Police Departments' Use of the Lethality Assessment Program: A Quasi-Experimental Evaluation

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Abstract

Calling the police is one of the most commonly employed help seeking strategies by women in abusive relationships, though domestic violence services, safety planning and shelter are more often rated as helpful by survivors of intimate partner violence (IPV) and have been shown to be more effective at reducing subsequent violence. The purpose of this quasi-experimental research was to examine the effectiveness of the Lethality Assessment Program (LAP). The LAP is a collaboration between police and social service providers consisting of 2 steps. First, a police officer responding to the scene of a domestic violence incident uses a brief 11-item risk assessment (the Lethality Screen) to identify victims at high risk of homicide. Second, women that screen in as high risk based on the Lethality Screen are put in immediate telephone contact with a collaborating social service provider who provides them with advocacy, safety planning and referral for services. Specifically, it was hypothesized that the LAP would (1) decrease rates of repeat, severe, lethal and near lethal violence and (2) increase rates of emergency safety planning and help seeking. We also examined the predictive validity of the Lethality Screen, officers' implementation of the LAP with the appropriate victims of IPV and victim satisfaction with the police response. Study participants were recruited by police officers at the scene of domestic violence incidents (index event) in 7 participating police jurisdictions in Oklahoma. A non-intervention comparison group was recruited prior to the intervention start. During the comparison group phase, 440 women participated in a structured baseline telephone interview lasting approximately 45 minutes; 342 (78%) of these women would have screened in as high danger based on their scores on the Lethality Screen and were compared to those women who received the intervention (classified as the *high violence comparison group*). During the intervention phase, 648 women were interviewed; 347 (53.5%) of these women were screened in as high danger and spoke with a hotline counselor (classified as the *intervention group*). Follow-up interviews at a median of 7 months following the baseline interview were completed with 202 participants in the intervention group (58.21%) and 212 participants in the high violence comparison group (61.99%). At follow-up, the intervention group reported a significant decrease in the Conflict Tactics Scale (CTS-2; Straus, Hamby, Boney-McCoy & Sugarman, 1996) weighted frequency by severity score controlling for baseline differences between the intervention and high violence comparison groups. In addition, women in the intervention group reported using significantly more protective strategies both immediately after the index event (e.g., seeking services, removing/hiding their partner's weapons) and at follow-up (e.g. applying for and receiving an order of protection, establishing a code with family and friends). There was evidence that the Lethality Screen has considerable sensitivity (92-93%) and a high negative predictive value (93-96%) for near lethal and severe violence. However, the specificity (21%) and positive predictive value (13-21%) are low in these same analyses. During the intervention phase, the majority (61.6%) of women who screened in at high risk spoke to the domestic violence advocate on the phone, though this proportion differed by police jurisdiction and was partially dependent upon women's experiences of violence, prior engagement in protective actions and help seeking, and women's post-traumatic stress disorder symptoms. Finally, women who participated in the intervention were significantly more satisfied with the police response and were likely to report that the advocate was at least somewhat helpful. While additional research needs to be conducted, the LAP demonstrates promise as an evidence informed collaborative police-social service intervention that increases survivors' safety and empowers them toward decisions of self-care.

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Executive Summary

It is estimated that 35% of women in the United States will experience IPV in their lifetimes, and that 25% of women will experience severe IPV in their lifetimes (Black et al., 2011). In addition to the injury suffered by women due to the violence inflicted on them by their partners, women who have experienced IPV are more likely to report physical and mental health problems (Campbell, 2002; Campbell, Woods, Chouaf & Parker, 2000; Devries et al., 2013; Golding, 1999; Ruiz-Perez, Plazaola-Castaño, & del Río-Lozano, 2007; Tadegge, 2008). Women who experience severe IPV (for example, being beaten up, assaulted with a weapon) are at greater risk for even poorer physical and mental health outcomes and intimate partner homicide (Campbell et al., 2003).

The most serious form of IPV is murder. Femicide (Campbell & Runyan, 1998; Radford & Russell, 1992; Russell, 2001), the murder of women, is one of the leading causes of premature death for women in the United States (Hoyert, Kochanek, & Murphy, 1997). Whereas only 3%-6% of male homicide victims are killed by an intimate partner (Catalano et al., 2009; Kellermann & Heron, 1999), 30-70% of femicide victims are killed by an intimate (Catalano, Smith, Snyder & Rand, 2009; Campbell, Glass, Sharps, Laughon & Bloom, 2007; Kellermann & Heron, 1999; Puzone, Saltzman, Kresnow, Thompson & Mercy, 2000; Rennison & Welchans, 2000; Violence Policy Center, 2012). Physical IPV was reported to have preceded homicide in 65-80% of intimate partner (IP) femicide cases, making IPV the single largest risk factor for intimate partner femicide (Campbell et al., 2003; Moracco, Runyon, & Butts, 1998; Pataki, 1997). Intimate partner violence directed at the female partner is also the largest risk factor for intimate partner homicide among male victims (Campbell, et al., 2007).

Calling the police is one of the most commonly employed help seeking strategies by women in abusive relationships (Bachman & Coker, 1995; Berk, Berk, Newton, & Loseke, 1984; Catalano et al., 2009; Goodkind et al., 2004; Goodman, Dutton, Weinfurt & Cook, 2003; Hutchinson & Hirschel, 1998; Kantor & Straus, 1990; Rennison & Welchans, 2000; West, Kantor & Jasinski, 1998). Accessing domestic violence services, such as obtaining counseling or staying at a shelter, occurs much less often (Brookoff, O'Brien, Cook, Thompson & Williams, 1997; Coker, Derrick, Lumpkin, Aldrich & Oldendick, 2000; Gondolf, 1998; Hutchinson & Hirschel, 1998; Macy, Nurius, Kernic & Holt, 2005; Wiist & McFarlane, 1998). Women who do so report that contacting a domestic violence service provider and going to a domestic violence shelter are helpful or make the situation better in the majority of cases (Goodkind, Sullivan, Bybee, 2004; Goodman, Dutton, Vankos, & Weinfurt, 2005), and shelter services were shown to be most effective in reducing severe and moderate re-assault in one prospective study (Campbell, O'Sullivan, Roehl & Webster, 2005). The cornerstone of shelter services is safety planning. The objectives of safety planning are empowerment and the woman's autonomy; it is an opportunity for the abused woman to gain information, thoroughly assess her situation, support her resistance, reinforce her sense of agency, and strategize her responses (McFarlane, Parker, Soeken, Silva, & Reel, 1998; McFarlane et al., 2004; Campbell, 2001). Lack of awareness regarding available resources and difficulties accessing services are factors associated with remaining in an abusive relationship (Patzel, 2006). Research suggests that low cost, clear, simple assessments and referrals – such as teaching women safety strategies over the telephone – can be effective in helping women in abusive relationships enhance their safety skills (McFarlane et al., 2004; McFarlane, Groff, O'Brien, & Watson, 2006).

