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Clinic Case

Therapeutic approach to referential thinking in a case of schizotypal disorder

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Abstract

The present study describes the evaluation procedure and therapeutic approach in a case of schizotypal disorder. The intervention carried out was of the cognitive behavioural type. In parallel, a follow-up of a fundamental measure for this disorder is accomplished: the referential thinking, by means of brief time-series. In this analysis, a clear but progressive decrease of the criteria is obtained. The post-treatment results show a general improvement in every aspects, bringing out: the interpersonal relationships, the absence of hallucinations, the increase of the capacity for enjoyment, the decrease of unusual content of thought, erroneous interpretations of reality, aggressiveness and unusual language. Distractibility, suspicion and conceptual disorganization slightly persist.

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INTRODUCTION

In patients with a schizotypal personality disorder, interpersonal deficit and withdrawal from others are typical. Odd behaviours and peculiar thoughts remind us of psychotic disorders, but without the active symptomatology: paranoid ideation, referentiality, corporal illusions, magic thinking or extravagant interests (the classical Bleuler´s latent schizophrenia and Rado´s schizophrenic phenotype) (Millon & Davis, 2001; Núñez & Rodríguez-Testal, 2011). Cognitive distortions about relationships or links between daily events abound, as well as analogical, circumstantial speech, striking speech riddled with fantasies, magic-related concerns, telepathy, aliens, clairvoyance, hidden powers and superstitions (APA, 200). These patients are often described or recognized because they talk to themselves in public, they wear extravagant clothing, they gesture or behave in an eccentric or even bizarre way (it occurs when psychotic disorganization is present). Typical is the limited interest in making social contact (some of these patients are vagrants or in general marginalized people), with distance and suspicion, exceeded by the external demands in a world that seems hostile to them.

The schizotypal, as well as the schizoid personality disorder, are considered genetically identical to schizophrenia only with a weaker phenotype (Mateu, Haro, Revert, Barabash, Benito, Calatayud et al., 2008). It is usually indicated that whenever the schizoid disorder is linked to the negative symptomatology, the schizotypal individual is linked to the positive one. The physiological studies agree in showing this disorder as a lightly or predisposing form of schizophrenia. However, it has not been possible to specify if this is related to an alteration of the neurodevelopment, physiologic abnormalities that lead to a loss of neuronal stimuli (deafferentation), or to a decrease in the interneurons (Dickey, McCarley & Shenton, 2002). The incidence of gender is not clear.

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A construct that is linked and of interest is schizotypy, though it is not a synonym of the schizotypal personality disorder nor of schizophrenia. Schizotypy or the tendency to psychosis, or better said, to the schizophrenia-spectrum, characterized by Meehl (1990), clinically implies cognitive alterations (slight thinking disorders), anhedonia, ambivalence and interpersonal aversion. For this author, the initial component is a dominant schizogene (hypokrisia) (Lenzenweger, 1998; 1999) that leads to a vulnerable CNS in terms of the brain´s integrative function (schizotaxia) (10% of the population). Schizotypy is the psychometric variable stemming from schizotaxia. If one adds up the polygenic enhancers to this condition (such as primary social introversion, anxiety, low hedonic potential –hypohedonia-, low energy level, low dominance…) the poor social learning, and the stress elements of adult life, schizophrenia can develop (1% of the population) (Meehl, 1990). In the remaining percentage, there would probably be room for the schizotypal personality disorder (whose prevalence is estimated to be 3% of the population; APA, 2000)

From the dimensional models, it is defended that schizotypy holds an "intermediate" phenotype, less serious than schizophrenia, in intensity, frequency and dysfunction (Fonseca-Pedrero, Paíno, Lemos-Giráldez, Sierra-Baigrie, Campillo-Álvarez, Ordoñez-Camblor et al., 2010), or, in a wider way, it spreads out in a continuum: at one extreme stands schizophrenia and at the other one normality (Jonhs & van Os, 2001; van Os, Linscott, Myin-Germeys, Delespaul & Krabbendama, 2009). It is considered as a multidimensional construct composed of three or four dimensions (depending on the researchers): positive dimension (unusual perceptive experiences such as hallucinations; ideas of reference; magic ideation; suspicion), just as Lenzenweger characterized (Lenzenweger, Bennett & Lilenfeld, 1997; Meyer & Lenzenweger, 2009); negative dimension (social and physical anhedonia, interpersonal deficit, emotional restriction) and disorganization (odd/unusual language, odd behaviour)

* This work comes from a clinical session given by the second author in the Psychologists Association in the Official Huelva Delegation: Therapeutic approach on schizotypal personality disorder: about a case, held on May 15th 2009.

