithymia score (67) was over the cut-off (61). It showed that the patient described himself as unable to rely on bodily sensations to identify emotional and mental states, or to understand human relationships in various circumstances of life. He reported a lack of imagination and colourless communicative style, which was reflected in his oneiric activity, characterised by colourless images. He reported that during acute depressive episodes his dreams were without any colours or in monochrome.

Nevertheless, from the beginning of psychotherapy, the patient tried to represent his state of mind with oneiric images and after one year of treatment, he started to symbolically represent his depersonalisation syndrome in dream activity. In one of his early dreams, he tried to represent himself dreaming that during a snow storm he struggled to build a snow figure. Finally, when the figure's head detached, he gave up. At the same time, scores on administered rating scales yielded a significant improvement of the patient's psychological condition. The level of reported symptomatology was no longer of clinical significance (GSI 39).

At the following SCL-90-R administration after one year of group psychotherapy, coinciding with the switch to remote sessions, the clinical concern of the patient's psychopathological condition was present again.

Since December 2019, the patient had reported struggling to maintain the psychotherapy relationship and resist falling back into his sense of coldness. In mid-February 2020, during



one of the last in-person sessions, he had a depersonalisation crisis, appearing confused, unable to deeply understand the sense of the psychotherapist's verbalisations, and feeling that what was happening regarded someone else.

The conclusion of the first year of group psychotherapy and the beginning of the second year of treatment coincided with the nationwide lockdown in Italy and the mandatory switch to the remote modality of intervention in order to continue psychotherapy. By means of oneiric activity, the patient expressed his anguish to be abandoned due to the impossibility to join in-person psychotherapy sessions. He expressed his anguish through dreaming that he was on guard duty in a completely empty barracks, without any people. In May 2020, during an online psychotherapy session, he had a depersonalisation and derealisation crisis, appearing inaccessible through the psychotherapeutic relationship. At the end of the session, however, through psychotherapeutic intervention, he overcame the crisis and re-established contact with his psychotherapist.

After one year of online group psychotherapy, results from the SCL-90-R showed that the symptomatology reported by the patient remained clinically significant. Notwithstanding that, his oneiric activity showed a development of his effort to symbolically represent and elaborate his somatopsychic depersonalisation. He dreamt of approaching a woman and, at the same time, transforming into tree bark. He realised that if he got far from her, he recovered his human form. Therefore, he repeated the attempt to approach her without any transformation of his body.

After two years of online psychotherapy, results from the SCL-90-R showed a significant decrease in symptomatology (GSI 55).

Results from the TAS-20 indicated that alexithymia was at the cut-off point for its complete absence. The evaluation of the quality of oneiric activity showed that the patient had developed his capability to elaborate emotions and understand human relationships (52).

He reported feeling calmer and psychically stronger than before, thanks to his capability to think without dissociation. He stated that all symptoms linked to depersonalisation had disappeared, including the feeling of disappearance of his heartbeat and the subsequent tachycardia. He appeared calm and engaged in the relationship.

In December, the patient's father killed himself with a rifle. The patient was shocked, even though he had previously considered this possibility, given his father's intractable depression. After a few months of processing his father's suicide in psychotherapy, he dreamt that he had sustained a skull trauma after an accident with his motorbike. He looked at a cranial CAT scan and he saw that his skull had been repaired with a surgical intervention. Quantitative results after the last year of treatment, which focused on consolidating the patient's recovery, confirmed the complete resolution of the symptomatology (SCL-90: GSI = 48; EDI-3: GPMC = 30; TAS = 38) and the recovery of his capability to understand interpersonal relationships.

## DISCUSSION

Clarifying causality in therapeutic relationship research is an ongoing process that requires the use of various designs, methods, and a commitment to evidential pluralism. Evidential pluralism is an epistemological approach to causation that offers a new philosophical foundation to causal enquiry, proposing a novel way of thinking about evidence-based policy, research into the humanities, social sciences, and mixed methods. It asserts that in order to demonstrate a causal claim, one needs to prove the existence of a correlation between a putative cause and an acknowledged effect. Furthermore, a mechanism involving the supposed cause – responsible for the acknowledged effect and the extent of the correlation – must be defined. Therefore, to support a causal claim, it is necessary to define the relevant association and mechanism in case studies (Shan and Williamson, 2023). From this perspective, causality can be defined when considered in a unique web of interacting powers that produce a specific result.

