How accurate is our misinformation? A randomized comparison of four survey interview methods to measure risk behavior among young adults in the Dominican Republic

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ABSTRACT

Objective: To identify the most effective survey interview method for measuring risk behavior among young adults in the Dominican Republic.

Methods: 1200 young adults were randomized to one of four different survey interview methods: two interviewer-assisted methods [face-to-face interview (FTFI), and computer-assisted telephone interview (CATI)], and two self-administered methods [self-administered interview (SAI), and audio computer-assisted, self-administered interview (ACASI)]. Youth were asked about a wide range of youth-specific risk behaviors, including violence, substance use, as well as sexual and reproductive health. Quality of data collected was examined by looking at how the survey was administered, including identifying two sources of errors that typically threaten data quality[1]: (i) errors at the individual level with regards to survey methodology performance and cognitive difficulties [measured with the *Response Consistency Index* (RCI)]; and (ii) errors at the aggregate level (how desirability bias, interviewer gender, and interview privacy settings affect responses).

Results: No statistically significant differences in participant non-response rates were found at the individual level across all survey interview methods. At the individual question level, self-completion methods generated higher non-response and error rates than assisted methods. The SAI method showed the poorest performance of all four methods in terms of non-response rate (1.6%[2]) and RCI (83.0%).

At the aggregate level, the prevalence of several key risk indicators was statistically significant between methods. Using means-adjustment for covariates (μ), sexual and reproductive health-related indicators were found to have statistically significant differences among methods. Interviewer-assisted methods reported higher prevalence compared to self-administered methods. For example, when interviewer-assisted FTFI was administered, higher prevalence was reported for indicators, such as **Ever Had Sex** (for both genders), **Safe Casual Sex** (for males), and **Transactional Sex** (for males) than self-administered ACASI methods. On the contrary, when a SAI self-administered method was applied, results showed higher prevalence rates of concurrency among women, (e.g., sexual activity with multiple partners that overlap in time).

The study also suggests that there were differences in survey interview methods used when looking at drug and alcohol use indicators. The direction of bias differed between drug use and alcohol consumption indicators. Respondents using ACASI self-administered methods had a higher **Drug Use** prevalence. However, FTFI reported a higher prevalence of **Binge Drinking** among female participants, as compared to ACASI.

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[1] This study assumes that bias does not change with sample size. In order to increase the sample size, the data collection period was extended, leaving everything else unchanged. It is, therefore, assumed that the decreasing effects of the learning curve are negligible.

[2] Percentage of data with non-response values at the question level.

Additionally, the research team found a strong interaction with interviewer gender. In FTFI, affirmative responses to **Sex with Same Gender** questions were higher among men interviewed by women, than among men interviewed by men. The gender of the interviewer also seems to generate socially desirable response in violence risk-related indicators. That is the case for **Victimization** among males where the use of SAI increases the prevalence.

Furthermore, this study suggests that whenever privacy during an interview was recorded as insufficient, women tended to report sexual initiation at almost a year younger than when responding with privacy.

Conclusions: The study's findings suggest that the degree to which a specific method improves the reporting of a particular risk behavior or set of behaviors is likely to be population specific. The study's results support the researchers' initial hypothesis that higher prevalence estimates may be less valid than lower estimates in the Dominican Republic context, especially where some risk behaviors, like sexual activity, are normative and socially acceptable. More specifically, use of interviewer-assisted methods appears to significantly increase the reporting of socially-accepted behaviors, such as that both male and female populations over-report sensitive questions. Similarly, the level of privacy during the interview and interviewer's gender may have an important effect on responses, and this effect depends on the chosen survey interview method.

1. Background

There is a large stock of studies to suggest that the choice of interview method influences the frequency and type of the risk behaviors reported (Langhaug et al., 2011; Jaya et al., 2008; Mensch et al., 2008; Konings et al., 1995) and thereby the validity and reliability of survey data. Nevertheless, there is to date no consensus on which specific method produces more accurate estimates of the level of risk for different types of behaviors. Brener et al. (2006) suggest that the direction of the bias is likely to vary across populations and contexts (Gregson et al., 2002; Pienaar, 2009), as well as by gender (Mensch et al., 2003) and privacy settings (Langhaug et al., 2011; Eaton et al., 2010; Tourangeau and Smith, 1998; Brener et al., 2003; Gribble and Miller, 2000). In addition, the reliability of the responses is affected by the attitudes of respondents towards strangers (in a survey context, the interviewer), which are also known to vary cross-culturally (Weinreb, 2006).

