

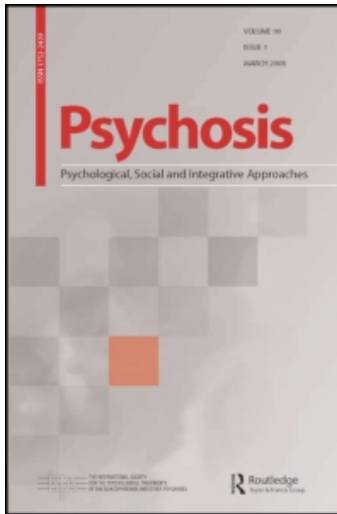
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Publisher Routledge

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Psychosis

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t777186832>

A case study of the treatment of a patient with psychosis and drug dependence: Towards an integration of psychoanalytic and neuroscientific perspectives

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Online Publication Date: 01 February 2009

To cite this Article Hug, Edward and Lohne, Petter(2009)'A case study of the treatment of a patient with psychosis and drug dependence: Towards an integration of psychoanalytic and neuroscientific perspectives',Psychosis,1:1,82 — 92

To link to this Article: DOI: 10.1080/17522430802562886

URL: <http://dx.doi.org/10.1080/17522430802562886>

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A case study of the treatment of a patient with psychosis and drug dependence: Towards an integration of psychoanalytic and neuroscientific perspectives

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(Received 16 April 2008; final version received 18 October 2008)

We present a case study of a drug-dependent psychotic woman in an assertive outreach program in Norway, and explore how certain therapeutic factors may be operating from a psychoanalytical and cognitive neuroscience point of view. The therapeutic factors and interventions considered are; holding environment, referential triangle, use of metaphor and transference, and the problem of meta-representation by the patient. The intent is to attempt to integrate perspectives of psychoanalysis, character analysis and neuroscience in the service of seriously mentally ill patients.

Keywords: psychoanalysis; drug abuse; neuroscience; case study

Introduction

This article offers a small contribution to the ongoing convergence between psychoanalysis and neuroscience. Recent developments in neuroscience are beginning to allow an integrated perspective between psychoanalysis and cognitive neurology.

This article presents a case study in order to explore certain therapeutic interventions used in the treatment of a psychotic patient from a psychoanalytical as well as from a cognitive neuroscience point of view. Other treatment methods are not discussed. Indeed the evolving treatment of schizophrenias is being influenced by the fact that in many cases they are of traumagenic origin, which affects the brain development of individuals vulnerable to early psychological insults (Read, Perry, Moskowitz, & Connolly, 2001).

The neurological correlates of this story will be discussed after the case presentation, so as not to interrupt the flow of the story itself. We shall discuss and illustrate such terms as “holding environment”, “referential triangle”, “use of metaphor and transference”, and “meta-representation”. The main focus of this paper will be the therapeutic process and its neurological correlates, not the life and history of the patient, nor the etiology of psychoses more generally.

The patient was treated by an assertive outreach team (ACT) which is part of a psychiatric polyclinic, based in a general hospital in the center of Oslo. The team has 10 workers: psychologists, a psychiatrist, nurses and social workers. The caseload is relatively small, about eight per clinician. Contact with the patient is maintained for

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2–4 years, several times per week during the first period. Contact is maintained in our office and/or outside in the environment where the patient lives. The process involves a thorough diagnostic evaluation, medication, and regular psychoanalytically based therapy. Activities based on the patients' positive abilities are stimulated. Special attention is given to drug-dependence and to drug-related behavior, and to housing.

The ACT is considered the treatment of choice in cases of severe mental illness and drug dependence (Burns, & Firt, 2003; Mueser, Noordsy, Drake, & Fox, 2003). The most important characteristics of the treatment model are: low caseload, team involvement, intensity of contact, outreach work, flexibility and a practical angle, and focus on drugs.

In the following case the main therapist was a clinical psychologist. Also involved were a nurse and a psychiatrist. During the first year of contact the following diagnostic instruments were used: SCID I and II, Hopkin's Symptom Check List (HSCL) and Addiction Severity Index. The HSCL was repeated towards the end of contact, and a thorough diagnostic evaluation based on the development of the therapeutic alliance and other social relationships where eventually made by the whole team.

