

RELATIONSHIPS BETWEEN AGE, CHRONICITY, AND COMMUNITY-BASED NEUROPSYCHOLOGICAL REHABILITATION OUTCOMES

Ayala Bloch^{1,2}, Tal Shany-Ur^{2,3}, Limor Sharoni², Narkis Bar-Lev², Tali Salomon-Shushan², Sari Maril², Eran Druckman⁴, Dan Hoofien^{2,3,5}

¹Department of Psychology, Ariel University, Ariel, Israel ; ²The National Institute for the Rehabilitation of the Brain Injured, Tel Aviv, Israel; ³Department of Psychology, The Hebrew University of Jerusalem, Jerusalem; ⁴Druckman Research and Statistics, Rishon Lezion, Israel, ⁵The Israel Academic College, Ramat Gan, Israel



BACKGROUND and OBJECTIVE

- Post-acute community-based neurorehabilitation programs following brain injury address cognitive, behavioral, and psychosocial deficits, to enhance independence and integration into employment and society¹.
- Efforts have been made to identify variables influencing the efficacy of such programs², given vast variability in patient characteristics and interventions.
- Studies show that time between injury and admission to treatment, or chronicity, can affect rehabilitation outcomes³, but inconsistent findings suggest interactions with other patient and injury-related variables.
- Age and development are related to various vocational processes.
- OBJECTIVE: To determine whether potential associations between chronicity and rehabilitation outcomes vary with age.**

METHOD

- Retrospective, longitudinal cohort study – before and after participation in a holistic community-based **vocation-focused** neuropsychological rehabilitation program
- 171 participants (121 males; age: M = 34.45 years, SD = 10.55, range = 19-59; years since injury: M = 4.35, SD = 5.10, range = 0.50-39) with acquired brain injury
- Outcome measures: Community integration, perceived quality of life, employment status, and mood

CONCLUSIONS

- Patient and injury characteristics in general, and age specifically, can moderate the relationship between chronicity and outcomes of post-acute neuropsychological rehabilitation with a vocational focus.
- Findings might be explained by disruption of personal and vocational development processes associated with early adulthood, due to injury.
- Focus of rehabilitation at any age should take premorbid development and maturity into consideration; at younger ages, patients might benefit from focus on other rehabilitation components before beginning vocational rehabilitation.
- Future research can further characterize the proposed relationship between age, chronicity, and outcomes, e.g., examine whether age at admission is related to motivation and readiness for vocational rehabilitation and employment.

RESULTS

- Community integration [$t(170) = 3.87, p < .001$], perceived quality of life [$t(170) = 2.79, p = .006$], and percentage of employed participants [12.4% at T1, 50.9% at T2; $p < .001$] improved significantly after program completion, while mood [$t(170) = 0.56, p = .578$] did not.
- Hierarchical linear and logistic regressions revealed interactions between chronicity and age, indicating that positive associations between chronicity and mood, perceived quality of life, and employment status were found in younger patients but not in older patients.