(Fonseca, Muñiz, Lemos, García, Campillo & Villazón, 2007; Rawlings, Williams, Haslam & Claridge, 2008; Rossi & Daneluzzo, 2002; Vollema & Hoijtink, 2000).

Given that schizotypy implies a variable of vulnerability related to the development of the schizophrenia-spectrum disorders, including the schizotypal personality disorder, the psychological intervention is therefore of great importance, better if given at an early stage, in order to reduce (o slow down) this condition. However, there is limited literature available with regard to the psychological intervention for the schizotypal personality disorder in particular (Quiroga & Errasti, 2001). It is often underlined that this is due to the fact that the main attention of the intervention is given when the psychotic sign is already present and not in its previous or eased stage. (Quiroga & Errasti, 2008). Consequently, there is no abundant evidence of the treatments effectiveness on the schizotypal personality disorder further than the interventions on isolated clinical cases in the cognitive-behavioural therapy (Beck, Freeman & Davis, 2005), in the acceptance and commitment therapy or in the functional analytic psychotherapy (Olivencia & Cangas, 2005). Therefore we present in this work a cognitive-behavioural intervention on a patient with this personality disorder and the follow up of a measure that reflects the variable of schizotypy: the referential thinking.

Participant

Carlos is a 38-year-old male, married, with an A-level. He works in a little family shop and he is the eldest of 4 brothers. He lives with his partner and has two children in his care, a 10-year-old stepdaughter and his 4-year-old son.

Clinical history

He attends consultation voluntarily for the first time in October 2007, although pushed by his family insistence after a family aggressive episode (he had seized his partner´s daughter by the neck). At that time, his personal situation was of extreme tension. He had been on sick leave (which he claims was due to daily worries) and his coming back to work made the stress increase. He defines himself as "always fighting with everyone, nothing seems normal to me, I am like from another planet", "always watched by my parents, by my family, by society, for being a big public shot in the town". He brings out his interpersonal difficulties, he tends to isolation and lacks skills for communication and for making himself valuable in the business (he sneaks away, he finds it hard to make contact with the customers, or he writes poems to female customers to establish communication with them). Since his adolescence, he has felt suspicion in his relationships with others (he wishes for them but does not obtain them, and if so with great difficulty). Since 2000, he has been under psychiatric treatment for his "obsessions" and anxiety facing other people. At that time, there was a slight evolution, periodically he would be on sick leave when the daily tensions would increase. His evolutionary and physical development is apparently normal. He always points out his "weirdness", for instance he would not open his Christmas presents, and would either give them away to others or keep them. He had a lot of intellectual curiosity and would throw himself excessively into his studies. He remembers himself at the age of 14 or 15 as being able of everything, as being an extraordinary person for his implication in the academic field (his level of achievement was not very high), although at the same time a person distant from the games of others and encouraged to stay apart in order "not to damage the rest of the people". From his adolescence on, a few peculiar behaviours are observed, like following people in the streets, he writes down various incomprehensible poems which he presents to his sister (his only confidant); "in 2002, I wrote a book to free myself". The book is riddled with formulas resembling physical science. In most of his interpretations, he tries to establish links between nature, space, time, people and the town where he lives in. In one of the paragraphs, he points out: "Development of *j*. In our land of Seville things are often based on the 90-degree turns. Sometimes being patient and the matter of the 90-degree start to make more sense. It fits up a bit more than what we thought it was and did not know. The turn to which is linked everything in reference to High Street and Main Square is of 180 degrees because it is like the Sun and the Moon. They are totally different but joined in a same point, with the same respect to base. They are totally different but this physiology does not mean it is evil, it does not imply malevolence… something different is that, later on, we fight and do not know how to get rid of resentment and hatred".

