Hospital Psychology Services: Representations of structural and functional changes

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Abstract

This study explores the evolution of Hospital Psychology Services (HPS) over the past decade, analyzing how professionals represent structural, functional, and managerial changes. Grounded in Semiotic-Cultural Psychology Theory (SCPT), the research employs Automated Co-occurrence Analysis for Semantic Mapping (ACASM) to examine interview data from 27 Italian HPS. Four themes emerged: *Organizational complexity*, *Organizational*

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challenges, *Service networking*, and *Service consolidation*. Results reveal bipolar semantic structures organizing these representations, notably *Professional practice vs Networking* and *Challenges vs. Empowerment*. The study provides a first overview of how the representational world of hospital psychologists can serve as a marker of the transformations taking place in the sector.

Keywords: Hospital psychology services, healthcare transformation, cultural analysis, representations, ACASM.

Introduction

Hospital Psychology Services (HPS) have become an essential component of modern healthcare systems, providing psychological support to patients, family members, and healthcare professionals. Their role has evolved from a marginal and primarily diagnostic function to an integrated clinical-therapeutic approach, establishing them as a fundamental pillar in managing the emotional aspects of illness and improving quality of life in clinical settings (de Lima, 2024; Wahass, 2005). This transition has been influenced by multiple factors, including changes in health policies, technological innovations, and emerging needs from both users and healthcare providers (Kidd & Styron, 2020; Runyan, 2011).

Over the past decade, the field has undergone particularly significant transformations at structural, functional, and managerial levels. The introduction of telepsychology and digital platforms has redefined service delivery models, improving accessibility while simultaneously presenting new organizational and ethical challenges (Rutkowska, 2022). Concurrently, increased attention to the psychological well-being of healthcare workers – amplified by the COVID-19 pandemic (Greenberg *et al.*, 2020) – has led to enhanced internal support services and the need for more flexible organizational models (Dülsen *et al.*, 2020).

These shifts are part of broader systemic changes in healthcare, including the digitalization of services, decentralization of care pathways, and a growing emphasis on patient-centered and value-based healthcare models (Porter & Lee, 2013; Topol, 2019). As hospitals

transform into complex, integrated systems, psychologists are called to redefine their roles beyond the traditional clinical encounter, engaging in care coordination, risk assessment, and prevention strategies across settings (Cummings *et al.*, 2017).

Another key transformation involves the expanding role of hospital psychologists, who are increasingly involved in decision-making processes and health policy development (Baker *et al.*, 2008). This evolution reflects the need for a holistic approach to health, fostering multidisciplinary collaboration and integrating psychological perspectives into daily clinical practice (McGinty, 2023; Engel, 1977). Such integration is particularly relevant in addressing complex challenges such as health inequalities, chronic illness management, and mental health comorbidity, where psychological expertise contributes significantly to improving outcomes and reducing system burdens (Hofmann *et al.*, 2012; Hunter *et al.*, 2017).

However, the growing demand for psychological services has also highlighted critical issues, including shortages of specialized personnel, the need for practice standardization, and disparities in service access (Dülsen *et al.*, 2020; Fava & Tomba, 2009). These systemic issues raise questions about how professionals perceive and adapt to institutional constraints, evolving roles, and shifting expectations, making it essential to understand not only what changes are occurring, but how these are represented and negotiated within the professional culture of HPS.

Against this backdrop, it is crucial to examine how HPS represent these changes and the semantic structures that organize such representations. Semiotic-Cultural Psychology Theory (SCPT; Salvatore *et al.*, 2016) provides a suitable theoretical framework for exploring these processes by conceptualizing psychological functioning as a meaning-making activity grounded in culturally situated and affectively charged assumptions (Valsiner, 2007). According to this perspective, representations of change in HPS can be analyzed as themes emerging from bipolar semantic structures, where the presence of one pole implies the absence of its opposite (Salvatore, 2016).

This study investigates these dynamics through a textual analysis of responses from HPS professionals to an open-ended question about structural, functional, and managerial changes over the past decade. The research has a dual aim: first, to identify how services represent

these changes; and second, to explore the semantic structures organizing such representations. Using a quali-quantitative approach based on the Automated Co-occurrence Analysis for Semantic Mapping (ACASM) method (Gennaro & Salvatore, 2023), the study seeks to provide an in-depth understanding of the challenges and opportunities shaping the evolution of hospital psychology in contemporary healthcare. By doing so, the research aims to inform academic debates as well as actionable recommendations for service planning and policy development, supporting more responsive and sustainable models of hospital-based psychological care.

Theoretical framework

The present study is based on the Semiotic-Cultural Psychology Theory (SCPT; Salvatore *et al.*, 2016; Valsiner, 2007), which conceives psychological functioning as a process of signification based on systems of generalized and affect-laden assumptions (Salvatore *et al.*, 2024). These systems of assumptions are influenced by the cultural and social environment in which individuals are embedded, while at the same time contributing to its structuring (Cole, 1998; Valsiner, 2007).

According to this perspective, the representation of a specific object or event (e.g., HPS) is configured through a coherent model of meaning, which SCPT defines as a "theme". This concept emphasizes certain characteristics or qualities of the represented object/event, relegating others to the background. Furthermore, SCPT postulates that representations are supported by semantic structures, which are comprised of bipolar basic components (Salvatore *et al.*, 2024).

Bipolarity is an essential aspect of semantic components, as the presence of one polarity implies the absence of the opposite meaning. Consequently, a theme is configured in terms of the presence or absence of the qualities that the semantic components make salient (Salvatore, 2016).

