Icahn School of Medicine at Mount Sinai

Bloch-Elkouby Lab for Suicide Prevention and Psychotherapy Research

Ferkauf Graduate School of Psychology

Protocol for a Randomized Controlled Trial Evaluating the Effectiveness of an AI-Enhanced Virtual Human Training for Therapy with High-Risk Patients

Kate Van Houten[1,2,3], You-Syuan Lin[1,2], Samuel Welsh[1,2], Jimmy Pengyu Chen[1,2], Igor Galynker[1], & Sarah Bloch-Elkouby[1,2]

[1] Icahn School of Medicine at Mount Sinai, [2] Ferkauf Graduate School of Psychology, [3] Teachers College, Columbia University

Introduction:

Clinicians commonly experience intense emotional responses like distress, helplessness, frustration, and avoidance when assessing suicide risk and treating high risk patients (Barzilay et al., 2019; Huggett et al., 2021). These emotional reactions can undermine empathic communication (EC) and damage therapeutic alliance in turn exacerbating suicidal outcomes. Even though EC and therapeutic alliance are incredibly important to supporting high risk patients, few training programs address clinicians' Emotional Self-Awareness & Management (ESA-M) to improve EC and the alliance (McCabe et al., 2017; Barzilay et al., 2019).

Virtual Human Interactions (VHIs) involve conversations with standardized virtual patients, derived from rich, real-world patient data, and can simlate encounters with patients at high risk for suicidal behaivors who present with Suicide Crisis Syndrome (SCS) (Bloch-Elkouby et al., 2025). VHIs assist clinicians in managing their ESA-M, like regulating negative facial expressions and verbal empathic communications. VHIs provide an opportunity for clinicians to practice and grow these challenging skills in an environment that is lower risk than working with live patients.

Innovations:

- **New Tool:** Didactic training videos in emotional self-awareness and empathic communication + Virtual Patient Practice
- **New Perspective:** Psychotherapy research model that examines emotional processes between client and patient
- **New Mechanisms:** Multiple mediation models will be used to examine relationships.
  - Will EC & alliance mediate the outcomes separately?
  - Will EC & alliance mediate the outcomes sequentially?

Expected Results

	Outcome Variable	Rater	Virtual Patients (Training vs. Control)	Real Patients (Training vs. Control)
Clinician Outcomes	ESA-M	Clinician	↑ Greater improvement	↑ Greater improvement
	Empathic Communication (EC)	Clinician	↑ Greater improvement	↑ Greater improvement
	Empathic Communication (EC)	Patient	↑ Greater improvement	↑ Greater improvement
	Therapeutic Alliance	Clinician	↑ Greater alliance	↑ Greater alliance
Patient Outcomes	Therapeutic Alliance	Patient	—	↑ Stronger alliance
	Suicidal Ideation	Patient	—	↓ Greater decrease
	Suicidal Behaviors	Patient	—	↓ Greater decrease
	SCS Severity	Patient	—	↓ Greater decrease

Gaps in Literature:

This study presents an innovative opportunity to learn about suicide prevention from a novel focus point. Suicide prevention has historically focused on what interventions clinicians are delivering rather than what is occurring interpersonally (Zalman et al., 2016). The emotional processes in a therapeutic dyad critically affect the therapeutic alliance (Barzilay et al, 2020). It has been empirically well-established that the therapeutic alliance is a strong predictor of treatment engagement and clinical outcomes (Li et al., 2024), yet little is known about the emotional processes that establish the alliance. Suicide prevention literature can expand upon the exploration of the emotional processes that improve the alliance.

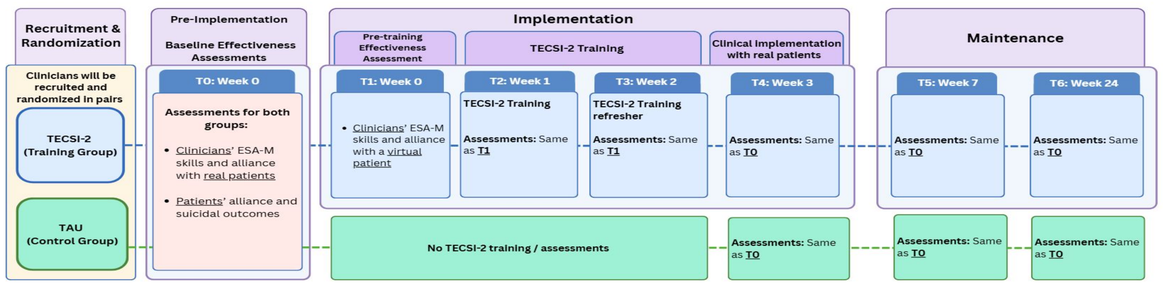
Proposed Methods:

- Intervention: Didactic training videos in emotional self-awareness and empathic communication + Virtual Patient Practice
- RCT, 222 Clinicians + 444 patients recruited from hospitals
- Clinicians outcomes measured:
  - Emotional Self-Awareness & Management
  - Empathic Communication
  - Therapeutic Alliance
- Patient outcomes measured:
  - Suicidal Ideation
  - Suicidal Behaviors
  - Suicide Crisis Syndrome Severity
  - Patient-rated Therapeutic Alliance
  - Patient Rated Empathic Communication
- Outcomes will be measured and assessed longitudinally across training and clinical implementation phases.

Significance of the Proposed Study:

This study can advance the knowledge of the back-end mechanisms are responsible for improving clinician care and patient outcomes. Understanding the active ingredient in treatment, like ESA-M or EC, is essential because it allows for further lines of research that are more focused on process. This transdiagnostic process research is foundational for understanding more specific questions like what populations are the mechanisms working the best for or what factors impair certain essential active ingredients. Prior literature has established that therapeutic alliance outcomes differ cross-culturally (Li et al., 2024). Results from this study can provide transdiagnostic insights that can provide more understanding to disparities that exist, like cross-cultural processes.

Breaking down suicide prevention efforts to the ingredients is an essential start to improving and expanding care. Active ingredients in psychotherapy can facilitators or barriers depending on the setting within which they are utilized. Having a better understanding of the building blocks of suicide prevention improves the field as a whole.



References:

Barzilay, S., Schuck, A., Bloch‐Elkouby, S., Yaseen, Z. S., Hawes, M., Rosenfield, P., Foster, A., & Galynker, I. (2019). Associations between clinicians' emotional responses, therapeutic alliance, and patient suicidal ideation. *Depression and Anxiety*, *37*(3), 214–223. https://doi.org/10.1002/da.22973

Bloch-Elkouby, S., Johnson, B., Chen, J. P., Hayek, R. E., Jones, A., Eid, T., De Siqueira, A. G., Apter, Y., Yao, H., Lok, B., Foster, A., & Galynker, I. (2025). Can training clinicians in emotional awareness using virtual patient interactions improve the therapeutic alliance with psychiatric outpatients and reduce suicidal outcomes? *Psychiatry Research*, *356*, 116846. https://doi.org/10.1016/j.psychres.2025.116846

Huggett, C., Gooding, P., Haddock, G., & Pratt, D. (2021). The Relationship between the Therapeutic Alliance and Suicidal Experiences in People with Psychosis Receiving Therapy. *International Journal of Environmental Research and Public Health*, *18*(20), 10706. https://doi.org/10.3390/ijerph182010706

Li, Y., Whiston, S., Wong, Y. J., & Gilman, L. (2024). Clients' Race/Ethnicity as a moderator of the relationship between the therapeutic alliance and treatment outcome. *International Journal for the Advancement of Counselling*, *46*(2), 219–241. https://doi.org/10.1007/s10447-024-09546-3

McCabe, R., Sterno, I., Priebe, S., Barnes, R., & Byng, R. (2017). How do healthcare professionals interview patients to assess suicide risk? *BMC Psychiatry*, *17*(1), 122. https://doi.org/10.1186/s12888-017-1212-7

Zalsman, G., Hawton, K., Wasserman, D., Van Heeringen, K., Arensman, E., Sarchiapone, M., Carli, V., Höschl, C., Barzilay, R., Balazs, J., Purebl, G., Kahn, J. P., Sáiz, P. A., Lipsicas, C. B., Bobes, J., Cozman, D., Hegerl, U., & Zohar, J. (2016). Suicide prevention strategies revisited: 10-year systematic review. *The Lancet Psychiatry*, *3*(7), 646–659. https://doi.org/10.1016/s2215-0366(16)30030-x