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Dynamic Bayesian Networks of Self-Esteem Fluctuations and Social Feedback Sensitivity

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1. Round 1

1.1. Reviewer 1

Reviewer:

You state that “Understanding the mechanisms that underlie these fluctuations requires moving beyond static cross-sectional models toward temporally sensitive and network-based approaches capable of capturing dynamic reciprocal processes.” While compelling, this claim would benefit from clearer theoretical positioning. Please explicitly specify which dynamic systems framework (e.g., self-regulation theory, computational psychiatry, complex adaptive systems) underpins your modeling choices. Currently, the transition from conceptual argument to DBN implementation is somewhat abrupt.

The manuscript cites adolescent-focused studies (e.g., Nadia et al., Chen) but your sample consists of emerging adults (mean age ≈ 22.84). Please clarify the developmental rationale for extrapolating adolescent findings to emerging adulthood. Are you assuming continuity of feedback sensitivity mechanisms, or developmental transformation?

The autoregressive coefficient for state self-esteem is approximately 0.49. Please interpret this effect size in psychological terms. Does this reflect moderate inertia, high inertia, or emotional rigidity? Comparative benchmarks from EMA literature would be helpful.

The moderation effect (posterior mean ≈ 0.15) is statistically credible, but its practical magnitude is unclear. Please provide a simple slope visualization or standardized effect interpretation to clarify how much stronger feedback effects are among high-RS individuals.

Authors uploaded the revised manuscript.

1.2. Reviewer 2

Reviewer:

Several neural studies are summarized (e.g., frontostriatal connectivity, hemispheric asymmetries). However, the present study does not include neurobiological measures. Please temper language implying neural mechanisms were directly examined. For example, the sentence "These findings converge with evidence that sleep deprivation, stress, and affective dysregulation modify neural responses to social evaluation tasks" risks overgeneralization in the absence of concurrent neural data.

You describe perceived social feedback valence rated from −3 to +3. Please clarify whether this refers to offline interactions, online interactions, or both. Given the heavy emphasis on digital ecology in the Introduction, the operational definition of feedback should be explicitly aligned with your theoretical framework.

You implemented a two-time-slice DBN. Please justify why lag-1 structure was assumed sufficient. Did you test alternative lag structures (e.g., lag-2 dependencies)? Given five assessments per day, meaningful psychological processes might unfold across longer temporal windows.

You report that "Stationarity was evaluated using augmented Dickey–Fuller tests." Please provide more detail. Were stationarity tests conducted at the individual level or pooled level? How many time series violated stationarity assumptions, and how were they handled?

You state that mlVAR findings "justified the implementation of Dynamic Bayesian Network modeling." Please elaborate on what additional variance or structural complexity DBNs capture beyond mlVAR. A direct methodological comparison (even conceptually) would strengthen the analytic rationale.

With 287 individuals and 26,874 observations, your data are substantial; however, DBN structure learning can be sensitive to overfitting. Please clarify how many nodes were included in the final network and whether model sparsity constraints were imposed.

Authors uploaded the revised manuscript.

2. Revised

Editor's decision after revisions: Accepted.
Editor in Chief's decision: Accepted.

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