

SUPPORTING STATEMENT: PART B

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Formative Study to Understand Relationship Dynamics and Conflict

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B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

B.1. Respondent Universe and Sampling Methods

For the purposes of this exploratory research, which is preliminary step in a larger research agenda to develop a standard way of measuring typologies of IPV, we are employing a sampling strategy frequently utilized in the early development of new measurement procedures for violence (e.g., Koss & Oros, 1982; Straus, 1979; Straus et al., 1996). That is, we will collect data from a targeted and diverse convenience sample that will be likely to capture IPV perpetrators that have been adjudicated for their violence as well as those perpetrators that may never have been in contact with the criminal justice system and persons who have never been violent. Specifically, contractors from the American Institutes for Research (AIR) will survey 2,210 eligible participants for a one-time survey. Participants will include 2,000 individuals recruited through Amazon Mechanical Turk (MT) who live in the United States and 210 incarcerated individuals from facilities in Indiana (Table 1).

The use of convenience samples at this early stage of the research agenda is appropriate for several reasons. First, it offers a practical and low-cost mechanism to collect a large sample of data that will allow the generation of preliminary hypotheses about potential latent groups of IPV perpetrators that may exist based on shared characteristics and experiences. These hypotheses can then be tested in later studies to determine whether they exist in more representative populations using more rigorous sampling procedures. Additionally, because persons that commit IPV are not representative of the overall general population, we need to utilize this targeted convenience sampling procedure to ensure we capture a sufficiently large group of perpetrators within our sample. Given that violent persons are a small minority of the general population and therefore are not representative of the general population and IPV represents a minority of all violent crime (Beaver, 2013; Cooper & Smith, 2011; Morgan & Truman, 2014), using convenience sample procedures will help us target a diverse sample with a sufficient number of perpetrators. Also, we can better target gay and lesbians persons, who we know less about in reference to IPV, using a convenience sample.

The use of MT in particular to collect data for this formative research is ideal for several reasons. In general, MT workers are younger and underemployed compared to the general population (Berinsky, Huber, & Lenz, 2012; Paolacci et al., 2010; Shapiro, Chandler, & Mueller, 2013). Given that IPV perpetrators tend to be younger and to be from lower socioeconomic status (Byun, 2012; Capaldi, Knoble, Shortt, & Kim, 2012; Johnson et al., 2015; O'Leary & Slep, 2012; Schwab-Reese, Peek-Asa, & Parker, 2016) sampling from MT will likely increase our ability to obtain respondents who endorse a history of perpetrating IPV. Moreover, the use of MT affords us the opportunity to collect data on perpetration from individuals who have managed to evade contact with the criminal justice system or who engage in violence that is less severe or not necessarily criminal (e.g., emotional and psychological abuse/control). In fact, MT has been successfully utilized in past research on violence perpetration and IPV perpetration in particular (Reidy, Berke, Gentile, & Zeichner, 2014, 2016). Additionally, the percentage of sexual minority MT workers is nearly three times as great as the number in the general population (Chandler & Shapiro, 2016). This is advantageous because sexual minorities make up a very small proportion of the U.S. population (Walters, Chen, & Breiding, 2013).

Involving incarcerated IPV offenders allows us to collect data from individuals who, we can confirm through their criminal history, have actually perpetrated IPV. The inclusion of incarcerated individuals in our sample is necessary because IPV represents a small proportion (approximately 15%) of all reported and unreported violence occurring in the U.S. (Cooper & Smith, 2011; Truman & Morgan, 2014). Given our knowledge that an even smaller proportion of the population commits the majority of violence (Coid & Yang, 2011; Tacy et al., 1990; Vaughn et al., 2014; Wolfgang et al., 1972), we can assume that far less than 15% of the population has perpetrated IPV. Thus, we are including incarcerated individuals in our convenience sample to increase the rates of IPV perpetrators included in the proposed sample.