According to Oddli et al. (2023), causality refers to the entire process of interacting dispositions that altogether are responsible for some particular effect “and that all form part of the causal picture”.

Therefore, in the three case studies presented, the primary objective was to point out the relevant associations and interactions between altered states of consciousness and sensation seeking, with the aim of shedding light on possible trigger mechanisms underlying the phenomena observed. In this investigation, sensation seeking was treated as an attempt to overcome interoceptive, exteroceptive, and proprioceptive difficulties (primary hypothesis; Atzori, 2018a, 2017, 2019, 2018b). The craving for and repetition of pathological behaviour were considered as failed attempts to reconstruct the body scheme in a fragmented Self – or one at risk of fragmentation – through memory of sensations experienced via inanimate objects, such as psychotropic substances, food, or self-stimulating behaviour. In relation to these behaviours, an increase in symbolic capability and internal fantasy is seen as impossible, as such development is achievable only through memories of experiences lived in human relationships (secondary hypothesis; Atzori 2018a, 2017, 2019, 2018b). These hypotheses have been corroborated through direct replication (Atzori 2022, 2018a, 2017, 2019, 2018b; Atzori et al., 2023) and systematic replication, using the natural laboratory of clinical practice (Atzori et al., 2023).<sup>8</sup> In this work, to systematically replicate certain

8. As for the experimental research, in quasi-experimental research replication constitutes a crucial procedure to demonstrate generalizability (external validity) of the results obtained with the research design. Results are generalizable when they are valid, that is when they conduct to legitimate conclusions founded on the premises and they are not determined by momentary circumstances; they are applicable to different people; they are replicable with different contexts and diverse psychotherapists. Conversely, replications are direct when the same therapist apply the same intervention with the same patient (intensive research design) or with different

aspects of the interventions studied, similarities were identified based on a taxonomic study (i.e. a hierarchical classification of concepts), aimed not only at evaluating the outcomes of treatment, but also at considering the combination of variables that could have had an impact on them. Indeed, the objective of this study was not the treatment itself, but rather the quality of every specific therapeutic relationship, understood in terms of a web of interacting powers. With this purpose, both the mediators of the process-outcome (that is *how* and *why* a particular result was obtained) and the moderators of the treatment (namely *with whom* and *in what circumstances* a specific outcome occurred).

Hence, in neuropsychological intervention, a relationship of co-occurrence was identified between the therapist's personality and sensibility (treated as non-specific factor of cure), which modulates the introduction of structured games and verbalisation (considered as specific factors of cure), and the child's qualitative changes in drawing and relational methods. Similarly, in psychotherapeutic intervention, the relationship of co-occurrence involved the therapist's personality and sensibility (again treated as non-specific factors of cure), the interpretation of alterations in oneiric content due to the annulment pulsion and/or its milder expressions such as negation (considered as specific factors of cure),<sup>9</sup> and the patient's qualitative changes in dream activity and methods of relationship. In all the studies, the results were integrated with data obtained by the administration of standardised evaluations. Consideration was also given to the circumstances in which the interventions were conducted, including the initial psychopathological conditions of each patient, in order to identify the moderators that could have been crucial in determining the effectiveness of the case studies presented.

Hence, in the neuropsychological intervention, the sensibility of the therapist – as a non-specific factor of cure – and the therapist's opposition to the patient's psychological absence (Fagioli, 2019) – as a specific factor of cure – were identified as the mediators enabling the modulation of the relationship with the child. By the introduction of structured games and variables, these mediators counteracted the child's tendency to mentally cancel the representation

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patients (extensive research design). They are systematic when different psychotherapists apply a similar intervention to patients with similar psychopathological conditions (Dazzi et al., 2006).