Veronica

The patient presented in this study was informed and consented to the presentation that is published here. Veronica (not her real name) was an immigrant female, age 24, at start of treatment. She was diagnosed initially with BPD (borderline personality disorder), but later with paranoid schizophrenia, these diagnostic categories probably reflecting traumatic effects of separation and neglect in infancy with consequent attachment disorders. Compounding this was the dysfunctional environment in which Veronica later found herself, further compounded by substance abuse (amphetamines, benzodiazepines and heroin).

The holding environment

The team had contact with the patient for 3.5 years, meeting with the psychologist at his office, in her home, in hospitals, at drug rehabilitation centers or at cafes. These took place at a definite time each week. Such consistency was felt to be important to "hold" the patient. Every 4–8 weeks there was a meeting among all professionals involved with the patient, and also with her parents. A close cooperation was maintained with the psychiatrist who was prescribing her medication. The treatment team initially put much time and energy into establishing trust with the patient, meeting with all the people around her, including the family.

In the course of the therapeutic relationship, a play-space (in the "Winnicottian" sense) was created between Veronica and the therapist which included her dog, her poetry, and various contexts such as cafes and visits to gardens.

Veronica began regular psychoanalytically based long-term treatment, for which she became highly motivated, and an experienced psychiatrist took over monitoring her medications. Her contact with friends and family improved and she began to care for her dog. Her drug use diminished, but she continued to use cannabis "in order to sleep." Such an intense level of caring was considered essential for the maintenance of a holding environment for the patient.

Relationship between patient and therapist

The patient gradually started to share her mental experiences, as a result of the increasing trust between her and the professionals, and of more proper medication (low-dose anti-psychotic medication, Abilify 10 mg and Oxazepam 75 mg besides methadone) and of the opening up of a shared understanding of the situation between psychologist and patient. One day she said the following:

You see ... I have to start using these pills again ... I am having these voices and thoughts all the time ... they tell me that my dog has radar eyes and that he is about to kill me ... and I fear that I shall kill the dog ... You see I don't want to kill it ... I would not have been alive if it were not for the dog and you.

On the question of whether these voices and such thoughts and fears were new to her, she said:

I know them for many years ...; they first came when I was around 17 ... at home at night, but they (the voices) forbid me to tell about them ... in hospital I had to run away and cut myself to save myself and my family from them ... They would attack my sister ... They resembled some people in my home town ... but I cannot say exactly whom

It became clearer to us that paranoid delusions occupied her mental world. Her way of behaving, as if she were a sweet little child, seemed to cover up these experiences, stopping people around her from challenging her, and “appealing for mercy” towards inner threatening objects.

Referential triangle

Leading up to this had been many encounters among therapist, patient and a co-therapist, involving the development of a “reflecting space.” During these sessions, Veronica was asked to listen to reflections between the co-therapists regarding her situation, including possible thoughts or fantasies they thought she might be having (e.g. how Veronica might take drugs to stop frightening dreams at night). It seemed that she liked this way of communicating and often started to take part herself.

Use of metaphor

One time, meeting her in the hospital, during a period in which she was experiencing considerable stress, the therapist said the following to her:

it seems that Veronica sometimes is a locomotive working very hard to keep up the pace of a train with very heavy loads, then finally losing power and going slower and slower till almost stopping [making the sound and movement imitating this train], and then start up again, but this time so tired and worn out ... and the worst of all is that this whole journey seems of no use

Veronica looked at the therapist with open eyes that he had not seen before, as if a secret had just been revealed between them.

Transferences

There was a depth growing in the therapeutic field, and the therapist was experiencing strong images. One image was of an innocent girl, veiled in white fabric moving away in the dark. Another was of an old wrinkled female face in red and black colors, bleeding from her mouth, very scary and threatening, fantasies about Veronica half asleep walking around in the most drug- and prostitution-infected environment in town, bleeding from her arms and vagina. The team's reflections around these images were that dreadful and scary objects were haunting Veronica and had been projected onto family members and professionals.

Veronica's dread was closed in the "claustrum" (Meltzer, 1992) of her psyche. The childish voice and giggling that we so often experienced from her, and the "ugly" promiscuous behavior the very next moment could be seen as reflections or distortions of these inner objects. During the first year of contact Veronica had shown the therapist some prose, poetry and drawings she had made, partly brutal and violent. These entered the team's reflections around how she was being internally persecuted. Some of these reflections the therapist would share with Veronica in a careful way. She would listen and comment by giggling and calling the therapist "mastermind". We would see this as idealization creating a necessary distance for her.