There is no physical disease of importance. He smokes a packet of cigarettes when stressed.

He defines his parents as being absent, with little involvement even though always trying to control his conduct. His mother is described as a problem person "she doesn´t understand or mixes up reality". The sister who accompanies him at the beginning of the two sessions is the one person who plays a more efficient role in the family, who provides control, active part, and she regulates behaviour at home. She values him as someone "weird", worried for irrelevant matters, "ethereal", apathetic and passive.

Since the beginning, there have always been "feelings of presence", ideas of reference, specific language (metaphorical) and distrust. He maintains eye contact, there is no pronounced disorganization in his conduct, a certain slowness when responding, laughs relevant to context but striking in its production, negative symptomatology, apathy and anhedonia above all (social and physical). Short after the beginning of the sessions, he feels very bad and informs about au-

ditory hallucinations of little development: "Listen Carlos", "be careful", "hey, you!". He describes himself as being in "a ball of fire, if it falls down on one side it burns the population, if it falls down on the other side the forest catches on fire. I have to be careful because I get dizzy". He brings out feelings of imminence and of prediction capacity, he communicates particular feelings: "the water in the bottle has a life of its own".

Evaluation process

The therapeutic sessions were carried out in a private practice of clinical psychology. At the beginning, the sessions would take place once a week, each session lasting for an hour (except when his wife, parents or sister would come). As of January 2009, they took place once a fortnight.

During the second session of therapy, he was handed a file which included various evaluation instruments about personality, anxiety, depression, general health, vulnerability to depression, referential thinking, and so on… The results obtained in each of the pre-treatment evaluations are stated below (the cutoff scores or the average scoring for general population appear in brackets)

Initial self-administered and self-report interview: they contain items in reference to socio-demographic aspects, medical diseases, family medical history, medicine and drugs/alcohol consumption. Initial pharmacological treatment: perfenazina 4/25 (0/1/1) and lorazepam (1/0/1), and later, perfenazina; haloperidol (10/10/10) and halazepam (1/0/1) up to the present with a neuroleptics reduction at the beginning of 2009.

Brief Psychiatric Rating Scale (BPRS) (Lukoff, Nuechterlein & Ventura, 1986): Punctuation from 1 (not present) to 7 (extremely severe). Overall score, 59 (2.45 on 24 items).

Psychotic dimension: hostility= 4; suspiciousness= 4; unusual thought content= 3; grandiosity= 1; hallucinations= 3.

Disorganised dimension: disorientation= 1; conceptual disorganisation= 4; excitement= 1; tension= 4; mannerisms and posturing= 1; negativism= 2; self-neglect or self-abandonment= 2; bizarre behaviour= 2; motor hyperactivity= 1; distractibility= 2.

Negative dimension: motor retardation= 3; blunted affect= 2; emotional withdrawal= 2.

Emotional dimension: somatic concern= 2; anxiety= 6; depression= 3; guilt= 5; elated mood= 1; suicidality= 1.

Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown & Steer, 1988): 32 points (cut-off score = 26).

Beck Depression Inventory (BDI) (Beck, Rush, Shaw & Emery, 1979; Spanish version by Vázquez & Sanz, 1997): 28 points (c.o. = 14).

The Penn State Worry Questionnaire: (PSWQ) (Meyer, Miller, Metzger & Borkovec, 1990): 60 points (c.o.= 68).

Dysfunctional Attitude Scale (DAS) (Weissman & Beck, 1978. Spanish version by Sanz & Vázquez, 1993):

DAS-total: 135 points (c.o.= 144); *DAS-achievement*: 54 points (c.o.= 45); *DAS-dependency/need for approbation*: 36 points (c.o.= 36); *DAS- autonomous attitudes*: 14 points (c.o.= 27).

(Goldberg) General Health Questionnaire (GHQ-28) (Spanish version by Lobo, Pérez-Echeverría & Artal, 1986).

