USE OF FUZZY COGNITIVE MAPS IN CLINICAL SUPERVISION IN PSYCHOTHERAPY

UTILIZACIÓN DE MAPAS COGNITIVOS BORROSOS EN SUPERVISIÓN CLÍNICA EN PSICOTERAPIA

Luis Ángel Saúl
ORCID: https://orcid.org/0000-0002-6351-8283
Facultad de Psicología. Universidad Nacional de Educación a Distancia (UNED). Madrid, España

Luis Botella
ORCID: https://orcid.org/0000-0003-3794-5967
FPCEE Blanquerna, Universidad Ramón Llull. Barcelona, España

Alejandro Sanfeliciano
ORCID: https://orcid.org/0000-0002-7300-7671
Facultad de Psicología. Universidad Nacional de Educación a Distancia (UNED). Madrid, España

This article was published in Spanish. This is the English version.
Link to the Spanish version: (https://doi.org/10.5944/rdp.v34i126.38710).

Cómo referenciar este artículo/How to reference this article:

Saúl, L. A., Botella, L. y Sanfeliciano, A. (2023). Utilización de mapas cognitivos borrosos en supervisión clínica en psicoterapia [Use of Fuzzy Cognitive Maps in Clinical Supervision in Psychotherapy]. *Revista de Psicoterapia, 34*(126), 133-148. https://doi.org/10.5944/rdp.v34i126.38710

ISSN: 1130-5142 (Print) –2339-7950 (Online)

Received: September 15, 2023. Accepted: October 6, 2023.

Correspondence:
E-mail: lasaul@psi.uned.es
Postal address: Luis Ángel Saúl. Facultad de Psicología (UNED). C/ Juan del Rosal 10, 28002 Madrid, Spain

Abstract

The present article focuses on the usefulness of Fuzzy Cognitive Maps as a tool for clinical supervision in the field of psychotherapy. These maps constitute a versatile tool that facilitates the conceptualisation of clinical cases from two complementary perspectives: nomothetic and idiographic. From the nomothetic perspective, Fuzzy Cognitive Maps are used to order and organise the experience constructed by the client during the therapeutic dialogue. This is accomplished by creating a complex system map that incorporates technical terms and clinical concepts from the fields of psychopathology, assessment and treatment. This third-person representation allows for a deeper, more structured theoretical understanding of the clinical situation, fostering collaboration between supervisor and supervisee. From the idiographic perspective, a first-person approach is employed that captures the patient's Personal Meaning System, as well as their interaction dynamics. This helps both the therapist and the supervisor to understand how the problem is constructed from the client's point of view, using the client's own terms. When combined with the third-person map, it enriches and complements the overall picture, providing a more comprehensive overview of the clinical dynamics.

The use of Fuzzy Cognitive Maps in clinical supervision is guided by a strict protocol, which facilitates effective communication between the supervisor and the supervisee. Moreover, it promotes collaboration during the generation of explanatory hypotheses for moments of both change and stagnation in the therapeutic process. The methodology also enables constant case monitoring, which provides a better understanding of the dynamics that influence the client's therapeutic evolution.

In short, we present a supervision proposal based on a constructivist, collaborative, client-centred, integrative and transdiagnostic perspective, characterised by a high degree of theoretical coherence, technical eclecticism, methodological sophistication and technological support.

Keywords: *psychotherapy, supervision, fuzzy cognitive map, case formulation, nomothetic, idiographic, monitoring, transdiagnostic, technology support*

Resumen

El presente artículo se enfoca en la utilidad de los Mapas Cognitivos Borrosos como herramienta para la supervisión clínica en el ámbito de la psicoterapia. Estos mapas representan una herramienta versátil que facilita la conceptualización de casos clínicos desde dos perspectivas complementarias: la nomotética y la idiográfica. Desde la perspectiva nomotética, se utilizan los Mapas Cognitivos Borrosos para ordenar y organizar la experiencia que el cliente elabora en el diálogo terapéutico. Esto se logra mediante la creación de un mapa de sistema complejo que incorpora términos técnicos y conceptos clínicos de los campos de la psicopatología, la evaluación y el tratamiento. Esta representación en tercera persona permite una comprensión teórica, más profunda y estructurada de la situación clínica, fomentando la colaboración entre el supervisor y el supervisando. Desde la perspectiva idiográfica, se emplea una aproximación en primera persona que recoge el Sistema de Significados Personales del paciente, así como sus dinámicas de interacción. Lo que ayuda tanto al terapeuta, como al supervisor, a entender la construcción del problema desde la visión del cliente utilizando sus propios términos. Al combinarse con el mapa en tercera persona, se enriquece y complementa el panorama general, permitiendo una visión más completa de la dinámica clínica.

El proceso de utilización de los Mapas Cognitivos Borrosos en la supervisión clínica está altamente protocolizado, lo que facilita la comunicación efectiva entre el supervisor y el supervisando. Además, promueve la colaboración en la generación de hipótesis explicativas tanto para los momentos de cambio como de estancamiento en el proceso terapéutico. Esta metodología también posibilita la monitorización constante del caso, lo que aporta una mayor comprensión de las dinámicas que influyen en la evolución terapéutica.

En definitiva, se presenta una propuesta de supervisión desde una perspectiva constructivista, colaborativa y centrada en el cliente, integradora y transdiagnóstica caracterizada a la vez por una elevada coherencia teórica, eclecticismo técnico, sofisticación metodológica y apoyo tecnológico.

