

Poster

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Poster 21

[P-21-05] The Effectiveness of a Clinical Nature-Based Intervention for ASD Children from a Biopsychosocial Perspective

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Nature has been proven to be useful in improving the mental well-being of neurotypical children. Adopting a biopsychosocial perspective, this study aimed to prove the usefulness of a nature-based clinical therapeutic intervention in improving the emotional-behavioural difficulties of ASD children.

A 6-week 90-minute intervention program curated based on DIRFloortime® principles was carried out in specially designed Nature Playgardens. Participant dyads (n=28) were ASD boys aged 5-9 and their caregivers aged 21-80. Study consisted of 4 time-points, pre (T0), mid (T1), post (T2), post 4-weeks (T3) intervention.

Child's psychosocial quality of life was measured using the Pediatric Quality of Life Inventory (PEDsQL) at T0, T2, and T3, while Emotional Regulation Checklist (ERC) – completed at T0 and T2 – tested for a child's negative emotional reactivity.

Salivary analyses were completed at T0, T2 and T3 for: Annexin-A1– an immunomodulatory, glucocorticoid inducible protein with inflammation resolution properties – and IL6 – a pleiotropic cytokine which mediates autism-like behaviour through neuronal circuitry imbalances.

Linear Mixed Model Analysis controlling for age revealed at 95% CI: Child participants' negative emotional reactivity (ERC) significantly decreased from T0 to T2, mean difference = -4.71, $p < .001$, CI (-6.31, -3.11). Child's psychosocial quality of life (PEDsQL) significantly increased from T0 to T2 and T3. Mean difference (T2) = 5.96, $p = .004$, CI (1.98, 9.95). Mean difference (T3) = 6.82, $p = .001$, CI (2.84, 10.81).

Paired t-test revealed a significant decrease in Annexin-A1 from T0 to T2 (mean difference = -38.47ng/ml, $p = 0.0074$, 95% CI [64.84 to -12.09]). Paired Wilcoxon test showed a significant decrease in IL6 (square rooted transformation to reduce variation) from T0 to T3 (median difference = -40.3 [sqrt(ng/ml)], $p = 0.03$).

Hence, this clinical nature-based intervention helped to reduce ASD children's emotional reactivity and improve psychosocial quality of life as well as modulate inflammation.