



Real-time interpersonal dynamics as a proxy for transference processes: a psychodynamic-oriented ecological network study targeting narcissism and paranoia

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Abstract

Transference – the activation of enduring self–other representations in current relationships – has long been central to psychodynamic theory and treatment. Although traditionally grounded in the therapeutic setting, contemporary perspectives have considered how enduring self–other templates may shape social cognition and interpersonal behavior outside therapy. In individuals with personality pathology, particularly narcissistic functioning, transference may reproduce distorted paranoid self–other configurations, evoking intense countertransference reactions. Yet, transference processes have rarely been examined empirically as they unfold in real time. By applying multilevel vector autoregression, this study modeled moment-to-moment fluctuations in narcissistic states, paranoid ideation, and perceptions of others’ warmth and dominance, offering a proxy for transference processes in everyday social interactions. Community participants ($N=411$, $M_{age} = 22.1 \pm 3.43$) completed four daily prompts for seven days. Analyses modeled interpersonal processes across three temporal perspectives: contemporaneous patterns showed that both grandiose and vulnerable states co-occurred with higher paranoia; as for vulnerable states, this link was mediated by perceiving others as colder and less dominant. Temporally, paranoia acted as a bridge between vulnerable and grandiose states over the day. Vulnerability also evoked others’s dominance that, in turn, sustained vulnerability. Between-person results, indexing stable interpersonal tendencies, indicated that individuals higher in both narcissistic states reported greater mean paranoia, though only the vulnerability–paranoia link was explained by lower perceived warmth. By integrating psychodynamic theory with intensive longitudinal modeling, we provide an ecologically valid, network-based framework to track transference dynamics across different time frames. This multi-scale approach extends transference research beyond the consulting room and yields insights with direct relevance for clinical research and practice.

Keywords Transference · Narcissistic States · Paranoid States · Ecological Momentary Assessment · Multilevel Vector Autoregression (mlVAR) · Interpersonal Perception

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Transference from psychodynamic psychotherapy to everyday interpersonal perception

In psychodynamic psychotherapy, transference is understood as the process through which enduring patterns of perceiving and relating to others are reactivated in the therapeutic relationship, shaping expectations, emotions, and behaviors towards the therapist (Freud, 1912). Klein (1952) was among the first to emphasize that transference is a pervasive phenomenon that extends into everyday life. These projections are not random but reflect enduring internalized self–other representations that may shape how individuals navigate current relational contexts more broadly (Kernberg, 2021; Levy & Scala, 2012). When meaningful current relationships activate enduring internalized self–other representations, individuals may begin to perceive and respond to new people through the lens of those earlier relationships (Andersen & Chen, 2002; Woehrle et al., 2023). This can lead to distorted interpretations, disproportionate emotional reactions, and behavior patterns rooted in the past rather than in the present. Crucially, transference also involves the activation of the relational self associated with the significant other: in essence, people tend to become the version of themselves that typically emerged in those past relationships, thereby perpetuating old relational patterns in new interactions (Critchfield & Benjamin, 2008; Levy & Scala, 2012). Over time, the repeated activation of specific self–other representations across contexts tends to crystallize into a stable, idiosyncratic pattern of interpersonal responses – an interpersonal signature that reflects the individual’s unique relational style (Andersen & Chen, 2002) and shapes the self as fundamentally relational (Pincus et al. 2020a, b; Sullivan 1953).

Contemporary social-cognitive research (Andersen & Przybylski, 2012; Levy & Scala, 2012) has also extended the concept of transference beyond the therapeutic relationship, suggesting that transferential dynamics may also emerge in everyday interactions (Gabbard & Crisp, 2018; Singer & Singer, 1992). Rather than being inherently pathological, transference is viewed as a normative, universal phenomenon that operates as part of everyday social information processing (Andersen & Przybylski, 2012; Levy & Scala, 2012) and influences how people make sense of themselves and significant others in specific interactions, shaping thoughts, emotions, motivations, and behaviors on the verge between past and current relationships (Chen & Andersen, 1999). In this sense, transference is not fixed, but rather something that moves and shifts, a moment-to-moment process that evolves as the interaction unfolds (Joseph, 1985). Several studies centered around the work of Andersen and colleagues (e.g., Andersen & Berk, 1998) demonstrated the

relevance of transference in everyday social perception and interaction. Using idiographic descriptions of participants’ own significant others, these studies showed that when a new target person resembled a positively or negatively toned significant other, participants misremembered the target in representation-consistent ways, transferred affective responses and expectations onto the target, and even elicited corresponding behavior from the interaction partner (Andersen & Baum, 1994; Andersen et al., 1996; Berk & Andersen, 2000).

However, these studies tend to frame transference primarily as a cognitive–informational bias, arguably overlooking its psychodynamic nature as a process intrinsically linked to affect regulation and defensive functioning (Arlow, 2002; Levy & Scala, 2012). Throughout this manuscript, we use the term “*proxy for transference*” deliberately: while the therapeutic frame confers a particular meaning and intensity to transferential dynamics (Freud, 1915; Kernberg, 2021), the underlying mechanism – the re-activation of internalized self–other representations in current relational contexts – is not confined to therapy. Hence, capturing the momentary co-activation of self-states and interpersonal perceptions in affectively charged everyday situations may represent a non-clinical analogue of the self–other dynamics that are amplified within the therapeutic relationship, while remaining distinct from direct assessments of transference within psychotherapy.

Transference in personality disorders: clinical insights and challenges in narcissistic dynamics

The careful identification and processing of transference can provide valuable clinical information and help remove obstacles in treatment by offering direct access to the patient’s internal world and relational patterns (Kernberg, 2007). This is particularly relevant in the treatment of PDs (Personality Disorders), where transference often plays a central role in perpetuating maladaptive interpersonal dynamics. The transference pattern activated by a patient is thought to be systematically correlated with the patient’s personality style and traits (Bradley et al., 2005; Levy & Scala, 2012), and to reflect aspects of their interpersonal functioning (Bradley et al., 2005). Among transference-based psychodynamic models, Transference-Focused Psychotherapy (TFP; Clarkin et al., 2006) is a manualized, empirically supported treatment for PDs that leverages this mechanism. TFP focuses on identifying the patient’s internalized self- and other representations as they emerge both in therapy and in other relationships. In particular, it examines transference patterns that shape the patient’s expectations

and affects toward the therapist, with the therapeutic goal of integrating polarized representations and affects to foster more realistic views of the self and others (Meehan et al., 2023). This approach, developed for the treatment of Borderline Personality Disorder (BPD), is now also extended to the treatment of Narcissistic Personality Disorder (NPD) (Diamond et al., 2022), which – like other PDs – is characterized by disturbances in both self and interpersonal functioning (Diamond et al., 2022; Pincus & Lukowitsky, 2010). Indeed, within narcissistic functioning, the regulation of self-esteem is theorized to involve the projection of unwanted aspects of the self – such as aggression, shame, or vulnerability – onto others (Stern et al., 2017), giving rise, hypothetically, to a persecutory, hostile perception of others, who are unconsciously assigned the role of rejecting, competitive, or humiliating objects (Caligor et al., 2018). This narcissistic configuration lends particular clinical significance to paranoid dynamics in the transference.

The link between narcissism and paranoia has deep roots in psychoanalytic theory. From a classical perspective, paranoia was theorized as a narcissistic defense – a way of maintaining the integrity of the self by externalizing what cannot be tolerated internally (Freud, 1911). This view was elaborated by Racamier (2014), who argued that, in narcissistic functioning, the other's autonomy can be experienced as persecutory because it threatens the individual's need for control and self-cohesion. From this perspective, paranoid ideation is not simply an associated feature of narcissism but reflects a central defensive response to the perceived separateness, independence, or opacity of others. Similarly, Kernberg (2007) describes paranoid dynamics in narcissistic pathology as reflecting the projection of split-off, aggressive self-representations – fragmented aspects of the self not yet integrated into a coherent self-image – onto the object, who is then perceived as threatening and persecutory. From this perspective – which we adopt here – paranoia functions as a dynamic and transient state, closely intertwined with the oscillation between grandiose and vulnerable self-states that characterizes narcissistic functioning (Dowgwillo et al., 2025; Pincus & Wright, 2021).