Method

Sample

The present study was conducted between October 2024 and March 2025 and involved a sample of HPS in Italy. To this end, the research team contacted 52 services by email, explaining the objectives and aims of the research. Of these, 27 agreed to participate after authorization from the manager, corresponding to a response rate of 51.9%. Of these, 16 services were located in Northern Italy, 7 in Central Italy, and 4 in Southern Italy.

Participation involved taking part in a semi-structured interview lasting about two hours. The semi-structured interview was designed to collect detailed information across four thematic areas: (a) systemic relationships between HPS and the hospital environment, (b) user profiles and service demand, (c) functions and activities of the services, and (d) organizational structures and management practices. Each thematic area included specific parameters explored through both closed questions and open-ended prompts (e.g., evolution of the hospital container, target of interventions, strategic relevance of functions, organizational learning processes).

The general objective of the interview was to reconstruct the evolution of HPS by capturing professionals' perspectives on structural, functional, and managerial changes as well as their impact on service delivery and professional roles. To this end, the semi-structured interview involved the psychologists serving as managers of their respective HPS.

This study focuses on the analysis of responses to a specific open-ended question, which asked participants to "reconstruct the significant structural, functional, and managerial changes that have occurred in the hospital psychology service over the past 10 years, with particular attention to the type of change, its timing, and the dynamics that generated it".

The choice to analyze this question was guided by its centrality in exploring the semantic representations of change within HPS, which is consistent with the study's aim of investigating the meaning-making processes underlying the evolution of hospital psychology services.

All participants provided informed consent after receiving a

detailed explanation of the study objectives. The research obtained the approval of the Ethics Committee for Research in Psychology (CERP) of the University of Salento and was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki, as adopted by the World Medical Association (WMA) during the 18th General Assembly (Helsinki, 1964) and subsequently updated at the 64th General Assembly (Fortaleza, 2013).

Data analysis

To identify emerging themes and the semantic structure of the textual corpus, the interviews were transcribed and subsequently aggregated into a single corpus. The data analysis was conducted using the Automated Co-occurrence Analysis for Semantic Mapping (ACASM) procedure (Gennaro & Salvatore, 2023; Salvatore *et al.*, 2012, 2017), implemented using T-Lab software (Lancia, 2004).

ACASM is divided into two phases. In the first phase, the corpus is segmented into elementary context units (ECUs), consisting of sequences of adjacent expressions. Each ECU begins immediately after the end of the previous one and ends with the first strong punctuation mark (".", "!", "?") that appears after a threshold of 250 characters. If an ECU exceeds 2000 characters, it is interrupted with the last word available within that limit, regardless of the presence of punctuation marks.

Subsequently, the text is subjected to lemmatization, a process that reduces the different lexical forms of a word to their common root (for example, "see", "seeing" and "seen" are all associated with the lemma "see"). Then stop-words and other words with no distinctive semantic content are eliminated, such as logical connectives ("that is", "in fact"), conjunctions ("and", "this"), auxiliary verbs ("to be", "to have") and the 5% of the most frequent lemmas, in order to reduce noise and optimize the analysis. This selection produced a subset of 300 most representative keywords, ensuring a balance between computational feasibility and the ability to identify significant patterns in the data.

In the second phase, the data underwent multidimensional analysis, which integrates cluster analysis (CA) and correspondence analysis

(COR). Through CA, groups of lexemes that tend to co-occur within the same text segments (ECUs) are detected, which are then interpreted as indicators of a specific theme. In other words, CA groups words using their presence in the same paragraph as a similarity criterion, and paragraphs are in turn grouped based on whether they share a similar pattern of co-occurring lemmas. The ACASM procedure adopts unsupervised K-Means as the clustering method, and the number of clusters to be selected is determined by inspecting the Calinski-Harabasz index (Caliński & Harabasz, 1974), the Davies-Bouldin index (Davies & Bouldin, 1979) and the intra-cluster correlation coefficient (ICC) of the various cluster partitions extracted from the CA. High values of the Calinski-Harabasz index and ICC and low values of the Davies-Bouldin index are considered indicative of good clustering. The interpretation of clusters, and therefore the identification of themes, is conducted by the research team through a consensus procedure (Harris *et al.*, 2012; Schielke *et al.*, 2009) and is based on the ECUs which are characteristic of each cluster and the combination of words that tend to co-occur within each ECU.

The COR breaks down and reorganizes the relationships between lemmas within a multidimensional factorial space in which each dimension is composed of two polarities. Each polarity is characterized by a set of lemmas that tend to co-occur and by the fact that, when they are present, another set of lemmas is absent (those of the opposite polarity). The multidimensional factorial space emerging from the COR lends itself to be interpreted in terms of the semantic structure of the text, with each factorial dimension representing a semantic component of this structure. Furthermore, COR extracts an estimate (expressed through factor scores) of the association between the factor dimensions and their characteristic lemmas. These estimates are used to interpret each polarity of the extracted factorial dimensions (Table 2).

Results

The analysis was conducted on a matrix composed of 66 ECUs and 300 lemmas. Cluster analysis (CA) extracted four clusters as an optimal partition, based on the quality indexes of the clusterization (Calinski-Harabasz = 3.55; Davies-Bouldin = 1.46; ICC = 0.15).