The Lethality Assessment Program (LAP) is a counterpart to the Danger Assessment (Campbell et al., 2003) that is designed as a field intervention for any practitioner who encounters a victim of IPV during the course of their work. In this case, the LAP was evaluated as a collaboration between police and social service providers consisting of 2 steps. First, a police officer responding to the scene of a domestic violence incident uses a brief 11-item risk assessment (the Lethality Screen), a shortened version the Danger Assessment (Campbell et al., 2003; Campbell et al., 2005; Campbell, Webster & Glass, 2009), to identify victims in "high danger" or at high risk of homicide. Second, women that screen in as high danger based on the Lethality Screen are put in immediate telephone contact with a collaborating social service provider who provides them with safety options and encourages them to come in for services. The LAP is grounded in the idea that the criminal justice and social service responses to intimate partner violence must work in collaboration with one another in order to provide the best intervention possible in IPV cases. In this model, the criminal justice system provides accountability for the offender while the social service system in collaboration with the criminal justice system provides safety options to the victim. The LAP is the only intervention that we are aware of to provide immediate telephone advocacy support and safety planning for the victim at the scene of a police-involved domestic violence incident.

Purpose and Research Design

The overarching purpose of this quasi-experimental research was to examine the effectiveness of the Lethality Assessment Program (LAP). Specifically, we examined the effectiveness of the LAP at (1) decreasing the frequency and severity of repeat IPV and (2) increasing the rates of emergency safety planning and help seeking among women who experienced IPV and called the police in a participating jurisdiction during the study time frame (the evaluation aim). We also examined the predictive validity of the Lethality Screen (the validation aim), officers' implementation of the LAP with the appropriate victims of IPV (the implementation fidelity aim) and victim satisfaction with the police response and the LAP (the victim satisfaction aim).

Participant Recruitment

Participants were recruited into the study at the scene of domestic violence incidents in 7 participating police jurisdictions in Oklahoma. During the first phase of the study (the comparison phase), when police officers responded to a domestic violence (DV) incident and there was a past or current intimate relationship, the officer recruited the victim of violence into the study when at least one of the following criteria was met: the officer (a) believed that an assault or other violent act had occurred whether or not there was probable cause for arrest, (b) was responding to a DV call from a victim or at a location where domestic violence had occurred in the past, (c) had a "gut feeling" that the victim was in danger or was concerned for the safety of the victim. These are the same criteria that initiated the use of the LAP protocol during the second phase of the research study (called the intervention phase). During the intervention phase, police officers were asked to recruit any victim for whom they initiated the LAP protocol, whether or not the victim answered the 11-questions, whether or not the victim screened in as high danger, and whether or not the victim spoke on the phone to the hotline counselor.

Data Collection

A baseline structured telephone interview lasting approximately 45 minutes was conducted with women referred to the study by police officers and who subsequently agreed to participate in the research study. For those participants that could be reached on follow-up, a second structured telephone interview was conducted on

average (median) 7 months later. During both the baseline and follow-up the interview, data were collected on demographic and relationship characteristics, the Danger Assessment (Campbell et al., 2003), participant assessment of risk (Campbell et al., 2005; Weisz, Tolman & Saunders, 2000), experiences of intimate partner violence and abuse using the Conflict Tactics Scale (CTS-2; Straus, Hamby, Boney-McCoy & Sugarman, 1996), protective actions using an adapted version of McFarlane and colleagues (2004) safety promoting behavior checklist, and posttraumatic stress disorder (PTSD) symptoms using the Primary Care Post-Traumatic Stress Disorder Screen (PC-PTSD; Prins et al., 2003). Due to the potential risk that IPV victims face if their partner learns that they have participated in a survey about the abuse that occurs in their relationship, telephone interviewers were trained to follow safety protocols and to be diligent in protecting participant confidentiality.

Comparison Group

Recruitment of the comparison group occurred between July 2009 and October 2010, during which time 1,137 women were referred to the research study. The telephone numbers given to the research team through the referral process were disconnected, never answered, or incorrect for 486 (42.74%) women referred to the study. An additional 47 (4.1%) women were not eligible to participate in the study (e.g., under 18 or not a victim of IPV). Therefore, 604 eligible referrals were contacted by researchers. Of these 604 women, 440 (72.8%) participated in a baseline interview.

After examining duplicates across the comparison and intervention groups, 7 duplicate participants were removed from the comparison group data. Therefore, for analyses examining baseline comparison and intervention group data, 433 women are included in the comparison group. All comparison group participants completed the Lethality Screen as part of the interview process. In order to simulate as closely as possible the experience of administering a the Lethality Screen at the scene of a domestic violence incident, after determining participant eligibility, researchers asked the Lethality Screen questions prior to administering any other portion of the survey. Of the 433 women, 342 (78.98%) would have screened in as high danger based on their scores on the Lethality Screen, and 212 of these women participated in a follow-up interview (61.99%). These women will be referred to as the *high violence comparison group* and will be compared to those women who received the intervention.

Intervention Group

Recruitment for the intervention group occurred from October 2010 through February 2013, during which time 2,022 women were referred to the study. The telephone numbers given to the research team through the referral process were disconnected, never answered, or incorrect for 1041 (51.48%) women referred to the study. An additional 43 (2.1%) women were not eligible to participate in the study (e.g., under 18 or not a victim of IPV). Therefore, 938 eligible referrals were contacted by researchers. Of these 938 women, 657 (70.04%) participated in a baseline interview and agreed to participate in a follow-up interview 6 months later. Nine duplicate participants were removed from the data collected during the intervention phase, resulting in a total of 648 women interviewed during the intervention phase of the research study and included in the database.

The intervention group consists of women interviewed during the intervention phase (n=648) who also (1) screened in as high danger based on the Lethality Screen questions (n=538) or based on the belief of the officer (n=25) and (2) spoke with a hotline counselor on the telephone (n=347 or 61.6% of the total of . 563 women

interviewed and classified as high danger). Of those347 women, 202 (58.1%) participated in a follow-up interview. (58.21%). These women are referred to as the *intervention group*.

Findings

Evaluation Aim

Logistic and linear regression models were used to examine the effect of intervention group status (versus high violence control group status) on the outcomes of violent victimization and protective actions at follow-up / after the index offense. Also included in the models were variables that control for the differences between groups at baseline. These include marital status, immigration status, Danger Assessment category *or* severe violence at baseline (variable chosen was dependent upon the analysis), and time between baseline and follow-up interview.