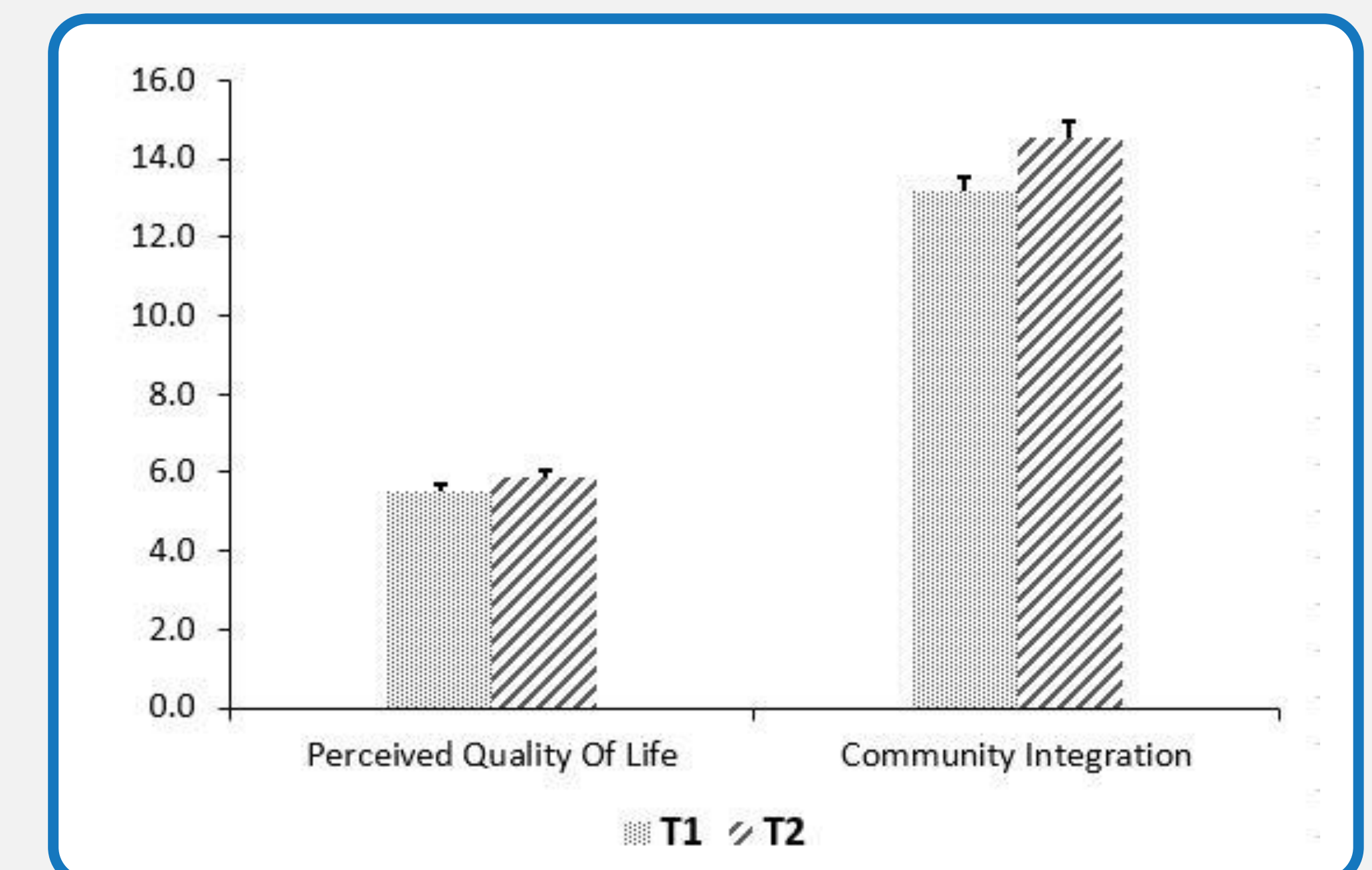


FIG 1. Means and standard errors of outcome measures before and after treatment.