Accordingly, paranoid experiences – namely, the tendency to interpret ambiguous or neutral actions as deliberately harmful (Freeman & Garety, 2014) – may reflect the momentary activation of split internal representations – rigid, all-or-nothing internal images of self and other – in which the other is cast as wholly threatening, giving rise to the experience of persecution and malevolence (Caligor et al., 2018). These dynamics are further shaped by the predominant narcissistic configuration. In fact, pathological narcissism is now widely understood to include two distinct but interrelated expressions: grandiose and vulnerable narcissism (Pincus & Lukowitsky, 2010). Both types share

a fundamental need for external validation, yet they differ significantly in how this need is expressed. Grandiose narcissism is characterised by overt dominance, self-importance, exhibitionism, and a tendency toward aggression or exploitation. In contrast, vulnerable narcissism is more inwardly focused and emotionally fragile, marked by feelings of inadequacy, hypersensitivity to rejection, negative affect, and hostility, often accompanied by concealed grandiose fantasies and entitled attitudes (Pincus & Lukowitsky, 2010). Clinical accounts of pathological narcissism suggest that these two presentations may be associated with different ways of perceiving and experiencing others, which become especially visible in the therapeutic relationship: grandiose presentations often involve devaluation and a cold perception of others while craving admiration, including from the therapist, whereas vulnerable presentations are marked by heightened sensitivity to rejection or criticism and a tendency to idealize the therapist as a way of sustaining a fragile sense of self (Diamond et al., 2022; Di Sarno et al., 2023; Day et al., 2025). These clinical descriptions provide a theoretical basis for hypothesizing that narcissistic states may be associated with different momentary perceptions of others. Such perceptions may fluctuate from moment to moment, as different internal object relations are activated in response to interpersonal cues. Thus, the same person may be experienced at one moment as benevolent and submissive and at another as malevolent and dominant (Diamond & Hersh, 2020), reflecting the dynamic and time-sensitive nature of narcissistic transference. These dynamics can have serious clinical consequences, including therapeutic stalemate and premature termination (Stern et al., 2017), underscoring the need to better understand paranoid interpersonal perceptions in pathological narcissism. It is worth noting that the present study employs the term “*narcissistic states*” to refer to momentary self-relevant experiences assessed via Ecological Momentary Assessment (EMA), which are distinct from narcissistic traits (relatively stable dispositional tendencies), pathological narcissism (a dimensional construct encompassing both grandiose and vulnerable manifestations), and NPD (a categorical clinical diagnosis).

Capturing transference *in vivo*: a case for ecological momentary assessment

Although much of what we know about transference derives from clinical observation, empirical research has begun to validate these patterns (Marazzi et al., 2025). Narcissistic patients have been found to display avoidant and dismissive attitudes toward the therapist (Tanzilli et al., 2023), marked fluctuations between idealization and devaluation, and a tendency to interpret neutral interventions as critical or abusive. Overall, empirical research has consistently validated

the transference patterns described in clinical literature for different PDs (Bradley et al., 2005; Colli et al., 2016). However, most existing studies rely on cross-sectional, clinician-report or self-report data, providing only a static snapshot of what are inherently dynamic processes.

Recent advances in digital assessment methods, particularly ecological momentary assessment (EMA), offer new opportunities to investigate relational dynamics as they unfold in real time and in everyday contexts (Cain et al., 2025; Meehan et al., 2023). EMA typically involves prompting participants to report on their momentary experiences – such as emotions, thoughts, or interpersonal perceptions – through smartphone-based questionnaires, with minimal disruption to daily life. Compared to retrospective self-reports, EMA provides greater ecological validity and temporal resolution, making it possible to capture fine-grained fluctuations in individuals' experience of themselves and others (Meehan et al., 2023).

A growing body of research has employed EMA to examine interpersonal functioning and the impact of personality traits in naturalistic settings (e.g., Vize et al., 2024; Wright et al., 2025). Notably, EMA has been used to explore how maladaptive traits such as pathological narcissism (Di Pierro et al., 2022; Dowgwillo & Pincus, 2026; Edershile & Wright, 2025) and broader dimensions of personality dysfunction (Roche, 2022) shape everyday relational experiences. Meehan et al. (2023) used EMA methodology to track a borderline patient's assessment of her daily interpersonal interactions during 18 months of TFP. The patient completed questionnaires after each social interaction, rating her own and the other person's behavior on dominant/submissive and cold/warm dimensions. The EMA data revealed significant improvements in interpersonal functioning and symptoms: initially, the patient perceived dominant behavior as unfriendly and threatening, triggering paranoid feelings; by the end of therapy, this correlation had disappeared. These findings were corroborated by both therapist assessments and patient self-reports. Similarly, Cain et al. (2025) used EMA to examine interpersonal and affective changes in borderline patients during TFP. Prior to the start of therapy, and again at 9 and 18 months after the start at therapy, patients were asked to complete questionnaires with their ratings three times a day for two weeks. Over time, the questionnaires showed that patients perceived themselves as happier, warmer, and more agentic, with reduced emotional volatility in both valence and intensity; they also rated others as friendlier, and they no longer perceived others' dominant behaviors as cold or threatening. Borderline patients, in fact, tend to perceive these behaviors as signs of aggression, which impacts relationships, while the ability to tolerate these behaviors is important for creating bonds and more realistic representations of others. As

noted, transference processes are not limited to clinical settings but unfold in everyday life whenever self-relevant concerns are activated. High-frequency, ecologically valid methods are therefore well suited to capture these dynamics in vivo – and to connect them with the patterns observed in the treatment room.

Narcissism, in particular, functions as a self-regulatory system that is sensitive to interpersonal feedback. A growing number of studies demonstrate within-person variability in narcissistic thoughts, feelings, and behaviors, influenced by moment-to-moment social cues (e.g., Edershile & Wright, 2025; Di Sarno et al., 2020; Dowgwillo et al., 2025; Dowgwillo & Pincus, 2026; Rogoza et al., 2026). These findings support the idea that narcissistic expressions are context-dependent and fluctuate in response to shifting interpersonal environments. Moreover, individuals high in grandiose narcissism tend to report primarily interpersonal impairment rather than subjective distress (Pincus & Lukowitsky, 2010), possibly reflecting their persistent need for favorable self-presentation and maintenance of an inflated self-image. EMA reduces this self-presentation bias by focusing on immediate experiences rather than global self-description.

Similarly, paranoia – while often examined through a trait-based lens (Fanti et al. 2023a, b) – is better understood as a dimensional and dynamic phenomenon. Clinical research suggests that paranoid experiences fluctuate in intensity, content, and direction (e.g., alternating between perceiving the self or others as persecutory), often reflecting unstable self-esteem and maladaptive regulatory efforts (Contreras et al., 2022; Freeman & Garety, 2014). Paranoia also spans across diagnostic categories, reinforcing its transdiagnostic and process-oriented nature (Fanti et al. 2023a, b).

The present study addresses this gap by applying ecological momentary assessment and longitudinal network models to examine how narcissistic states, paranoid ideation, and interpersonal perceptions co-occur and influence each other in everyday life. We frame these dynamics within a psychodynamic, object-relations perspective. Although these processes can also be interpreted through social cognitive accounts of transference as an informational bias in interpersonal perception (Andersen & Przybylinski, 2012) or through affect-regulation models of narcissism emphasizing fluctuations in self-esteem and interpersonal regulation (Edershile & Wright, 2025), we argue that a psychodynamic lens adds explanatory value by accounting for the motivational and defensive functions of these patterns, focusing on intrapsychic contents, such as projection and the maintenance of ego-protective self-representations.

