

Working on dreams, from neuroscience to psychotherapy

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ABSTRACT

Within the current clinical practice, the debate on the use of dream is still very topical. In this article, the author suggests to address this question with a notable scientific and cultural openness that embraces either the psychoanalytic approach (classical, modern and intersubjective), and the neurophysiological assumptions and both clinical research and cognitive hypotheses. The utility of dream - in the clinical work with patients - is supported by the author with extensive bibliographic references and personal clinical insights, drawn from his experience as a psychotherapist. Results: From an analysis of recent literature on this topic, the dream assumes a very different function and position in the clinical practice: from 'via regia to the unconscious' of Freudian theories - an expression of repressed infantile wishes of libidinal or aggressive drive nature - it becomes the very fulcrum of the analysis, a fundamental capacity to be developed, a necessary and decisive element for the patient's transformation. The dream can also be used with the function of thinking and mentalization, of problem solving, of adaptation, as well as an indicator of the relationship with the therapist in the analytic dialogue or of dissociated aspects of the self. Finally, the author proposes a challenging reading of the clinical relevance of dream: through listening to the dream, the clinician can help the patient to *stand in the spaces* of his own self in a more open and fluid way and therefore to know himself better, to regulate his affects, to think and to integrate oneself.

*A dream which is not interpreted
is like a letter which is not read*
(Babylonian Talmud, tractate *Berakhòt*, folio 55a)

A man is shown [a dream] only from the thoughts of his heart
(Babylonian Talmud, tractate *Berakhòt*, folio 55b)

Key words: Dream; psychoanalysis; interpretation; clinical work.

Introduction

The debate on the use of dreams in current clinical practice is very topical. A reasonable contribution can

only be offered - in my opinion - by addressing the question with a notable scientific and cultural openness that embraces either the psychoanalytic approach (classical, modern and intersubjective), and the neurophysiological assumptions and both clinical research and the cognitive hypotheses. My contribution to the discussion includes the statement that the use of dreams is still relevant in the clinical practice of psychotherapists. I will support my statement with bibliographic references that refer to recent literature and personal clinical insights, drawn from my experience as a psychotherapist.

The neuroscientific complexity of dream

Up to the 1950s, researchers believed that sleep involved synchronous electroencephalographic activity, with high-voltage slow waves, and that its phases were considered more or less deep depending on the degree of synchronization of the EEG rhythms. From falling asleep to the phase of deep sleep, the EEG rhythms get gradually slower and more synchronous (Mancia, 2004). No-one seems to have pointed out the phase in man that paradoxically resembled waking, although it had already been observed in cats (Derbyshire *et al.*, 1936). In 1953, Aserinsky and Kleitman described this 'paradoxical'

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phase in children and in 1962 Jouvett investigated its neurophysiological features. This paradoxical sleep involved EEG desynchronization, rapid low-voltage electrical rhythms in the cortex and other characteristics: the complete loss of postural tone, rapid eye movements - which gives the phase its name, REM - ponto-geniculo-occipital (PGO) monophasic waves and neurovegetative upheavals with cardiac and respiratory arrhythmias, changes in blood pressure and the output of various hormones, especially thyroid and adrenal ones.

In 1900, Freud already teleologically assumed that the purpose of dreams was the discharge of accumulated psychophysiological 'energy' and, consequently, the return to a previous state of quiescence. The findings of neurophysiologic research of the 1950s supported the idea that the main purpose of the dream is 'informational' (rather than energetic). Dreaming allows an individual to sort, process, and store in memory the accumulated stimuli and information to promote a better adaptation to reality.

Therefore, sleep was no longer considered as a *passive* event as suggested by Bremer (1935), but an *active* and rhythmic process, characterized by the cyclical succession of various psychophysiological phenomena (electroencephalographic, oculographic, electromyographic, cardiac, *etc.*) that were strongly related to each other in specific phases of sleep: REM and non-REM (Aserinsky & Kleitman, 1953; Dement & Kleitman, 1957; see also Mancia, 2004, p. 525). In 1984, psychophysiological research has shown that in REM sleep the right hemisphere deals with geometric-spatial organization and activation of emotions and the left one remembers and tells the story (Bertini & Violani). The *activation-synthesis hypothesis* formulated by Hobson and McCarley, in 1977, assumed that the activation of pontine structures, which induces REM sleep, stimulates the brain from within, producing information that is projected onto the forebrain and limbic system and processed by these structures to recuperate the memory, construct the story and participate emotionally to the dream. Bio-imaging studies in humans have confirmed that during REM sleep there is activation of the pons, the amygdala bilaterally and the anterior cingulate cortex, and disactivation of the posterior cingulate cortex and the prefrontal cortex (Maquet *et al.*, 1996).

