

Study designs in construction safety and health must account for workforce mobility

The effect of workforce mobility on intervention effectiveness estimates

Justin Manjourides, Emily Sparer, Cassandra Okechukwu, and Jack Dennerlein. Annals of Work Exposures and Health, January 2018.

Overview

In many industries, the population of a workplace is relatively stable. Construction is different: work teams from different trades come and go with different stages of a project. In industries like construction, this workforce mobility may influence the ability to implement, measure, and evaluate health and safety interventions delivered at worksites. The researchers performed a simulation study to objectively measure both precision and relative bias of six different analytic methods as a function of the amount of mobility observed in the workforce. Afterward, they used the six methods to reanalyze a previous cluster-randomized control trial.

Key Findings

- As workforce mobility increases, relative bias in treatment effects derived from standard models to analyze cluster-randomized trials also increases. Controlling for amount of time exposed to the intervention can greatly reduce this bias.
- Analyzing only the subsets of workers who exhibit the least amount of mobility can result in decreased precision of treatment effect estimates.
- A reanalysis of data from a previously conducted trial, accounting for workforce mobility, produced a 59% increase in the treatment effect size.
- When evaluating organizational interventions implemented at specific worksites by measuring perceptions and outcomes of workers present at those sites, researchers should consider the effects that the mobility of the workforce may have on the estimated treatment effects. The choice of analytic method can greatly affect both precision and accuracy of estimates.

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See abstract:

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