Based on the ECUs characteristic of each cluster and the co-occurring lemmas within each ECU, the research team interpreted the clusters as follows:

Cluster 1: Structural complexity. This cluster captures the structural and management transformations that have taken place over the last decade, with particular emphasis on the impact of the COVID-19 pandemic. Terms such as "COVID", "complexity", "model", "university" and "increase" indicate significant challenges related to organizational reconfigurations, critical issues and evolving institutional roles. The presence of terms such as "important", "clearly" and "type" suggests a discourse focused on defining the nature and extent of these changes, particularly in the academic and healthcare sectors. The most representative ECUs of this cluster were:

The gradual shift from a **consulting model** to an integrated, multidimensional, multi-proportional intervention **model**, integrated with the various areas and departments of the hospital, and **clearly** the **complexity** and subsequent **increase** in the number of people, etc., has led to an **increase** in activity, the presence of more people has **obviously** not only increased **complexity**, but also generated some **critical issues** in some cases, if you do little, you are less likely to do anything.

*[il progressivo superamento del **modello consulenziale** ad un **modello** invece di intervento integrato, multidimensionale, multi proporzionale, integrato con i vari ambiti, reparti dell'ospedale, e **chiaramente** la **complessità** e l'**aumento** poi del numero di persone, eccetera, ha portato all'**aumento** dell'attività, la presenza di più persone ha **ovviamente** non solo aumentato la **complessità**, ma anche generato alcune **criticità** in alcuni casi, se fai poco hai meno probabilità di fare].*

The gradual transition from a **consulting model** to an integrated, multidimensional, multi-proportional **model**, integrated with the various areas and departments of the hospital, and **clearly** the **complexity** and **increase** in the number of people has led to an **increase** in activity. The presence of more people has not only increased **complexity** but also generated some **critical issues** in certain cases.

*[il progressivo passaggio superamento del **modello consulenziale** ad un **modello** invece di intervento integrato, multidimensionale, multi proporzionale, integrato con i vari ambiti, reparti dell'ospedale, e **chiaramente** la*

complessità *e l'****aumento*** *del numero di persone ha portato all'****aumento*** *dell'attività, la presenza di più persone ha non solo aumentato la* ***complessità****, ma anche generato alcune* ***criticità*** *in alcuni casi].*

There have been many changes that may **concern** the number of beds, the organization of departments, the opening of new **types** of activities, changes in procedures, the introduction of a new type of care, the hiring of many young staff members and the retirement of many others [...] these are the first ones that come **to mind**, structural changes in the hospital.

[ci sono stati tantissimi cambiamenti che appunto possono ***riguardare*** *i posti letto, l'organizzazione dei reparti, l'apertura di nuove* ***tipo*** *di attività, la modifica di modalità di intervento, l'introduzione di una modalità di assistenza, il sopraggiungere dell'assunzione di molto personale giovane e molto personale che è andato in pensione [...] questi sono i primi che mi vengono* ***in mente****, cambiamenti strutturali nell'ospedale].*

Cluster 2: Organizational challenges. This cluster highlights difficulties in workforce management, including shortages, shifts and recruitment processes. Representative lemmas such as "group", "competition", "staff shortages", "shifts" and "company" indicate the strain on human resources, particularly in the context of economic constraints and operational limitations. The most representative ECUs of this cluster were:

The **organizational** system around us changed, and then the subject we deal with changed. [...] There were no **selection processes**, to make a comparison in terms of time. I took part in my first **selection process** in 2017 [...] and the next **selection process** was announced in 2019.

[è cambiato il sistema ***organizzativo*** *intorno, e poi è cambiato l'oggetto di cui noi ci occupiamo. [...] Non c'erano stati* ***concorsi****, per fare un paragone temporale. Il primo* ***concorso*** *l'ho fatto nel 2017 [...] e l'altro* ***concorso*** *è stato bandito nel 2019].*

[...] no investments have been made in hiring staff, so in recent years since my arrival, a ranking list has been used, but only for a short period of time, because then the ranking expired and fortunately the services were **covered**, but not to the extent necessary to **cover** turnover, so there is a great **shortage** of psychologists, but there is also a great **shortage** of neuropsychiatrists.

[...] non ci sono stati investimenti fatti in assunzione del personale,

*quindi, negli ultimi anni dal mio arrivo si è utilizzata una graduatoria, però per un breve periodo di tempo, perché poi la graduatoria è scaduta e quindi fortunatamente i servizi sono stati **coperti**, ma non per la quota necessaria a **coprire** il turnover quindi c'è una grande **carenza** di psicologi, ma c'è anche una grande **carenza** di neuropsichiatri].*

We called ourselves a bridge and filter **group**. A bridge between the hospital where I spent one day a week and the district where I worked. A filter because this **group** of colleagues filtered out the more complex **situations**.

*[Un po' un **gruppo** lo chiamavamo ponte e filtro. Ponte fra l'ospedale dove stavo un giorno a settimana e il territorio dove operavo a livello distrettuale. Filtro perché questo **gruppo** di colleghi filtrava un po' le **situazioni** più complesse].*

Cluster 3: Service networking. This cluster describes the transformation of professional roles within the health and academic systems, with an emphasis on networking and institutional relations. Terms such as "director", "network", "services", "history" and "evaluation" suggest an increasing complexity in the definition of roles, decision-making processes and inter-institutional collaborations. The most representative ECUs of this cluster were:

Exactly ten years ago, the simple clinical psychology unit was established in **Borgo Roma** and **Borgo Trento**, so it has been exactly ten years. Before that, they did not exist. Then, in 2014, there were two separate entities: the one in **Borgo Trento** was hospital-based, while the one in **Borgo Roma** was university-based, in terms of hierarchy, organization, and structure, so to speak.