The family and the professionals around Veronica met frequently. The meetings were about trying to take care of the immediate situation without losing view of more long-term goals. But the main topic of these meetings was to help one another through feelings of fear, hopelessness, anger and pity that threatened to overwhelm us. These encounters brought us closer to one another and facilitated building bridges also with Veronica.

After three years our therapeutic relationship was moving towards an end. Veronica had now established herself in a flat that she found satisfactory. She had daily visits from local helpers who also provided medications. Most of all she was coming closer to her friends and family, who reported her as becoming more mature and taking more responsibility. One year after ending contact, after some setbacks, she was seriously contemplating having a new dog and was having talks with a Catholic nun about joining the Church. Despite some setbacks, on the whole, her ability to cope had considerably improved since the beginning of treatment.

Further reflections

From the outset, a "holding environment" was created around the patient, even with the initial resistance on her part. Of extreme importance was the continuous work between therapist and team, understanding and staying with the projective identifications of the patient.

The first period of nearly a year was also about establishing a reflecting space together and a transference relationship (with group as well as therapist) that would be the basis of future work. The more dramatic period of the two following years was about what Meltzer (1992) calls geographical and zonal confusion. This is the period when the patient's formerly isolated and claustrophobically experienced dreadful projective identifications are exposed to therapist, family and co-workers through acting out. During this period, the therapist is trying to communicate back to the patient in what Meltzer describes as an attitude of "kindness, patience and unintrusiveness". It can be expressed in the following words: "I am your analyst,

an external figure; I receive but am not dominated by your projections; therefore I am still able to think for myself; I am still able to communicate my thoughts to you.”

From a character-analytic point of view it must be underlined that the team and therapist were trying flexibly to move between empathic and “objective” positions towards the patient. Authenticity (sharing personal images and feelings in the team, and efforts to reach out towards Veronica’s inner world) went together with an orientation towards the “symptoms” and social system seen from “the outside”. The “stability” of the team together with the flexibility of the therapist, who met and accompanied the patient through a great variety of situations, supplied a lot of information. When the patient was most full of confusion and confabulations, simply “being with” her (close to her sensory world, her rhythm, movements, etc.) seemed of utter importance.

Bridging psychoanalytic and neuroscientific perspectives

The reader is invited to hold the foregoing narrative and perspectives in mind while we put on a different “hat” and explore the same phenomena from a quite different point of view.

Psychotherapy connects to neurobiology via interpersonal attachment theory.

Affective processes are sub-neocortical, deep in primordial pre-consciousness, largely in the limbic system. These developed much earlier in evolution than the neocortex, and develop much earlier in the human child’s brain. In social mammals such as ourselves, these sub-neocortical processes are associated with attachment processes and affect regulation, mainly controlled, in humans, by the right cerebral hemisphere (Schore, 2003). Narrative autobiographical consciousness is associated with the speech centers in the left brain. The “conscious” left brain, in short, tends to interpret, often confabulate, the affective truth of the right brain. Michael Gazzaniga (2002) calls it the “left brain interpreter”. One may view psychotherapy as a rebalancing of right and left brain processes.

Holding environment

At the beginning of life, the first holding environment is the mother’s womb. From birth to adulthood, the human brain triples in size (from about 400 cc to about 1200 cc), and so there is a kind of “second womb”, a holding environment that extends from birth through childhood into adulthood. This second womb begins with the infant/mother bond and extends through the family, through the development of language and the lateralization of brain functioning, through what D.W. Winnicott called the “play space of the child” and into the larger culture. It also extends into the relationship between patient and therapist/therapeutic milieu as a holding environment. “Psychotherapy takes place in the overlap of two areas of playing, that of the patient and that of the therapist. Psychotherapy has to do with two people playing together” (Winnicott, 1968). Panksepp (2007) shows that play in itself contributes importantly to the development of the “pro-social brain”.