It was hypothesized that the Lethality Assessment Program would decrease the frequency and severity of violent victimization at follow-up. The difference between women's experiences of violence at baseline and experiences of violence at follow-up provides the clearest indication of change over time. In order to demonstrate the most complete picture of change in occurrence, frequency and severity of violence over time, we subtracted the baseline weighted frequency by severity CTS-2 score from the follow-up weighted frequency by severity CTS-2 score. The result is a linear scale that ranged from -327 to 159 with a mean of -38.87 (SD=73.0). When examining the scale as a linear score, lower scores indicate less violence at follow-up. The intervention group reported a significant decrease in the subtracted weighted CTS-2 frequency by severity score (*B*=-14.71, p<.05). Controlling for other variables in the model, the intervention group had a subtracted weighted CTS-2 frequency by severity score of 14.71 fewer points on average than the high violence comparison group. Utilizing an intent to treat framework, the intervention group reported a decrease in the subtracted weighted CTS-2 frequency by severity score that is significant at the p<.10 level (*B*=-10.99, p=.074). There were no significant differences in the presence or absence of intimate partner violence or severe IPV between the intervention and high violence comparison groups at follow-up. At the p<.10 level, the intervention group was less likely to experience intimate partner abuse (i.e., verbal/psychological, physical, and/or sexual abuse; Conditional OR=0.67) than the high violence comparison group.

The second hypothesis of the Evaluation Aim was that the Lethality Assessment Program would increase women's use of protective actions at follow-up. We examined protective actions that women took immediately after the police intervention (prior to the baseline interview) as well as protective actions that participants engaged in between the baseline and follow-up interviews. Between the time that the police responded to the index offense and the baseline interview, participants in the intervention group were significantly more likely to remove or hide their partner's weapons (Conditional OR=2.57, p<.05) and to obtain formal services for domestic violence in their relationship (Conditional OR=1.74, p<.05). When examining the safety strategies that participants engaged in between baseline and follow-up interviews, participants in the intervention group were significantly more likely than participants in the high violence comparison group to establish a code with family and friends to alert them of trouble (Conditional OR=1.62, p<.05), obtain some form of protection against their partner such as mace or pepper spray (Conditional OR=2.17, p<.01), and engage in other safety strategies such as improving security in their home (Conditional OR=1.53, p<.05). With regard to formal services, between the baseline and follow-up interviews, participants in the intervention group were significantly more likely than participants in the high

violence comparison group to obtain medical care from a doctor or nurse due to injuries or trauma sustained by intimate partner violence (Conditional OR=1.88, p<.05), apply for an order of protection (Conditional OR=1.65, p<.05) and receive an order of protection (Conditional OR=1.59, p<.05). Participants in the intervention group were also significantly more likely than participants in the high violence comparison group to go someplace where their partner could not find them or see them (Conditional OR=1.61, p<.05). Finally, the partners of participants in the intervention group were significantly more likely than the partners of participants in the high violence comparison group to go someplace where he could not find or see the participant (e.g., jail; Conditional OR=2.53, p<.01).

Validation Aim

Data from follow-up interviews conducted with the full comparison group (n=254) were used to examine the predictive validity of the Lethality Screen. This includes women in the high violence comparison group as well as women who were interviewed during the comparison phase but did not screen in as high danger on the Lethality Screen.

Predictive validity, the correct prediction of future events, is the most important measure of the accuracy of a risk assessment instrument. The function of predictive validity is two-fold: the correct classification of cases (called sensitivity = the number of true positives / number of true positives + number false negatives) and the correct classification of non-cases (called specificity = number of true negatives / number of true negatives + number false positives). Similarly, the positive predictive value (=number of true positives / number of true positives + number false positives) examines the proportion of people who were re-victimized out of those expected to be re-victimized and the negative predictive value (number of true negatives / number of true negatives + number of false negatives) provides information on the proportion of those women who were not re-victimized out of the number expected not to be re-victimized Because the Lethality Screen is intended to screen the maximum number of women at high risk into a brief advocacy intervention, sensitivity and the negative predictive value are much more important than specificity and the positive predictive value. The Lethality Screen was calibrated to maximize sensitivity so that the chances of missing victims who were at high risk to be killed were minimized, given the potential cost in victim lives. The Lethality Screen was also compared to the Danger Assessment categories and with participants' perception of risk.

Near Fatal Violence. Ten women in the comparison group did not respond to the questions regarding near fatal violence, leaving a final sample size for this analysis of 244; 28 (11.48%) respondents reported experiences of near fatal violence between the baseline and follow-up interviews (i.e., their partner tried to kill them or did something that may have / nearly killed them). The Lethality Screen has 92.86% sensitivity when predicting near fatal violence at follow-up. The negative predictive value is also high; 95.83% of the women classified as not high danger did not experience near fatal violence. The specificity of the Lethality Screen is 21.30% for near fatal violence and the positive predictive value is 13.27%. This is primarily because of a large number of false positives. The Lethality Screen classified many women as high danger (n=170) that did not experience subsequent near fatal violence during the follow-up period. Again, this is because the Lethality Screen was designed to maximize sensitivity without as much concern for specificity.

Severe Violence. Twenty women in the comparison group did not respond to the questions regarding severe violence at follow-up, and the final sample size for this analysis is 234. Of the women who responded to these questions, 44 (18.80%) experienced at least one form of severe violence (i.e., near lethal violence, forced sex, weapon use, punched / hit with an object, strangulation, beat up, burned / scalded, or kicked) since the baseline interview. The sensitivity of the Lethality Screen is approximately the same when predicting severe violence as when predicting near fatal violence, with 93.18% of the women who experienced severe violence at follow-up classified as high danger on the Lethality Screen. The negative predictive value is high with 93.18% of the women classified as not high danger not experiencing severe violence at follow up. The specificity of the Lethality Screen is 21.58% for severe violence and the positive predictive value is 21.58%. While the positive predictive value is higher than in the prediction of near fatal violence, the Lethality Screen continues to have a high number (n=149) of false positives.

Comparisons with the Danger Assessment. Women's weighted and summed baseline Danger Assessment scores were categorized into variable danger, increased danger, severe danger and extreme danger. Of those classified as extreme danger (n=180) on the Danger Assessment, all but 1 was classified as high danger on the lethality screen. This participant did not experience IPV at follow-up. Similarly, all but 8 of those classified as severe danger (n=94) on the Danger Assessment were classified as high danger on the Lethality Screen. Danger Assessment category is significantly associated (X^2=99.14, p< .001) with the Lethality Screen. At the severe and extreme danger levels, the Danger Assessment improves upon the specificity of the Lethality Screen for predicting near lethal and severe violence and the Lethality Screen improves upon the sensitivity of the Danger Assessment.