Palabras clave: *psicoterapia, supervisión, mapa cognitivo borroso, formulación de caso, nomotético, idiográfico, monitorización, transdiagnóstico, apoyo tecnológico*

Clinical supervision in psychotherapy is a key process in which therapist and supervisor work together to analyse and reflect upon the formulation of the case and the therapeutic process (González-Grignardello, 2016). Wampold and Imel (2021) argue that it is necessary to understand why certain phenomena occur during psychotherapy and how these phenomena may change or evolve, a process that requires a deep understanding of therapeutic processes and the factors that contribute to their efficacy. To enable a more thorough analysis, it is therefore necessary to work with formulations based on both nomothetics, which takes into account the different factors that intervene in all therapeutic processes, and idiography, which reflects the individual process and experience of the specific client in question and how they construct and view their world. The nomothetic perspective can provide insight into the case based on evidence linked to the psychological factors or principles that facilitate or hamper therapeutic change. For its part, the idiographic approach can shed light on the unique aspects of a specific individual by identifying their particular Personal Meaning System (PMS).

All this requires a merging of psychological theory and principles with the client's thoughts, feelings and meanings in an ongoing, collaborative process that seeks to 'make sense' of the information gathered during therapy and supervision (González-Grignardello, 2016), for which purpose Matthews and Treacher (2004) propose the use of co-constructive methods. From a constructivist approach, supervision implies the joint creation of a narrative that takes into account the meaning that all three stakeholders (patient, supervisee and supervisor) have attached to the patient's story (Bob, 1999). Wampold and Imel (2021) also propose including the patient's perspective.

Given the importance of helping to identify possible alternative intervention pathways or ways of moving forward during difficult periods or moments of stagnation, some authors recommend the use of **methodologies oriented towards the *discovery* of processes and dynamics** (see, for example, Eells, 2007; Stiles, 2001). In this sense, González-Grignardello (2016) proposes the use of concept maps that reflect the different elements that define the case. This author demonstrates how this type of map is ideal for developing and graphically representing the formulation of cases and is a widely-used collaborative tool in the process of clinical supervision.

The present study proposes the use of graphic maps as part of the clinical supervision process, as a means of facilitating collaboration between therapist and supervisor during the analysis, reformulation and monitoring of a clinical case. Representing the structure of a system is something that has been done for many years in the fields of psychology and education. Indeed, concept maps were first developed back in 1972 by Joseph D. Novak and his team at Cornell (see Novak & Musonda, 1991). Although this type of map can be used to represent causal relationships, our proposal focuses on the use of Fuzzy Cognitive Maps (FCMs, Kosko, 1986) to enrich this concept by adding diffuse variables that enable intermediate values between two extreme options or undefined positions, since this

is much more in keeping with the model of human thinking. The fuzzy logic of Kosko's FCMs uses Zadeh's theory of fuzzy sets (1965) to represent and analyse the causality of mental models. This combination enables a more precise and detailed representation of mental models and other complex systems, since it is able to deal with the uncertainty and vagueness inherent to these systems (Botella, 2007; Vera-Mora et al., 2018). Moreover, the distinct contribution made by FCMs, as a specific type of concept map, makes them particularly useful for modelling the dynamics of human systems.

In FCMs, nodes represent concepts and edges represent cause-effect relationships between these concepts. Fuzzy logic enables you to represent causality in the presence of vagueness using fuzzy graphs (see Botella, 2023 for a more comprehensive description). The numerical value assigned to the edges indicates the degree to which the person drawing the map believes the connected nodes to be causally linked; the direction of causality is indicated by an arrow. Normal practice is to assign a value of +1 when one node (the *driver* concept) causally *increases* the other node to which it is connected (the *receiver* concept) and a value of -1 when it *decreases* it. Since the map is a FCM, it would be perfectly acceptable to assign an intermediate value [i.e., a value of between +1 and -1] to a causal edge, although due to the complexity and linguistic nature of the systems generally being mapped, it is unusual to be able to quantify causality to such a precise degree.

In our proposal, FCMs are used to help order and organise the client's experience during the therapeutic dialogue. They do this by creating a map of a complex system that incorporates technical terms and clinical concepts from the fields of psychotherapy, assessment and treatment (or 'professional constructs' as George Kelly called them). This third-personal representation helps enable a deeper and more structured theoretical understanding of the clinical situation, fostering collaboration between supervisor and supervisee.

In the present study, we also lay the groundwork for developing a *first-person* case conceptualisation model, in which the therapist constructs a map based entirely on the client's own Personal Construct System that charts not the professional construction of their situation of stagnation, but rather their own personal theory/map/system. This helps both therapist and supervisor to understand how the client themselves constructs the problem using their own words. In combination with the third-person map, this technique enriches and complements the general panorama, enabling a more comprehensive overview of the clinical dynamics.

In sum, this paper explores the usefulness of Fuzzy Cognitive Maps in clinical supervision in psychotherapy, presenting a constructivist and collaborative client-centred proposal that is both integrative and transdiagnostic and facilitates collaboration between the therapist and their supervisor during the analysis, reformulation and monitoring of a clinical case. The implications of the proposal for clinical practice and future research in the field of psychotherapy and supervision will also be discussed. Due to space limitations, the procedure for using this type

of map is not outlined here, although it has been amply described in other works (reference will be made to them throughout the course of the paper).

Use of Nomothetic Maps in Supervision (Professional Constructs)

Fuzzy Cognitive Maps of the Formation and Resolution of Human Problems (FCM-FRHP) are designed for use in training and the resolution of the type of problems that generally prompt people to seek help from a psychotherapist (for a more detailed explanation, see Botella, 2007; for the factors involved in this type of problem, their components and the relationships between them, see Figure 1).

We propose the use of FCMs to understand the demands of the therapeutic processes and its planning, since these maps constitute a tool of considerable heuristic value (Botella, 2007).

From a nomothetic perspective, FCMs are used to order and organise the client's experience during the therapeutic dialogue. This is done by creating a map of a complex system that includes technical terms and clinical concepts from the fields of psychopathology, assessment and psychological treatment.