In the case of Veronica, the treatment team, especially the therapist, co-created a play-space which became part of a therapeutic holding environment for the patient, each side of this relationship modifying its behavior in response to the other, as had once occurred for her in early childhood. Such holding had functioned, from early life,

to regulate the patient's affective energy (Schore, 2003, p. 95). With maturity, the social group comes to replace the mother as a container of the person's affect. This involves a resonance between the container and the contained, involving synchronies, as well as disruptions and timely reattunements. "Synchrony develops as a consequence of each partner's learning the rhythmic structure of the other and modifying its behavior to fit that structure" (Lester et al., 1985).

If the treatment team is to play a therapeutic role, it will involve the patient in a regression in service of a corrective emotional experience for the patient (Alexander et al., 1946). As Schore (and others) point out, it is in the nonverbal right brain that attachment and affect regulation largely takes place. The holding environment is organized by nonverbal communication and so the clinician/treatment team must, in effect, awaken in the patient a right brain regulatory strategy for ongoing social interactions through the creation of new associations between situations and the affective values given to them (Rubin & Niemeier, 1992).

Through "holding" there is a social regulation of the body's stress hormones, principally cortisol. In infancy this means physical as well as psychological holding. Deficits in holding due to maternal depression are associated with elevated cortisol levels in babies through school-age children (Ashman, Dawson, Panagiotides, Yamada, & Wilkinson, 2002). But even in adulthood we all need social holding to regulate our stress hormones. Excessively elevated stress hormones impair the ability of the hippocampus to integrate new information. So an important role of the therapeutic holding environment is stress reduction in the service of the patient's ability to integrate new information.

In essence, the therapeutic holding environment instantiates a "potential space" not very different though more evolved, from the play-space described by Winnicott (1968) as intermediate between internal fantasy and external reality. This "space" is organized in the nonverbal right-brain and is essentially in the hands of the therapist through the transference (to be discussed presently).

Referential triangle (reflective space)

By the term "referential triangle" we mean that the therapist does not address the patient directly, but instead addresses an "auxiliary" or co-therapist, so that the patient receives information, but not directed at the patient. The patient is in the position of "overhearing" a conversation about her but not directed at her. The effect is less confrontational, giving the patient space and reducing her anxiety. At the same time, the auxiliary may be performing the function of a double or alter-ego of the patient, opening a window into the patient and bypassing, to some degree, the ego defenses of the patient, allowing the information to be considered by the mind of the patient as if from a meta-representational distance.

A reference should here be made to the Norwegian family therapist Tom Andersen (1991), who developed his "reflecting team model" in the early 1990s. He realized that to let the family observe and listen to the therapists' discussions about the family's situation and process could be of great therapeutic value.

How may we look at this process from a neurobiological point of view?

The holding environment and transference (see below) are processed largely by the nonverbal right cerebral hemisphere mediated by the linguistic left hemisphere. In addition, as Ramachandran (1996) has demonstrated dramatically for anosognosic patients, the linguistic left brain functions to create a self-narrative charged with

preserving the self identity of the person and will occasionally deny or confabulate or rationalize or interpret data from the environment in order to maintain that self identity. So how is it that the “referential triangle” may be operating in the brain to bypass the left brain’s tendency for denial?

Some recent evidence suggests a partial answer to this question. Functional neuroimaging experiments (Ruby & Decety, 2001) with human subjects touch upon an interesting neural correlate of such third-person perspective taking. Subjects were asked to imagine an action as being performed by themselves (first-person perspective taking) or by another person (third-person perspective taking). Their results showed that:

First-person perspective-taking was specifically associated with increased activity in the *left inferior parietal lobule* and the left somatosensory cortex, whereas the *third-person perspective* recruited the *right inferior parietal lobule*, the posterior cingulate, and the frontopolar cortex. (Summarized in Decety & Chaminade, 2005, p.128, italics ours.)

The parietal lobe mainly serves to integrate sensory information from various parts of the body. This is especially true for the inferior parietal lobule (IPL), which is a multi-modal assimilation area. Ramachandran argues that the right parietal functions as a “discrepancy detector” between the left brain’s ongoing narrative and the right brain’s contact with sensory and emotional reality.

Hence we may say that the third-person perspective recruits that part of the right-brain which normally functions to inform his/her ongoing, left-brain-based self-narrative of possible discrepancies in this narrative. This at least partly bypasses left-brain-based ego (self-narrative) defenses.

