

## **Abstract**

We present a scale to measure sexual risk behavior or "sexual risk propensity" to evaluate risk compensation among men engaged in a randomized clinical trial of male circumcision. This statistical approach can be used to represent each respondent's level of sexual risk behavior as the sum of his responses on multiple dichotomous and rating scale (i.e. ordinal) items. This summary "score" can be used to summarize information on many sexual behaviors or to evaluate changes in sexual behavior with respect to an intervention. Our 18 item scale demonstrated very good reliability (Cronbach's alpha of 0.87) and produced a logical, unidimensional continuum to represent sexual risk behavior. We found no evidence of differential item function at different time points (except for reporting a concurrent partners when comparing 6 and 12 month follow-up visits) or with respect to the language with which the instrument was administered. Further, we established criterion validity by demonstrating a statistically significant association between the risk scale and the acquisition of incident sexually transmitted infections (STIs) at the 6 month follow-up and HIV at the 12 month follow-up visits. This method has broad applicability to evaluate sexual risk behavior in the context of other HIV and STI prevention interventions (e.g. microbicide or vaccine trials), or in response to treatment provision (e.g., anti-retroviral therapy).