Using multilevel vector autoregression (mIVAR), we aimed to estimate three levels of dynamic associations: contemporaneous (momentary co-activation), temporal (lagged

influence), and between-subject (between-person associations). These models offer a three-tiered lens on transferential processes:

- (1) Contemporaneous networks reveal momentary co-activations of paranoid states, narcissistic states, and representations of others, mirroring real-time transferential reactions.
- (2) Temporal networks identify processual sequences, shedding light on the unfolding of dynamic interpersonal patterns over time.
- (3) Between-subject networks capture more stable relational patterns, which may reflect chronic and polarized relational representation shaping how individuals interpret others across situations.

At the contemporaneous level, we expected momentary increases in grandiose and especially vulnerable narcissistic states to be associated with higher paranoid ideation and with more negative interpersonal perceptions, particularly lower perceived warmth (Fanti et al. 2025; Pincus et al. 2020a, b; Raihani and Bell 2019). This pattern would be consistent with the idea that narcissistic self-states activate threat-sensitive self–other representations in the moment.

At the temporal level, we expected narcissistic states, paranoid ideation, and interpersonal perceptions to show dynamic carry-over effects across the day. Specifically, we expected paranoid ideation to function as a bridge between narcissistic vulnerability and grandiosity, reflecting a possible defensive sequence in which vulnerable self-states are followed by suspicious interpretations of others and, subsequently, by more self-protective grandiose states (Dowgillo et al., 2025).

At the between-person level, we expected individuals with higher average narcissistic states to show higher average paranoid ideation and to perceive others as more hostile-dominant across the observation period (Fanti et al. 2025; Pincus et al. 2020a, b). This pattern would indicate that repeated momentary associations among narcissistic states, paranoia, and interpersonal perception may reflect broader dispositional interpersonal signatures, consistent with the idea that transferential processes can crystallize into stable relational tendencies.

Methods

Participants & procedure

Participants were recruited for the study via word of mouth, social networks, and postings on an online research platform managed by the Department of Psychology (Sona

System). The study was described as an exploration of daily interpersonal interactions. No financial reimbursement was provided. However, students received credits via the Sona System. Eligible criteria were signed informed consent, age between 18 and 65, fluency in Italian, and possessing an iOS or Android smartphone. Involvement in the study was entirely voluntary, and drop-out was allowed at any time. This study was reviewed and approved by the local commission for minimal-risk studies of the [MASKED] (protocol n. RM-2023-635).

The study consisted of two phases: a baseline and an intensive longitudinal assessment. At the baseline, participants provided sociodemographic information and were provided with instructions regarding the longitudinal assessment: each participant had to download Time2Rate – an app developed by the [MASKED] for intensive longitudinal data collections – and register for the study through a code. The EMA lasted 7 days. The EMA design was time contingent: a reminder was set to trigger every 3 h, from 10.30 a.m. to 7.30 p.m., for 7 days 4 times a day. Consistent with earlier work (Kramer et al., 2014), after the signal, participants were asked to fill out an EMA questionnaire, thinking about the most significant distressing interpersonal interaction that occurred between the current and previous prompt. An interaction was defined as any direct, real-time online or offline conversation between the participant and one or more people of any duration. This interval was chosen to balance temporal resolution and participant burden: it was sufficiently short to capture within-day fluctuations among states, while potentially allowing enough time for meaningful psychological and interpersonal changes to occur between assessments (Thewissen et al., 2011; Zhang et al., 2022).

Participants reported their level of state paranoia, state narcissism, stress, and their perception of other people's dominance and warmth. The cumulative time for the 4 longitudinal questionnaires averaged around 5 min per day. Participants providing less than $\approx 20\%$ valid responses ($N=5$) out of 28 total momentary assessments were excluded from the final sample (Di Sarno et al., 2020). No formal imputation was applied to the remaining missing observations; missing data points were handled by the mlVAR estimation algorithm, which accommodates unbalanced panel structures¹.

Four hundred and fifty-four participants enrolled in the study ($Mean_{age} = 22.25 \pm 3.46$, age range = 18–56).

¹ To examine potential compliance effects, we regressed person-level mean scores of paranoia, grandiosity, vulnerability, and stress on participants' adherence rate, defined as the proportion of completed EMA surveys out of the 28 scheduled assessments. Adherence rate was not significantly associated with paranoia, stress, or vulnerability, whereas higher adherence was associated with higher person-level mean grandiosity ($\beta=0.13$, 95%CI = [0.04, 0.23], $p=.007$).

However, only 411 participants completed at least 5 assessments. These participants also responded correctly to two attention checks embedded in the baseline battery. Hence, the final sample consisted of 411 participants with a mean age of 22.10 ± 3.43 (age range 18–56). According to the systematic review by Blanchard et al. (2023), the number of participants in temporal network studies ranged from 5 to 1,354 (median = 66, $M = 119.6$, $SD = 210.7$). Thus, our sample size substantially exceeds the median reported in the literature and falls within the upper range of empirical mIVAR studies, ensuring adequate power for group-level temporal network estimation. The participants were mostly self-identified as women ($N = 339$; 82.5%), followed by men ($N = 70$; 17.0%) and other gender identities ($N = 2$; 0.5%). Two hundred eighty-seven participants had a high school diploma or lower (69.8%), followed by almost 24% ($N = 98$) of participants with a bachelor's degree. Eighteen participants had a master's degree (4.4%), followed by participants with postgraduate education ($N = 8$; 1.9%). The majority declared to be students ($N = 393$; 95.7%), followed by employees ($N = 16$, 3.9%) and unemployed ($N = 2$, 0.5%). Most participants ($N = 396$; 96.4%) were single. Only 14 participants (3.4%) were married or had a common-law partner, whereas only 1 participant was divorced (0.2%). Italians were the most represented in the sample ($N = 396$, 96.4%).

Overall, participants completed 5 to 28 surveys, with a mean of 23.19 (± 6.27) surveys per participant. The total number of completed surveys was 9,532 across participants. The adherence was high, with 70.10% of participants completing at least 80% of the surveys and 80.54% of participants completing at least 70% of the surveys.

Measures

The State-adapted Paranoia Checklist (S-PC; Schlier et al., 2016) is a self-report measure composed of 5 items assessing state paranoia. Participants were asked to describe how they had felt and what they had thought in their chosen interpersonal interaction, which occurred since the last assessment. They used an 11-point Likert scale, ranging from 0 (“Not at all”) to 10 (“Very much”), to rate each item (e.g., “I had to be on my guard against others”). For each item that was assigned a score of 2 or higher, participants were also asked to indicate the level of distress associated with that specific experience on a Likert scale ranging from 0 (“Not at all”) to 10 (“Very much”). State paranoia is calculated as the average item score. The checklist, originally in English, was back-translated into Italian for the purpose of this study. Between- and within-person reliability estimates were good (State Paranoia: $\alpha_{BP} = 0.91$, $\alpha_{WP} = 0.76$; Paranoia Distress: $\alpha_{BP} = 0.78$, $\alpha_{WP} = 0.78$).

The Narcissistic Grandiosity Scale-6 (NGS-6; Crowe et al., 2016) and the *Narcissistic Vulnerability Scale-6* (NVS-6; Crowe et al., 2018) assess state grandiose and vulnerable narcissism, respectively, using six adjectives each. Participants are asked to describe themselves (“Since the last notification/completion, to what extent have you felt...”) using a 9-point Likert scale ranging from 1 (“Not at all”) to 9 (“Extremely”) through six adjectives per each scale. In the present study, we used the Italian versions validated by Di Sarno et al. (2020). Between- and within-person reliability estimates were excellent ($\alpha_{BP} = 0.94 - 0.96$, $\alpha_{WP} = 0.82 - 0.86$).