By surveying incarcerated IPV offenders, non-IPV offenders, and the general population, we can start to identify distinguishing factors between perpetrators and non-perpetrators, and which factors may be more salient for the incarcerated population. Surveying people who have an IPV offense record allows us to obtain data from a population who have likely experienced trauma, are at high risk of perpetrating IPV again, and who may have committed particularly severe or frequent offenses. The experience and personal characteristics of this population may be different from those of the non-incarcerated population and are valuable to identifying indicators that predict patterns of aggression.

There is no singularly agreed upon method for determining sample size necessary to conduct factor analytic studies. Expert recommendations range from a minimum of 100 up to 500 considered being very good (Arrindell & van der Ende, 1985; MacCallum, Widaman, Zhang & Hong, 1999; Velicer & Fava, 1998). However, necessary sample size to conduct factor analysis is dependent on several aspects including level of communality of the variables and the number of variables used to represent each factor. Using a monte carlo framework, MacCallum et al (1999) demonstrated that a sample size of 400 yielded acceptable power in 80 to 100% of models even when communalities were poor and the number of variables per factor were low. We estimated conservatively for low communalities with a large number of factors and a high number of indicators. Thus, we determined that 500 to 550 person per cell (i.e., female heterosexual, male heterosexual, gay male, lesbian female) would offer sufficient power. This would ensure that we would have sufficient sample size should factor solutions differ within each cell. Furthermore, this is consistent with sample size for latent profile analysis suggested by Tein, Coxe, and Cham (2013) who, based on monte carlo simulation, suggest a sample size of 500 with at least 10 indicators.

Table 1. Potential respondent universe, sample size, expected response rates, and expected completed interviews

Respondent	Subgroups	Starting Sample Size	Expected Rate of Response and Completed Surveys	Expected Completed Surveys
MT Workers	Heterosexual men	650	77%	2000
	Heterosexual women	650		
	Gay men	650		
	Lesbian women	650		

	TOTAL	2,600		
Incarcerated Individuals	IPV-related offenders	162	65%	210
	Non-IPV-related offenders	162		
	TOTAL	324		

Sampling plan:

Mechanical Turk (MT)

Individuals from MT are eligible to participate in the survey if they are:

- MT workers
- 18 years old or older
- Have an MT approval rating of 95% or higher
- Live in the United States

For the Amazon Mechanical Turk sample, a short screener will be posted through MT for up to 8,600 workers to complete. AIR will draw a quota sample of 2,600 workers (to get 2,000 completes). Gay and lesbian individuals will be oversampled to represent half of the individuals recruited from MT to ensure we have sufficient sample sizes within these subpopulations to conduct analysis. The screener will assess sexual orientation through an item from the National Health Interview Survey: “Which of the following best represents how you think of yourself?” Gay (lesbian or gay), Straight, that is, not gay or lesbian, Bisexual, Something else. Those who select gay (lesbian or gay) will be considered eligible. We will invite 2,600 individuals from MT to take the full questionnaire in order to obtain completes from 500 heterosexual men, 500 heterosexual women, 500 gay men, and 500 lesbian women. Based on prior studies conducted by AIR, we assume roughly 77% of MT workers will respond and submit surveys that pass data quality checks. MT workers will first respond to a screener questionnaire about respondent demographics. Using this information, AIR will then choose a sample that resembles the U.S. population (in terms of age, sex assigned at birth, race, ethnicity, household income, and education) (Table 2). The sample will be diverse but not representative of the U.S. population and not generalizable to the U.S. population.

