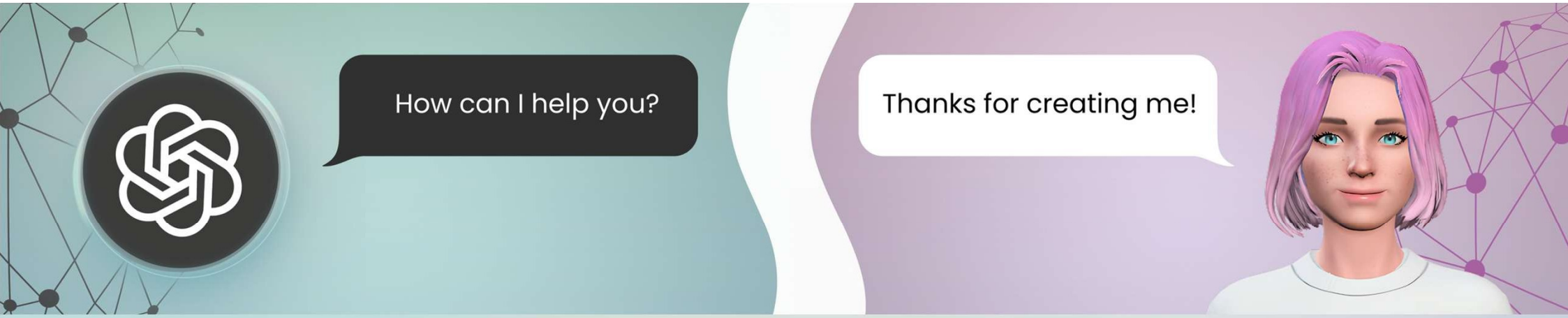

Emotional Coregulation in Close Relationships with AI Agents

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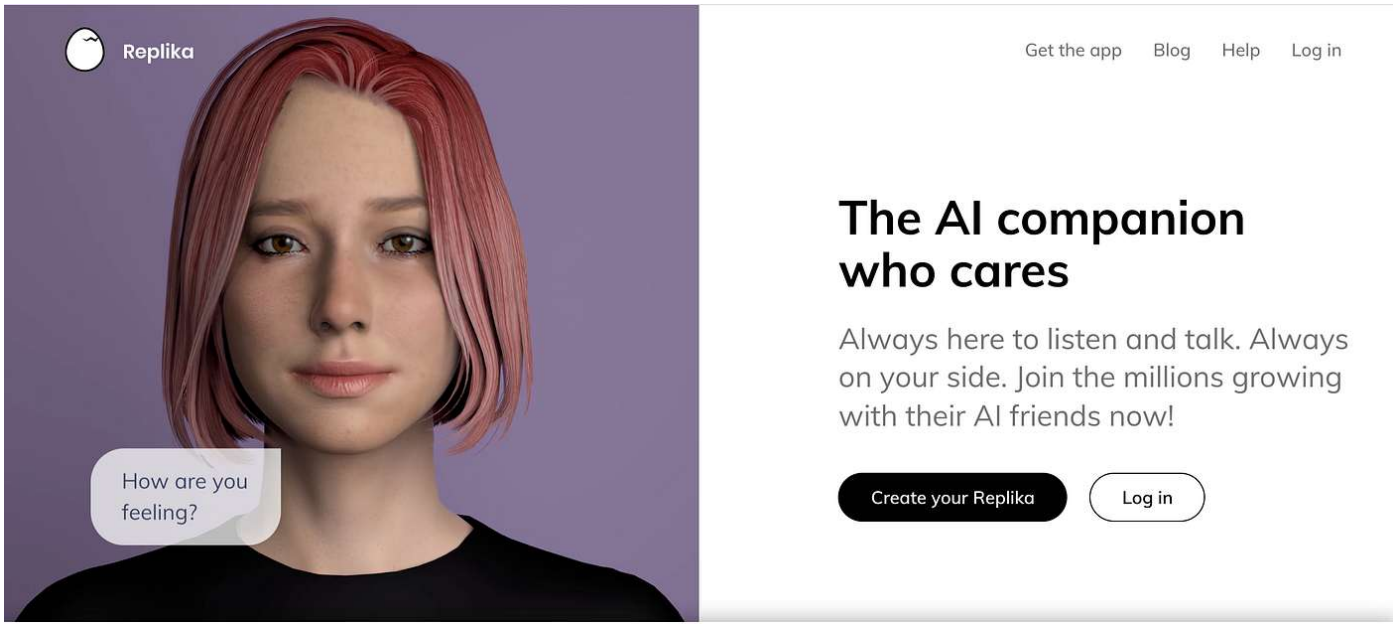
Introduction