GHQ-global: 7 points (c.o.= 5); *GHQ-somatic*= 11; *GHQ-anxiety*= 8; *GHQ-social dysfunction*= 3; *GHQ-depression*= 6.

The Referential Thinking Scale (Lenzenweger, Bennett & Lilenfeld, 1997): 22 points (c.s.= 7). One month after the first evaluation = 18 points (beginning of the time series)

Sincerity - Eysenck Personality Inventory (Eysenck & Eysenck, 1990): 8 points (maximum scoring= 9)

Millon Index of Personality Styles (MIPS) (Millon, 1994), Spanish version of TEA (2001). Normality: 29-69.

Motivating aims: Enhancing= 39; preserving= 81; modifying= 52; accommodating= 47; individuating= 76; nurturing= 35.

Cognitive modes: Extraversion= 47; introversion= 61; sensing=37; intuiting=69; thinking= 37; feeling=53**;** systematizing= 29; innovating= 83.

Interpersonal behaviours: Retiring= 72; outgoing= 60; hesitating= 64; asserting= 72; dissenting= 77; conforming= 49; yielding= 53; controlling= 81; complaining= 43; agreeing= 40.

Adjustment T Score= -22.

Millon Clinical Multiaxial Inventory (MCMI-II) (Millon, 1997), Spanish version of TEA (1999). The scores above 75 are considered indications (for Axis II disorders) or syndromes (for Axis I disorders), from 85 points on, the punctuation is considered a sign of pathology.

MCMI-II Axis II: schizoid= 71; phobic= 83; dependent= 86; histrionic= 106; narcissistic= 89; antisocial= 104; aggressive/sadistic= 90; compulsive= 48; passive/aggressive= 89; self-destructive potential= 99, schizotypal= 107; borderline= 93; paranoid= 105.

MCMI-II Axis I: anxiety= 75; hysteriform= 85; hypomania= 100; depressive neurosis = 83; alcohol dependence= 100; drugs dependence= 100; thought disorder= 101; major depression= 65; delusional disorder= 102.

Sincerity= 100

The questionnaires were completed at the patient´s house. Particularly, the Referential Thinking Scale (REF) was handed in every three days since November 2007 until the beginning of 2008. An informed and written consent was obtained in order to be able to use his information for research purposes.

Statistical procedure

For the analysis of referential thinking in particular (an aspect of schizotypy) a longitudinal design was used (brief time-series). Young´s C Statistic was employed to follow up this criterion since the beginning of the therapeutic process and to detect changes in the course of the patient´s evolution (DeCarlo & Tryon, 1993; Tryon, 1982). The Least Squares method was also used to obtain the tendency line.

The statistical procedure consisted in dividing the total of the series into two parts (phase 1: 1-24, phase 2: 25-103). The application of the C Statistic should not obtain a tendency in any of its parts (phase 1 or 2), which would indicate stability in each series separately (observed Z, theoretical Z). Finally the C Statistic is applied again to the whole serie (phase 1 + phase 2) so that: if the C Statistic obtains a significant result (Zo > Zt) it would indicate that there is a change in the tendency. In this case, the visual inspection and/or another statistical procedure (for instance the Least Squares method) can indicate the straight line that derives from the punctuations and this way estimate whether there is an increase or decrease all along the series of points.

The analysis of the uninterrupted time-series over the total of the self-references (REF scale) were carried out under a 99% level of trust and a probability always inferior to .01. The program used was designed for this purpose by Dr Vicente Manzano, senior lecturer of Statistics, University of Seville.

Treatment

Initial hypothesis: We started from a possible personality structure that determines the way of perceiving the world: altered interpersonal style, tendency to referentiality, suspicion, circumstantial language, etc.

Maintenance hypothesis: isolation, social avoidance, odd language and the writings are used as a form of relieving the discomfort although they perpetuate the global style and prevent its correction. The parents inefficient and indifferent style, and the initial communication difficulties with his wife (from abroad) may have favoured the maintenance of the problem and may have deteriorate his self-image.