*[esattamente dieci anni fa è nata l'unità semplice di psicologia clinica di **Borgo Roma** e anche di **Borgo Trento**, quindi, esattamente dieci anni. Prima non esistevano. Poi, nel 2014 erano due entità, appunto, separate, quella di **Borgo Trento** era ospedaliera, quella di **Borgo Roma** era universitaria, come apicalità e come organizzazione, come struttura, diciamo].*

Right now, I'm a delegate from the hospital in the city foundation, and this has an **important** impact on how things work. Some of my coworkers also have **connections** in the area. One of them has a good relationship with the city government, so they're more aware of certain things. So, even people who work in the service have **connections** in the area.

*[In questo momento sono membro delegato dall'ospedale dentro la Fondazione cittadina e questo ha un influsso **importante** sull'andamento del servizio, anche alcuni colleghi hanno **contatti** sul territorio. Un collega ha un buon rapporto con l'amministrazione comunale e quindi su alcune cose c'è più sensibilità. Quindi anche le persone che sono dentro un servizio hanno **contatti** sul territorio].*

Two aspects that I find significant are also the [...] extensive network of **contacts** with regional **networks**, such as the perinatal **network**, the hematology **network**, the oncology **network**, and the psi-nefro **network**, which are beneficial **contacts** in certain respects.

*[Due aspetti che mi sembrano significativi sono anche la [...] massiccia presenza di **contatti** con le **reti** regionali e ad esempio la **rete** per la perinatalità, la **rete** ematologica, la **rete** oncologica, la **rete** psi-nefro e quindi sono dei **contatti** per certi aspetti benefici].*

Cluster 4: Service consolidation. This cluster focuses on the professionalization of the service seen as the process of transformation from temporary/unstable situations to consolidated and recognized structures. Lemmas such as "stabilization", "psychologist", "psychology", "care" "functional", "department" and "change" reflect both staff and organizational stabilization. The most representative ECUs of this cluster were:

It is a job that is carried out with the **stabilization** of the two colleagues, with psycho-oncology activities that are exclusive and **dedicated** to the oncology department and carried out by the two senior **psychologists**. So the important **change** was their **stabilization** and therefore their presence in the **care** of cancer **patients** and related caregivers.

*[è un lavoro che viene svolto con la **stabilizzazione** dei due colleghi, con le attività di psiconcologia che sono esclusive e **dedicate** al reparto di oncologia e svolta dai due dirigenti **psicologi**. Quindi il **cambiamento** importante è stata la loro **stabilizzazione** e quindi la loro presenza nell'ambito della **cura** dei **pazienti** oncologici e dei caregiver collegati].*

So the hierarchical dependence of **psychological** managers has increased, as has the whole area of so-called **functional** dependence, i.e. within my operational unit. [...] But what is happening today is that, essentially, all **psychologists** belonging to all operational units report in some way, for reasons of strategy, updating, or training, to the clinical **psychology** operational unit.

*[Quindi la dipendenza gerarchica di personale di dirigenti **psicologi** è aumentata ed è aumentata anche tutta l'area della dipendenza cosiddetta **funzionale**, cioè dentro la mia unità operativa. [...] Ma quello che succede ad oggi è che, sostanzialmente, tutti gli **psicologi** che appartengono a tutte le unità operative fanno capo in qualche modo, per ragioni di strategia, per ragioni di aggiornamento, per ragioni di formazione, all'unità operativa di **psicologia** clinica].*

The **change** we are currently undergoing is that national and **regional** law stipulates that a primary **care psychology** service must be established and that this service must not be dependent on the DSMD, i.e. the mental health and addiction **department**, which is the hierarchical structure to which my operational unit belongs.

*[Il **cambiamento** che abbiamo adesso in corso è che la legge nazionale e **regionale** prevede che sia istituito il servizio di **psicologia** delle **cure** primarie e che questo servizio non dipenda dal Dsmd, quindi dal **dipartimento** di salute mentale delle dipendenze, che è la struttura gerarchica dove appartiene la mia unità operativa].*

Table 1 lists the 10 most characteristic lemmas for each cluster.

Table 1. *Characteristic lemmas of the extracted clusters*

Cluster 1 – Organizational complexity			**Cluster 2 – Organizational challenges**		
Lemmas (Italian)	*Chi-square*	*p*	*Lemmas (Italian)*	*Chi-square*	*p*
Clearly *(Chiaramente)*	22.20	< .001	Group *(Gruppo)*	23.90	< .001
Covid *(Covid)*	21.99	< .001	Talk *(Parlare)*	20.85	< .001
In mind *(In mente)*	21.99	< .001	Situation *(Situazione)*	20.85	< .001
Type *(Tipo)*	21.99	< .001	Competition *(Concorso)*	17.31	< .001
Greater *(Maggiore)*	18.35	< .001	Company *(Azienda)*	17.25	< .001
Complexity *(Complessità)*	17.59	< .001	Economic *(Economico)*	16.72	< .001
Model *(Modello)*	17.59	< .001	Shortage *(Carenza)*	12.21	< .001
University *(Università)*	17.59	< .001	Search *(Cercare)*	11.82	.001
Criticality *(Criticità)*	12.99	< .001	Shift *(Turno)*	11.82	.001
Increase *(Aumento)*	12.52	< .001	Bring *(Portare)*	9.98	.002