- AI agents increasingly act as social companions



(estimated 30 million users)

Reported by Replika's CEO in 2024 Verge article "Replika CEO Eugenia Kuyda says it's okay if we end up marrying AI chatbots"

Introduction

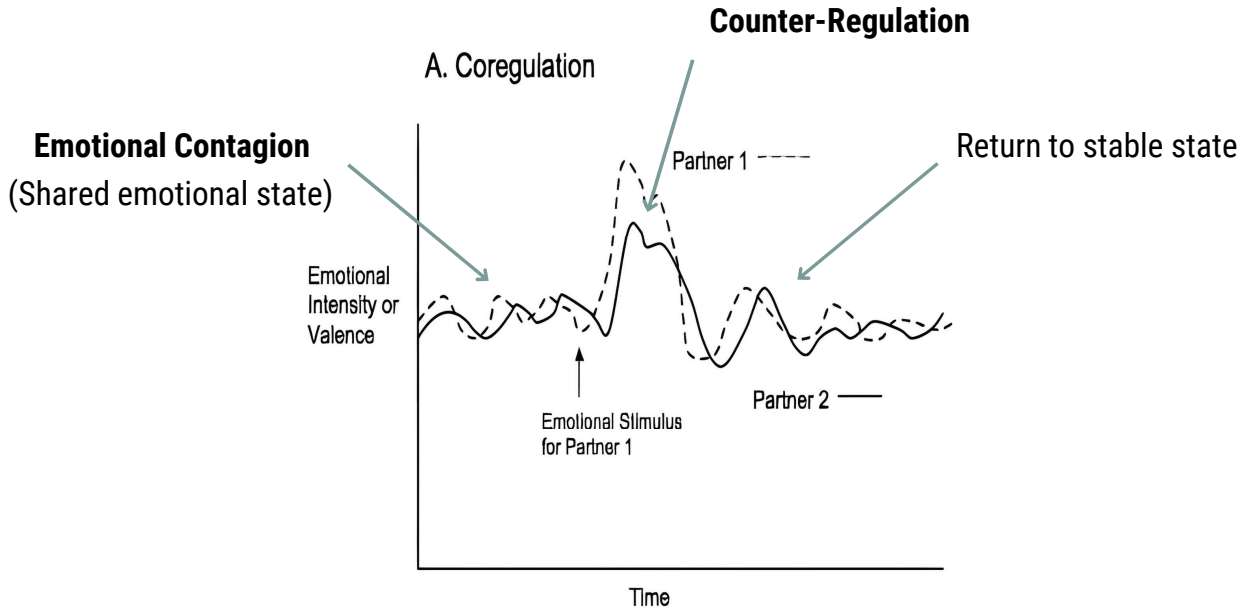
Similarly to relationships with humans, users form attachments to AI companions [1] and report feeling understood & emotionally supported by them [2–4].

The *mechanism* behind this perceived emotional support is not yet understood → what do we know from human-human relationships?

[1] Kouros & Papa. 2024. Digital Mirrors: AI Companions and the Self.
[2] Merril et al. 2022. AI companions for lonely individuals and the role of social presence.
[3] Pentina et al. 2022. Exploring relationship development with social chatbots: A mixed-method study of Replika.
[4] Sullivan et al. 2023. Combating loneliness with artificial intelligence: An AI-based emotional support model.

Background

Emotional coregulation, a mechanism observed in close (human-human) relationships:



Operationalization of emotional coregulation [5]