Treatment objectives:

Establish a strong therapeutic relationship.

Reduce social isolation, cultivate adequacy and social abilities.

Improve personal communication style: intention, structuration and expression of thoughts.

Identify inappropriate responses, automatic thoughts, distortion and improve capacity for understanding and resolving aspects of everyday life.

Prove beliefs.

Structure the sessions in a marked way.

Establish few aims in each session.

8) Increase sensitivity to pleasure.

9) Acceptance, support and empathic understanding.

10) Improve autonomy

11) Rebuild altered self-image.

12) Improve emotional implication at home.

The intervention carried out was of the cognitive behavioural type. The objectives 3 and 4 are the ones that can be more clearly verifiable from the information that is presented.

From the clinical evaluation, we conducted a functional analysis of the problematic behaviours in order to give greater rigor and systematization to the treatment (table 1).

The sessions were held on a weekly basis and, at the beginning, Carlos´ wife or family would take part fortnightly. The achievement of the first set out objective was of outstanding importance as patients with schizotypal personality disorder maintain a few dysfunctional beliefs about people and interpersonal relationships (Beck, Freeman & Davis, 2005). The structuring of the sessions was performed thoroughly, as the patient easily tended to digression and it was difficult to achieve results if this element was not controlled. In order to achieve the proposals of each session, a behavioural contract was presented, in which Carlos would undertake to elaborate an agenda of the matters to be discussed, dividing them into small goals with the help of the therapist.

Table 1. Functional analysis of problem behaviours.

Antecedents	V. Organismic	Behaviours	Consequences
Internal:	*Variables of vulnerability*	*Motor:*	*Short-term*
Auditory hallucinations "be careful", "hey, you!"	Emotional absence of his parents	Unusual language "the water in the bottle has a life of its own".	social avoidance (R-)1
Ideas of reference "always watched by my parents, by my family, by society"	Wife from abroad	Interpersonal difficulties: "always fighting with everyone"	Sick leaves (R-)
Suspicion	Odd behaviour since childhood "would not open his Christmas presents"	Odd behaviours (following people in the streets)	He sneaks Hawai from the business (R-)
	Poor resources for coping	Striking laughs	Off language (R+)2
External:	In adolescence: Isolation, grandiosity (he considered himself as being an extraordinary person)	Slowness when responding	Writings (R+)
When he has to deal with customers	Interpersonal difficulties (following people in the streets)	Smoking	*Medium and long-term*
Family and wife presence	Excessive implication in studies	*Physiological*	Negative self-image (C+)3
Periods of stress at work		Tension	
		Cognitive	
		Lack of social abilities (writes poems to his female customers to communicate with them)	
		Daily concerns (business, family) and concerns for irrelevant matters	
		Suspiciousness and distrust with others "they know what I think"	
		Negative anticipation of his self-image "they´re not going to like me"	
		Odd feelings (imminence, prediction capacity, feelings of a presence) "what I think will come true" , "something bad is going to happen"	
		Emotional	
		Apathy and anhedonia	

1 Negative reinforcement
2 Positive reinforcement
3 Positive punishment

From the first sessions on, cognitive restructuring process was used. We taught him the ABC Model of Rational Emotive Therapy (Ellis, 1981) so he would learn to identify his irrational thoughts ("they´re not going to like me", "something bad is going to happen", "he knows what I think") and wrong evaluation of reality ("the world is dangerous", "coincidences do not exist", "what I think will come true") in order to change them for more rational and biased thoughts instead of basing his beliefs on emotional responses. On the other hand, in view of the lack of critical capacity before some irrational beliefs, the creation of alternatives was favoured through differential reinforcement of other behaviours and the extravagant ideas were ignored (extinction procedure).

On the other hand, we tried to show the breaking-off of the idiosyncratic cause-effect relation through the use of daily examples and analysis of news. We used questioning and Socratic dialogue, proper of Beck´s Cognitive Therapy (Beck & Alford, 2009) to modify cognitive distortions (such as personalization, referentiality and emotional reasoning: "the town is sad, everyone is down or angry") and the analysis of the metaphors he himself would formulate, redefining them

in a more realistic way and with less tendency to global or metaphysical interpretations.