9. In Fagioli's perspective, the concept of negation diverges completely from Freudian concept of *Verneinung*, as it suggests that someone or something is represented at a *non-conscious level* as the negative opposite of what they really are. This psychological dynamic produces a deformed mental representation of a person or relationship, distorting what perceived by the patient and affecting their capability to relate to the others. It introduces a prodromic level of loss of contact with the reality, even though still confined at a non-conscious level. More severely, the annulment pulsion, in rendering non-existent the object of the relationship or some important aspects of it in the patient's oneiric representation, determines a psychic void and a mental absence. At certain level of intensity, it can result in psychic fragmentation detectable in dream activity, but also observable in conscious expressions of dissociation.

of the human relationship and the other, while rendering non-existent the representation of the self. During the child's growth, this mental act, referred to by Fagioli as the 'annulment pulsion', had determined the passage in which psychodynamic processes produced a visible effect in neurodynamic development.<sup>10</sup> As a result, the child became unable to develop a complex image of their person and their body involved in interpersonal relationships.

The effectiveness of this treatment was visible in the observed progression of structured play and activities involving the child's body, in spontaneous drawings, and in the results obtained with the standardised instruments.

In the psychotherapeutic studies, the interpretation of the annulment pulsion, modulated by the therapist's sensibility, was considered a mediator which could influence the process for a successful outcome. However, a comprehensive understanding of this outcome also requires consideration of the circumstances under which the treatment was conducted.

In the first psychotherapeutic study, the central issue identified in A. was his compulsivity, initially manifesting as masturbation and later as gaming and cannabis use disorder. At the base of his compulsive sensation-seeking behaviour, there appeared to be an attempt to feel sensory arousal, while avoiding human relationships that he constantly annulled. Specifically, he sought sensations to avoid the risk of fragmentation to which the internal turmoil stimulated by interpersonal relationships would have exposed him. The progressive positive change initially resulting from the therapeutic intervention aimed to modify the patient's withdrawal from human reality was abruptly interrupted by the onset of the pandemic, as the imposed physical distancing reinforced his tendency to withdraw. After the lockdown, A. tried to socialise with peers and started a relationship with a young woman. Nevertheless, he felt unable to experience the relationship with her and, most importantly, the sensations arising from sexual activity were described as unpleasant and even frightening for him. These circumstances determined an increase of the intensity of pulsional activity directed against others which, in the absence of parental collaboration, was impossible to face in psychotherapy. The parents declined the proposal to treat A. with two sessions per week and they refused pharmacological support for A. to contain his crisis and help him keep the psychotherapeutic alliance. These were the dispositions – or the

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10. For literature regarding the interactions between psychodynamics and neurodynamic development cf. also Selvini Palazzoli M: Self-Starvation: From the Intrapsychic to the Transpersonal Approach to Anorexia Nervosa. Chaucer, London 1974; Shore AN: Affect Regulation and the Origin of the Self. The Neurobiology of Emotional Development. Routledge, New York 2016; Atzori E, Montanaro D, Orsini O: Dissociation as representation of altered states of consciousness at the base of sensation seeking in young people and adults. Symposium oral presentation, World Association on Dual Disorders, 7<sup>th</sup> World Congress, 2023, Portoroz, Slovenia. Video available from: [www.europad.org](http://www.europad.org), Mediateca, Media Libraries WADD 2023.

causal powers – that probably determined the patient's dropout from treatment.

The last naturalistic study presented is longitudinal and was conducted according to the model of *intensive research design*. The process-outcome evaluation was carried out by means of a series of direct replications *within subject*, not using a unique standard procedure, but selecting specific empirical conditions along with the attitude of the patient to modulate them, with the aim to demonstrate a systematic relationship between clinical intervention and a given change in the patient's behaviour.