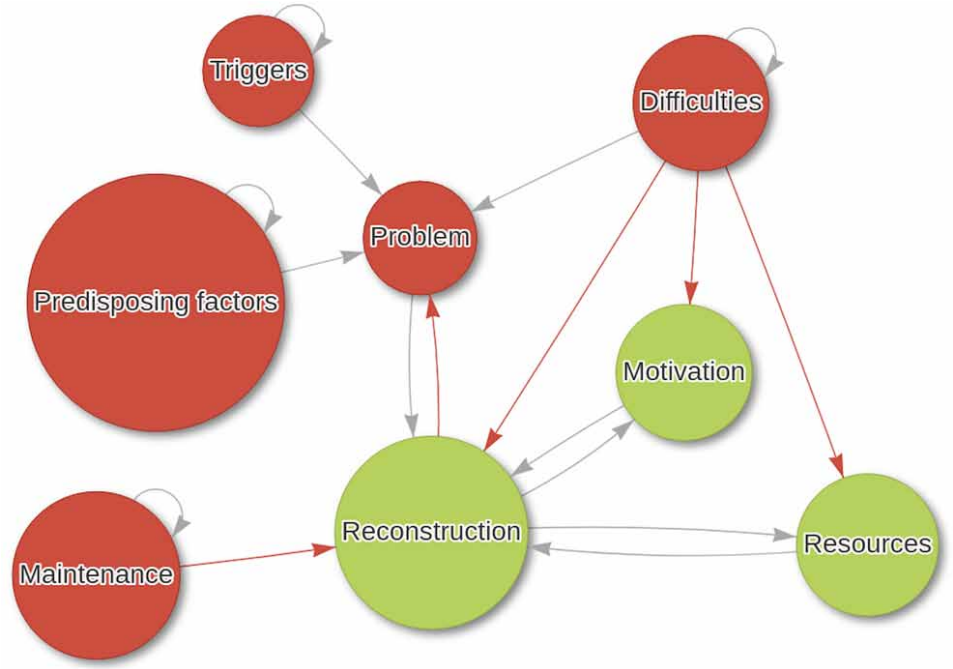
The map is constructed on the basis of research into therapeutic outcomes and processes; it integrates everything linked to selection techniques and is grounded in relational constructivist theory. It is, in short, inspired by the view of therapy as a Collaborative Reconstruction of Experience (Botella, 2007, 2020).

This third-personal representation helps enable a deeper and more structured theoretical understanding of the clinical situation, fostering collaboration between supervisor and supervisee during the supervision of clinical cases.

Despite the apparent complexity of FCMs, our strategy aims to keep the process as simple as possible by including only those causal relationships that have sound empirical and clinical support. The ultimate objective is to measure their usefulness as a therapeutic change simulation model and to assess their potential for use as a decision-making tool in clinical practice.

Figure 1

Relationships between FCM-FRHP Components



The case conceptualisation model presented here (see Botella, 2007; 2020; Botella et al., 2022; Saúl et al., 2022) is articulated as a Fuzzy Cognitive Map or FCM (see Kosko, 1986, described in more detail in this chapter, as well as in Botella, 2020 and Saúl et al., 2022) and comprises the following factors:

i. Problem. In the field of psychotherapy, a problem is a critical situation that prompts the demand for treatment and that, in general, is distressing for the patient and/or those around them. Problems prompting the demand for psychotherapy vary widely from case to case, ranging from physical symptoms and disorders to relational and existential issues, as well as all kinds of common psychopathologies.

ii. Predisposing factors. These are biographical, developmental and relational variables or processes that increase the likelihood of someone having a problem. The following are some of the most widely studied and compared: (1) insecure attachment styles; (2) dysfunctional family relations; (3) personal vulnerability; (4) internal self-validating models; and (5) submission to oppressive narratives.

iii. Triggers. The factors that trigger a problem are, in general, traumatic or critical events that activate processes of invalidation. Due to the heterogeneity of human problems, triggers can vary widely - even more than problems themselves, since humans tend to react with similar symptoms to different trigger factors.

iv. Maintenance factors. Maintenance factors are those that, once a problem

has been triggered, contribute to making it more difficult to resolve than to perpetuate. The following are some of the most widely researched maintenance factors (see Botella (2007; 2020; Botella et al., 2022): (1) position in relation to change: precontemplative or contemplative stage (Prochaska, 1999), or in other words, denial of the problem or lack of commitment to resolving it; (2) beliefs, constructs, narratives and incapacitating internal models; (3) egosyntonic problems, i.e., problems that, paradoxically, contribute to bestowing greater coherence on personal identity; and (4) the relational coherence of the position in which the problem places the client.

v. Reconstruction process. Due to the natural human capacity to resist and cope with adversity, the reconstruction process consists of self-correcting movements towards resolving and overcoming the problem that are activated in response to the manifestation of that problem. It is basically a process oriented towards achieving goals and targets using a variety of different strategies, including coping, overcoming, reconstructing and adapting, among others.

vi. Resources and competencies. The reconstruction process has a powerful ally in this field, namely all the capacities that the patient has gained as a result of their life experiences, personality and personal development, which can help counteract the invalidating effect of the problem. The following are some of the most widely researched maintenance factors (see Botella (2007; 2020; Botella et al., 2022): (1) exceptions to the problem; (2) competencies (skills); (3) beliefs, constructs and competent internal models; (4) support network; (5) secure attachment styles; (6) healthy family relations; and (7) resources in other areas, for example, the individual's professional, academic or social context.

vii. Motivation. This can also be a powerful ally in the reconstruction process, and its most widely-studied manifestations include: (1) position in relation to change: preparation, action or maintenance stage (to use the terms coined by Prochaska, 1999); (2) self-efficacy expectations; (3) previous positive therapeutic experiences; (4) clear and well-defined goals; and (5) self-assessed motivation.

viii. Difficulties. These are factors that block the reconstruction process through different pathways of inhibitory action. The following are some of the difficulties most commonly referred to in the literature (see Botella, 2007; 2020; Botella et al., 2022): (1) extreme gravity; (2) low or no motivation; (3) serious relational difficulties; (4) poor or no psychological mindset; and (5) nonspecific problem.