During the whole therapeutic process, we worked the interpersonal abilities through modelling, behavioural rehearsal and role-play. Home exercises were set out to consolidate the learning. We put into practice operant techniques such as positive reinforcement for the achieved objective-conducts, differential reinforcement for inappropriate behaviours like digression and circumstantiality in language. He was taught to handle "stress" (mainly from his partner) and "contradictions" (ask for and let do) through behaviour rehearsal, "the weight of the past" (damaged self-image like being the weirdo, the useless) through cognitive restructuring process, the lack of communication (mostly with his family) through specific tasks linked to the training in social abilities and the execution of programmed tasks. He was urged to play and get involved with the children as a source of emotional experience. We expected to minimize the tendency to isolation with this approach.

Results

Speaking of the psychological intervention carried out, an evaluation was conducted after 14 months of therapeutic work, obtaining a significant reduction –comparing with the pre-treatment evaluation- in some of the scales from the MIPS, MCMI-II, REF (apart from the monitoring of serial measurements that came to an end in September 2008), and BPRS. From that moment (January 2009) the sessions were held on a fortnightly basis, and since September 2009, a monthly monitoring was conducted, up to the present time (September 2010). Among the major results in the MIPS we can observe in table 2 an improvement in the capacity for enjoyment and a tendency to look on the bright side of life, together with a decrease in the concentration on problems and an increasing concern for others. The patient is more outgoing and sociable, his tendency to isolation diminishes and his initiative when engaging in social relationships increases. It should be emphasized that there is an improvement in the ability to process knowledge by means of logic

Table 2. Pre-treatment and post-treatment evaluation results of the Millon Index of Personality Styles (MIPS)

MIPS. MOTIVATING AIMS (29-69)		Pre-treatment (Prevalence Score)	Post-treatment (Prevalence Score)
EXISTENCE	Enhancing	39	40
	Preserving	81	53
ADAPTATION	Modifying	52	61
	Accommodating	47	52
REPLICATION	Individuating	76	79
	Nurturing	35	53
MIPS. COGNITIVE MODES (29-69)		Pre-treatment (PS)	Post-treatment (PS)
SOURCES OF INFORMATION	Entraversing	47	68
	Introversing	61	61
	Sensing	37	13
	Intuiting	69	91
PROCESS OR TRANSFORMATION OF THE INFORMATION	Thinking	37	58
	Feeling	53	94
	Systematizing	29	33
	Innovating	83	91
MIPS. INTERPERSONAL BEHAVIOURS (29-69)		Pre-treatment (PS)	Post-treatment (PS)
LEVEL OF COMMUNICATION	Retiring	72	36
	Outgoing	60	83
SAFETY	Hesitating	64	55
	Asserting	72	44
CONVENTIONALISM	Dissenting	77	49
	Conforming	49	42
POWER	Yielding	53	52
	Controlling	81	65
NEGATIVISM	Complaining	43	35
	Agreeing	40	41
ADJUSTMENT T SCORE		3	40

and objective reasoning although his interest for symbolism and the unknown is growing, with a tendency to get opinions from following his emotional appreciations. We observe an outstanding decrease in dissenting and controlling.

Regarding the manifestations in Axis I and II (measured with the MCMI, versions I and II) important changes are observed (table 3). Focussing on Axis II, we notice an increase in the initiative when engaging in interpersonal relationships, taking a more active role. The need for acceptance and approval from others decreases in a significant way. The antisocial and aggressive aspects are reduced in a marked way, as well as his tendency to emphasize the miserable aspects of his life which makes his grief worse. The considered most serious components in this instrument (schizotypal, borderline and paranoid) decrease drastically down to levels that are considered acceptable. Regarding Axis I, it is necessary to emphasize the marked decrease in psychotic thinking and delirium. The somatoform meanings lessen as well as the scoring in drug and alcohol consumption, though an increase in anxiety is produced, possibly linked to daily circumstances which worry the patient in those moments.