The Momentary Visual Interpersonal Analog Scale (VIAS; Woods et al., 2023) was used to measure the momentary interpersonal perception of others on warmth and dominance. Participants were asked to focus on the interpersonal interaction they identified as the most distressing and to describe how they perceived the other person on two dimensions using a visual analog scale from -50 to 50 with two opposing anchoring adjectives. One item assessed the perception of the other's Dominance (i.e., “Submissive/meek”, “Dominant/forceful”), and one assessed the perception of the other's Warmth (i.e., “Cold/hostile”, “Warm/friendly”). Positive values indicate higher perceived dominance and warmth, whereas negative values indicate higher perceived submissiveness and coldness. The VIAS anchors were translated into Italian via a back-translation.

Information on the interpersonal interaction was collected: we asked about the number of people involved in the situation, others' gender, offline vs. online interaction, and level of stress perceived during the interpersonal interaction.

Statistical analyses

Data preparation

Statistical analyses were conducted using R-Studio (version 4.2.2; R Core Team, 2020). R-code and data are available in the Open Science Framework². Before estimating the network, we performed standard data-quality checks to ensure that the EMA data met the prerequisites for multivariate estimation. Specifically, we verified that the correlation matrix was positive definite (Schafer et al., 2021), ensuring that the data structure was suitable for multivariate estimation. We also inspected item-level redundancy using the goldbricker procedure, which detects pairs of items that are statistically interchangeable and may bias network estimation (Jones, 2025). Since the VAR models require the data to be at least weakly stationary (i.e., the mean and variance of the processes remain approximately constant across time;

² https://osf.io/c8g9y/overview?view_only=b2a9e9518efb4cf79a1ddb8a1d2dc71.

Bringmann et al., 2016; Sims et al., 1990), we formally tested the assumption of stationarity using the package “*tseries*” (Trapletti & Hornik, 2024). For each participant and each symptom variable, we applied the Kwiatkowski–Phillips–Schmidt–Shin (KPSS) test (Kwiatkowski et al., 1992), using the trend-stationary null hypothesis. Bonferroni-corrected significance thresholds were applied to adjust for multiple testing across individuals.

To investigate the dynamic relationship between narcissistic states, state paranoia, and perception of others in daily life, we used a multilevel Vector Auto-Regression - VAR (Epskamp et al., 2018) by using the package “*mlVAR*” (Epskamp et al., 2024). In this framework, three distinct types of networks are estimated (Epskamp et al., 2018). First, the contemporaneous network represents the partial, moment-to-moment correlations among variables measured in the same observations, while accounting for temporal effects. Second, the temporal network captures lagged associations, showing how a variable at one measurement predicts changes in other variables at the subsequent occasion, after adjusting for the full set of variables at the prior time point. Third, the between-subjects network models the relationships among individuals’ average levels across the assessment period, estimating regularized partial correlations among these person means: in other words, it reflects the covariance structure of participants’ average tendencies across the week.

Four alternative VAR model specifications (correlated, fixed, orthogonal, and fixed with autoregressive constraints) were compared, each estimated on the full multivariate time series including all five state variables (Paranoia, Grandiosity, Vulnerability, Agency, and Communion). For each specification, Akaike Information Criterion (AIC; Akaike, 1974) and Bayesian Information Criterion (BIC; Schwarz, 1978) were calculated for each variable’s component within the same joint multivariate model and then inspected both individually and in aggregate. Indeed, reporting AIC/BIC per variable allows inspection of potential variability in model fit across components of the multivariate system, while ensuring that model selection is based on the overall information criteria from the unified model. In the correlated model, both contemporaneous residuals and temporal random effects were allowed to correlate across variables. In the fixed-effects model, both contemporaneous and temporal

effects were estimated without random variation across individuals. The orthogonal model assumed residuals and temporal effects to be independent across variables. Finally, the autoregressive-only model restricted temporal dynamics such that each variable was predicted solely by its own previous value, excluding cross-lagged paths. Lower AIC/BIC values indicate a better fit relative to model complexity. Finally, we explored the structure of the estimated networks through centrality indices (Opsahl et al., 2010) to quantify the relative importance of each node within the system.

Specifically, for the undirected networks – namely the contemporaneous and the between-person networks – we focused on the centrality index most commonly recommended in psychological applications (Bringmann et al., 2019), namely strength centrality. This index reflects the total connectivity of a node, quantified as the sum of the absolute weights of its direct edges with other nodes (Epskamp et al., 2018). In the temporal network, we examined InStrength and OutStrength indices (Bringmann et al., 2019). InStrength centrality reflects the extent to which a node is influenced by other nodes, whereas OutStrength centrality reflects the extent to which a node exerts influence on other nodes.

Results

Participants interacted with an average of 2.15 individuals in each observation (± 7.69 ; N range 1–300), with interactions being mostly dyadic (6372, 66.8%). Participants reported, on average, low-stress interactions ($M_{\text{stress}} = 31.8 \pm 29.4$; stress range 1–100), mostly offline ($N = 7,322$; 76.8%) and with women ($N = 5,319$; 55.8%). Interactions with men were 4,051 (42.5%), followed by other types (e.g., men and women, transgender, not available) ($N = 162$; 1.7%). On average, participants reported a low level of state paranoia but a high level of distress when reporting it ($M_{\text{paranoia-stress}} = 5.25 \pm 2.02$; stress range 0.20–10). On the other hand, during the 7 days, individuals perceived others as slightly submissive and warm. Descriptive statistics and bivariate correlations of state measures are reported in Table 1.

The item-level correlation matrix was positive definite, confirming that the covariance structure was suitable for network estimation. In addition, the inspection of

Table 1 Mean, Standard Deviation, Range, and Bivariate Correlations of Daily Variables (person-mean)

State Paranoia	Mean (SD)	[Min, Max]	State Paranoia	State Grandiosity	State Vulnerability	Other Agency
	1.36 (1.73)	[0–10.0]				
State Grandiosity	2.38 (1.58)	[1.00–9.00]	0.29***			
State Vulnerability	2.67 (1.72)	[1.00–9.00]	0.79***	0.22***		
Other Agency	–1.90 (24.8)	[–50.0–50.0]	–0.33***	0.07	–0.39***	
Other Communion	10.7 (27.9)	[–50.0–50.0]	–0.53***	0.16**	–0.58***	0.45***

$N = 411$; Observations = 9532. ** $p < .01$; *** $p < .001$

item redundancy indicated no overlapping items requiring removal. Thus, all EMA items were retained as separate variables in the analyses. Results indicated that none of the participants' time series deviated from stationarity. The VAR with orthogonalized residuals showed the lowest AIC/BIC values in five out of ten individual comparisons and the lowest total AIC and BIC when aggregated across variables, indicating the best overall balance between model fit and parsimony. Therefore, this specification was selected for the estimation of the temporal and contemporaneous networks.

The contemporaneous network, revealing the associations between the variables within the same datapoint, indicated dense connectivity among the variables (weights: $|0.05| - |0.41|$) (Fig. 1a): both state grandiosity and vulnerability were linked to contemporaneous increases in paranoid perceptions of others. However, in the case of state vulnerability, this association was conveyed by perceiving the interaction partner as lower in agency (less dominant) and lower in communion (less warm): higher vulnerability was specifically related to construing others as more passive and colder, which in turn was related to higher paranoia. On the other hand, state grandiosity was related to perceiving the other person as higher in agency and communion, thus experiencing the other person as more dominant and warmer during the interaction, which was related to less state paranoia. The strength centrality indices (Fig. 1b) further highlighted the pivotal role of other communion, which emerged as the most central node in the network, followed by state vulnerability and paranoia.