The Lethality Screen also is significantly associated (t=-2.69 (df=243), p<.01) with participants' predictions that their partner is likely to physically abuse them in the next year and is significantly (t=-3.15 (df=239), p<.01) associated with participants' predictions that their partner is likely to seriously hurt them in the next year.

Implementation Fidelity Aim

Of the 563 women who were classified as high danger during the intervention phase (based on their Lethality Screen scores as calculated by researchers or an officer's belief that the victim is in danger), the majority (61.6%; n= 347) spoke to a hotline counselor. Logistic regression was utilized to examine whether demographic and relationship characteristics, experiences of violence in the relationship and at the index incident, prior protective actions, mental health status, and jurisdiction had an effect on whether the participant spoke to the hotline counselor. Oklahoma City and Stillwater police departments had a significantly higher proportion of women who spoke to the hotline counselor than in the other participating jurisdictions combined (64.5% in Oklahoma City, 77.8% in Stillwater, 52.8% in Tulsa, and 42.1% in Broken Arrow). Severe experiences of violence at the index incident – the victim's partner punching her or hitting her with an object – led to a significant increase in the likelihood that the victim spoke to the hotline counselor. Similarly, the participant's partner ever having used a knife or gun on her increased the likelihood that she would speak to the hotline counselor. For each additional PTSD symptom that women experienced (0-4), they were 15% less likely to speak to the hotline counselor. Finally, women's prior protective actions and utilization of services due to domestic violence in their relationship had an impact on whether or not they spoke to the hotline counselor. For each additional protective action or emergency safety planning strategy on the modified version of McFarlane's Safety Behavior checklist (e.g., asked

neighbors to call police if violence begins, removed / hid weapons, packed a bag with extra clothing) that the participant had engaged in during the 6 months prior to the index offense, the participant was 13% more likely to speak with the hotline counselor. However, if the victim had ever received formal domestic violence services in her relationship, she was half as likely to speak to the hotline counselor.

Satisfaction Aim

Participants in the intervention group were significantly more satisfied (on a likert scale ranging from 0-10) with the police response than were participants in the high violence comparison group [t=4.21 (df=631.218), p <.01]. In addition, of the women who spoke on the phone with the hotline counselor, 59.7% reported that the person was "very helpful" and 26.2% reported that the person was "somewhat helpful," while 5.5% reported that the person was only "a little helpful" and 8.5% reported that the person was "not helpful."

Conclusions and Implications

The preponderance of evidence, albeit in a quasi-experimental design with some important limitations, is that the Lethality Assessment Program was effective in facilitating women at high risk for severe and near lethal violence to talk with a domestic violence advocate at the scene of a police involved domestic violence incident, both increasing survivors' use of formal and informal protective strategies and decreasing the frequency and / or severity of physical violence. In other words, both hypotheses of the evaluation aim were supported.

However, there was no evidence of decreased presence of intimate partner violence or severe violence, and there was no effect on the utilization of some measured protective strategies. In addition there were issues with implementation fidelity, as well as limitations on the predictive validity of the Lethality Screen. Overall, while this intervention demonstrated effectiveness in this single study in a single state and has important policy and practice implications, future research is needed to assist in answering additional questions and building the evidence base for the LAP.

Given that we found no negative effects of the LAP (e.g., there were no protective strategies utilized significantly more by the high violence comparison group and no significant reductions in violence for the comparison group relative to the intervention group), combined also with the data gathered by the MNADV that suggests that 31% of women who engage in the LAP intervention seek domestic violence services across multiple states, we feel comfortable recommending the Lethality Assessment Program as a collaborative police – social service intervention with an emerging evidence base. However, given that the only experimental research has been a single study in a single state, it is premature to label this intervention as "well-established" per the American Psychological Association Division 12 Task Force Guidelines (1993). As such, future research should replicate this study in order to garner a stronger evidence base. Future research should also utilize mixed methods research to examine the differential implementation of the LAP across jurisdictions and survivors and, in particular, whether differential application of the intervention is the result of officer or survivor selection. Future research should additionally examine whether the implementation of the LAP affects police officer attitudes toward IPV or social service / advocacy organizations.

Police Departments' Use of the Lethality Assessment Program: A Quasi-Experimental Evaluation

Introduction

The Lethality Assessment Program – Maryland Model has been operating in Maryland for eight years. Throughout that time, some data and many case accounts from Maryland and other states that have adopted the protocol provide anecdotal evidence that the Lethality Assessment Program (LAP) "works." This report provides the results of a systematic field evaluation and statistical analysis of the impact of the implementation of the Lethality Assessment Program across seven jurisdictions in Oklahoma. The study provides information, based on predetermined research questions and hypotheses, about whether the Lethality Assessment Program is effective when data is aggregated across groups of individuals. Before we present the statistical results of the study, two case studies provide a nuanced picture of the impact of the Lethality Assessment Program on the lives of individuals and the functioning of organizations. The following case studies about "Lisa" and "Kelly" were provided by Oklahoma advocacy organizations who participated in the study. These cases provide examples of the increased coordination between police and advocacy organizations in Oklahoma and the impact that the LAP has on the lives of domestic violence survivors.

Lisa's Story. "Lisa" was placed in contact with the advocacy organization after a violent attack from her abusive boyfriend. As she was telling the counselor about the history with this partner, she indicated that, although her partner had times when he was angry and violent, she never considered herself a victim of domestic violence or thought that her partner's behavior was "not normal" until the officer screened her using the Lethality Screen which asked questions about the danger that Lisa was in. Hearing the words from the officer struck a nerve and, for the first time, she decided she was living with an abusive partner. Lisa decided that she did not want to live in this manner and decided to seek counseling. That was in 2012 and Lisa is safely disengaged from the abuser and continues counseling for herself and her children.

Kelly's Story. The advocacy organization received a lethality screen on "Kelly" whose partner had just started the group counseling program for batterers. When Kelly was contacted, the counselor recognized that her partner was a participant in group counseling. This recent incident where the police were called alerted the advocacy agency that there had been another violent and abusive incident and that Kelly's partner had violated the organization's policy regarding physical abuse. The counselor for Kelly's partner was notified of the incident and the partner was dismissed from the program. Kelly came in and discussed a safety plan with an advocate, applied for and received a protective order and later relocated to another state with the help of family and domestic violence services. She told the counselor that the LAP had saved her life. We later learned that her partner was arrested and charged with domestic assault and battery. If the police officer had not conducted the LAP and encouraged Kelly to talk with us, we would not have known about the client's abusive behavior. Perhaps the next incident may have more severe. It was fortunate that the LAP was in place and helped keep Kelly safe.