Speaking of the analysis of the brief time-series, the results suggest a progressive decrease of referentiality (graph 1). The analysis of Young´s C Statistic indicates that both in the first and second phases, the measurements are stable, there is therefore no change in the tendency (table 4). When the whole series is taken into account, statistically significant changes are shown with a decreasing direction. A notable effect size is obtained (35.81%).

The Brief Psychiatric Rating Scale (BPRS) allows us to observe a clear decrease in each of its dimensions (table 5). It is necessary to emphasize that the disorganized and negative components are almost absent as well as the hallucinations (psychotic dimension). Distractibility, suspicion, unusual content of thought and conceptual disorganization slightly persist.

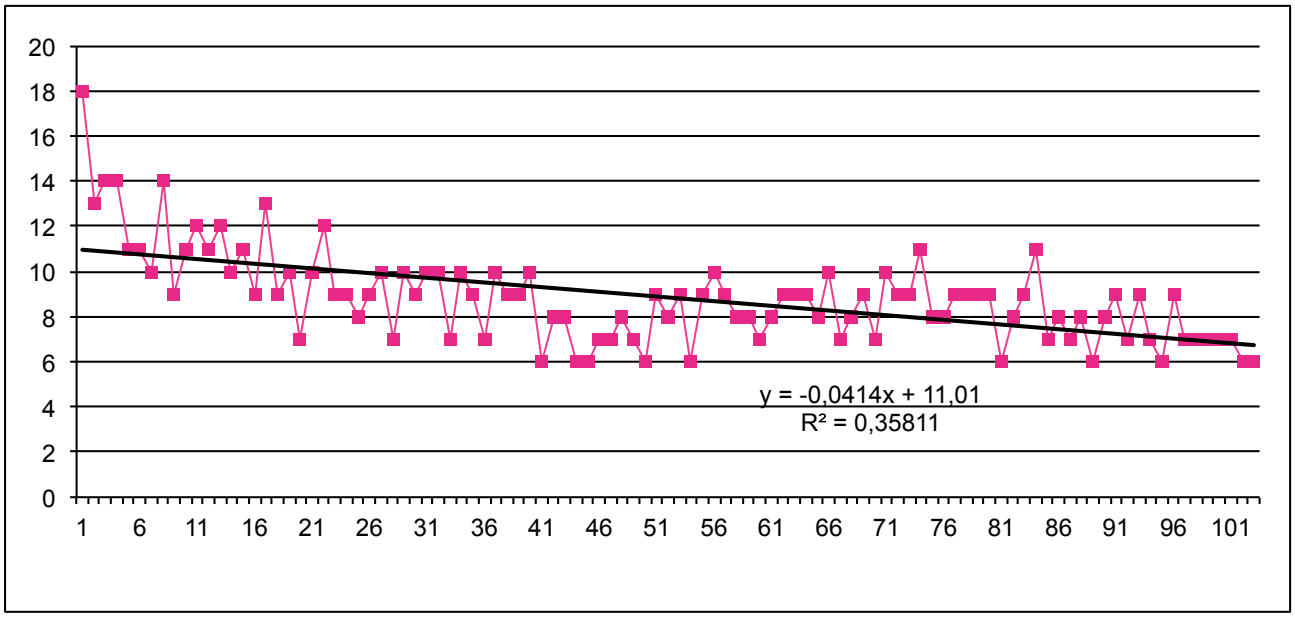
Discussion

The analysis of the scorings shows a wide change -though not definitive- in the presented case. Moreover, it is an equally noticeable fact for the people living with the patient. We established various therapeutic objectives but we gave importance to the structuring of each activity and to the favouring

Table 3: Pre-treatment and post-treatment evaluation results of the Millon Clinical Multiaxial Inventory (MCMI-II-III)