Table 2: Distribution of select demographic characteristics in the U.S. population

General Population Sub-group	U.S. Population Estimate (%)
Total Sample Size	
Gender¹	
Male	49.2
Female	50.8
Age²	

18 – 24	14.5
25 – 44	43.1
45 – 64	29.0
65 and older	13.4
Hispanic Origin¹	
Hispanic	17.4
Not Hispanic	82.6
Race/Ethnicity¹	
American Indian or Alaska Native	1.2
Asian	5.4
Black or African American	13.2
Native Hawaiian or Pacific Islander	0.2
White	77.4
Two or more races	2.5
Education¹	
Bachelor’s degree or higher (age 25+)	29.3
Median Household Income (2014)¹	
\$53,482	N/A
¹ Data source: QuickFacts from the U.S. Census Bureau (V2014, V2015)	
² Data source: 2010 Census	

Incarcerated Individuals

Incarcerated individuals are eligible to participate in the survey if they are:

- 18 years old or older
- Associated with one of the prison or work release/re-entry facilities AIR has partnered with (Miami Correctional Facility, Madison Correctional Facility, Marion County Community Corrections (Duvall Center), Volunteers of America of Indiana (Brandon Hall, Theodora Hall))

For the group of incarcerated individuals, 50% of incarcerated individuals sampled from the prison and work release facilities will have an IPV-related offense record and 50% will not. The prison facility staff will assess IPV-related offense record status through administrative data. Based on prior studies conducted by AIR, we estimate 65% of incarcerated individuals to respond to our request to take a survey and provide surveys that pass data quality checks. Therefore we anticipate that we will sample 324 incarcerated individuals to receive 210 completed responses.

AIR will not be doing the sampling. The prison facility administrative staff (not correctional staff) will be drawing the sample frames. In total, the sample will contain 324 individuals across 5 facilities in Indiana, equally stratified by if individuals have or have not been convicted of an IPV-related offense. These facilities are a convenience sample of correctional facilities that were chosen for the present research because they have pre-existing relationships with AIR.

Developing relationships with facilities is time-consuming and labor intensive but necessary before they will allow their sites to be included in research studies. Therefore, using AIR's pre-existing relationships with facilities in Indiana allowed the project to be more quickly vetted and approved by their IRB and the local facilities.

Facility staff will identify if inmates have or do not have an IPV arrest history. Within the two groups (IPV arrest history vs non-IPV arrest history) they will select a quota based sample where they select the number of inmates that meet our sampling sample size targets for the specific facility. Sampling in this fashion allows AIR to avoid collecting PII. As long as the list of inmates that the prisons is drawing the sample from is not ordered in a way that could bias our research, such as if it were ordered by severity of offense, then there is a reduced risk of sampling bias using the quota sampling strategy. We have no reason to believe that the list would be ordered in a way that would bias our study but will discuss this with the prisons.

An individual is considered to have an IPV-related offense if they have any of the following charges against an intimate partner on their criminal record: Domestic Battery or Criminal Stalking.

AIR has secured support and received letters of support from the Marion County Community Corrections and Volunteers of America of Indiana. These facilities were selected based on prior relationships and experience conducting research with these facilities.

B.2. Procedures for the Collection of Information

Mechanical Turk (MT): A link to the screening questionnaire (Attachment D) will be posted through MT for all potential MT workers. Based on the available demographics of the MT population, we project it will take up to 8,600 workers MT workers completing the screening survey to get the demographic spread we need. We will post the link to the screener and allow up to 8,600 people to complete the screener. We will then look at the set of completed screeners and take a subsample that meets our desired demographic quotas to invite to the take the full questionnaire. The screener survey link will send workers to the online screener survey hosted by an online survey software such as DatSat Illume or Unicom Intelligence. AIR will draw a quota sample of 2,600 workers (to get 2,000 completes) that is diverse (in terms of age, sex assigned at birth, race, ethnicity, household income, and education) from the group of workers that completed the screening questionnaire. We will oversample individuals who identify as gay or lesbian on the screener. Workers will then be re-contacted through MT and sent an invitation and link to complete the full online survey. Both surveys will require respondents to read and acknowledge a consent form before participation. After data collection, data will be stored on a FISMA compliant server. Participants' responses will only be identified by an ID number given to them by AIR.

