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ART Timing and Social Factors Associated With Poorer Behavioral Outcomes Among Children Who Are HIV Exposed Uninfected

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Background: Studies suggest HIV exposed (HEU) children have poorer behavioral outcomes compared to unexposed (HUU) children. The mechanism may stem from HIV/ART-specific pathways or broader social factors related to HIV.

Methods: In a Kenyan cross-sectional survey, caregivers of HEU/HUU children between ages 3-10 were invited to complete the Strengths and Difficulties Questionnaire caregiver version (SDQ-P). We compared overall total difficulties (emotional, hyperactivity, peer and conduct domains), internalizing (emotional and peer) and externalizing (conduct and hyperactivity) scores and domain specific scores, between HEU and HUU using mixed effects linear regression models and determined cofactors for raised scores using generalized estimating equations. Analysis was adjusted for caregiver age, education, food security, orphaned or vulnerable children (OVC) status and breastfeeding duration.

Results: A total of 1781 and 199 HEU/HUU respectively were enrolled. HEU children were more likely to be OVC and had a shorter breastfeeding duration. Caregivers of HEU were older, had fewer education years, were more likely to be single and to have severe household food insecurity. Most HEU mothers (73%) received ART prior to the pregnancy of the enrolled child.

Comparing HEU to HUU, there were no differences in mean total difficulties, internalizing and

externalizing scores. HEU had significantly lower scores than HUU in the peer problems domain (adjusted coefficient 0.30 [95% CI 0.12, 0.49, p=0.001). No differences were noted in other domains or the overall prevalence of raised scores.

Among HEU, post-conception ART initiation was associated with higher prevalence of raised total difficulties (aPR 2.07[1.16, 3.17]) and peer domain scores (aPR 2.40[1.67, 3.47]). HEU who were OVC had a higher prevalence of raised scores in the emotional and the conduct domains (aPR 1.51[1.03, 2.21] and 1.44[1.08, 1.92], respectively). Females were less likely to have high scores in the conduct and prosocial domain (aPR 0.62[0.48, 0.79] and 0.47[0.22, 0.98], respectively). HEU in single family household were more likely to have higher scores in the conduct domain (aPR 1.40[1.05, 1.85]).

Conclusion: HEU had similar SDQ scores to HUU. Among HEU, ART timing and socio-demographic factors were associated with domain specific problems. Addressing social issues within HEU families remains critical to improve outcomes.