Cluster 3 – Service networking			Cluster 4 – Service consolidation		
Lemmas (Italian)	*Chi-square*	*p*	*Lemmas (Italian)*	*Chi-square*	*p*
Town *(Borgo)*	42.53	< .001	New *(Nuovo)*	11.69	.001
Important *(Importante)*	21.59	< .001	Stabilization *(Stabilizzazione)*	11.21	.001
Contacts *(Contatti)*	18.87	< .001	Care *(Cura)*	10.79	.001
Woman *(Donna)*	18.87	< .001	Functional *(Funzionale)*	9.96	.002
Experience *(Esperienza)*	18.87	< .001	Psychologist *(Psicologo)*	8.95	.003
Rome *(Roma)*	18.87	< .001	Psychology *(Psicologia)*	8.80	.003
Role *(Ruolo)*	18.87	< .001	Free *(Libero)*	7.46	.006
Variable *(Variabile)*	18.87	< .001	Regional *(Regionale)*	7.16	.007
Trento *(Trento)*	18.04	< .001	Department *(Dipartimento)*	7.02	.008
Story *(Storia)*	16.27	< .001	Change *(Cambiamento)*	6.90	.009

Note. Only the first 10 lemmas are shown.

The COR analysis identified two factors corresponding to semantic structures, which organize the extracted clusters. The most representative lemmas for each factor are reported in Table 2. The research team labeled the factors as follows through a consensus-based approach (Harris *et al.*, 2012; Schielke *et al.*, 2009):

Factor 1: Professional practice vs Networking. This factor contrasts a focus on clinical and professional activities (negative pole) with an emphasis on collaboration (positive pole). At the negative pole, lemmas such as "operational" (vtest = -3.05), "work" (-2.46), "change" (-2.45), and "patient" (-2.15) reflect a perspective centered on clinical practice. Conversely, the positive pole is characterized by terms like "town" (vtest = 6.50), "important" (4.54), "contacts" (4.33), "role" (4.33), which underscore the emphasis on institutional relationships and collaborative networks.

Factor 2: Challenges vs. Empowerment. The second factor contrasts a focus on difficulties and constraints (negative pole) with

proactive adaptation and professional agency (positive pole). At the negative pole, lemmas such as "see" (vtest = -4.12), "organizational" (-3.70), "COVID" (-3.68), "criticality" (-3.61) highlight the challenges faced by the service, including pandemic-related disruptions. At the positive pole, lemmas like "operative" (vtest = 2.91), "stabilization" (2.88), "new" (2.80), "functional" (2.72) underscore proactive responses to challenges and service consolidation.

Table 2. *Characteristic lemmas of the extracted factors*

Factor 1				**Factor 2**			
Professional practice		***Networking***		***Challenges***		***Empowerment***	
Pole (-)	*Vtest*	*Pole (+)*	*Vtest*	*Pole (-)*	*Vtest*	*Pole (+)*	*Vtest*
Operational *(Operativo)*	-3.05	Town *(Borgo)*	6.50	See *(Vedere)*	-4.12	Operative *(Operatorio)*	2.91
Work *(Lavoro)*	-2.46	Important *(Importante)*	4.54	Organizational *(Organizzativo)*	-3.70	Stabilization *(Stabilizzazione)*	2.88
Change *(Cambiamento)*	-2.45	Experience *(Esperienza)*	4.33	In mind *(In mente)*	-3.68	New *(Nuovo)*	2.80
Unity *(Unità)*	-2.37	Woman *(Donna)*	4.33	Covid *(Covid)*	-3.68	Functional *(Funzionale)*	2.72
Patient *(Paziente)*	-2.15	Contacts *(Contatti)*	4.33	Type *(Tipo)*	-3.68	Performance *(Prestazione)*	2.58
See *(Vedere)*	-2.03	Rome *(Roma)*	4.33	Criticality *(Criticità)*	-3.61	Regional *(Regionale)*	2.57
Become *(Diventare)*	-1.98	Role *(Ruolo)*	4.33	Clearly *(Chiaramente)*	-3.49	Room *(Stanza)*	2.45
		Variable *(Variabile)*	4.33	Concern *(Riguardare)*	-3.31	Care *(Cura)*	2.38
		Trento *(Trento)*	4.22	Model *(Modello)*	-3.29	Free *(Libero)*	2.35
		Story *(Storia)*	4.07	University *(Università)*	-3.29	Colleague *(Collega)*	2.23

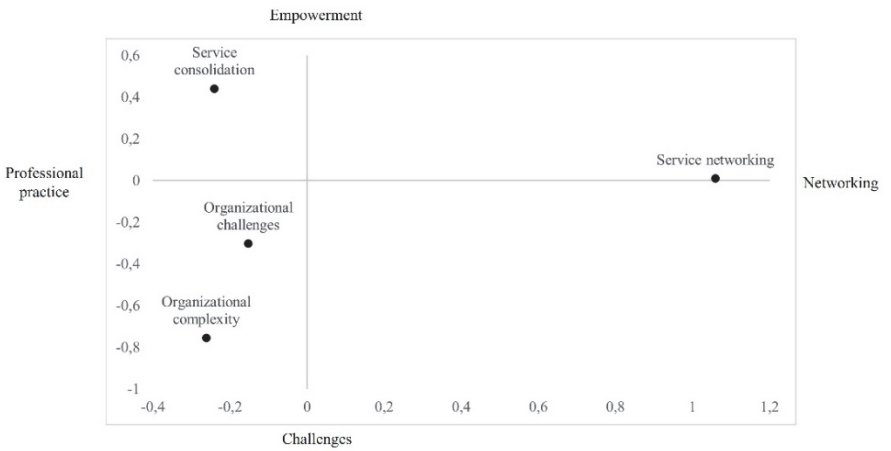
Note. Only the first 10 lemmas are shown.