Incarcerated Population: Selected inmates will come meet with AIR staff to talk about the study and get an information sheet. Inmates who are interested in participating are invited to schedule an appointment time to complete the survey. This could be on the same day or another day. Providing time to think about if they want to participate protects the inmate's rights to participate by not being coercive and trying to get them to do the interview the first time they learn of the study. Scheduling will be done in a private room. At the appointment, AIR will

speak with each potential participant individually to explain the purpose of the survey (to understand relationship dynamics and conflicts) and explain informed consent. If the potential participant agrees to participate, s/he will complete the informed consent process. All participants will read, or be read, the consent form and sign it if they agree to participate. All surveys will be administered individually in a private room. Interviewers will be gender-matched to the respondents - men will be interviewed by male interviewers and women by female interviewers. Survey data will be collected on mini-iPads.

A short literacy assessment using the Wechsler Test of Adult Reading (WTAR) will be conducted to determine survey mode. All survey materials are written for a 7th grade reading level. Individuals who have a low score (2 standard deviations under the mean based on the US general population) will be assigned the interviewer administered version. All other respondents will self-administer the survey on a mini iPad. In the interviewer administered version, the questions and response options will be read to respondents and then the interviewer will mark their answers on the mini iPad. We recognize that using an interviewer to administer the survey for low-literacy individuals diminishes the sense of privacy for these participants. Participants may be uncomfortable sharing sensitive information with the interviewer, which may interject error. To mitigate this, cards showing response options for each question will be provided for the respondent to refer to. The cards will be formatted in a way so that the response options are recognizable for low-literate individuals (e.g. providing the option to respond with numbers that correspond to the response options or point to the response option). This may help respondents feel more comfortable answering sensitive questions by giving them the option to not say their answer out loud. Also, from prior experience and from observations during this study's cognitive interviews with previously incarcerated individuals, individuals have explained these sensitive situations several times for their case and are accustomed to talking about it. The presence of an interviewer may interject some error but to a lesser degree with this population. Inmates in the medium security facilities may require ongoing observation by correctional staff during the survey administration. Inmates in these facilities requiring direct observation by correctional officers who obtain low literacy scores will be excluded from the survey so that the prison staff does not overhear the contents of the survey or inmate responses.

For all survey administrations, an AIR staff member will remain in the room to answer any questions, switch mode if needed, and monitor mini iPad use. Each day, interviewers will go online and sync the mini iPads to upload the survey data to a database housed on a secure server. When not in use, the mini iPads will be stored in a locked, secure location. At night, mini iPads will be stored in a locked, secure location at AIR's Indianapolis office. After data collection, data will be stored on a FISMA compliant server. Participants' responses will only be identified by an ID number given to them by AIR.

B.3. Methods to Maximize Response Rates and Deal with Nonresponse

Fielding the survey on MT will in itself produce a larger response rate compared to other methods of online survey administration. MT participants choose to register with MT and are motivated to complete tasks for reasons (e.g. for enjoyment or to kill time) in addition to compensation (Burhmester et al., 2011). The choice of which tasks to complete on MT, however, is affected by how recently the task was posted (Paolacci and Chandler, 2014), day of the week the task was posted (Ipierotis, 2010), and interest in task (Paolacci and Chandler, 2014). We plan

to use several strategies to retain respondents through the course of the study. Tasks are organized on the MT interface based on how recently they were posted. To increase visibility of the screener survey task, we will periodically re-post the task so that it appears at the top of the list of open tasks (Paolacci and Chandler, 2014). Ipiertis (2010) found that most tasks are posted between Tuesday and Saturday, and workers are more active on MT when there are more tasks to choose from. We plan to post the screener survey task between Tuesday to Saturday to increase visibility of the task. Also, MT workers are likely to complete tasks that are interesting and meaningful to them (Paolacci and Chandler, 2014). We will provide meaning and context for our task explaining that results will be used to inform IPV prevention strategies in the future. To encourage completion of the full survey, we will send direct reminders through the MT interface to sampled workers. These reminders will be sent between Tuesday and Saturday when MT traffic is highest and will remind workers of the meaning and purpose of the task.