Statement of the Problem

When a woman is murdered by her intimate partner or ex-intimate partner, prior domestic violence had occurred in up to 80% of cases (Campbell et al., 2003; Moracco, Runyon, & Butts, 1998; Pataki, 1997). In the majority of those cases, either the victim, the perpetrator or both had contact with the criminal justice system (Campbell et al., 2003). In fatality reviews of domestic violence homicides, criminal justice and social service personnel ask themselves, "Could we have known? What were the signs?" In hindsight, there usually *were* signs. Often, there was a failure to read the signs and/or to act on them.

Victims of intimate partner violence (IPV) call the police more often than they utilize any other help seeking strategy (Hutchinson & Hirschel, 1998), and victims of intimate partner homicide were six times more likely to reach out to the police than to domestic violence advocacy or other social service agencies (Sharps, Campbell, Campbell, Gary & Webster, 2001). Research on the effects of arrest at deterring re-assault and intimate partner homicide is mixed (Campbell et al, 2003; Cho & Wilke, 2010; Felson, Ackerman & Gallagher, 2005; Hirschel, 2008; Maxwell, Garner & Fagan, 2001). Yet women report that contacting a domestic violence service provider and going to a domestic violence shelter are helpful or make the situation better in the majority of cases (Goodkind, Sullivan & Bybee, 2004; Goodman, Dutton, Vankos, & Weinfurt, 2005). Shelter services were shown to be most effective in reducing severe and moderate re-assault in one prospective study (Campbell et al., 2005).

A primary goal of IPV early responders, service providers, and state domestic violence fatality review teams is to identify high risk victims in order to reduce and prevent further IPV injury and homicide, and to ensure the safety of survivors and their children. Although risk assessment for both IPV re-assault and intimate partner homicide is available, U.S. law enforcement agencies are not systematically using validated methods for identifying the most dangerous IPV cases. The use of risk assessment by police officers to tailor their response and educate victims about escalating risk and safety measures may increase victims' protective actions and motivate them to leave their abuser (Burke, Dennison, Gielen, McDonnell & O'Campo, 2004; Campbell, Rose, Kub & Nedd, 1998; Fisher & Rose, 1995; Gondolf & Fisher, 1988; Martin et al, 2000; Pape, 2000; Short, McMahon, Chervin, Shelley, Lezin, Sloop & Dawkins, 2000). Women are more likely to remain in an abusive relationship when they are unaware of the resources available (Patzel, 2006), and simple assessment and referrals – such as providing safety strategies over the telephone – have been shown to help women in abusive relationships enhance their safety skills (McFarlane et al., 2004; McFarlane et al., 2006).

The Lethality Assessment Program (LAP) is collaboration between police and social service providers that consists of 2 steps. First, a police officer responding to the scene of a domestic violence incident uses a brief 11-item risk assessment, the Lethality Screen, that is a shortened field version the Danger Assessment (Campbell et al., 2003; Campbell et al., 2005; Campbell, Webster & Glass, 2009), to identify victims at high risk of homicide. Second, women that screen in as high risk based on the Lethality Screen are put in immediate telephone contact with a collaborating social service provider who provides them with advocacy, safety planning and encourages them to come in for services. This report provides the results of the Oklahoma Lethality Assessment (OK-LA) Study, a quasi-experimental research study designed to assess the ability of the Lethality Assessment Program to increase protective actions and decrease violent victimization among domestic violence victims. This research was conducted in a state where a substantial proportion of IPV victims are Native American, a segment of our

society highly at risk for IPV and intimate partner homicide (Black & Brieding, 2008; CDC, 2005; Wahab & Olson, 2004).

Structure of the Report

First, we examine the literature on intimate partner violence and homicide in the U.S. generally and specifically in Oklahoma and among Native American women, since Indigenous women are at increased risk for intimate partner homicide. Next, we provide background on risk assessment, the Danger Assessment and the Lethality Screen. We then review the literature on help seeking and discuss the need for collaborative interventions between criminal justice and social service systems. We end the literature review with a comprehensive description of the Lethality Assessment Program, including previous research conducted, the significance of this research for the criminal justice system, and information interdisciplinary community based research.

The methods section begins with a statement of the study purpose, and then provides a detailed overview of the research methods used throughout the study. Human subjects protection protocols and approvals are addressed, followed by a description of the research sites. Next, recruitment and referral of participants is described including recruitment difficulties. Following this, our procedures for data collection are outlined with attention to describing interviewer training and safety protocols. This is followed by a complete description of our measurement instruments. Finally, we address dividing the sample into comparison and intervention groups, and the follow-up interview. The results section begins with a description of the sample and is followed by the main findings of the study organized by the main study aims: evaluation, validation, implementation fidelity, and satisfaction. A discussion of the findings follows including the strengths and limitations of the research study and implications for policy, practice and research.

Literature Review

Intimate Partner Violence and Homicide

It is estimated that 35% of women in the United States will experience some form of IPV in their lifetimes, and that 25% of women will experience severe IPV in their lifetimes (Black et al., 2011). Past year prevalence of IPV is placed between 2% and 12%, with 10.8% of women in 11 cities in the U.S. reporting physical and/or sexual assault or threats thereof in the past 2 years (Arbuckle et al., 1996; Walton-Moss, Manganello, Frye, & Campbell, 2005). Of all violent crimes committed against women in 2010, 22% were perpetrated by a current or former intimate partner (Truman, 2011). The estimated cost of IPV was $8.3 billion in 2003 dollars, including costs of medical care, mental health services, loss of productivity, and homicide (Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). This figure excludes funds spent on other social services (e.g., shelter, transitional housing) or the criminal justice response to IPV.

In addition to the injury suffered by women due to the violence inflicted on them by their partners, women who have experienced IPV are more likely to report chronic illness, disability and physical health problems including gastrointestinal and cardiac symptoms, and gynecological problems associated with forced sex (Campbell, 2002; Campbell et al., 2000; Ruiz-Perez Plazaola-Castaño, & del Río-Lozano, 2007; Tadegge, 2008). Further, women

who have experienced IPV have high rates of mental health issues. A meta-analysis of U.S. studies found strong associations between IPV and posttraumatic stress disorder, depression, and suicidality (odds ratios=3.55-3.80), as well as alcohol/drug abuse/dependence (odds ratios=5.56-5.62) (Golding, 1999). In a more recent global review and meta-analysis of longitudinal studies using 16 studies with more than 36,000 female participants, there was a clear association between IPV and suicide attempts and incident depressive symptoms, with a pooled OR from six studies of 1.97 (95% CI 1.56–2.48, I2 = 50.4%; Devries et al., 2013). Women who experience severe IPV (e.g., being beaten up, assaulted with a weapon) are at greater risk for even poorer physical and mental health outcomes and intimate partner homicide (Campbell et al., 2003).