Table 1
Summary of FCM-FRHP Components

Problem: critical situation that prompts the demand for treatment and that, in general, is distressing for the patient and/or those around them.	
Predisposing factors: biographical, developmental and relational variables or processes that increase the likelihood of someone having a problem.	Insecure attachment styles.
	Dysfunctional family relations.
	Personal vulnerability.
	Internal self-validating models
	Submission to oppressive narratives.
Triggers: traumatic or critical events that activate processes of invalidation.	
Maintenance factors: those that, once a problem has been triggered, contribute to making it more difficult to resolve than to perpetuate.	Position in relation to change: pre-contemplative or contemplative stage
	Beliefs, constructs, narratives and incapacitating internal models.
	Egosyntonic problems.
	The relational coherence of the position in which the problem places the client.
Reconstruction process: self-correcting movements towards resolving and overcoming the problem that are activated in response to the manifestation of that problem.	
Resources and competencies: capacities that the patient has gained as a result of their life experiences, personality and personal development, which can help counteract the invalidating effect of the problem.	Exceptions to the problem.
	Competencies.
	Beliefs, constructs and competent internal models
	Support network.
	Secure attachment styles.
	Healthy family relations
	Resources in other areas (professional, academic, etc.).
Motivation	Position in relation to change: preparation, action or maintenance stage.
	Self-efficacy expectations.
	Previous positive therapeutic experiences.
	Clear and well-defined goals
Difficulties: factors that block the reconstruction process through different pathways of inhibitory action.	Extreme intensity.
	Low or no motivation.
	Serious relational difficulties.
	Poor or no psychological mindset.
	Nonspecific problem.

Using the Idiographic Map: PMS-FCM (Personal Constructs)

From an idiographic perspective, we propose a first-person approach that encompasses the patient's Personal Meaning System (PMS) and interaction dynamics. According to Meier (2003), idiographic information should be included in a rigorous fashion, rather than in the haphazard way in which it is often incorporated. One of the best developed theories for including the idiographic perspective in a patient evaluation and exploring their subjectivity is George Kelly's Personal Construct Theory (1955). The theory is based on the philosophical postulate known as cons-

tructive alternativism, which holds that the meaning we attribute to an experience is the result our own personal construction. Accordingly, reality is subject to various personal constructions, some of which are used by the individual, whereas others are not (for a more detailed explanation, see Botella and Feixas, 2008).

Kelly viewed humans as scientists who, through experience, build and modify their own individual accumulation of knowledge and hypotheses (or philosophy of life) in order to enable them to anticipate the results of their behaviour and other events. This personal philosophy is built through the formation of personal constructs, descriptive categories that we use to conceptualise the things that happen around us.

Alongside his theory, Kelly also developed an assessment tool called the Repertory Grid Technique (RGT; Kelly, 1955), which aims to reflect the way in which an individual makes sense of their experience using their own words. It is not a conventional test, but rather a kind of structured interview aimed at explicitly stating and analysing the constructs around which the individual in question organises their world (for a more detailed explanation, see Feixas and Cornejo, 1996). RGT has been used in over 3,000 scientific papers (López-González, 2016; Saúl et al., 2012) and has been shown to have enormous potential for exploring the 'inner universe' of the human mind. In the field of clinical psychology, RGT has proven particularly useful for exploring personal constructs and cognitive and relational aspects from this approach.

The Constructivist Research Group working at the UNED (Spanish National Distance Education University) (https://blogs.uned.es/gicuned/) has developed an innovative software program (Sanfeliciano & Saul, 2022) for analysing the structure and dynamics of PMSs. This approach is based on the study of inter-construct implications, in line with the theoretical perspective proposed by Hinkle in 1965. The result of this methodology is the generation of visual representations through the use of FCMs.

The software makes a significant contribution to the psychology of personal constructs, since it enables a deeper and more precise evaluation of the interrelationships that exist between the personal meanings that together make up an individual's PMS. It is based on the principles of Graph Theory (Wasserman & Faust, 2013), which is used to represent the intrinsic complexity of people's psychological structure.

The integration of Graph Theory enables a mathematical analysis that reflects the intricate network of connections that exist between the different elements of a PMS. This approach helps build mathematical models that enable a detailed study of these complex networks, including the centrality of the nodes, the general system structure, possible inconsistencies and underlying dynamics (Borgatti, 2005; Freeman et al., 1991). It also adds an additional layer of complexity and depth by using the principles of vector algebra and the developments proposed by Kosko (1986) in relation to FCMs. This combination enables the creation of scenarios of hypothetical change, thereby facilitating the construction of experimentation models

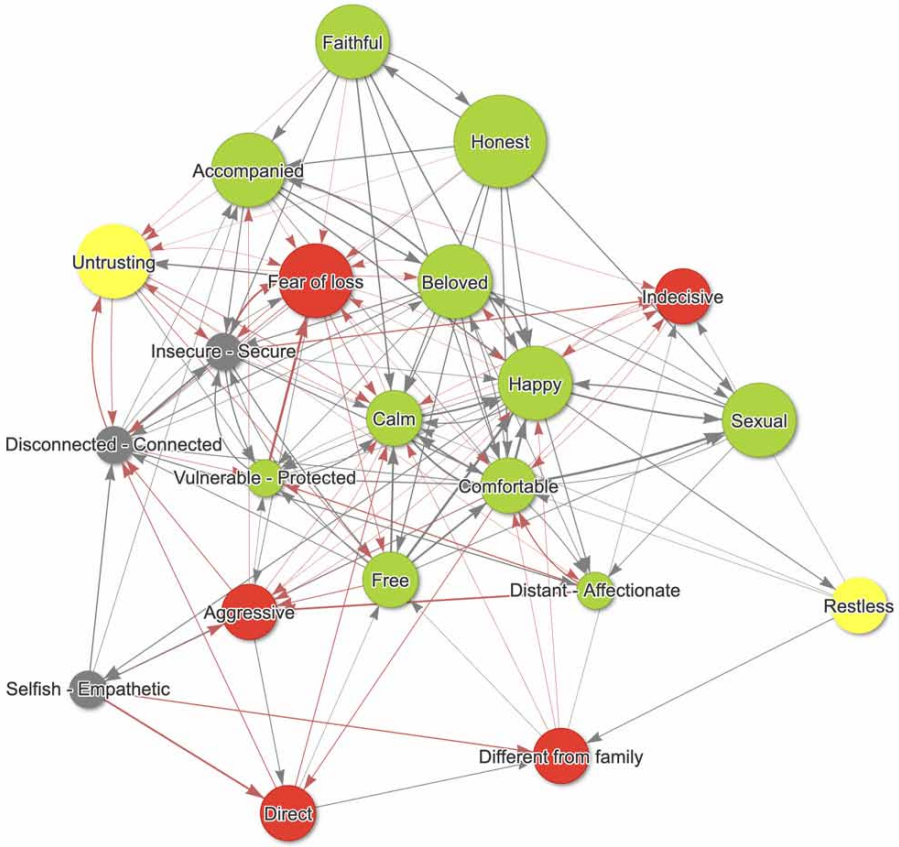
about the individual's world of meanings, which in turn enables practitioners to infer possible obstacles and strengths in the patient's desire for change.