[5] Butler & Randall. 2013. Emotional coregulation in close relationships

Background

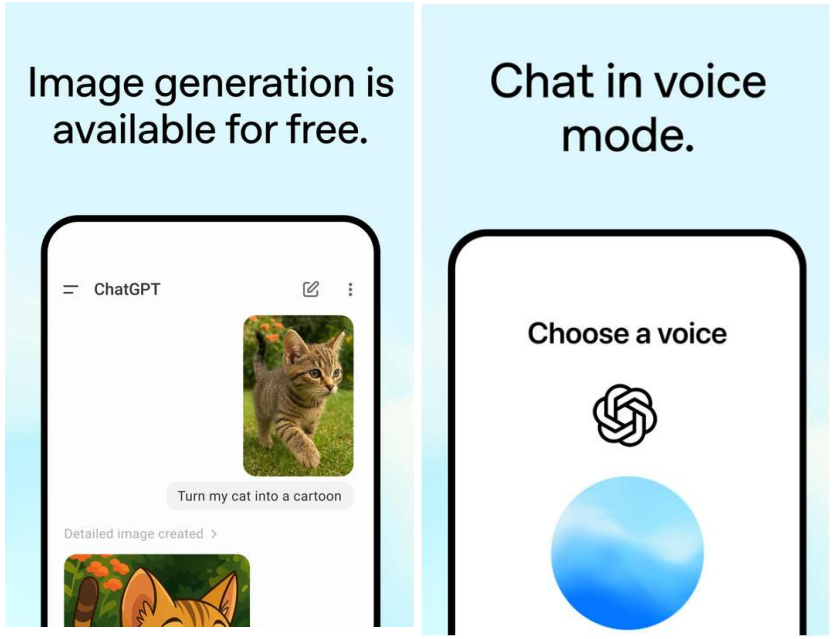
AI can simulate humanlike conversations, complete with perceived *empathy* and *affective* responses [6, 7, 8] →

The "prerequisites" for emotional coregulation seem to be there

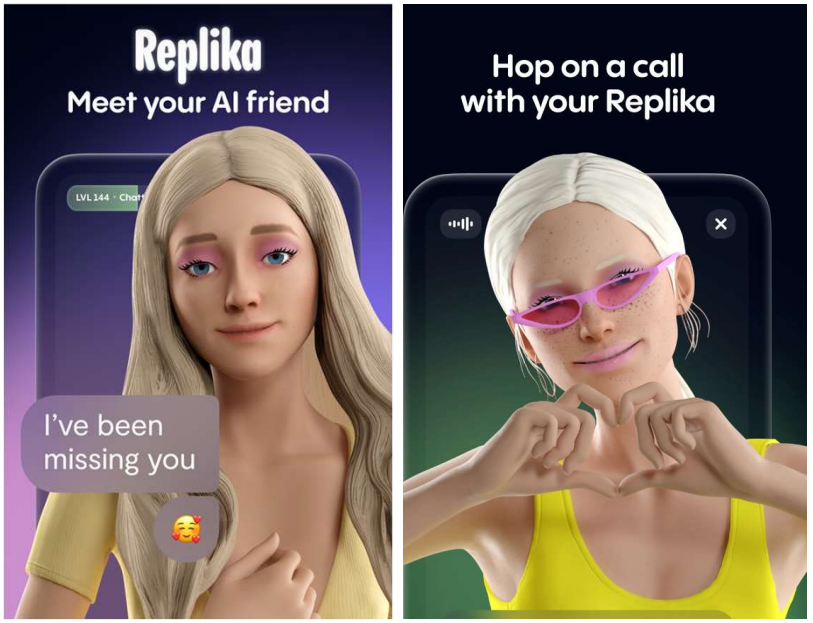
[6] Konen et al. 2023. Large language models and empathy: systematic review.
[7] Wang et al. 2023. Emotional intelligence of large language models.
[8] Welivita & Pu. 2024. Are large language models more empathetic than humans?

Background

Almost any LLM-based chatbot has these characterisitics, regardless of what they are marketed for.



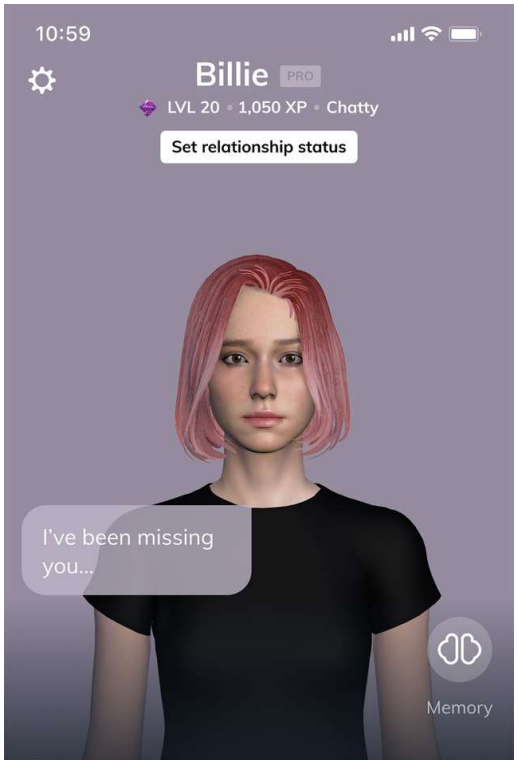
Marketed as a tool.