The most serious form of IPV is murder. Femicide (Campbell & Runyon, 1998; Radford & Russell, 1992; Russell, 2001), the murder of women, is one of the leading causes of premature death for women in the United States (Hoyert, Kochanek, & Murphy, 1997). During 2006-2010, homicide was the second leading cause of death for African-American females 15-24 years of age and the third leading cause of death for Native American female 15-24 years of age (CDC, NCIPC, 2013). In 2007, African American female homicide victims were twice as likely as White female homicide victims to be murdered by a spouse and four times more likely to be killed by a boyfriend/girlfriend (Catalano et al., 2009). Whereas only 3%-6% of male homicide victims are killed by an intimate partner (Catalano et al., 2009; Kellermann & Heron, 1999), 30-70% of femicide victims are killed by an intimate (Catalano, et al., 2009; Campbell et al., 2007; Kellermann & Heron, 1999; Puzone et al., 2000; Rennison & Welchans, 2000; Violence Policy Center, 2012). This translated into 1,640 women being killed by an intimate partner in 2007 (Catalano et al., 2009). Physical IPV was reported to have preceded homicide in 65-80% of intimate partner (IP) femicide cases, making IPV the single largest risk factor for intimate partner femicide (Campbell et al., 2003; Moracco, Runyon, & Butts, 1998; Pataki, 1997). Intimate partner violence directed at the female partner is also the largest risk factor for intimate partner homicide among male victims (Campbell et al., 2007).

The development of programs and legislation has resulted in decreased IPV from 1993-2008 (Catalano, 2009). Although there has been a steady and significant decline in the rate of male victims of intimate partner homicide (53% decrease from 1980-2008), the trend of decreased intimate partner femicides reversed in 1995 and there has been a 5% increase in the proportion of women killed by an intimate since 1980 (Cooper & Smith, 2011; Greenfeld, Rand & Craven, 1998; Puzone, 2000; Rennison & Welchans, 2000; Paulozzi, Saltzman, Thompson & Holmgreen, 2001; Fox & Zawitz, 2000).

Intimate Partner Violence and Homicide in Oklahoma

Intimate partner violence (IPV) is a serious and persistent problem in Oklahoma. Various data are available to assess and track the magnitude of IPV in the state including crime statistics, public health surveillance, survey data, and domestic violence fatality review board data. The Oklahoma State Bureau of Investigation (OSBI) collects data from police reports on domestic abuse offenses including murder, sex crimes, assault, and assault and battery. In 2010 alone, incident reports were filed on more than 25,000 domestic abuse offenses by police in Oklahoma, including 51 murders, 656 sex crimes, 3,270 assaults, and 21,465 assault and battery offenses (Oklahoma State Bureau of Investigation, 2011). The OSBI defines domestic abuse as threatening or causing or attempting to cause serious physical harm between family or household members. Family or household members

include current and former spouses, children, persons related by blood or living in the same household, dating and courtship relationships, and persons who share a child. The number of domestic abuse offenses reported to law enforcement has changed little over time. From 2002-2010, an annual average of 24,595 domestic abuse offenses were reported per year.

The National Intimate Partner and Sexual Violence Survey estimates that 49% of women and 41% of men in Oklahoma have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime (Black et al., 2011). Additionally, Oklahoma has included IPV questions on the annual state Behavioral Risk Factor Surveillance System (BRFSS) survey for several years. BRFSS data collected on IPV during 2009 estimated that 20.8% of non-institutionalized women and 10.4% of non-institutionalized men 18 years of age and older had been physically assaulted by an intimate partner in their lifetime; 9.4% of women had been sexually assaulted by an intimate partner. An estimated 2.7% of women and 0.8% of men had experienced physical or sexual IPV in the past 12 months. According to BRFSS data, multiracial non-Hispanic females in Oklahoma experience the highest lifetime prevalence of physical IPV (31.0%), followed by black females (27%), white females (20.6%), and Native American females (20.5%). Among students in grades 9-12, both males and females in Oklahoma report lower rates of physical IPV than their U.S. counterparts, 6.3% and 7.4%, respectively for Oklahoma and 9.5% and 9.3%, respectively for the U.S. (CDC, YRBS, 2011).

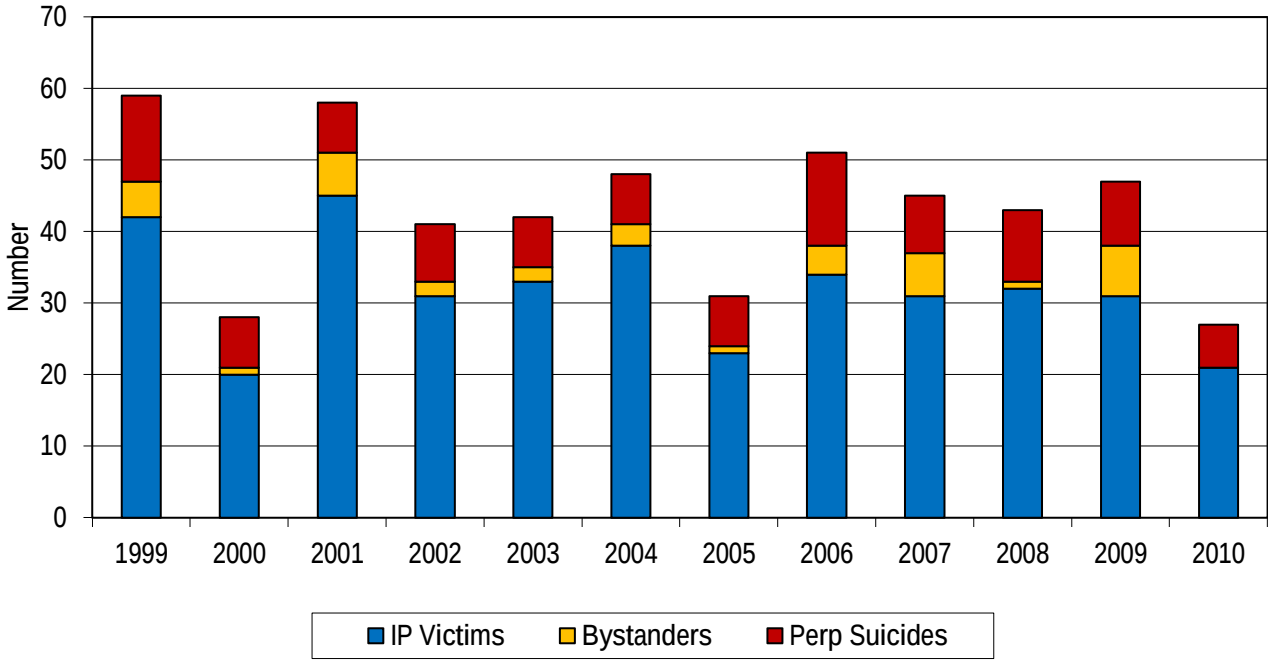
Health care information about IPV injuries and health outcomes of victims is a primary source of physical evidence that can corroborate victims' statements and help establish elements of a crime for court evidence (Issac & Pulani, 2001). From 2000-2003, the Oklahoma State Department of Health (OSDH) collected data on IPV injuries treated in hospitals through the Oklahoma IPV injury surveillance program funded by a grant from the Centers for Disease Control and Prevention (CDC). Surveillance data on IPV injuries were collected from hospitals, medical examiner reports, and the Oklahoma Women's Health Survey (OWHS). A pilot project was conducted in Oklahoma City Metropolitan Statistical Area hospitals during 2000-2001 and, in 2002, IPV injury surveillance data were collected in a statewide random sample of 118 hospital emergency departments (n = 20). Weighted population estimates were derived from the statewide hospital sample using hospital size and total number of annual emergency department admissions reported by hospitals in the state's annual health-care utilization survey. Data were collected through on-site hospital medical records reviews. IPV assault cases were found by reviewing all emergency department treatments for assaults. An IPV assault cases was defined as an assault that was inflicted by the victim's current or former marital or non-marital partner or same-sex partner. Of the nearly 4,000 emergency department assault records that were reviewed, a total of 16% were documented as IPV assaults. Among women, 35% of assaults were IPV related; among men, 3% of assaults were IPV related (MMWR, 2005).