For a detailed explanation of the methodology used for creating FCMs from PMS assessments, as well as the underlying mathematical principles involved in this process, see the paper by Saúl et al. (2022). The aforementioned software program will soon be available in a more accessible format through a website (https://psychlab.uned.es) that has been designed as a virtual laboratory. No advanced programming skills or knowledge of mathematics are required to use the program.

The use of FCMs has proven useful in the formulation of cases and has helped facilitate the process of change in psychotherapy (Botella et al., 2022). These maps enable the patient to play a more active role in the process of change, by giving them the power to change and making it easier for the psychotherapist to accompany them. As Botella points out (2021), FCMs contribute significantly to the therapeutic process by enabling both therapist and patient to build a dynamic PMS model that can then be used as a tool for (a) gaining a better, deeper and absolutely personal understanding of the patient's difficulties and resources; (b) planning their therapeutic aims as an alternative system (i.e., a significantly different yet not necessarily opposed system) and deciding how to move from one to the other with the help of the therapeutic process; (c) testing out hypothetical scenarios: ('what would happen if...?'), identifying risks, obstacles and possible difficulties, deciding how to deal with them, and adapting the pace of change to what the patient considers feasible; and (d) verifying whether the patient has achieved their goals once the therapy has been completed.

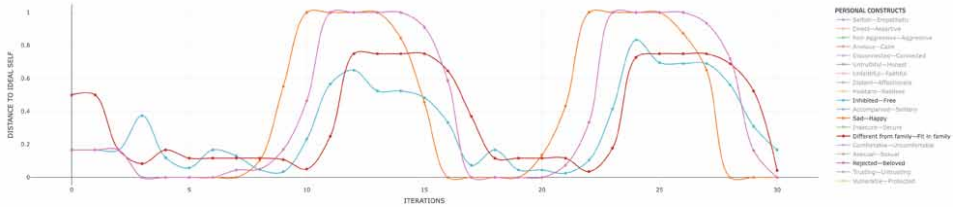
Figure 2 shows an example of a FCM that reflects a patient's PMS. Although each construct is a bipolar dimension, the name of the node reflects the pole that is active in that construct. Congruent constructs in which the subject feels comfortable are shown in green. Discrepant constructs in which the subject is at the active pole but would like to be at the opposite one are shown in red. Constructs in which the subject does not see themselves reflected at either pole are shown in grey and dilemmatic constructs in which they are unable to determine which pole would be best for them are shown in yellow. The edges show the causal attribution relationships that the patient establishes during the Implication Grid interview (Hinkle, 1965). During this assessment test, patients are asked what implications switching to the opposite pole from the one they defined themselves as being at in each construct would have for the rest of the system. The results of this interview help to establish the causal attribution relationships that exist within the PMS.

Figure 2
Example of a First-Person FCM of a Patient's PMS



Identifying the system of causal implications within the PMS enables the establishment of a dynamic system that reflects interaction dynamics and enables us to simulate evolution. The graph in Figure 3 shows a simulation of the evolution of the selected constructs, which enables us to explore dynamics and relational loops between them. The constructs nearer to the horizontal axis are closer to attaining their desired pole.

Figure 3
Example of the Evolution of some of the Constructs in a Patient's PMS



Using the same FCM, we can also identify conflictive circles that exemplify the dynamics of the system and provide insight into the loops that hamper psychological change. This type of circle can be analysed in both clinical and supervision sessions (see Figures 4 and 5).