The factorial space (Figure 1) provides a spatial representation of the four identified clusters based on the two extracted dimensions. Two clusters are positioned in the lower-left quadrant, indicating a strong association with the challenges faced by the services: *Structural complexity* (-0.26, -0.75) is the most extreme case on this axis, highlighting how the pandemic has exacerbated critical issues and organizational burdens. *Organizational challenges* (-0.15, -0.30) is similarly aligned with practical difficulties, though less extreme, reflecting the constraints faced by professionals in managing resources and workloads.

Service consolidation (-0.24, 0.44) is located in the upper-left quadrant, indicating a dual association with professional practice (Factor 1, negative pole) and empowerment (Factor 2, positive pole). This position indicates that the theme is shaped by the improvements adopted to address the challenges.

Service networking (1.06, 0.01) is the only cluster positioned on the right side of the factorial space, reflecting its association with the Networking pole of Factor 1. This placement underscores its distinct focus on collaboration rather than professional practice.

Figure 1. *Graphic representation of the themes along the two semantic structures*



Discussion

The present study aimed to examine the transformations in Hospital Psychology Services (HPS) over the past decade, with a particular focus on how professionals represent these changes.

Grounded in the Semiotic-Cultural Psychology Theory, the research highlights that Italian hospital psychology professionals represent the evolution of services according to four different themes concerning the complexity of the services, their challenges, their networks and consolidation.

The results of the study show that clusters, as interpreted, lend themselves to being understood as indicative of the dialectical intertwining between critical issues and evolutionary trajectories that have characterized the medium-term evolution of hospital psychology (Kidd & Styron, 2020). This dialectical intertwining can be mapped in terms of the two semantic structures identified by the analysis.

The first dimension extracted is interpreted in terms of a semantic structure which highlights the dialectic between two evolutionary dimensions understandable in terms of professional practice vs. networking. On the one hand, the process of internal consolidation of specialized professional practices; on the other, the enhancement of the hospital psychology functions as a device for strengthening the ability to establish collaborative networks.

The second semantic structure lends itself to being interpreted as the general dynamic that has driven the evolution, namely the changes that have challenged hospital psychology, and more generally the hospital institution, and the reinforcement to respond to them. This dialectic has to do, on the one hand, with institutional and functional consolidation in relation to the critical conditions that the psychological function has had to face (challenges); on the other hand, there is the reinforcement of the services (empowerment).

Moreover, the study identified four themes (Organizational complexity, Organizational challenges, Service networking, and Service consolidation), which can be viewed as the representational traces on the respondents' imaginary of the major outputs of the developmental trajectories outlined above.

The theme *Structural complexity* seems to refer to the transition of HPS from a purely consultative model to an integrated one. This

aspect is highlighted in the literature (De Berardinis & Dondi, 2020) and seems to reflect a need to adapt to increasingly demanding healthcare contexts, a factor that has been particularly evident during the COVID-19 pandemic. In this context, professionals' narratives about the evolution of services in terms of complexity indirectly support the arguments put forward by several scholars, who argue that emergencies act as catalysts for service change (Omboni *et al.*, 2022; Rutkowska, 2022).

The theme *Organizational challenges* seems to concern the critical issues that services have faced over time. These difficulties, such as staff shortages and limited resources compared to the high demand for psychological assistance, are highlighted in the literature, which shows that these issues are not limited to HPS but are widespread in healthcare systems (Bell *et al.*, 2020; Russell *et al.*, 2021). Furthermore, some studies have shown that these difficulties have prompted professionals to find innovative solutions to meet the needs of the population (Stringer, 2024), such as the use of telepsychology (Hirko *et al.*, 2020; Pierce *et al.*, 2021).

The theme *Service Networking* seems to reflect the evolution of services towards greater connection with the outside. Indeed, professionals' narratives have also focused on how, in recent years, services have progressively expanded their network of relationships with local entities and communities. This trend is particularly important given that the adoption of integrated care models that leverage collaborative networks has been recognized as crucial to ensuring population health (Alderwick *et al.*, 2021).

Finally, the theme *Service consolidation* seems to relate to the growing stabilization of the role of psychology within healthcare systems, particularly in response to contemporary challenges. According to professionals, this consolidation has affected both the internal organization of services and the achievement of greater disciplinary autonomy within hospitals. This dual process mirrors the evolution documented in the literature on hospital psychology, which has seen a gradual recognition of its distinctive role within the hospital setting (Kidd & Styron, 2020; Wahass, 2005).

Some limitations of the present study should be acknowledged. First, the research focused exclusively on Italian services, which may limit the generalizability of the findings to other cultural and

healthcare contexts. Differences in healthcare systems, funding models, and policy frameworks across countries could significantly influence how psychological services evolve and are perceived. Second, the quali-quantitative nature of the study, while rich in depth, does not allow for statistical generalizations or causal inferences. Future research could benefit from mixed-method approaches, combining qualitative analyses with quantitative measures to assess the prevalence and impact of specific changes. Third, the sample, though representative of Italian HPS, was relatively small (27 services), and the participation rate (51.9%) may introduce self-selection bias, as services facing greater challenges or those more innovative might have been more likely to respond. Finally, while the ACASM methodology offers a rigorous approach to textual analysis, the interpretation of clusters and factors inevitably involves a degree of researcher subjectivity, despite consensus procedures aimed at minimizing bias. These limitations suggest caution in extrapolating the findings but also highlight opportunities for further research to expand and validate these results in diverse settings and with complementary methodologies.