Few studies have explored the size and direction of the bias induced by alternative survey methods. Specifically, evidence on the effects of alternative survey modes on self-reported risk behaviors is lacking. To fill this knowledge gap, the research team conducted a multi-armed trial in which 1200 young respondents in the Dominican Republic were randomly assigned to one of four survey interview methods varying in levels of privacy and cognitive difficulty. The four survey interview methods were: (1) face-to-face interview (FTFI); (2) computer-assisted telephone interview (CATI); (3) self-administered interview (SAI); and (4) audio computer-assisted self-administered interview (ACASI). The research team hypothesized that interviewer-assisted methods (FTFI, CATI) would be more sensitive to social desirability bias (SAI, ACASI) and that self-administered methods would reduce reliability of the responses due to the additional cognitive effort required from the respondents.

This study set to examine the trade-off between social desirability bias and cognitive difficulty with a view to determine which survey interview methods might produce reliable estimates of the prevalence and frequency of high-risk behaviors among youths in Latin America and the Caribbean (LAC). Furthermore, the research team aimed to pinpoint important sources of errors, such as those consistent with social desirability bias, and to discuss the extent to which these errors might be related to level of privacy or interviewer's gender, as previous studies have suggested (Langhaug et al., 2011; Tourangeau and Smith, 1998; Brener et al., 2003; Gribble and Miller, 2000; Sedla, 2010; Lothen-Kline et al., 2003).

2. Introduction

Engaging in high-risk behaviors during young adulthood may have enduring, deleterious effects, which are difficult to reverse in later stages of life. For example, substance use, delinquency, and violence are inversely associated with academic achievement during school years, as well as later in life (Chung-Do et al., 2015; Catalano et al., 2004; Soares and Naritomi, 2010). Alcohol consumption is associated with poor academic performance, increased risk for sexually-transmitted infections (STIs), depression, anxiety, personality disorders, gang involvement (Onyebuchukwu et al., 2015; Hutton, 2008; Wolitzky-Taylor et al., 2012; Swahn and Donovan, 2005), as well as juvenile crime (Munyo, 2013).

Among young women specifically, substance use, early sexual initiation, inadequate sexual health information, and poor access to family planning methods have lasting consequences. In terms of reproductive health, the use of modern contraceptive methods to prevent pregnancy and STIs among sexually active youth remains low (PAHO, 2014), and half of the estimated 1.2 million unplanned pregnancies in the LAC region occur during adolescence (Embarazo Adolescente, 2012). The region's adolescent fertility rate reached 73 per 1000 births between 2005 and 2015, standing well above other regions' rates. In addition to increasing risks of maternal, neonatal and perinatal complications at or following childbirth, early motherhood is also associated with lower rates of academic success in young mothers, whereby they drop-out of school, quit work, and become socially-excluded (Bradley and Greene, 2013; Marcotte, 2013).

The implications of adolescent risk-taking are particularly salient in the LAC region, where the proportion of young people is expected to peak in the next decade. Thus, preventing youth from engaging in high-risk behaviors is important for their short- and long-term health, educational, and social outcomes, as well as for the overall good of the LAC region in terms of economic and social development.

The accurate measurement of youth risk behaviors, which is key to developing and evaluating polices to reduce youth risk-taking, remains an inexact science. Assessing engagement in high-risk behaviors via self-administered surveys is often highly susceptible to error since many of the topics are considered sensitive and are subject to reporting bias. Furthermore, the study population, interviewer gender, privacy conditions, as well as content, structure, and survey interview method of the survey are also factors that may influence measurement accuracy among young populations. For example, previous studies (Sedla, 2010; Lothen-