By treating the subject as a control of himself, and repeating the administration of questionnaires annually during a temporal space of five years, the study enabled analysis of the patient's reactions while also considering the shift to the different context of cure due to the pandemic, which required the selection of a different setting for the treatment. At the beginning of the pandemic, according to the literature, the most important issue with this dual disorder patient was indeed the physical distance characterising remote psychotherapy. However, after two years of treatment, diverging from the literature regarding patients with depersonalisation, the results demonstrated that remote psychotherapy in this case was successful.

At the beginning of psychotherapy, alexithymia affected the patient's ability to process emotions and was associated with his somatic symptomatology. It was also one of the trigger motifs at the base of his compulsive search for sensory and mental hyper-stimulation through using cocaine, as a way to alleviate inner tension. The patient's initial good response changed during the second year of treatment in which the transition to the psychotherapy group gave him more intense stimuli than those derived from individual psychotherapy, triggering the emergence of a more latent dissociation into conscious awareness. The patient's depersonalisation crisis started to occur also during psychotherapy sessions, allowing the therapist to directly intervene on dissociation. The patient's clinical situation seemed to deteriorate soon after the enforced switch to the remote modality. It can be speculated that, at first, the impact of the therapist's physical presence in the relationship of cure, spatially distant and mediated by the telematic device, was only partially registered by D., given the intensity of the annulment pulsion he directed toward her. In the remote format, he appeared more exposed to dissociation, because the possibility to perceive the therapist's body movements and her non-verbal communication, which would have counteracted to some extent his pulsional activity, was reduced. Nevertheless, the sensibility of the therapist, founded on her physical sensoriality, effectively oriented her interpretations of the patient's pulsional dynamics even in remote modality. The point is that the interpretation of the annulment pulsion, modulated by the therapist's sensibility, was the mediating factor which determined, in this case, how the process resolved in a successful outcome. In this study, the replication of both quantitative and qualitative evaluation has

increased its internal validity, given the gradual decrease in the risk that the observed co-occurrence between the mediators and the outcome was accidental. Lastly, this study allows for the generalisation of its results to a specific clinical population – in this case, patients with depersonalisation – challenging the literature which contraindicates online psychotherapy for depersonalisation.

In this work, the comparison between different case studies was aimed at addressing the restrictions that are inevitable in research conducted in naturalistic settings. Single-case studies based on clinical practice are limited in their ability to ensure strong internal and external validity within a research design. Nevertheless, they can be claimed to be the best candidates to find equilibrium between the two. According to this perspective, the comparison study was aimed to find a point of balance between efficacy research, based on randomised controlled trials, and effectiveness research, in which therapeutic treatment is carried out in a clinical context that is usually less controlled than a laboratory, but more ecologically valid and allowing for greater clinical relevance of the outcome.<sup>11</sup>

To conclude, the results obtained in this work highlight, on the whole, strong similarities between substance and non-substance use disorders regarding the search for sensory and mental stimulation due to a state of dissociation. Nevertheless, in order to increase the generalisability of the findings, further validation is required through successive studies of the aetiopathogenetic hypothesis proposed in this research project.

#### Statement of informed consent

*This research was conducted in accordance with relevant legal and ethical standards, and with the Declaration of Helsinki. The study was fully discussed with the participants, and written informed consent was obtained following this discussion.*

#### Conflict of interest

*The author does not report any financial or personal connections with other persons or organisations which might negatively affect the content of this publication and/or claim to have rights thereto.*

#### Author contribution

*Original concept of study; writing of manuscript; critical review of manuscript: EA. Collection, recording and/or compilation of data, analysis and interpretation of data; final approval of manuscript: EA, OO, DM.*

11. For more details about the research methodology at the base of the Empirically Supported Relationships (ESR) cf. Lingardi V: La ricerca single-case [Single-case research]. In: Dazzi N, Lingardi V, Colli A (eds.): *La ricerca in psicoterapia. Modelli e strumenti* [The Research in Psychotherapy. Models and Instruments]. Raffaello Cortina, Milano 2006: 123–147; Bergin and Garfield's Handbook of Psychotherapy and Behavior Change (Barkham et al., 2021).



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