In addition to using the “referential triangle” as a therapeutic intervention, action imitation by the therapist may similarly open up a right-brain connection to the patient. An experiment involving “action imitation” was explored by Decety, Chaminade, grezes and Meltzoff (2002). In this experiment, subjects either imitate the actions of the experimenter or are imitated by the experimenter.

The *left inferior parietal* is specifically involved in *producing imitation*, whereas the *right [inferior parietal]* homologous region is more activated when one’s own actions are *imitated* by another person. (Decety et al., 2002, italics ours.)

Thus in a therapeutic interaction, right-brain regions are activated (accessed) by the therapist imitating the actions of the patient.

It is the right IPL which becomes active when a normal subject’s actions are imitated by another person. Certain psychotic delusions correlate with an over-active right IPL. Decety et al. (2002, p. 271) refer to hyperactivation of the right IPL during psychotic delusions of alien control. Spence et al. (1997) argue that such an abnormal response (hyperactivation of the right IPL) might be related to the “misattribution of internally generated acts to external agencies.” One might speculate that “action imitation” by the therapist may help to correct such misattributions by grounding the patient’s right IPL in the reality of the therapist’s presence.

Other modes of intervention similarly connecting with the nonverbal right-brain are creative arts therapies (Olivier, 2006) and psychodrama (Hug, 2007), all of which exploit the enhanced connectivity between body and right-brain, permitting forms of therapy that bypass denial processes.

Use of metaphor

As with body-based interventions and the referential triangle, the use of story and metaphor similarly taps into right-brain resources, tending to bypass left-brain defenses. We know that it is easier for a child to accept a story about him/herself when it is told in the third person. Milton Erickson was an inspiration for the use of hypnotic metaphor in a therapeutic context. Perhaps this has to do with the imagaic nature of metaphors and that the right-brain leans toward imagaic processing. But there is another element at work here.

Research into the neurobiology of synesthesia (Ramachandran, 2004, pp. 65–68, 74–75) is giving insights into the brain mechanisms of metaphor. As with synesthesia, metaphor involves cross-activations between different brain regions. A synesthete may see all numbers “5” as green (an example of low-level synesthesia, a cross-activation between adjacent visual association cortices), or may smell a certain fragrance while hearing Beethoven’s 9th symphony (an example of high-level synesthesia, a cross-activation within the temporal–occipital–parietal high-level association cortex). Similarly with metaphors, there may be low-level and high-level cross-activations. Synesthetic metaphors (e.g. “loud colors”, “sweet smells”) might be considered low-level, while an example of a higher-level metaphor may be “Veronica sometimes is a locomotive working very hard to keep up the pace.”

Metaphor is a powerful mechanism for awakening the mind, and for extending the neural connections in the brain. It involves associating novel connections between disparate brain regions, using cross-activations between brain regions to make novel connections, enabling the mind to process its world in a different way. According to Ramachandran, the brain’s angular gyrus is crucial to understanding metaphors. It is also among the highest-level association cortices in the brain and is implicated in high-level metaphor. In the generation and understanding of metaphor, it may well be that the linguistic capacity of the left-brain is cross-activating the imagaic ability of the right-brain to form novel connections.

A major attribute of mental illness is literalization, a profound tendency to comprehend metaphorical reality as literal. Literalization impoverishes the imagination. Metaphor can open it up, as in the instant case. (“Veronica looked at me with open eyes that I had not seen before, as if a secret had just been revealed between us.”) Metaphor de-literalizes and de-lateralizes.

Transference

If we are to become able to be the analysts of psychotic patients
we must have reached down to very primitive things in ourselves.

(D.W. Winnicott, *Hate in the transference*, 1947)

Psychoanalysis is not so much “talk therapy” as it is transference/counter-transference therapy. Much of the theories of affect regulation and its neurobiology also applies to the transferential relationship between patient and therapist. In addition to using words, the clinician must establish and maintain a nonverbal right-brain to right-brain regulation of the relationship (Rubin & Niemeier, 1992). This task involves an essential step, “to autoregulate the counter-transferential stressful alternations in his body state which are evoked by the patient’s transferential communication” (Schore, 2003, p. 95).