In 2000, Kaplan-Solms and Solms, have been able to counter the thesis of Hobson and McCarley (1977), through many studies of patients with brain lesions, demonstrating that dreams have a psychological function and not only a neurophysiological one. Furthermore, they suggested a dissociation between dreams and the various states of brain activation: a person dreams when the dopaminergic circuits in the ventromedial forebrain are activated. All this data was seen as a rematch for psychoanalysis (see also Domhoff, 2005).

In a relevant work, Walker and Stickgold (2014) briefly but fully illustrates the different functions that sleep has with respect to coding, to the consolidation and

reconsolidation of the various forms of memories - in particular, these of declarative memory and procedural memory (in its motor, visual-perceptive and auditory versions). I point out this work not only for its ability to bring together completeness and conciseness, but also for the context in which it is inserted: a book on *Neuroscience and Psychoanalysis* (Leo, 2014), a sign of the interest in this topic also in the neuropsychanalytic field.

According to the latest neuroscientific findings, it's possible to consider dreaming as 'a state of consciousness' occurring not only during REM sleep, but also during NREM sleep (Blundo, 2011), even if the features are different: NREM dreams are less vivid and less emotionally rich compared to REM dream (Castellet y Ballarà, 2018). Dreaming is the final result of the activation of complex neural networks in several cognitive areas responsible for attention, memory, language, sensorial perception and visual imagery (Braun *et al.*, 1997; Nofzinger *et al.*, 1997; Solms, 1997). These networks are active during sleep while dreaming as well as during awakening (Schwartz & Marquet, 2002), supporting Bion's suggestion of defining daydreaming a physiological aspect of awakening mental life (Bion, 1962, pp. 6-7). Neuroimaging techniques show that the limbic and paralimbic structures (especially the amygdala) are activated during REM sleep (Solms, 1995).

Motivation is also an important element in the dream genesis (Castellet y Ballarà, 2018), because Solms (2000) proved that neurological patients suffering from deep frontal ventromedial lesions - the centre of motivation in the prefrontal cortex - had complete absence of dreaming. As Castellet y Ballarà stated: 'Motivation and emotions (ventral prefrontal cortex and amygdala) are crucial to dream formation and, therefore, as analysts, we should pay focused attention to these elements of dreams in order to formulate transformative interpretation in our clinical setting' (Castellet y Ballarà, 2018, p. 130).

The investigation on how daily experiences enter into the world of dreams has been carried out by many researchers. By analysing 470 students' dreams, Nielsen and colleagues (2004) have described the double-time process by which daytime residue is incorporated into dreams: the *day-residue effect*, in which the main characteristics of a daily event pass directly into the dream and the *dream-lag effect*, in which the specific event comes into the dream about a week later. Nielsen e Stenstrom (2005) have suggested that the dream proposes a sort of subjective 'here and now', which produces a coherent and continuous narrative. Therefore, the present seems to be the time of the dream that unfolds through the incorporation of the day residues (Spagnolo, 2018a).

In an experiment, Hartman and Brezler (2008) discovered that the dreams of people who had recently experienced traumatic events use to record the emotional state of being afraid, of being attacked, of being a potential victim of violence in images of various kind, but not in explicit images of what had been directly seen. That means

that there is a strong continuity between the emotions from waking life and what comes up during the dream, going through the stages of mind wandering and day-dreaming. Therefore, these emotionally charged waking thoughts are not portrayed and embodied in the dream following the linear law of a figurative copy of reality, but still keeping the same emotional intensity of the original (Spagnolo, 2018a).