MCMI-II & III. Axis II	Pre-treatment (BR)	Post-treatment (BR)
Schizoid	71	57
Phobic	83	59
Dependent	86	58
Histrionic	106	34
Narcissistic	89	78
Antisocial	104	62
Aggressive/sadistic	90	62
Compulsive	48	52
Passive/aggressive	89	54
Self-destructive potential	99	59
MCMI-II & III. Axis II	Pre-treatment (BR)	Post-treatment (BR)
Schizotypal	107	58
Borderline	93	56
Paranoid	105	57
Sincerity	100	83
MCMI-II & III. Axis I	Pre-treatment (BR)	Post-treatment (BR)
Anxiety	75	86
Hysteriform	85	64
Hypomania	100	61
Depressive neurosis	83	57
Alcohol dependence	100	75
Drugs dependence	100	65
Thought disorder	101	46
Major depression	65	63
Delusional disorder	102	63

Graph 1. Brief time-series of referential thinking (REF) and tendency line



of reflection, evaluation or response more focused on the reality of each event. Carlos´ more immediate tendency was to interpret things in a magic way and to cut himself off on not understanding or on functioning unsuitably. In this sense, the analysis of news, press articles, some book, conference assistance, and even metaphors, as recommended (Olivencia & Cangas, 2005), represented a very rich field to observe his interpretations, frequently suspicious or highly referential, and to help restructure the way and content of the analysis of his thoughts and behaviour.

The sphere of the family was another essential aspect, mostly in the marital context, to diminish the excessive critic, the repetition of protests without a clear formulation of the needs at home which Carlos tended to avoid or to respond to in an ineffective way. The involvement in the care of the children was important; it went from understanding absolutely nothing of what the children would ask him to being able to identify their emotional states and to observe the effect that their emotional expression had on him (usually pleasant).

Table 4: Analysis of the time series about referential thinking (REF) and effects ascribable to treatment

	C	Zo	Zt	Change in tendency
Observations 1-24	.377	1.926	2.27	No
Observations 25-103	.142	1.275	2.330	No
Global	.549	5.626	2.330	Yes

Table 5. Pre-treatment and post-treatment results of the Brief Psychiatric Rating Scale (BPRS), global and by psychopathological dimensions.
LES

	Pre-treatment	Post-treatment
BPRS total (out of 24)	59 (2.45)	32 (1.33)
Psychotic dimension: out of 5	2.8	1.4
Disorganized dimension: out of 10	2	1.2
Negative dimension: out of 3	2.3	1.3
Emotional dimension: out of 6	3	1.5

The analysis of a schizotypy aspect, referential thinking, a very important criterion in this case because of its large production, expresses a significant but gradual change. The series, carried out during a little more than ten months, indicates a decrease in the referential tendency, mostly from the second month and a half of treatment (moment when the series gets stable until the observation 24) but not its ending. This aspect is shown in the residual score of the BPRS positive indicators. As in previous works, we have been able to observe that the measurement of referential thinking provides us with a nuclear characterization of psychosis (schizophrenia-spectrum) but it might admit the effect of a psychological intervention (Rodríguez-Testal, Valdés-Díaz, Benítez-Hernández, Fuentes-Márquez, Fernández-Jiménez & Senín-Calderón, 2009). In spite of the tiredness stemming from the repetitive procedure of measures, a high number of observations, it could possibly show a very marked decrease in the tendency to referentiality.

Changes in this patient were followed up in monthly sessions, appreciating -in general terms- the maintenance of the achievements. However, it is difficult to suppose that there will be a higher change than the one observed. His coming back to work in the shop, the medication reduction, realizing he was still overwhelmed if / when his working day was very long, were a few events that took place in the present year of follow up and that put him to the test with acceptable results.

To conclude, it is necessary to point out that this work has disadvantages or limitations. It deals with a unique case with a pre-test and post-test measurement. Therefore the results cannot be generalized or considered as evidence of therapeutic effectiveness. The application of the time series in a long period of time allows continuous measures to turn the human subject into his own control and to provide him with a more valuable change indicator. However, the measure used for referential thinking registration is self-report, which introduces a source of errors that needs to be taken into account. Given the fact that the BPRS has been used as a hetero-report instrument, one can point out a convergent coincidence with the self-report results. The lack of an experimental group and of a comparison group restricts the scope of the results of this particular case, but it can suggest a way for an intervention with people suffering from schizotypal personality disorder.

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