The temporal network represents the extent to which nodes predicted themselves and each other from one

datapoint (t) to the next one ($t+1$). The temporal network showed a substantial number of estimated predictive edges (weights: $|0.03| - |0.12|$). As shown in Fig. 2a, state vulnerability was in a loop with paranoid states and perceptions of agency: higher vulnerability predicted subsequent increases in state paranoia. In turn, paranoia predicted higher perceptions of communion and agency in others in the following time-point. Higher agency was then associated with increased vulnerability at the following datapoint. State vulnerability also displayed significant autoregressive effects, indicating temporal stability across measurements. On the other hand, state vulnerability was also associated with subsequent increases in state grandiosity. In turn, grandiosity showed autoregressive effects, indicating an inertial pattern.

Centrality indices for the temporal network (Fig. 2b) highlighted state paranoia as the most influential node, showing both the strongest outgoing and incoming connections. This indicates that paranoia was not only the state most strongly predicted by other variables (notably vulnerability) but also the one most predictive of subsequent changes in other states (including communion, agency, and grandiosity).

The between-subject network (Fig. 3a) depicts how states were associated on average across the seven days. Both grandiose and vulnerable narcissism were positively related to higher average levels of paranoia in daily life. In addition, paranoia was negatively associated with communion, indicating that individuals who experienced higher levels of paranoia tended to perceive others as less warm on average. The opposite relationship with other communion held true for state grandiosity. Strength centrality indices

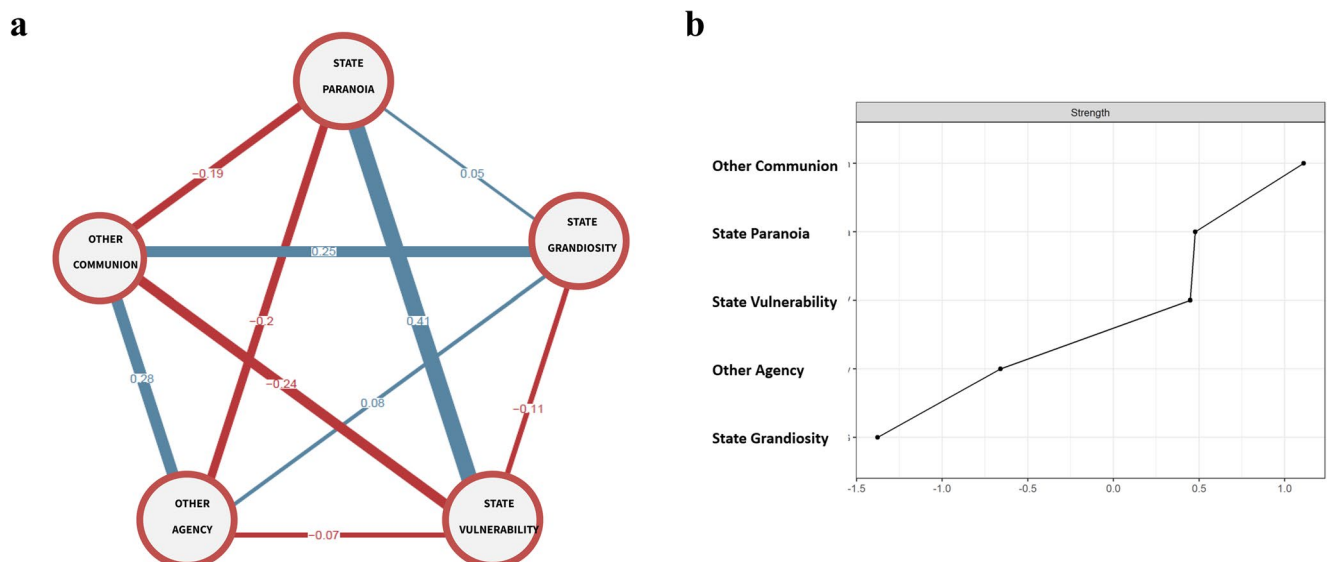


Fig. 1 Contemporaneous network depicting simultaneous associations among variables. *Note.* $N = 411$; Blue lines represent positive edges. Red lines represent negative ones. Edge thickness reflects edge

weights. Centrality plot reporting the strength of each node in the contemporaneous network

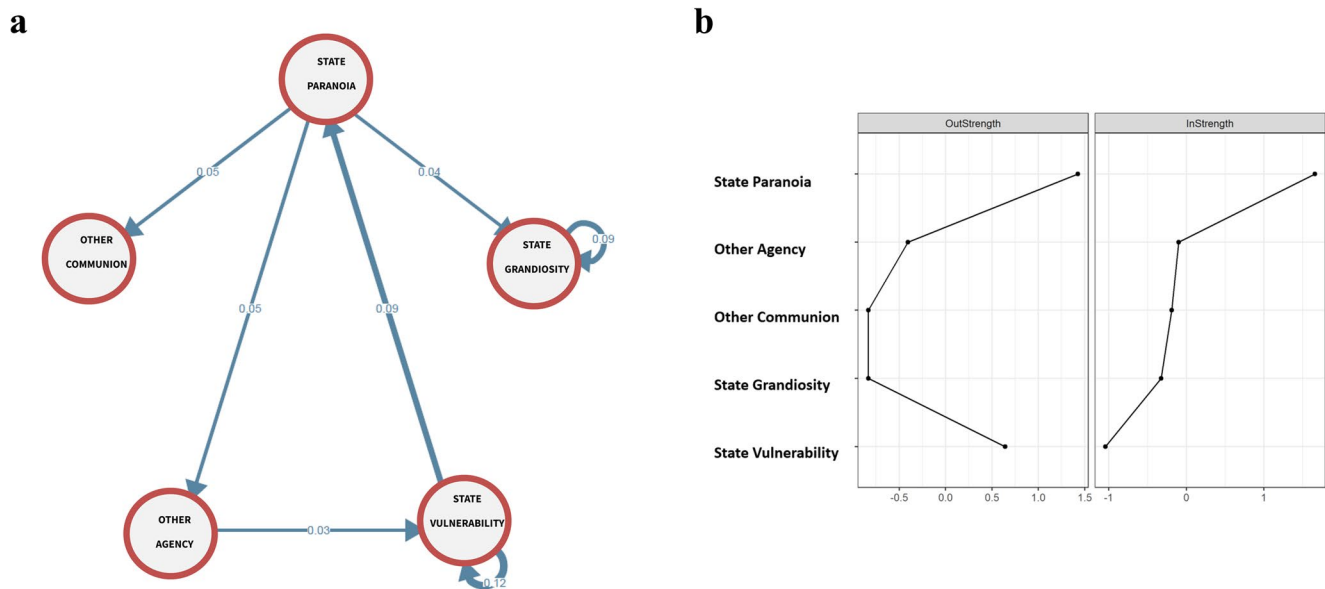


Fig. 2 Temporal network depicting lagged associations among variables. *Note.* $N = 411$; Blue lines represent positive edges. Red lines represent negative ones. Edge thickness reflects edge weights. Central-

ity plot reporting OutStrength (the extent to which each state predicts changes in other states over time) and InStrength (the extent to which each state is predicted by other states at the previous time point)