Compliant copy dreams of episodic memory can be found in highly traumatic situations charged with negative emotions (especially in subject showing symptoms of PTSD) as well as in those situations affected with positive emotions, such as desire (in particular, the desire for drugs). 'Drugs dreams' (Colace, 2014) have a very simple content that usually refers to what is experimented during waking life. They lack of bizarre elements or any covering up of the satisfaction of the desire and the subject has an active role in its drug search. The emotions attached to these dreams are generally those of pleasure and relief due to the use of substance (*ibid.*). Given the direct movement of the waking thought into dream, it is possible to access useful information about any changes taking place in the course of psychotherapy. For example, the work of Cartwright *et al.* (1984) has shown that daily emotional concerns are represented in dreams in a different way when the patient's depression in remission, compared to those patients still experiencing symptoms. Patients who were not in remission showed lower capacity to link affects to memory and to experience emotions in their dreaming (*ibid.*). Therefore, those patients are not able to use dream to regulate ('digest' and transform, according to Bion, 1962) affects, which remained in mood excitation (Spagnolo, 2018b).

As Spagnolo noted: 'The current interweaving of these three disciplines - psychoanalysis, neuroanatomy/physiology, and neuropsychology - does describe the dream in the three dimensions that contribute to its production; in other words, the subjective dimension, the process, and the scaffolding that holds it' (Spagnolo, 2018a, p. 3). The daytime residue (emotions, thoughts and concerns) are incorporated into the dream and - through interactive processes among cerebral structures - they get rid of some elements (sensory de-afferentation and inhibition of the executive functions) and enriched by others; they create new links from memory fragment (Payne & Nadel, 2004; Schredl, 2010) and speaks in the present while recruiting old memories and, in the end, they generate new scenarios impossible to recognise when remembering the dream. As if they were sensory experiences - findings that have been widely confirmed by neuroscience - those dream images can express our inner experience.

The psychotherapeutic complexity of dream

In *The Interpretation of Dreams* (1900), Freud assumed that the primary purpose of dreams is to preserve sleep; it's secondary function is to permit the gratification of primi-

tive, repressed, infantile wishes of a libidinal or aggressive drive nature, which push to emerge from the unconscious, although they are unacceptable to our conscious mind. For this reason, he suggested that such wishes are repressed during waking life. The result of this complex interplay of forces and defensive mechanisms is the manifest content of the dream, but the most important meaning of the dream is hidden within the latent content. The 'royal road' to reach the latent content are free associations ('*Via regia* to the unconscious', according to Sigmund Freud).

Entering now into the contemporary psychoanalytic world, it is not difficult to demonstrate - by looking at the recent literature on the topic - the interest and still current use of dreams in the clinical practice of psychoanalysts: 'Over 19,000 articles in the Psychoanalytic Electronic Publishing archive make reference to dreams [...]' (Leuzinger-Bohleber & Fonagy, 2012, p. XXIV). Apart from this general affirmation, I point out more specifically how this interest is extended to the whole variegated psychoanalytic family. In fact, the more classical and orthodox psychoanalysts still deal with the interpretation of dreams (see Fonagy *et al.*, 2012; Musella & Trapanese, 2019), with even complex and original variations, as well as with openings towards its use in understanding of countertransference and of the analytic couple at work (Jiménez, 2012), in psychoanalytic therapy of the couple and of the family (Lucarelli, 2015; Nicolò, 2014) and in child analysis (Rustin, 2012). Also lacanian-oriented psychoanalysts (Bottone, 2019) and psychoanalysts - as already mentioned before - open to Neuropsychanalysis (Castellet y Ballarà, 2018; Spagnolo, 2018b) deal with the significance of dreams. The same interest and reflection on their clinical use is found in Self psychology and intersubjective psychoanalysts (Fosshage, 2007; Lichtenberg *et al.*, 1996) and in relational psychoanalysts (Blechner¹, 2018; Bromberg, 2006). The 'French school' (Danon-Boileau & Tamet, 2016) also inserts the dream among the main items of a contemporary psychoanalytic glossary. In some authors who are widely read, known and respected internationally (*e.g.*, Ferro, 2019; Ogden, 2004), whom we could define as post-bionian, the theory of dreams has changed and has greatly expanded compared to Freudian theories. Ogden (2004) distinguishes the 'undreamable dreams' - manifestations of psychotic and psychically foreclosed aspects of the personality - from the 'interrupted dreams', which are understood as reflections of neurotic and other non-psychotic parts of the personality. According to the author, 'The analyst's task is to generate conditions that may allow the analysand - with the analyst's participation - to dream the patient's previously undreamable and interrupted dreams' (2004, p. 857). In the process of this conjoint work of dreaming in the analytic setting,

¹ Blechner is a training analyst and supervisor at the William Alanson White Institute, and a professor and supervisor at New York University. Less famous than Bromberg, however, he is also representative of the relational school, if only for the position he occupies.

the analyst should get to know the analysand sufficiently well in order to be able to say something that is true about what is occurring at an unconscious level in the analytic relationship. The analyst's use of language contributes significantly to the possibility that the patient may be able to use what the analyst has said for purposes of dreaming his own experience, thereby dreaming himself more fully into existence.