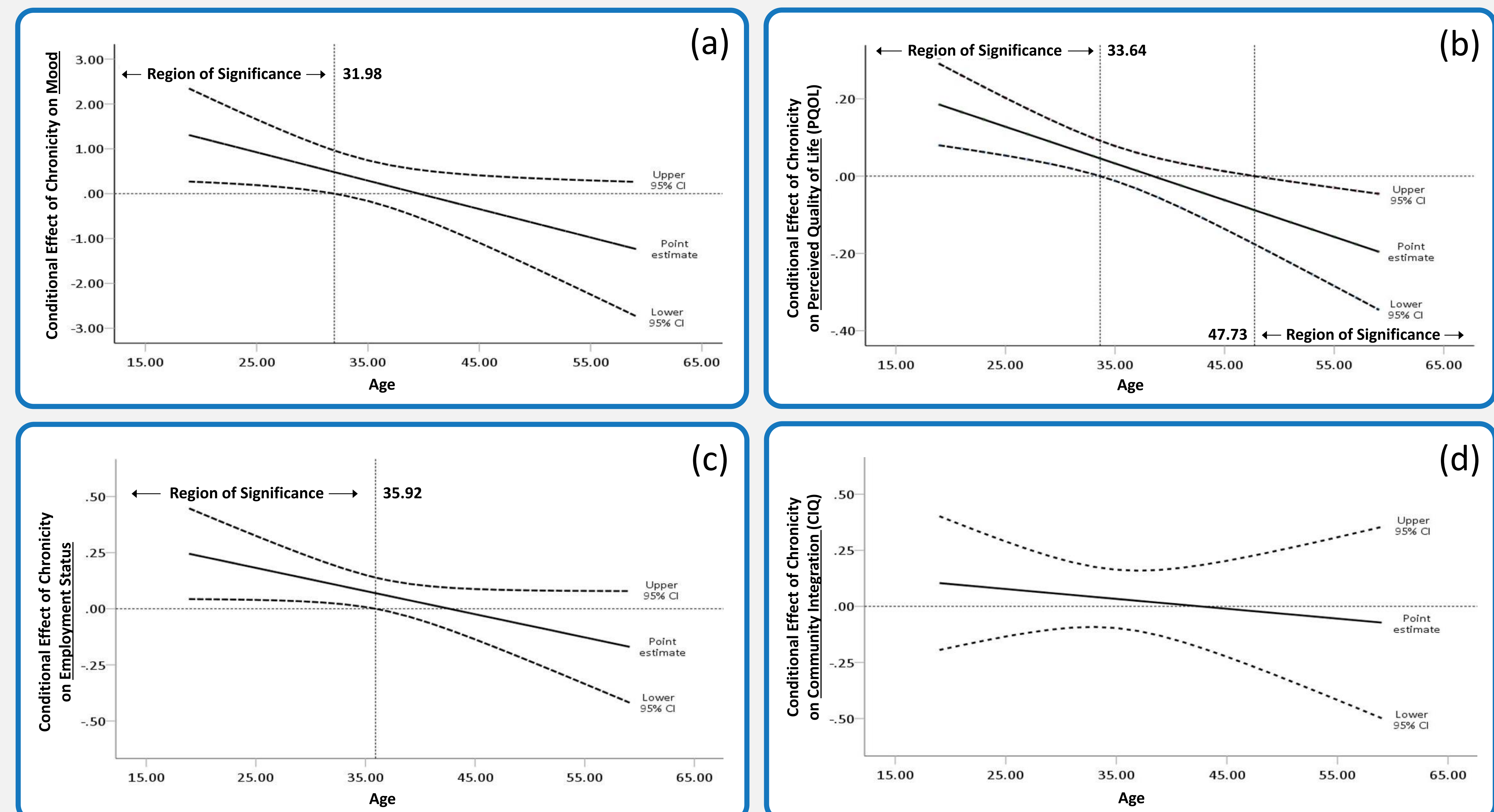


FIG 2. Results of the Johnson-Neyman method showing region of significance of the interaction between age at admission and chronicity for outcome variables (a) mood, (b) perceived quality of life, and (c) employment status, and (d) no interaction for community integration.

¹Shany-Ur, T., Bloch, A., Salomon-Shushan, T., Bar-Lev, N., Sharoni, L., and Hoofien, D. (2020). Efficacy of postacute neuropsychological rehabilitation for patients with acquired brain injuries is maintained in the long-term. *J Int Neuropsychol Soc.* 26, 130-141.

²Turner-Stokes, L., Pick, A., Nair, A., Disler, P. B., and Wade, D. T. (2015). Multi-disciplinary rehabilitation for acquired brain injury in adults of working age. *The Cochrane Database of Systematic Reviews*, 12, CD004170.

³Malec, J.F., and Kean, J. (2016). Post-inpatient brain injury rehabilitation outcomes: Report from the national OutcomInfo database. *J Neurotrauma.* 33, 1371-9.