

## Recurrent Neural Network Forecasting of Marital Satisfaction Under Economic Stress Conditions

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### 1. Round 1

#### 1.1. Reviewer 1

Reviewer:

The statement that most existing studies rely on cross-sectional designs should be refined by briefly acknowledging key longitudinal exceptions, thereby sharpening the positioning of the present study's methodological contribution.

Recruitment through counseling centers, labor unions, family courts, and clinics introduces potential selection bias. The authors should explicitly discuss how these channels may influence sample representativeness and external validity.

Attrition from 612 to 540 couples is reported, but no attrition analysis is provided. Please report whether dropouts differed from completers on baseline economic stress, marital satisfaction, or demographic variables.

The phrase "culturally validated Spanish version of a comprehensive marital satisfaction inventory" requires specification of the original instrument and its psychometric properties in the present sample.

It is unclear whether objective economic indicators were self-reported or obtained from official records. This distinction is essential for evaluating measurement reliability and should be stated explicitly.

Clarify whether correlations are computed at the individual level, partner level, or aggregated couple level, given the dyadic structure of the data.

The proposal to integrate explainable AI is promising; the authors should specify which interpretability techniques would be most appropriate for this modeling framework.

Response: Revised and uploaded the manuscript.

### 1.2. *Reviewer 2*

Reviewer:

The strong predictive performance of the LSTM warrants additional validation. Please report performance stability across cross-validation folds or resampled test sets to rule out overfitting.

The method used to compute “Normalized Importance” is not specified. The manuscript should clarify whether this derives from permutation analysis, attention mechanisms, or another technique.

The reported two-to-three-month lag in the effect of economic stress should be supported by a quantitative description of how this temporal window was identified within the model.

The statement that prediction error was reduced by “more than 30%” should be supplemented with confidence intervals or standardized effect size comparisons.

The claim that conventional models are “ill-equipped” should be strengthened by explicitly identifying which assumptions of linear models are violated in the present data.

The conclusion that relational mechanisms operate similarly across socioeconomic groups should acknowledge possible unmeasured moderators such as cultural financial norms or differential access to social resources.

The limitation regarding self-report measures should be expanded to address common-method variance and social desirability effects in financial and marital reporting.

Response: Revised and uploaded the manuscript.

## 2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.