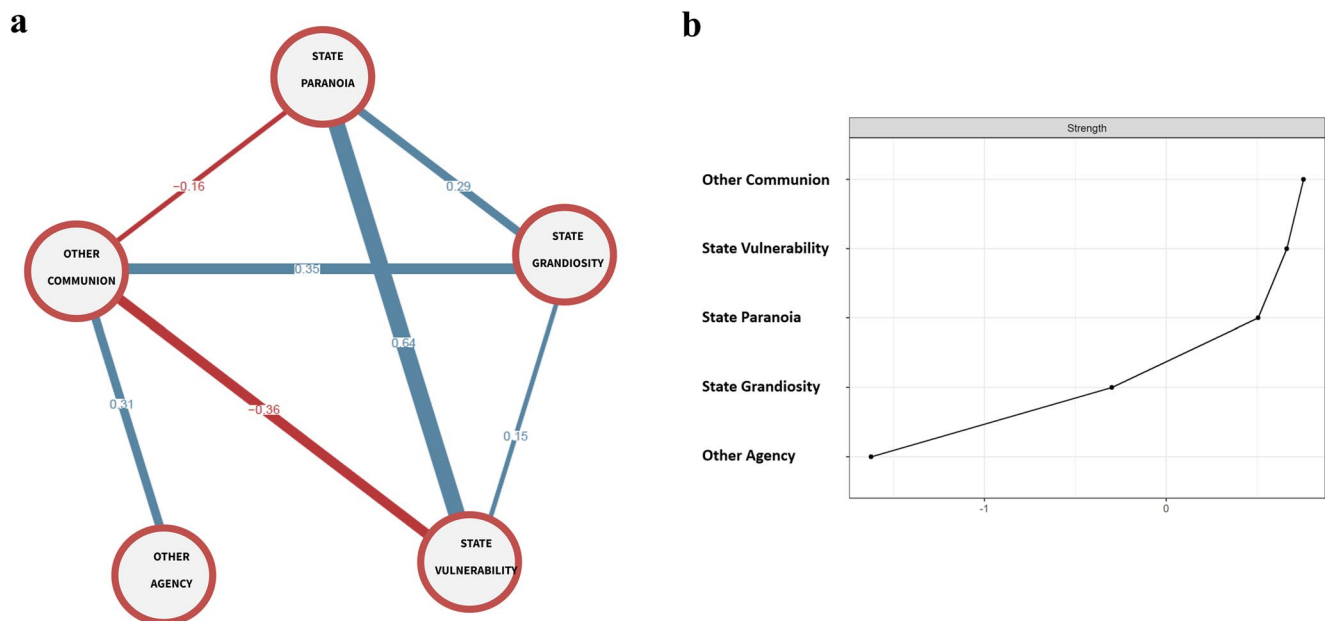


Fig. 3 Between-subject network depicting partial correlations among participants' mean levels in the variables. *Note.* $N = 411$; Blue lines represent positive edges. Red lines represent negative ones. Edge

thickness reflects edge weights. Centrality plot reporting the strength of each node in the between-subject network

(Fig. 3b) confirmed communion as the most central node in the between-subject structure, followed by vulnerability and paranoia.

Discussion

The present study aimed to operationalize and examine state paranoia, grandiose and vulnerable narcissistic states, and

interpersonal perceptions as they unfold in everyday life, using a naturalistic and moment-to-moment approach. We interpret our results as the byproduct of internalized object relations, which are at play in any affectively charged relationship, including the therapeutic relationship, thus connecting our findings to the concept of transference as a ubiquitous phenomenon. Across three temporal scales, findings reveal that narcissistic states, interpersonal perceptions,

and paranoia entertain complex and dynamic associations, with implications for understanding extra-therapeutic and transference processes. Indeed, paranoia constitutes a central expression of narcissistic functioning (Fanti et al., 2025), where the projected hostility and mistrust protect the self from feelings of vulnerability, dependence, or shame, and externalize internal conflict through the perception of others as critical or threatening (Stern et al., 2017).

Contemporaneous network

The contemporaneous network revealed that both grandiose and vulnerable narcissistic states were related to momentary increases in paranoid states. However, this effect was conveyed through different processes. In the case of vulnerable narcissism, the key mechanism involved a momentary increase in the perception of others as cold and, to some extent, submissive. Perceiving others as cold and submissive is consistent with a social environment experienced as rejecting or unsupportive, activating feelings of insecurity and vigilance toward potential rejection. Consistent with this view, prior research has linked vulnerable narcissism to heightened rejection sensitivity, that is, the tendency to anxiously expect, readily perceive, and overreact to potential cues of rejection, a tendency empirically associated with paranoid ideation in community samples (Bagrowska & Gawęda, 2025; Czajkowska-Lukasiewicz et al., 2025; Di Pierro et al., 2022).

In the present study, we expand these results: vulnerable states are not only associated with rejection-related interpersonal perceptions, but also with momentary increases in paranoid ideation, consistent with a tendency to interpret others' intentions as threatening (Fanti et al. 2023a, b, 2025). Consistently, the most central nodes in the contemporaneous network were state paranoia, state vulnerability, and perceiving others as interpersonally cold, forming a tightly connected triad at the heart of momentary dynamics. This suggests that episodes of paranoid ideation often co-occur with vulnerable self-states and a perception of others as emotionally distant or unresponsive. Such a configuration is consistent with theoretical accounts of transference dynamics in which the self is experienced as fragile, ashamed, or unworthy, while the other is perceived as cold, critical, or withholding – fueling suspiciousness and interpersonal defensiveness (Gabbard & Crisp, 2018). While caution is warranted in extending these findings to psychotherapy, similar dynamics have been described in patients with narcissistic transference, where the therapist is perceived as rejecting or invalidating, leading to withdrawal, devaluation, or suspiciousness from the patient (Diamond & Hersh, 2020; Gabbard & Crisp, 2018). In a sense, even moments of silence or emotional neutrality (low dominance) on the part

of the therapist may be misinterpreted as signs of disinterest or rejection (low warmth), thereby reinforcing the patient's mistrust and defensive withdrawal. This reactivation of early experiences of rejection, humiliation, and shame can lead to relational ruptures within the therapeutic alliance, as documented empirically in studies on alliance ruptures in narcissistic presentations (Gabbard, 2013; Gamache et al., 2018; Zalman et al., 2019). The therapist may feel ineffective, accused, or emotionally excluded (Tanzilli et al., 2015, 2017), and, if these dynamics remain unaddressed, they risk reinforcing the patient's expectation of rejection. Recognizing and working through such countertransference reactions is therefore essential to restore trust and re-establish a collaborative therapeutic process.

On the other hand, state grandiosity was also associated, albeit weakly, with the momentary perception of others as warmer and, to a lesser extent, more dominant — traits that may signal social assertiveness and extraversion (Kiesler, 1996). This pattern may reflect an ambivalent interpersonal configuration in which admiration and threat coexist: others are experienced simultaneously as sources of validation and potential rivals whose agency could endanger the individual's sense of superiority. Indeed, grandiose individuals not only are motivated to be dominant themselves, but also show sensitivity to others' dominance and react to it with distress and hostility (Edershire & Wright, 2025). From a psychodynamic perspective, these perceptions are broadly consistent with narcissistic transference dynamics in which the other is cast as a friendly yet competitive figure — someone who may both grant and withhold admiration (Kernberg, 2007; Gabbard & Crisp, 2018). In this light, paranoid ideation may emerge not from interpersonal rejection per se, but from the anticipation that admiration could be withdrawn or redirected, threatening the integrity of the grandiose self (Kernberg, 2007, 2014).

Temporal network

The temporal network highlighted two key patterns. The first is that paranoia emerged as a central bridge linking vulnerable and grandiose narcissistic states. More specifically, perceived agency in others predicted vulnerable self-states, which in turn resulted in increased state paranoia later on, finally ending in a self-perpetuating cycle of grandiosity. This suggests a dynamic trajectory where persecutory experiences may be responsible for the defensive transition from a vulnerable sense of self to grandiose self-enrichment. In line with this idea, paranoid ideation also predicted viewing others as more dominant (agency) and warmer (communion) in subsequent time-points, possibly mirroring a defensive shift toward grandiose self-enhancement and a more favorable perception of others (Kernberg, 2007, 2014). In such

moments, the therapist can help the patient recognize the emergence of this grandiose self-state as a defensive reaction against feelings of shame, dependency, or rejection – an attempt to deny dependency needs and re-establish a sense of omnipotent control (Kernberg, 2015) – to allow the gradual integration of split self-representations and foster a more realistic and cohesive sense of self.