Figure 4
Example of Conflictive Circles in a Patient's PMS

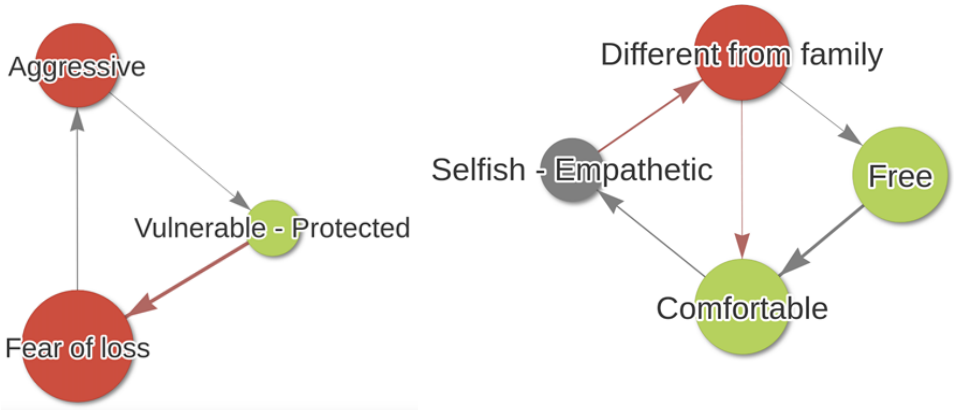
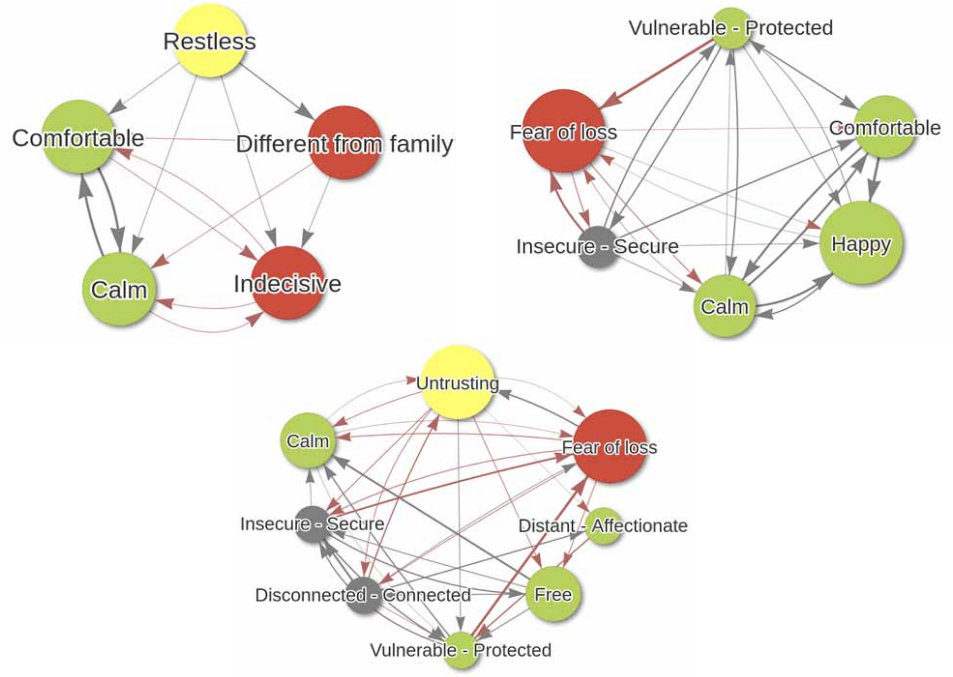


Figure 5
Cycles that Provide Insight into the Indetermination of the Subject under Assessment



Therapist-Supervisor Collaboration in the Development of Explanatory Hypotheses of the Dynamics of Change and Stagnation in the Therapeutic Process

A Fuzzy Cognitive Map of the factors that influence the patient's distress can facilitate the psychotherapy supervision process in a number of different ways.

First, it can provide conceptual clarity. A FCM offers a visual representation of the factors that contribute to the patient's distress. This helps therapists and supervisors to gain a clearer and more concise understanding of the complexity of the situation and identify key areas that require action.

Second, a FCM can also help identify patterns and relationships between different factors, thereby enabling therapists and supervisors to pinpoint tendencies and connections that may not otherwise be evident.

Third, a FCM can help both therapist and supervisor focus on therapeutic aims. Having a visual representation of the factors that contribute to the patient's distress enables therapists to focus on specific therapeutic aims, which in turn enables them to deal with these factors more effectively.

Fourth, a FCM can also facilitate effective communication, serving as a useful tool for the exchange of thoughts and opinions between the therapist and their supervisor. FCMs facilitate supervision by enabling a shared understanding and more effective collaboration during the supervisory process.

Fifth, FCMs enable assessment and follow-up. Throughout the therapy process, FCMs can serve as assessment and follow-up instruments, used to verify the patient's progress and adapt the therapeutic intervention as required.

Moreover, they also foster the integration of different therapeutic approaches. FCMs can help integrate different therapeutic approaches or multiple psychological theories by showing how the different factors are related and interconnected in the patient's experience.

Finally, in relation to clinical sessions with the patient rather than supervision, FCMs help foster validation and empowerment. Showing someone a visual map of the factors that contribute to their distress can help validate their experiences by showing them all the different influences involved. This can empower the patient to gain a better understanding of their situation and the therapeutic process.

In sum, the use of first-person FCMs helps both therapist and supervisor understand the construction of the problem from the patient's perspective and in their own words; this in turn helps make sure they are working with the same information regarding how the patient articulates their subjectivity.

Combining both types of map enriches and complements the general panorama of the case, enabling a more comprehensive overview of the clinical dynamics at play.

It is important to bear in mind that the creation and use of FCMs in therapy require specific skills and training. Moreover, it is vital to obtain the patient's consent before using this tool and to guarantee the confidentiality of the information gained through it. FCMs should be used as a complementary instrument in the therapeutic and supervision processes, alongside other approaches and clinical techniques.

Case Monitoring

Clinical supervision is essential in psychotherapy to guarantee the quality of the procedures and assess the therapeutic process. This process involves the systematic monitoring of the patient's progress throughout the treatment, an approach that is supported by evidence-based practice (Gimeno-Peón et al., 2018).

Patient monitoring and attention to feedback are recommendations stemming from basic research into the therapeutic process. Monitoring involves regularly measuring and tracing the progress made by the patient throughout the course of the treatment (Barkham et al., 2023; Gimeno-Peón et al., 2018; Lambert et al., 2018). Lambert et al. (2018) introduced the concept of patients not being 'on the right track' to refer to patients who are not following the expected recovery pathway and are therefore at risk of having a failed treatment - a fundamental factor that needs to be borne in mind at all times.

It is also important to highlight the fact that practicing therapists tend to overestimate the degree to which their patients improve and underestimate the degree to which they worsen. Indeed, Hannan et al. (2005) found that psychotherapists only correctly predicted negative treatment outcomes in one out of every 40 patients. A therapist who monitors the therapeutic process is more likely to notice a negative change in a patient and discuss how to improve the therapeutic encounter (Lambert & Shimokawa, 2011). Moreover, monitoring provides therapists with valuable information for helping patients who are stuck and show signs of worsening (Lucock et al., 2015), and helps supervisors analyse improvements or difficulties in the process of change.