This study provides a first overview of how the representational world of hospital psychologists can serve as a marker of the transformations taking place in the sector. Future research could extend this analysis through longitudinal approaches in order to track these developments. Furthermore, comparative studies between different countries could identify similarities or differences between services belonging to different cultural contexts.

References

Adeogun, A., & Faezipour, M. (2025). Patient-Centric Paradigm: A Systems Thinking Approach to Enhance Healthcare. *Healthcare*, 13 (3), 213. https://doi.org/10.3390/healthcare13030213

Alderwick, H., Hutchings, A., Briggs, A., & Mays, N. (2021). The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health*, 21, 1-16. https://doi.org/10.1186/s12889-021-10630-1

Baker, T. B., McFall, R. M., & Shoham, V. (2008). Current status and future prospects of clinical psychology: Toward a scientifically principled approach

to mental and behavioral health care. *Psychological Science in the Public Interest*, 9(2), 67-103. https://doi.org/10.1111/j.1539-6053.2009.01036.x

Bauer, M. W., & Gaskell, G. (2000). *Qualitative researching with text, image and sound: A practical handbook*. SAGE.

Bell, D. J., Self, M. M., Davis, C. III, Conway, F., Washburn, J. J., & Crepeau-Hobson, F. (2020). Health service psychology education and training in the time of COVID-19: Challenges and opportunities. *American Psychologist*, 75(7), 919–932. https://doi.org/10.1037/amp0000673

Carli, R., Paniccia, R. M., Policelli, S., & Caputo, A. (2017). Clinical psychology in hospital setting. In M. F. Freda, & R. De Luca Picione (eds.), *Healthcare and culture: subjectivity in medical contexts* (pp. 145-171). Information Age Publishing.

Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Harvard University Press.

Cummings, N. A., O'Donohue, W. T., & Cummings, J. L. (2017). *The impact of medical cost offset on practice and research: Making it work for you*. Context Press.

De Beerardinis, D., & Dondi, P. (2020). La psicologia ospedaliera ieri, oggi, domani [Hospital psychology: yesterday, today, tomorrow]. *Una storia*, 21. Retrieved from: https://www.fisppsicologia.it/images/riviste/Link-1-2020/La%20psicologia%20ospedaliera%20ieri,%20oggi,%20domani.pdf

de Lima, A. F. (2024). Mental health: hospital psychology and hospital psychoanalysis. *South Florida Journal of Health*, 5(1), 55-67. https://doi.org/10.46981/sfjhv5n1-005

Dülsen, P., Bendig, E., Küchler, A. M., Christensen, H., & Baumeister, H. (2020). Digital interventions in adult mental healthcare settings: recent evidence and future directions. *Current Opinion in Psychiatry*, 33(4), 422–431. https://doi.org/10.1097/YCO.0000000000000614

Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. *Science*, 196(4286), 129–136. https://doi.org/10.1126/science.847460

Fava, G. A., & Tomba, E. (2009). Increasing psychological well-being and resilience by psychotherapeutic methods. *Journal of Personality*, 77(6), 1903–1934. https://doi.org/10.1111/j.1467-6494.2009.00604.x

Gennaro, A., & Salvatore, S. (2023). The Themes of Texts: Automatic Co-occurrence Analysis for Semantic Mapping (ACASM). In S. Salvatore, G.A. Veltri, & T. Mannarini (eds.), *Methods and Instruments in the Study of Meaning-Making. Culture in Policy Making: The Symbolic Universes of Social Action*. Springer, Cham. https://doi.org/10.1007/978-3-031-21995-5_4

Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ*, 368. https://doi.org/10.1136/bmj.m1211

Harris, C.B., Barnier, A.J., & Sutton, J. (2012). Consensus collaboration enhances group and individual recall accuracy. *Quarterly Journal of Experimental Psychology*, 65(1), 179-194. https://doi.org/10.1080/17470218.2011.608590

Hirko, K. A., Kerver, J. M., Ford, S., Szafranski, C., Beckett, J., Kitchen, C., & Wendling, A. L. (2020). Telehealth in response to the COVID-19 pandemic: Implications for rural health disparities. *Journal of the American Medical Informatics Association*, 27(11), 1816-1818. https://doi.org/10.1093/jamia/ocaa156

Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses. *Cognitive Therapy and Research*, 36(5), 427–440. https://doi.org/10.1007/s10608-012-9476-1

Jasemi, M., Valizadeh, L., Zamanzadeh, V., & Keogh, B. (2017). A Concept Analysis of Holistic Care by Hybrid Model. *Indian Journal of Palliative Care*, 23(1), 71–80. https://doi.org/10.4103/0973-1075.197960

Kakuma, R., Minas, H., van Ginneken, N., Dal Poz, M. R., Desiraju, K., Morris, J. E., Saxena, S., & Scheffler, R. M. (2011). Human resources for mental health care: current situation and strategies for action. *Lancet* (London, England), 378(9803), 1654–1663. https://doi.org/10.1016/S0140-6736(11)61093-3