Based on population estimates derived from the weighted data, the rate of IPV assault treatment in Oklahoma hospitals was 88.6 per 100,000 population 15 years of age and older. The rate among females was 10 times higher than the rate for males (157.8 and 15.6, respectively). The highest rate of IPV assault was among blacks (327.1), followed by Native Americans (107.9), and whites (63.6). Non-Hispanics had higher rates of IPV assaults than Hispanics (90.1 and 59.6, respectively). The rate of hospital treated IPV assaults among black females (546.2) was nearly three times higher than Native American females (192.3) and nearly 5 times higher than white females (116.4). The rate among black males (94.8) was 5 times higher than Native American males (18.2) and 12 times

higher than white males (8.5). The perpetrator of the assault was a current marital or non-marital partner in 90% of female assaults and 98% of male IPV assaults (OSDH, 2002).

The OWHS was conducted during 2001-2003 using a random-digit telephone survey and adapted BRFSS methodology. A total of 6,163 women 18-44 years of age who were married or in a romantic relationship in the past year were interviewed in the survey. IPV was defined as threats or acts of physical or sexual violence. Eleven percent of women surveyed reported they had experienced physical and/or sexual IPV in the past year. Seventy-three percent of the women who reported experiencing IPV had children less than 17 years of age living in the household, 25% received food stamps, 6% received Temporary Assistance to Needy Families, and 27% were living below the federal poverty level (in 2001, the federal poverty level was $17,650 for a family of four). Women 18-24 years of age reported IPV more often (17%) than women 25-34 (11%) or women 35-44 (7%). Past-year IPV rates were highest among women who were separated (49%) or single (24%), disabled (27%), unemployed (20%), or had less than a high school education (20%). Among racial groups, women of mixed race had the highest rate (21%), followed by Native American women (16%), other race (14%), blacks (13%), Hispanic (12%), and whites (9%). Native American women reported higher rates of severe IPV than women of other races (OSDH, 2002). More than half (56%) of women who reported past-year IPV said they had been injured at least once. Nearly one third (32%) of injured women reported that they needed medical attention for their injuries; 13% reported never receiving medical attention when needed, 12% sometimes received medical attention when needed, and 6% reported always receiving medical services when needed. A question on health screening for domestic violence was added later to the survey and 61 injured respondents were asked if a health care provider had asked them about domestic violence when treated for IPV injuries. Of these, 35% had been asked and 65%

Figure 1. Type of IPV-related Death, Oklahoma, 1999-2010



*Includes 383 intimate partner (IP) victims, 37 bystanders, and 100 perpetrators who committed suicide.

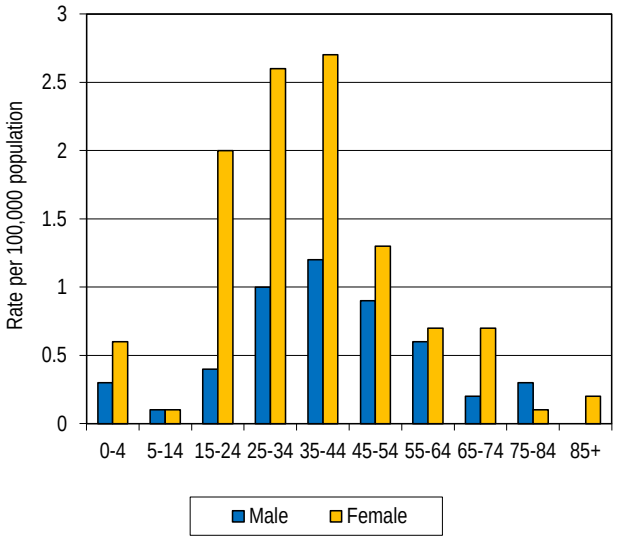
had *never* been asked about domestic violence by a health care provider when treated for IPV injuries. Using these available data sources, the burden of IPV injury among women between 18-44 years of age in Oklahoma was determined. For every IPV death among women 18-44 years of age, three women are hospitalized, 106 women are treated in an emergency department, and 1,079 women are injured by an intimate partner assault.

Data on intimate partner homicides have been tracked by OSDH since 1999 using multiple data sources. Two established surveillance systems, the Oklahoma Violent Death Reporting System and the Oklahoma IPV Surveillance System were combined and are currently used to examine IPV-related homicide incidents in Oklahoma. Cases include all decedents in homicide incidents where one intimate partner killed another.

From 1999-2010, 520 persons died in IPV-related homicide incidents. Decedents included 383 intimate partner (IP) victims, 37 bystanders, and 100 perpetrators who committed suicide. On average, there were 43 deaths annually, ranging from 27-59 deaths per year (Figure 1).