A second recursive loop was identified between vulnerability, paranoia, and the perception of others as more dominant (agency). Specifically, vulnerability predicted increased paranoia, which in turn led to perceiving others as more dominant. Crucially, this perception fed back into heightened vulnerability that was related both to higher paranoid states and vulnerability in the following social interaction, indicating a self-reinforcing cycle of interpersonal threat and self-fragility. This result is partially in line with the idea that narcissistic vulnerability involves heightened sensitivities to both agentic and communal interpersonal themes (Hopwood et al., 2011). However, when it comes to paranoid reactions, our findings suggest that perceived threats to agency – that is, the dominance or assertiveness of others – are particularly central in eliciting paranoid responses. We speculate that this self-reinforcing cycle may find a parallel in therapeutic contexts, though such extensions remain speculative given the nonclinical nature of our sample: perceiving the therapist as dominant or assertive may act as a transference distortion, where interpersonal cues are interpreted through the lens of internalized configurations of a fragile self, confronted with a powerful therapist. In other words, the agency of the other may be experienced as disconfirming or invalidating to the fragile self, activating paranoid defenses and disrupting the ability to form integrated perceptions of others (Diamond et al., 2022). Consistent with psychodynamic accounts of early treatment processes in narcissistic pathology (Crisp & Gabbard, 2020; Diamond et al., 2011), in the early stages of treatment the analyst's genuine emotional investment may not be experienced straightforwardly as care, but may be misread as intrusive, controlling, or exposing, thereby eliciting intense vulnerability, shame, and defensive devaluation (Kernberg, 2015). This circular dynamic mirrors a micro-level transference process in which internal configurations of a paranoid–vulnerable self and a threatening–dominant other are reactivated by momentary interpersonal cues.

It is worth noting that in the temporal network, state paranoia emerged as the most influential and influenced node, showing the highest out-strength and in-strength. This result indicates that paranoia is both highly reactive to prior states – particularly narcissistic vulnerability – and highly predictive of subsequent changes in the system, including shifts in state grandiosity and perceptions of others' communion and agency. These findings align with models describing

paranoia not only as a byproduct of narcissistic vulnerability but also as an active mechanism of self-defense (Fanti et al., 2025; Kernberg, 2007; Stern et al., 2017). Taken together, the temporal dynamics suggest two possible trajectories originating from the same interpersonal trigger, namely the perception of dominance in others. In the *fragile route*, others' dominance increases self-vulnerability, leading to paranoia, which in turn amplifies perceived dominance and reactivates further vulnerability in a self-perpetuating loop. In the *self-enhancing route*, others' dominance again increases self-vulnerability, leading to paranoia, but here paranoia fuels a compensatory surge in grandiosity, temporarily restoring a superior self-image. In other words, paranoia may function either as a disorganizing mental state that escalates vulnerability or as a defensive process that stabilizes the self through grandiosity.

Between-person network

Finally, at the between-person level, both narcissistic grandiosity and vulnerability were associated with stable tendencies to perceive others as threatening (paranoia). However, the mechanisms underlying these associations differed. In the case of vulnerability, paranoid tendencies were explained by perceiving others as cold and distant. In contrast, for grandiosity, the indirect path through communion was negative – higher grandiosity was related to perceiving others as warmer, which in turn predicted lower paranoia. Nevertheless, a residual positive association between grandiosity and paranoia remained unexplained, suggesting that paranoid reactions among highly grandiose individuals may arise through mechanisms other than cold or hostile perceptions of others. The latter pattern may reflect a representation of the other as warm and admiring of the grandiose self, consistent with patterns described in the clinical literature on idealizing transference (Day et al., 2020; Diamond et al., 2022; Gabbard & Crisp, 2018; Kernberg, 2007; Kohut & Wolf, 1978). However, its co-occurrence with paranoid ideation suggests a potentially unstable dynamic, where positive perceptions of others may quickly turn suspicious or threatening when the grandiose self is challenged or not mirrored. In the case of vulnerable narcissism, the stable association with perceiving others as cold may reflect the paranoid transference pattern, in which others are systematically experienced as distant and unresponsive (Day et al., 2020; Diamond et al., 2022; Di Pierro et al., 2022). Similar to the contemporaneous centrality indices, the most central nodes of the between-person network were state paranoia, state vulnerability, and (low) communion. Thus, these stable co-activations suggest not only momentary dynamics, but also a more enduring internal organization of self–other representations activated across contexts.

Integrating across networks

Overall, the consistent association between narcissistic vulnerability and paranoia – observed not only at the between-person level but also across temporal dynamics – highlights that paranoia constitutes a more stable and pervasive correlate of vulnerable narcissism. This is not surprising considering that, from an interpersonal point of view, vulnerably narcissistic individuals suffer from insecurity, suspiciousness, lack of trust, defensiveness, and anger (e.g., Fanti et al., 2025) and show confusion between self and others, both at a perceptual and representational level (Benzi et al., 2026; Karan et al., 2019) (Table 2).

It is worth noting that the strong empirical association between paranoia and vulnerability observed across the three network levels may raise questions about their discriminant distinctiveness. Although the two constructs partially overlap in reflecting interpersonal threat sensitivity and insecurity, they remain theoretically and operationally distinct. Vulnerable narcissism refers to a fragile, shame-prone self-organization characterized by hypersensitivity to rejection, entitlement, shame, and masked grandiosity (Pincus & Lukowitsky, 2010). Paranoia, by contrast, involves the attribution of malevolent intent to others, that is, the perception that others are deliberately threatening, hostile, or harmful (Freeman & Garety, 2014). Their strong empirical co-occurrence may therefore reflect shared underlying processes, such as interpersonal insecurity, perceived inadequacy, and rejection sensitivity, rather than construct redundancy. Importantly, paranoia and vulnerability showed distinct network positions and divergent patterns of association within the network, supporting their discriminant utility within the present framework. Future research using multi-method assessment designs could further clarify the boundary conditions between paranoid ideation and narcissistic vulnerability as distinct but interacting processes.

Despite the achieved *consensus* on the underlying structure of pathological narcissism (i.e., grandiosity and vulnerability) (Pincus, 2023), recent discussions have suggested that narcissism might be better understood as temporally

dynamic in its nature (Pincus, 2020; Pincus & Wright, 2021). Our findings contribute to this discussion by demonstrating that the relationship between grandiose and vulnerable states is highly time-scale dependent. At the contemporaneous level, grandiose and vulnerable states were negatively associated, reflecting the mutual exclusivity of these states in the moment. However, at the between-person level, grandiose and vulnerable states were positively correlated, suggesting that individuals who tend to experience one also tend to experience the other across the week – supporting the idea of a shared underlying structure (Dowgwillo & Pincus, 2026; Edershile & Wright, 2025). Notably, this co-occurrence was observed using measures that capture primarily extraverted and neurotic content rather than antagonism (Rogoza et al., 2026), suggesting that the association does not merely reflect a shared antagonistic core. Crucially, at the temporal level, grandiose and vulnerable states were indirectly linked through paranoid ideation: moments of vulnerability predicted subsequent increases in paranoia, which in turn predicted grandiosity. This trajectory supports a dynamic model in which narcissistic states fluctuate and influence one another through defensive interpersonal and intrapsychic processes (Dowgwillo et al., 2025), contributing to the wider debate on the fluctuations between grandiose and vulnerable self-states as core features of narcissistic pathology (e.g., Gabbard & Crisp, 2018; Kernberg, 2007; Pincus, 2023).