From 'via regia to the unconscious' - an expression of repressed infantile wishes of a libidinal or aggressive drive nature, which push to emerge into consciousness, disguised by a complex interplay of forces and defensive mechanisms - the dream assumes a very different function and position in clinical work: it becomes the very fulcrum of the analysis, a fundamental capacity to be developed, a necessary and decisive element for the patient's transformation. In summary never forgotten, but rather vivified, re-actualized, adjusted, expanded, the dream maintains its very important position and function in the complex, articulated and differentiated psychoanalytic world. As Nicolò noted: 'The dream not only links the information of the past with that of the present, but also links the dreamer who has dreamed with the dreamer who tells and the analyst who listens' (2019, p. 579).

With respect to clinical cognitivism (that is not the core of this article), in my professional experience as a teacher in various specialization schools that follow this orientation, and analysing the literature in this regard, I would say that the theoretical interest and clinical use of dreams depends very much on the specific model that is followed. Cognitivists, like psychoanalysts, are also a variegated family that can diverge a lot from the branches they have taken (classical and standard cognitivism, modern clinical cognitivism, cognitive-behavioural cognitivism, evolutionary cognitivism, post-rationalists, *etc.*). Very briefly, the clinical use of dreams in the cognitive model cannot be excluded, but it is understandable how the use of dreams is more coherently congruent with the models that use the concepts of representations, metaphors, personal constructs and Self, or that admit that goals and beliefs may also be partly unconscious (for a more in-depth examination of the literature on the subject, see: Hill & Knox, 2010; Skrzyńska & Szmigielska, 2018). Models that refer more to standard cognitivism or minimize the unconscious part of the personality and the defensive mechanisms that determine it, do without it, but other cognitivist orientations may be very interested in carrying out serious and complex research on dreams and arriving at formulating original theories (Hill & Knox, 2010; Skrzyńska & Szmigielska, 2018).

Conclusion: A clinical proposal that combines those two complexities

To complete my notes, I propose (as the most suitable approach to the use of dreams) to try to keep co-present -

even if it is hard work - the different levels that we have talked about. Knowing well that for an orthodox psychoanalyst it would make no sense to use the dream in a session, if not through the work that allows to reveal the libidinal or aggressive 'repressed', but why not also grasp all the other, various, possible readings? My proposal does not derive from a generic eclectic position, but from the attempt to use at different levels a complex and layered material *per se* (Weinstein & Ellman, 2012), which requires - precisely because of its layered and multidimensional nature - an approach that changes the relationship between theory and practice in the interpretation of dreams (Ellman & Weinstein, 2012; Jiménez, 2012). It seems to me that the dream is a main product resulting from the different functioning modes of the mind (also recalling Bucci's model) - all important and necessary, non-inferior or superior - a different way of processing internal and external information, sub-symbolic and symbolic (non-verbal and verbal) at different levels (Bucci, 1997), very useful for helping our patients to integrate themselves (Perrella, Del Villano, & Caviglia 2016). *Via regia* to reach, integrate and verbalize the different unconscious (or - better - unconscious levels, Sapisochin, 2019) that the contemporary psychoanalysis² and the cognitive science seems to discover in these last years (Legrenzi & Umiltà, 2018). If it's true - as psychotherapy research and dream research indicate - that the functions of the dream are different and involve both sub-symbolic and pre-symbolic internal languages, as well as non-verbal imaginative symbolic and verbal symbolic ones (Fonagy *et al.*, 2012; Bromberg, 2000; Bucci, 1997), my proposal is to integrate this physiological and psychic complexity within the clinical work. In the use and interpretation of dreams, the psychotherapist should therefore try to bring to awareness and share psychic processes that are not yet mentalized, experienced as mental, rather than physical or imaginific or perceptual phenomena. Psychotherapeutic work with dreams should lead the patient - within and with the help of the analytic couple - from pre-symbolic stage and preconscious thoughts to the verbal symbolization of aspects of the Self, early objects relationships that have never been symbolized before, memories interpersonal procedural, transference aspects and countertransference information, narcissistic injuries and a form of self-regulation and problem solving (Ellman, 2010; Nicolò, 2014; Scharff & Scharff, 2011). Using the dream, therefore, no longer only as a disguised expression of a repressed infantile wish, but also with the function of thinking and mentalization, of problem solving, of adaptation, homeostatic guardian of the Self, regulator of affects, indicator of the relationship with the therapist in the analytic dialogue or of dissociated aspects of the self.