Kidd, S. A., & Styron, T. H. (2020). A systematic review of the psychology literature addressing hospital practice. *The American Psychologist*, 75(3), 316–328. https://doi.org/10.1037/amp0000498

McGinty, B. (2023). The Future of Public Mental Health: Challenges and Opportunities. *The Milbank Quarterly*, 101(S1), 532–551. https://doi.org/10.1111/1468-0009.12622

Nguyen, A. M., Rivera, A. M., & Gualtieri, L. (2023). A new health care paradigm: the power of digital health and e-patients. *Mayo Clinic Proceedings: Digital Health*, 1(3), 203-209. https://doi.org/10.1016/j.mcpdig.2023.04.005

Omboni, S., Padwal, R. S., Alessa, T., Benczúr, B., Green, B. B., Hubbard, I., Kario, K., Khan, N. A., Konradi, A., Logan, A. G., Lu, Y., Mars, M., McManus, R. J., Melville, S., Neumann, C. L., Parati, G., Renna, N. F., Ryvlin, P., Saner, H., Schutte, A. E., … Wang, J. (2022). The worldwide impact of telemedicine during COVID-19: current evidence and recommendations for the future. *Connected Health*, 1, 7–35. https://doi.org/10.20517/ch.2021.03

Pierce, B. S., Perrin, P. B., Tyler, C. M., McKee, G. B., & Watson, J. D. (2021). The COVID-19 telepsychology revolution: A national study of pandemic-based changes in U.S. mental health care delivery. *American Psychologist*, 76(1), 14–25. https://doi.org/10.1037/amp0000722

Porter, M. E., & Lee, T. H. (2013). The strategy that will fix health care. *Harvard Business Review*, 91(10), 50–70.

Pudalov, L. R., Swogger, M. T., & Wittink, M. (2018). Towards integrated

medical and mental healthcare in the inpatient setting: what is the role of psychology?. *International Review of Psychiatry*, 30(6), 210-223. https://doi.org/10.1080/09540261.2018.1552125

Runyan, C. N. (2011). Psychology can be indispensable to health care reform and the patient-centered medical home. *Psychological Services, 8*(2), 53–68. https://doi.org/10.1037/a0023454

Russell, D., Mathew, S., Fitts, M., Liddle, Z., Murakami-Gold, L., Campbell, N., ... & Wakerman, J. (2021). Interventions for health workforce retention in rural and remote areas: a systematic review. *Human Resources for Health*, 19(1), 103. https://doi.org/10.1186/s12960-021-00643-7

Rutkowska, A. (2022). Telemedicine Interventions as an Attempt to Improve the Mental Health of Populations during the COVID-19 Pandemic—A Narrative Review. *International Journal of Environmental Research and Public Health*, 19(22), 14945. https://doi.org/10.3390/ijerph192214945

Salvatore, S. (2016). *Psychology in Black and White: The project of a theory-driven science*. Charlotte, NC, USA: Information Age Publishing Inc.

Salvatore, S., Gelo, O.C.G., Gennaro, A., Metrangolo, R., Terrone, G., Pace, V., ... & Ciavolino, E. (2017). An automated method of content analysis for psychotherapy research: A further validation. *Psychotherapy Research*, 27(1), 38-50. https://doi.org/10.1080/10503307.2015.1072282

Salvatore, S., Gennaro, A., Auletta, A.F., Tonti, M., & Nitti, M. (2012). Automated method of content analysis: A device for psychotherapy process research. *Psychotherapy Research*, 22(3), 256–273. https://doi.org/10.1080/10503307.2011.647930

Salvatore, S., Palmieri, A., Picione, R. D. L., Bochicchio, V., Reho, M., Serio, M. R., & Salvatore, G. (2024b). The affective grounds of the mind. The Affective Pertinentization (APER) Model. *Physics of Life Reviews*, 50, 143-165. https://doi.org/10.1016/j.plrev.2024.07.008

Saraceno, B., van Ommeren, M., Batniji, R., Cohen, A., Gureje, O., Mahoney, J., ... & Underhill, C. (2007). Barriers to improvement of mental health services in low-income and middle-income countries. *The Lancet*, 370(9593), 1164-1174.

Schielke, H.J., Fishman, J.L., Osatuke, K., & Stiles, W.B. (2009). Creative consensus on interpretations of qualitative data: The Ward method. *Psychotherapy Research*, 19(4-5), 558–565. https://doi.org/10.1080/ 10503300802621180

Stringer, H. (2024). Mental health care is in high demand. Psychologists are leveraging tech and peers to meet the need. *American Psychological Association*. Retrieved at: https://www.apa.org/monitor/2024/01/trends-pathways-access-mental-health-care

Topol, E. (2019). *Deep medicine: How artificial intelligence can make healthcare human again*. Basic Books.

Townley, C., Grace, R., & Keidar, T. (2025). 'Uncharted territory': The experiences of health and social care practitioners in a multi-agency collaboration to support integrated service provision for children and young people in a disadvantaged community. *Health Policy*, 105299. https://doi.org/10.1016/j.healthpol.2025.105299

Valsiner, J. (2007). *Culture in Minds and Societies. Foundations of Cultural Psychology*. New Delhi: Sage Publications.

Venuleo, C., & Guacci, C. (2014). L'organizzazione della sanità italiana e il ruolo dello psicologo di base. *Rivista di Psicologia Clinica*, 9(1), 45-58.

Wahass, S. H. (2005). The role of psychologists in health care delivery. *Journal of Family and Community Medicine*, 12(2), 63-70.