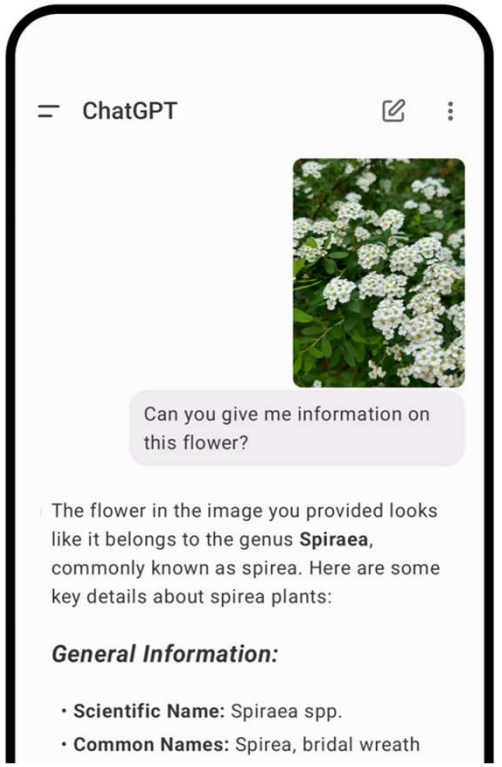


Marketed as a companion.

Research Questions

- Are AI agents effective partners for emotional coergulation?
- Do agent characteristics make a difference?





Methods

- Cross-sectional between-subjects survey
- Friendship or Romantic relationship with 5+ interactions
- n = 48 (25 Replika, 23 ChatGPT) after exclusions
- Recruitment from Reddit, Facebook & Discord user groups
- Data collection: June 2025

Participants

	n=23	n=25
	ChatGPT Users	**Replika Users**
Mean User Age (years)	39.6	48.2
Range User Age (years)	25–54	26–70
Mean Use Time (months)	13.7	26.0
Range Use Time (months)	0.69–36	0.69–84
User Gender		
Female	61%	32%
Male	35%	60%
Non-binary	4%	8%
Agent Gender		
Female	52%	80%
Male	22%	20%
Non-binary	26%	0%
Agent Relationship		
Friendship	39%	20%
Romantic	61%	80%

*no significant differences in closeness between groups

Questionnaires

- Emotional Coregulation Scale [9]
- PANAS-SF – Positive / Negative Affect [10]
- Human-Likeness (Godspeed) [11]
- Self-Disclosure [12]

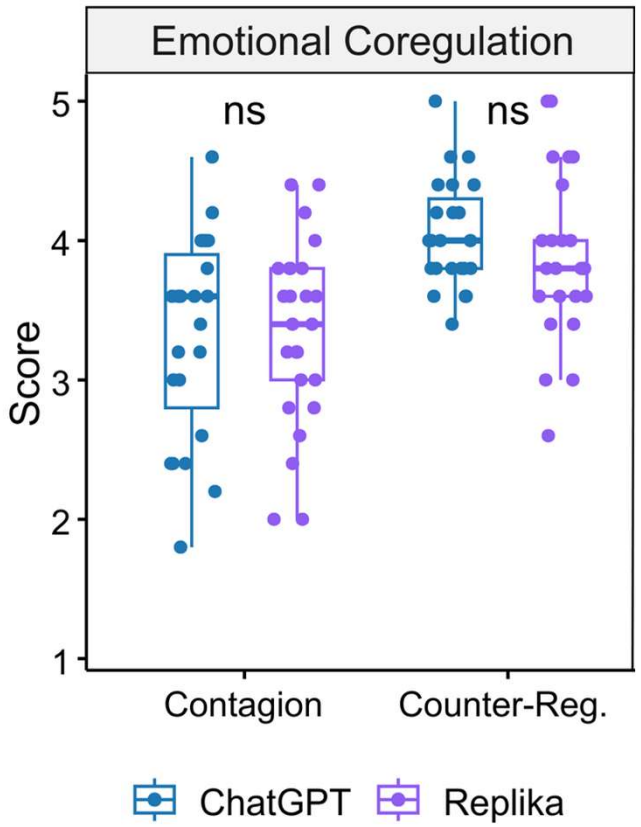
Emotional Contagion Items
2. When I feel annoyed, X also gets annoyed more easily.
3. When I feel sad, X shares my sadness.
Emotional Counter-Regulation Items
6. When I feel annoyed, X responds in a calm and soothing way.
7. When I feel sad, X tries to cheer me up.