Central to this autoregulation is the orbitofrontal cortex, which mediates the capacity to reflect upon one's own body and emotional states and those of others (Mega & Cummings, 1994). This system expands into the right-brain, connected with symbolic image formation and the manifestation of emotional states. Emotional dysregulation accompanies most psychopathologies, as does the left-brain defense mechanism; for example, the "left-hemisphere interpreter" of Gazzaniga (2002). The latter functions, however imperfectly, as an attempt at emotional re-regulation by converting intolerable affects by means of confabulations, rationalizations and denial. Emotional dysregulation may arise from "emotional learning occurring in the right hemisphere unbeknownst to the left ... [which] may later be completely inaccessible to the language centers of the brain" (Joseph, 1982).

As we saw in the case of Veronica, the therapist was experiencing strong images in response to the analysis. We know that the right-brain is the locus operandi for symbolic image formation in response to the other; that is, for the emergence of "sensori-affective images ... counter-transferential imagery that the patient generates in the therapist ... images [which] arise from the clinician's body-based, implicit, procedural affective memory" (Schoore, 2003, p. 96). It is partly through such imagery that a "limbic resonance" (Lewis, Amini, & Lannon, 2001) develops between therapist and patient, which, in turn, engenders the psychobiological attunement essential for the process to proceed.

As Panksepp (2007) elaborates, throughout the mammalian order including humans, the development of a pro-social brain takes place in the process of free play at nonverbal levels of the brain. In the case of humans, this is mainly right-brain to right-brain communication, and the time of its most rapid growth is in childhood, while language abilities are developing. Later, and especially in therapy, this right-brain to right-brain communication is mediated by language which, however, remains secondary to the primary limbic resonant process, a burden which the analyst primarily carries.

Mental health and the meta-representational brain: Some further speculations and conclusion

Ramachandran (2004) conceives of a "meta-representational brain" whose locus is in the pre-frontal cortex (also referred to as the "executive brain" by Elkanon Goldberg, 2001), a structure late to develop in the human species. (Most of the growth in cranial capacity during the past 2 million years has been pre-frontal.) The pre-frontal cortex is also slow to develop in the brain of the human infant and mainly grows in the period after pre-adolescence. It is involved in the brain's inhibition system and its ability to conceive of a future. Ramachandran thinks of the (pre-frontal) meta-representational brain as:

a second "parasitic" brain ... that has evolved in us humans "to create a more economical description of the rather more automatic processes that are being carried out in the first brain ... another brain structure that emerged later in evolution for creating metarepresentations. (Ramachandran, 2004, p. 99)

Burns (2002) argues that the evolution of fronto-temporal hyperconnectivity conferred certain evolutionary advantages, but also made this evolving brain vulnerable to insults, so that schizophrenia exists in evolution as a "trade-off in the evolution of social cognition and the creative mind", and further proposes that:

schizophrenia is a disorder of ... fronto-temporal connectivity that evolved in association with emerging complex neural circuitry in human ancestors. These circuits evolved under selective pressures involving group living, and regulate aspects of social cognition such as metarepresentation and affective responsiveness.

Arnold Mindell (1988) was already conceiving of schizophrenia in this way with his concept of the “metacommunicator” as absent or malfunctioning during psychotic states of mind:

The “psychotic person” does not metacommunicate for long periods of time. There is no third party available to talk about either his primary or secondary process. No one is “at home” to comment on intelligent interpretations ... After coming out of extreme states, many people will say that they felt “the observer” was underwater or in a back room. (Mindell, 1988, p. 41)

Mindell saw as a treatment goal that the person diagnosed with schizophrenia “learn how to metacommunicate about his problems” (1988, p. 42). In light of current neuroscience thinking, the referential triangle could be seen as a tool for modeling metacommunication for the patient, as a means of teaching her how to do it for herself.

Efforts continue to integrate psychoanalytic, character-analytic and neuroscientific theory in reaching out to seriously mentally ill patients. The case study reported here has focused on understanding the world of a woman suffering from psychosis and drug dependence. The team-based assertive outreach relying on such theoretical considerations seemed to make a difference for the patient. We want to conclude that neuroscience confirms the use of and brings new light to such therapeutic concepts as “holding environment”, “referential triangle” or “reflecting space”, use of “metaphor” and “transference”. We think that further case studies will help us become more specific and precise when we consider therapeutic interventions on behalf of our most suffering psychotic patients.

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