In this context, the use of first-person Fuzzy Cognitive Maps (FCMs) helps therapist and patient identify shared therapeutic goals, enables said goals to be reviewed during supervision and facilitates the monitoring of the progress made towards them (Botella & Saúl, in press; Botella & Saúl, 2022). Once the therapeutic goals have been established, a simple way of assessing progress is to ask 'scale questions', a common technique in systemic therapy. Subjects are asked to rate their progress towards each of the agreed-upon therapeutic goals on a scale of 1 to 10. The resulting scores can be used to determine what is required for them to move up the scale, or in the case of very low scores, what can be done to stop them from dropping even further down.

The use of patient feedback in clinical supervision offers multiple benefits for both therapist and supervisor. Incorporating 'scale questions' helps align therapeutic goals and strengthens the therapist-patient relationship. In the context of clinical supervision, patient feedback enables therapists and supervisors to assess the patient's progress and adapt the therapeutic approach as required. This in turn helps ensure that the therapy provided is in line with the established goals and enhances the overall effectiveness of the treatment. Moreover, patient feedback can serve as a valuable tool for supervisors, providing insight into the therapist's performance and the areas in which they can improve.

Referencias

Barkham, M., Jong, K. D., Delgadillo, J. y Lutz, W. (2023). Routine Outcome Monitoring (ROM) and Feedback: Research Review and Recommendations [Monitoreo de resultados de rutina (ROM) y retroalimentación: revisión de investigaciones y recomendaciones]. *Psychotherapy Research*, *33*(7), 841–855. https://doi.org/10.1080/10503307.2023.2181114

Borgatti, S. P. (2005). Centrality and network flow [Centralidad y flujo de red]. *Social Networks, 27*(1), 55-71. https://doi.org/10.1016/j.socnet.2004.11.008.

Botella, L. (2007). Usos potenciales de la lógica borrosa. Aplicaciones de mapas cognitivos borrosos (MCBS) para el manejo de los casos clínicos en psicoterapia. *Revista Argentina de Clínica Psicológica*, *XVI*, 103–119. https://www.redalyc.org/pdf/2819/281921793001.pdf

Botella, L. (2020). *La construcción del cambio terapéutico. Terapia Constructivista Integradora en la Práctica Clínica.* Desclée De Brouwer.

Botella, L. (2021). La Cartografía de los Espacios Psicológicos: Aplicaciones Psicoterapéuticas de las Dinámicas Sistémicas de Mapas Cognitivos Borrosos de Constructos Personales. *Revista de Psicoterapia*, *32*(118), 237–252. https://doi.org/10.33898/rdp.v32i118.474

Botella, L., Barrado Mariscal, E., Sanfeliciano, A. y Saúl, L. A. (2022). Formulación de caso mediante Mapas Cognitivos Borrosos: Bases conceptuales y metodológicas y ejemplo de caso. *Revista de Psicoterapia, 33*(123), 79-110. https://doi.org/10.33898/rdp.v33i123.35946

Botella, L. y Feixas, G. (2008). *La teoría de los constructos personales: Aplicaciones a la práctica psicológica*. Laertres. https://www.researchgate.net/publication/31739972_Teoria_de_los_Constructos_Personales_aplicaciones_a_la_practica_psicologica

Botella, L. y Saúl, L. A. (en prensa). Explorando la Formulación de Caso con Mapas Cognitivos Borrosos: Conceptos, Métodos y Estudio de Caso en Primera y Tercera Persona. En A. Quiñones y C. Caro (Eds.), *Formulación de Caso: Hacia una Psicoterapia de precisión*. Editorial UNED.

Botella, L. y Feixas, G. (2008). *Teoría de los constructos personales. Aplicaciones a la práctica psicológica.* Laertes.

Botella, L. y Saúl, L. A. (2022). *Haciendo camino al andar: uso de Mapas Cognitivos Borrosos en Psicoterapia Constructivista* [Comunicación presentada en las Jornadas de la Asociación Española de Psicoterapias Constructivistas (ASEPCO)]. https://canal.uned.es/video/637c85a4b9130f4384603ab2

Bob, S. R. (1999). Narrative approaches to supervision and case formulation [Enfoques narrativos de supervisión y formulación de casos]. *Psychotherapy: Theory, Research, Practice, Training, 36*(2), 146-153. https://doi.org/10.1037/h0087641

Eells, T. D. (2007). Generating and generalizing knowledge about psychotherapy from pragmatic case studies [Generar y generalizar conocimientos sobre psicoterapia a partir de estudios de casos pragmáticos]. *Pragmatic Case Studies in Psychotherapy, 3*(1), 35-54. https://doi.org/10.14713/pcsp.v3i1.893

Feixas, G. y Cornejo, J. M. (1996). *Manual de la técnica de rejilla mediante el programa RECORD V. 2.0*. Paidós.

Freeman, L. C., Borgatti, S. P. y White, D. R. (1991). Centrality in valued graphs: a measure of betweenness based on network flow [Centralidad en gráficos valorados: una medida de intermediación basada en el flujo de la red]. *Social Networks, 13*, 141-154. https://doi.org/10.1016/0378-8733(91)90017-N

Gimeno-Peón, A., Gijón, P., Barrio-Nespereira, A., Asturias, S., Prado-Abril, J. y Salud-Osasunbidea, S. N. (2018). Monitorización sistemática y feedback en psicoterapia. *Papeles Del Psicólogo - Psychologist Papers*, *39*(3). https://doi.org/10.23923/pap.psicol2018.2872

González-Brignardello, M. P. (2016). La formulación de caso en supervisión clínica: proceso colaborativo apoyado por mapas conceptuales. *Revista de Psicoterapia*, *27*(104), 101–118. https://doi.org/10.33898/rdp.v27i104.121

Hannan, C., Lambert, M. J., Harmon, C., Nielsen, S. L., Smart, D. W., Shimokawa, K. y Sutton, S. W. (2005). A lab test and algorithms for identifying clients at risk for treatment failure [Una prueba de laboratorio y algoritmos para identificar clientes en riesgo de fracaso del tratamiento]. *Journal of Clinical Psychology*, *61*(2), 155-163. https://doi.org/10.1002/jclp.20108

Hinkle, D. N. (1965). *The change of personal constructs from the viewpoint of a theory of construct implications*. [Tesis doctoral, The Ohio State University].