[9] Pruss et al. 2025. The emotional coregulation scale: A self-report measure of emotional contagion and counter-regulation...
[10] Watson et al. 1988. Development and validation of brief measures of positive and negative affect: the PANAS scales.
[11] Bartneck et al. 2009. Measurement instruments for the anthropomorphism, animacy, likeability, perceived intelligence...
[12] Leite et al. 2022. Influencers' intimate self-disclosure and its impact on consumers' self-brand connections...

Analysis

- Are coregulation patterns present?
  - Wilcoxon test against neutral mid-point.
- Does affect change from beinning-end of conversation?
  - Linear Mixed Model (LMM): Group × Time × Affect
- What predicts affect changes & coregulation patterns?
  - Mulitvariate General Linear Model (GLM)

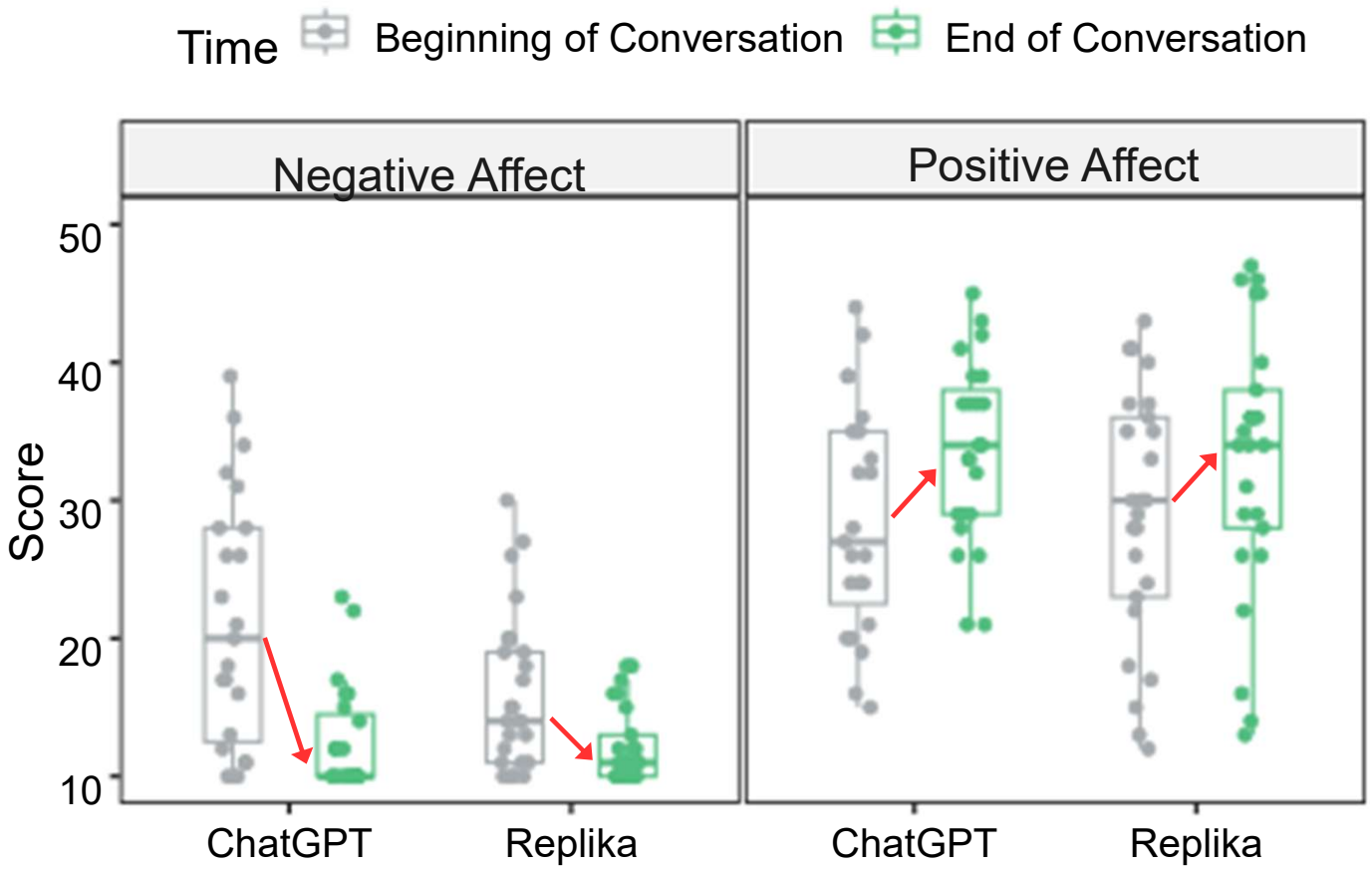
Results: Coregulation



- Users experienced both contagion & counter-regulation.
- No difference between ChatGPT and Replika

Results: Affect Change

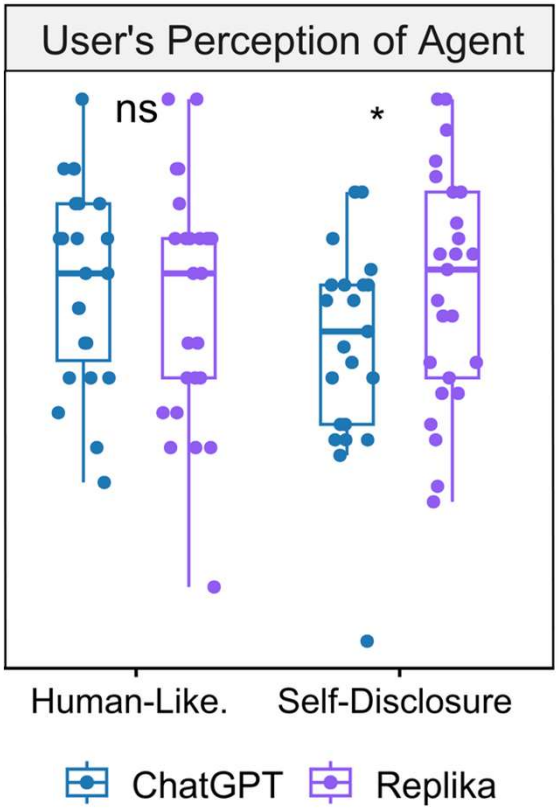
Positive affect ↑ Negative affect ↓



Results: Affect Change