The largest influence on task completion, however, is task complexity and payment amount (Paolacci and Chandler, 2014). The survey we will administer is complex due to its sensitive subject matter and length. For this reason, we will offer a token of appreciation to offset burden and encourage participation in and completion of the task. An attractive token of appreciation can also catch the attention of workers and increase visibility of the task. A token of appreciation (\$3-\$5) will be provided contingent on completion of the survey. We believe this combination of strategies will maximize our response rates.

The incarcerated population is a vulnerable subgroup that is known to have high response rates. Typically, efforts are made with this population to ensure that participation in research is not coercive. Even the opportunity for human interaction or to break from the daily schedule is a large motivation for participation. Individuals may be more likely to complete the survey if it is interesting and meaningful to them. We will provide meaning and context for the survey explaining that results will be used to inform IPV prevention strategies in the future. Interviewers will also be available to answer questions or express concerns about confidentiality. Additionally, we recognize that completion of the survey is burdensome due to the subject matter and length of the survey. The time individuals take to complete the survey could be time away from earning wages at their jobs. For these reasons, we will offer a token of appreciation for participants. Incarcerated participants will receive a non-monetary token of appreciation (e.g. a piece of fresh fruit or a candy bar) contingent on completion of the survey. This incentive is attractive enough to encourage response but small enough to not be coercive.

In addition, to handle nonresponse and any missing data from individual respondents' surveys, we will utilize full information maximum likelihood (FIML) in our analytical models. FIML is considered superior to other methods of dealing with missing data such as multiple imputation, mean replacement, or pairwise deletion in that it is more efficient and less biased (Wang & Wang, 2012). Additionally, survey questions will be randomized among administrations to increase the likelihood that any missing data is missing at random.

B.4. Tests of Procedures or Methods to be Undertaken

Most survey questions have been used previously in research and are from or modified from various validated assessment tools (e.g., The National Intimate Partner and Sexual Violence Survey (NISVS), The Adverse Childhood Experiences (ACE) Study). Any questions written by CDC or AIR were created with input from subject matter experts. Survey items were cognitively tested with 9 participants. We selected 9 participants because the entire questionnaire was developed with extensive input from 9 subject matter experts with previous experience creating IPV-related surveys and measures as well as 5 internal CDC subject matter experts. Additionally, only a small number of questions needed to be developed; all others were pulled from previous instruments appearing in the peer-reviewed literature. We expect that data generated by this study that will inform future instruments will be cognitively tested with a much larger population. For this developmental round of cognitive testing, participants were a mix of individuals from the general population and previously incarcerated population. Three individuals have been previously incarcerated for an IPV-related offense. The questionnaire was edited based on findings from cognitive testing. Several questions were dropped or re-worded as a result.

B.5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

All instruments and procedures have been reviewed extensively by CDC and external subject matter experts in the field of IPV research. The following individuals have worked closely in developing the instrument and procedures that will be used, and will be responsible for data analysis:

Dennis Reidy, Division of Violence Prevention, CDC
Lianne Estefan, Division of Violence Prevention, CDC
Phyllis Niolon, Division of Violence Prevention, CDC
Megan Kearns, Division of Violence Prevention, CDC
Ashely D’Inverno, Division of Violence Prevention, CDC
Debra Houry, National Center for Injury Prevention & Control, CDC
Melissa Scardaville, American Institutes for Research
Harmoni Noel, American Institutes for Research
Alison Haung, American Institutes for Research
Roger Jarjoura, American Institutes for Research
Nathan Zaugg, American Institutes for Research
Konrad Haight, American Institutes for Research

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