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Intervention Outcomes on Mental Health of PLH, Family Members, and Children: A
Randomized Controlled Trial in Rural China

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Background: HIV impacts families. This study examines the efficacy of an intervention that targets people living with HIV (PLH), their family members and children in rural China. The intervention outcomes on mental health were evaluated for all the three populations.

Methods: The intervention trial utilized a two-arm design with 475 families impacted by HIV in rural Anhui, China, including 522 PLH, 475 sero-negative family members, and 536 children aged 6-18. Previously piloted TEA (Together for Empowerment Activities) intervention was delivered at three levels: 1) TEA Gathering (small group for PLH and family members); 2) TEA Time (home-based family activities with children); and 3) TEA Garden (community events). Intervention effect was evaluated at baseline, 6-, 12-, 18-, and 24-month follow-ups. Mixed-effects regression models were used to assess the improvement on the mental health measures -- for PLH on depressive symptoms and coping with illness, for family members on depressive symptoms and caregiver burden, and for children on self-esteem and daily stress. Estimated difference and standard error (SE) in changes from baseline between intervention and control from the regressions are shown.

Results: For PLH, we found significant intervention effects on improved levels of coping with illness at the 6-month (4.45 ± 0.84 ; $P < 0.0001$), 12-month (3.19 ± 0.85 ; $P = 0.0002$), 18-month (3.09 ± 0.85 ; $P = 0.0003$), and 24-month follow-up (2.55 ± 0.87 ; $P = 0.0034$). Similarly, significant effect on reduction of depressive symptoms was observed at each of the follow-ups for PLH. For family members, significant intervention effects at the follow-ups were found on improved depressive symptoms, but not on caregiver burden. For children, although intervention effects on the improved self-esteem were not significant between intervention and control, significant intervention effects on levels of daily stress were found at the 6-month (1.49 ± 0.72 ; $P = 0.0386$) and 12-month (1.68 ± 0.74 ; $P = 0.0241$) follow-ups.

Discussion: This is our first longitudinal outcome report based on the large-scale, randomized trial. Study findings support the feasibility in implementation and efficacy of the multilevel TEA intervention not only for PLH also for family members and children. Intervention activities that connect various members in a family could be the key to link to the intervention outcomes.

Keywords: HIV; behavioral intervention; family; mental health; China