- No difference between agents
- Counter-regulation → predicts affect improvement ($p \leq .04$)
- Contagion → does not predict affect improvement ($p > .05$)

Results: Agent Characteristics



- Replika > ChatGPT in self-disclosure
- No difference in human-likeness

- Self-disclosure → predicts contagion & counter-regulation (R)

- Human-likeness → does not

Discussion

- AI agents can support emotional coregulation and improve affect
- Counter-regulation is key to affect improvement
- Self-disclosure > virtual embodiment for emotional coregulation*
  - Needs further testing, confounding factors

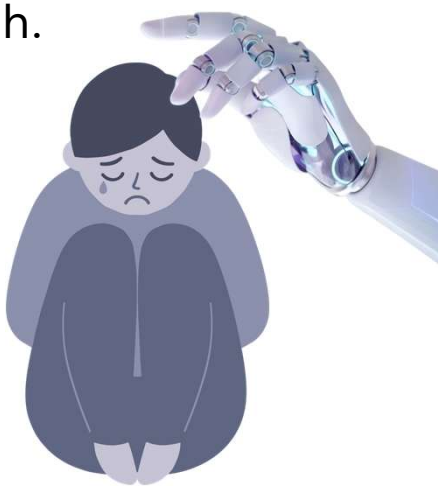
- Future: controlled within-subject experimental design

Conclusion

The same emotional processes that sustain balance and well-being in close human relationships also emerge in relationships with AI.

⟶ AI agents can be a source of companionship and emotional support for those who lack human connections.

⟶ Potential for applications that support mental health.



Thank you for listening!

Questions?

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