² I just want to point out that the title of the last 'XIX National Congress of the Italian Psychoanalytic Society' (S.P.I.) was: *Inconscio/Inconsci* (Unconscious sing./Unconscious pl.). Online 4-7 February 2021.

With regard to the traumatic aspects, recent studies show us the importance of the dream, both for the psychopathological aspect and for the psychotherapeutic one (Leuzinger-Bohleber, 2012; Varvin *et al.*, 2012).

The proposal and the challenge would be to be able to usefully treat it in all these aspects, which arise from time to time. Sometimes it is a pity (from the clinical and developmental point of view of the patient) to lose the repressed infantile instinctual level represented in the dream; at other times, losing a dissociated aspect of the Self or Unformulated Experiences (Stern, 2010); at other times still losing the reflections/solutions/unexpected openings made in/from the dream on current or past problems. That is, it would be useful to treat all of them as possible aspects of mentalization and integration. It could be difficult to always realize it as a precise and punctual purpose; but one should at least try to stay at the level of regression and communication (Sapisochin, 2019) of the patient where he - and his dream - lead us from time to time, by dreams, free associations, enactment. Therefore, I would not make a distinction between a 'deep' and a 'superficial' level in the dream, but I would try to grasp its sub-symbolic, symbolic and metaphorical aspects (Caviglia, 2006), both representational and dissociated, both explicit and hidden, both verbal and non verbal. It will always be clinically useful to help the patient, through listening to the dream, to *stand in the spaces* (Bromberg, 1998) of his own self in a more open and fluid way, to maintain a flexible relationship between the states of the self, to know himself, to regulate his emotions, to defend less, to integrate oneself, to think. As Bromberg once said: '[...] when a patient brings in a dream, the analytic task is to enable him or her to 'bring in the dreamer' (2000, p. 694) by leading him deeper and deeper into the affect of his or her dream experience. In this way, the self-state of 'the dreamer' affectively enters the session through enactment.

I conclude by reporting a dream told to me during a psychotherapy. A young patient, returning from a trip to the Holy Land, tells her therapist: 'Last night I dreamed of Jerusalem...'. Aware of Freud's indications, instead of making free subjective associations on the dream image (the Holy Sepulchre? The Western Wall? The Dome of the Rock? Mysticism? Resurrection?), I ask the patient: 'What does it bring to your mind?'. 'My family - replies the patient - is sometimes a very beautiful place, but where there is war and you can't see it. Where there can be an explosion or a sudden stab, which tears this beauty apart'. According to my proposal, it has been useful - through this dream - working on: i) repressed infantile wishes of aggressive drive nature (explosion and stabbing); ii) early objects relationships that have never been symbolized before (the family atmosphere); iii) aspects of the Self and of the object not verbalized yet (insecure sense of Self and not empathic objects relations); iv) information about transfert and countertransference (how the patient was feeling with me during the psychotherapy - dangerous at times - and aspects of my

religious belonging); v) physiological sub-symbolic level (emotions of fear and insecurity not clearly distinguished by the patient); vi) non-verbal imaginative symbolic level (representations of beautiful, familiar and wished places that are not safe); vii) verbal symbolic level communication (the patient is able to contact her deeper emotions and thoughts - unknown and hidden until that moment - and finally verbalize them in a way that has never been so clear); viii) interpersonal unconscious processes (a part of the patient's family had medio-oriental ancestry that have never been really told); ix) form of self-regulation and problem solving (the patient was living a moment of greater understanding and acceptance of his family dynamics and a way of physically separating himself from the familiar nucleus of origin). Starting from one of the points illustrated, we were then able to work on the other points during that session, guided by the patient's other associations, the transference moment, my countertransference, the existential and historical moment that the patient was going through.

Only through dreams do unexpected 'thoughts of the heart' of each of us show themselves, in such an exhaustive and condensed way, letters that it would be a pity not to read at every level, from any address of the mind they may come.

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