Kelly, G. A. (1955). *The psychology of personal constructs* [*Psicología de los constructos personales*] (Vol. 1 y 2). Norton.

Kosko, B. (1986). Fuzzy Cognitive Maps [Mapas cognitivos difusos]. International *Journal of Man-Machine Studies, 24*(1), 65-75. https://doi.org/10.1016/S0020-7373(86)80040-2

Lambert, M. J. y Shimokawa, K. (2011). Collecting client feedback [Recopilar comentarios de los clientes]. *Psychotherapy*, *48*(1), 72-79. https://doi.org/10.1037/a0022238

Lambert, M. J., Whipple, J. L. y Kleinstäuber, M. (2018). Collecting and delivering progress feedback: A meta-analysis of routine outcome monitoring [Recopilación y entrega de comentarios sobre el progreso: un metanálisis del seguimiento de resultados de rutina]. *Psychotherapy, 55*(4), 520–537. https://doi.org/10.1037/pst0000167

López-González, M. Á. (2016). *Evaluación de la actividad científica de la técnica psicológica de rejilla a través de indicadores bibliométricos* [Tesis Doctoral, Universidad Nacional de Educación a Distancia (UNED)] https://www.educacion.gob.es/teseo/mostrarRef.do?ref=1500537

Lucock, M., Halstead, J., Leach, C., Barkham, M., Tucker, S., Randal, C., Middleton, J., Khan, W., Catlow, H., Waters, E. y Saxon, D. (2015). A mixed-method investigation of patient monitoring and enhanced feedback in routine practice: Barriers and facilitators [Una investigación de métodos mixtos sobre el seguimiento de los pacientes y la retroalimentación mejorada en la práctica habitual: barreras y facilitadores]. *Psychotherapy Research*, *25*(6), 633-646. https://doi.org/10.1080/10503307.2015.1051163

Matthews, S. y Treacher, A. (2004). Therapy models and supervision in clinical psychology [Modelos de terapia y supervisión en psicología clínica]. En I. Fleming y L. Steen (Eds.), *Supervision and Clinical Psychology: Theory, Practice and Perspectives* (pp. 187-210). Routledge.

Meier, S. T. (2003). *Bridging case conceptualization, assessment, and intervention* [*Uniendo la conceptualización, evaluación e intervención de casos*]. Sage.

Novak, J. D. y Musonda, D. (1991). A twelve-year longitudinal study of science concept learning [Estudio longitudinal de doce años sobre el aprendizaje de conceptos científicos]. *American Educational Research Journal, 28*(1), 117-153. https://doi.org/10.3102%2F00028312028001117

Sanfeliciano, A. y Saúl, L. A. (2022). *GridFCM: A tool for creating fuzzy cognitive maps* [*GridFCM: una herramienta para crear mapas cognitivos difusos*] *(0.1.0-alpha)*. Zenodo. https://doi.org/10.5281/zenodo.6476591

Prochaska, J. O. (1999). How do people change, and how can we change to help many more people? [¿Cómo cambian las personas y cómo podemos cambiar para ayudar a muchas más personas?]. En M. A. Hubble, B. L. Duncan y S. D. Miller (Eds.), *The heart and soul of change: What works in therapy* (pp. 227–255). American Psychological Association. https://doi.org/10.1037/11132-007

Saúl, L. A., López-González, M. A., Moreno-Pulido, A., Corbella, S., Compañ, V. y Feixas, G. (2012). Bibliometric review of the Repertory Grid Technique: 1998-2007 [Revisión bibliométrica de la Técnica de Cuadrícula de Repertorio: 1998-2007]. *Journal of Constructivist Psychology, 25*, 112-131. https://doi.org/10.1080/10720537.2012.651065

Saúl, L. A., Sanfeliciano, A., Botella, L., Perea, R. y Gonzalez-Puerto, J. A. (2022). Fuzzy Cognitive Maps as a tool for identifying cognitive conflicts that hinder the adoption of healthy habits [Mapas Cognitivos Difusos como herramienta para identificar conflictos cognitivos que dificultan la adopción de hábitos saludables]. *International Journal of Environmental Research and Public Health, 19*(3). https://doi.org/10.3390/ijerph19031411

Stiles, W. B. (2001). Assimilation of problematic experiences [Asimilación de experiencias problemáticas]. *Psychotherapy: Theory, Research, Practice, Training, 38*(4), 462-465. https://doi.org/10.1037/0033-3204.38.4.462

Vera-Mora, G., Leyva-Vásquez, M., León-Acurio, J. y Botto-Tobar, M. (2018). Mapas cognitivos borrosos para el análisis de modelos mentales. *Espacios, 39*(15). https://www.revistaespacios.com/a18v39n15/a18v39n15p22.pdf

Wampold, B. e Imel, Z. (2021). *El gran debate de la psicoterapia*. Eleftheria.

Wasserman, S. y Faust, K. (2013). *Análisis de redes sociales. Métodos y aplicaciones* (Vol.10). CIS-Centro de Investigaciones Sociológicas.

Zadeh, L. A. (1965). Fuzzy sets [Conjuntos borrosos]. *Information and Control, 8*(3), 338-353. https://doi.org/10.1016/S0019-9958(65)90241-X