Taken together, these findings provide empirical support for conceptualizing transference as involving dynamic, temporally unfolding processes that mirror patterns rooted in self–other representations. It is important to clarify that in the present study, we examined narcissistic dynamics in a nonclinical, community sample using naturalistic methods. The pattern found may differ from clinical transference proper in both intensity and rigidity. In the therapeutic relationship, transference processes are expected to be more pronounced, systematically distorted, and therapeutically meaningful, particularly in individuals with narcissistic pathology (Freud, 1911). Our findings may thus be understood as a proxy for transference

Table 2 Models' comparison of the four possible network analysis solutions

	State Paranoia	State Grandiosity	State Vulnerability	Other Agency	Other Communion	Total
AIC_1	15613.28	15833.66	15910.61	17911.65	17470.95	82740.15
AIC_2	15732.57	15889.55	15998.87	17921.01	17504.47	83046.47
AIC_3	15608.51	15816.34	15911.16	17912.97	17471.74	82720.72
AIC_4	15756.97	15911.08	16008.07	17919.11	17500.75	83095.98
BIC_1	15830.07	16050.46	16127.40	18128.45	17687.75	83824.13
BIC_2	15813.87	15970.85	16080.17	18002.31	17585.77	83452.97
BIC_3	15723.68	15931.51	16026.34	18028.15	17586.91	83296.59
BIC_4	15811.17	15965.28	16062.27	17973.31	17554.95	83366.98

N=411; Observations=9532. 1=VAR with correlated residuals; 2=VAR with fixed effects correlated residuals; 3=VAR with orthogonalized residuals; 4=VAR with AR-only model. Bolded AIC and BIC values indicate the lowest (best-fitting) estimates for each outcome variable.

capturing the normative substrate upon which pathological transference is built, rather than transference in its full clinical expression.

Specifically, in everyday life, transferential dynamics are typically transient and moderate in intensity, triggered by affectively charged situations without a structured relational frame. In the therapeutic relationship, by contrast, the analyst's neutrality, the asymmetry of the dyad, and the patient's regression systematically intensify these processes, making internalized self–other configurations more rigid, distorted, and therapeutically accessible (Kernberg, 2007). Moreover, the therapeutic frame itself – through its containing and symbolizing function – creates the conditions for these dynamics to be observed, named, frustrated, and worked through rather than enacted (Gabbard, 2016), a process that has no equivalent in everyday life. The structured setting enables a degree of regression that ordinary social interactions cannot hold, while the analyst's dual state of consciousness – simultaneously participating in and observing the relationship – maintains a tertiary function that keeps experience symbolically alive (Gabbard, 2016).

The current study presents some limitations: specifically, participants were predominantly recruited from a single university ($N=369$; 89.8% via Sona System), were mostly female, young, and Italian. This sociodemographic homogeneity substantially constrains the generalizability of our findings to clinical populations, particularly individuals with NPD or other PDs. At the same time, the use of student samples is not uncommon in narcissism research. Research has shown that trait narcissism, as measured in nonclinical samples, can serve as a meaningful building block for understanding narcissistic phenomena more broadly, including at the clinical level (Miller & Campbell, 2010). Furthermore, evidence from measurement invariance research by Di Pierro et al. (2023) suggests that pathological narcissism may be organized comparably across clinical and non-clinical groups. Thus, while our findings should not be generalized to clinical populations in terms of severity, they may still contribute to understanding the broader dimensional organization of narcissistic and paranoid-interpersonal dynamics.

Moreover, within a non-clinical community sample, paranoid levels were low and interpersonal interactions were predominantly experienced as warm, which may have limited the range and intensity of transferential dynamics captured. A clinical population would likely display more extreme and entrenched paranoid states and more pervasive self–other distortions (Diamond et al., 2022). Also, the recruitment method – social media platforms – may have introduced selection bias. Participants who are active on social media and willing to engage in online research may possess characteristics that differentiate them from

the general population, for instance, being less concerned about privacy and more likely to share information about themselves, and being less suspicious (Topolovec-Vranic & Natarajan, 2016).

The 7-day EMA window, while well-suited for temporal network estimation, may not be sufficient to distinguish short-term interpersonal tendencies from more enduring relational configurations or structural object-relational patterns in the psychodynamic sense. Between-person effects should therefore be interpreted as reflecting relatively stable tendencies within the observation period, not as indices of structural personality organization. Additionally, because EMA relies on self-report, our assessment was necessarily limited to participants' conscious and reportable experiences, including self-perceived narcissistic states, interpersonal perceptions, and paranoia. As such, the study does not *directly* capture unconscious or pre-reflective processes that are central to psychodynamic conceptualizations of narcissism and transference, although defensive processes may nonetheless emerge and unfold naturalistically in the context of daily interpersonal interactions. Future studies would benefit greatly from integrating subjective measurements with assessments conducted by external observers, such as therapists or psychologists (Hopwood & Bornstein, 2014).

The choice to assess only the most distressing interaction since the previous prompt – while theoretically motivated by the assumption that transference is most likely to emerge in affectively charged situations – may introduce a negativity bias, potentially inflating associations among paranoia, vulnerability, and hostile interpersonal perceptions. However, state paranoia remained low on average ($M=1.36$, $SD=1.73$, range=0–10), consistent with previous studies (Contreras et al., 2022), whereas interaction-related stress was moderate and highly variable ($M=31.8$, $SD=29.4$, range=1–100). Thus, although selecting the most distressing interaction may have increased the likelihood of capturing interpersonal contexts in which paranoid appraisals could emerge, this choice was also methodologically important to ensure sufficient variability in a phenomenon that is expected to occur infrequently. Indeed, the relatively low average level of state paranoia is consistent with population-based evidence showing that more severe paranoid thoughts are uncommon and that paranoid ideation is typically concentrated at the lower end of the continuum in the general population (Freeman & Garety, 2014). A clinical population could have experienced a wider range or more extreme transferential mechanisms, potentially resulting in more frequent or extreme paranoid states and more entrenched self–other distortions (Diamond et al., 2022). This limitation highlights the need for comparative studies between clinical and non-clinical populations to better understand how personality pathology influences the experience of paranoid

states in daily life. Future research should replicate these findings in clinical samples, where narcissistic dynamics are likely to be more pervasive, rigid, and resistant, and in the therapeutic setting that may intensify transference processes (Meehan et al., 2023). In particular, it would be valuable to investigate how these dynamics unfold in the therapy room, where moment-to-moment shifts in other representations – especially in relation to the therapist – may reveal the patterns beneath therapeutic ruptures (Kernberg, 2007; Luo et al., 2021, 2022). By gaining insights into these contextual dynamics, we can develop more targeted and effective interventions.

Our study provides preliminary groundwork for investigating these processes both within and beyond the therapeutic setting, bridging clinical and everyday manifestations of transference. The present findings underscore that transference is not a static trait-like phenomenon, but rather a time-variant process that evolves dynamically across different temporal scales. By adopting a network perspective, we were able to disentangle the distinct momentary, sequential, and dispositional patterns linking narcissistic states, paranoid ideation, and interpersonal perceptions. Crucially, different time frames revealed different relational architectures, highlighting that clinical interventions may benefit from being attuned not only to what patients feel and perceive – but also when and how these patterns emerge, escalate, and interact over time.

Authors' contributions Erika Fanti: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing – original draft; Writing – review & editing.

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Data availability The data supporting the findings of this study are openly available on OSF at: https://osf.io/c8g9y/overview?view_only=b2a9e9518efb4cf79a1ddb8a1d2dc71.

Declarations

Ethical approval This study was approved by the local commission for minimal-risk studies of the Department of Psychology at the University of Milano-Bicocca (protocol n. RM-2023-635). All procedures were performed in accordance with the Declaration of Helsinki, and all participants provided informed consent prior to participation.

Consent to participate Informed consent was obtained from all individual participants included in the study.

Consent to publish All authors consent to the publication of this manuscript. No identifying information about participants is included in the article, and no images or sensitive data are presented. Participants provided informed consent for the use of their anonymized data for research publication purposes.

Conflict of interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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