Estimating Treatment Effects in the Presence of Differential Follow-up Between Two Groups

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Objective

• Assess sensitivity of treatment effect estimates to differential follow-up between experimental and community samples in disseminaton study of MET/CBT-5

Background

• Disseminating evidence-based treatments to community-based programs is one strategy for improving quality of care
• Translation research examines how successfully evidence-supported treatment is implemented into community settings
• Community settings may lack the resources necessary to achieve high rates of follow-up among drug-users
• Differential attrition (i.e., lower follow-up rates in community-based relative to experimental settings) may lead to biased results

Methods to Address Loss to Follow-Up

Existing methods to address non-response are inappropriate in this context.

Nonresponse weights – weight respondents in EAT to look like original baseline EAT sample and use weight in analysis comparing EAT to CBT
• Assumes strong ignorability over the follow-up (i.e., those followed-up vs. those who are not are not differ on outcomes after conditioning on pretreatment covariates)
• We are not willing to make this assumption

Principal stratification – assumes 4 latent treatment classes and compares treatment effect estimates for youth who are likely to be followed-up in both settings
• Weakly identified in our case study because we do not have any pretreatment covariates strongly correlated with follow-up

We developed a new approach to directly assess how strong the relationship between follow-up and outcomes has to be to alter inferences.

Simulation study – removes cases from CBT to make follow-up rate in experimental setting as low as in EAT and repeat same treatment analysis
• Directly assesses we DO NOT have strong ignorability over the follow-up
• Vary strength of relationship between follow-up and each outcome until we find our findings are reversed
• Primary measure of association between follow-up and outcome is
• SMD$_{p}$ = standardized mean difference in outcome between “untreated” non-responders and responders in CBT
• Find SMD$_{p}$ which would result in CBT being favored over EAT and thus alter our findings in favor of dissemination of MET/CBT-5

Case Study Details

Treatment: MET/CBT-5 (Dennis et al 2004)
Experimental setting: CYT (183 youth)
Community-based setting: EAT (4250 youth)
Outcome and baseline assessment: Using the GAIN
Causality Adjustments (Adjusting for pretreatment differences)
1. Exclude EAT youth who did not meet inclusion/exclusion criteria of experimental study (31%)
2. Weight remaining EAT youth to look like CYT youth

Results ignoring follow-up problem generally favor dissemination of MET/CBT-5 to community-based treatment programs.

Sensitivity Analysis Results

Sensitivity analyses show that a strong relationship between follow-up and outcomes would be required to alter our findings and favor experimental group.

Acknowledgements

This research was funded by NIDA through grants 2801DA011750744A and 1R37DA015697.

References