**Development and validation of a novel measurement scale for interpersonal factors underlying injection drug using behaviors**

Morris MD, Neilands TD, Andrew E, Hahn JA, Page KA

**Background:** People who inject drugs (PWID) who inject with sexual partners or close friends have higher rates of syringe/ancillary equipment sharing, and HIV and hepatitis C virus (HCV) infection. Evidence suggests that interpersonal factors underlie these higher risk profiles, however the lack of a quantitative measure of interpersonal factors impedes direct study.

**Methods**: We developed a measurement scale for levels of injecting related interpersonal factors associated with risky injecting behaviors and HIV/HCV infection. Qualitative data from 35 PWID with injecting partners were analyzed to inform item development, followed by quantitative analysis of data from 140 PWID from San Francisco, USA, to assess construct, convergent, and discriminant validity.

**Results**: The Interpersonal Dynamics in Injecting Partnerships (IDIP) scale is a psychometrically sound measure of injecting related trust, intimacy, power, cooperation, and risk perception among PWID in injecting partnerships. Findings show support for reliability and validity of data collected from the IDIP scale among a diverse sample of young PWID from San Francisco, USA. Factor analysis informed the presence of 5 constructs (trust, intimacy, power, cooperation, and risk perception) representing injecting related interpersonal factors with good factor loading statistics. The IDIP scale showed very strong reliability (RMSEA: 0.08, CFI :0.8) and strong convergent and discriminant validity with IDIP scale items being correlated with IP injecting behaviors. Bivariate logistic regression models revealed higher partnership levels of trust, intimacy, and cooperation increased odds of partners sharing needles and injecting equipment, whereas higher levels of power and risk perception reduced the odds of partners sharing needles and injecting equipment.

**Conclusions**: These findings offer strong evidence that the IDIP scale provides a psychometrically sound measure of injecting related interpersonal dynamics, and thus, set the stage for additional investigations of the impact of trust, intimacy, power, cooperation, and risk perception on injecting drug use behaviors, engagement in HIV/HCV testing and treatment among PWID in a variety of settings.

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