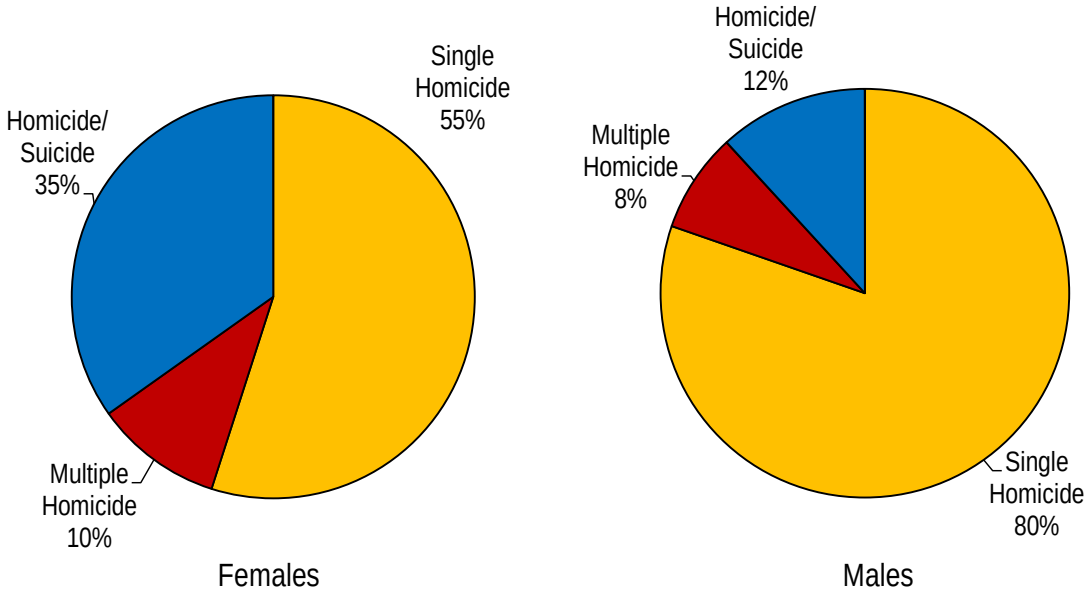
Fifty percent (n=263) of persons were killed in single homicides, 42% (n=217) were killed in homicide-suicides, and 8% (n=40) were killed in multiple homicides (one incident was a homicide and legal intervention). Sixty-one percent of intimate partner victims in single homicides, 75% of intimate partner victims in multiple homicides, and 82% of intimate partner victims in homicide-suicide incidents were

Figure 3. Age and Gender Specific IPV Homicide Rates, Oklahoma, 1999-2010



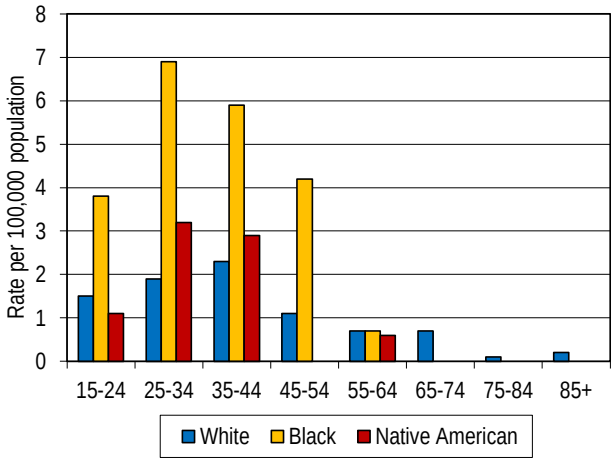
*Includes homicide victims (intimate partners and bystanders).

Figure 2. IPV-related Deaths by Incident Type and Victim Gender, Oklahoma, 1999-2010



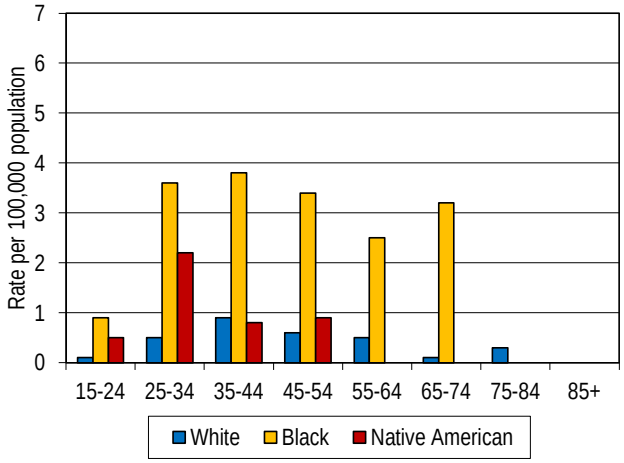
female. Among females, 35% of the deaths occurred in homicide-suicide incidents compared to 12% of the deaths among males (Figure 2). Ninety-five percent of perpetrators who committed suicide were males and 5% were female. Intimate partner homicide victims ranged in age from 15 to 91 years of age with a mean age of 38 years. Bystanders ranged in age from less than 1 year of age to 59 years of age with a mean age of 19 years. Perpetrators who committed suicide ranged in age from 18 to 86 years of age with a mean age of 42 years. Females had higher rates of IPV-related homicide across all ages except among ages 75-84. IPV-related homicide rates were highest among persons 15-44 years of age (Figure 3). Rates peaked among persons 35-44 years of age for both male and female victims, 1.1 and 2.7 per 100,000, respectively. Rates among children less than 15 years of age are generally indicative of innocent bystanders killed in IPV-related homicides. The rate of

Figure 4. Age and Race-Specific Rates* of IP Homicide among Females, Oklahoma, 1999-2010



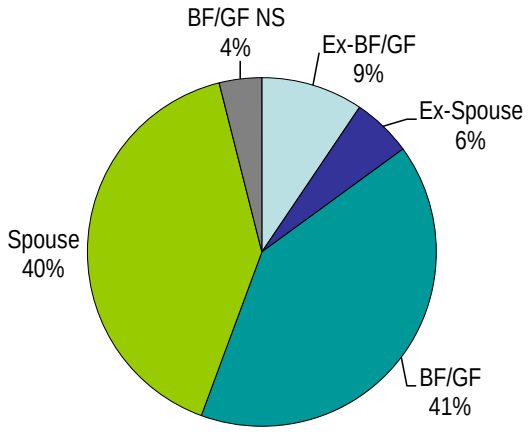
*Includes 256 female intimate partner victims. Race was other, unknown, or mixed for 17 victims.

Figure 5. Age and Race-Specific Rates* of IP Homicide among Males, Oklahoma, 1999-2010

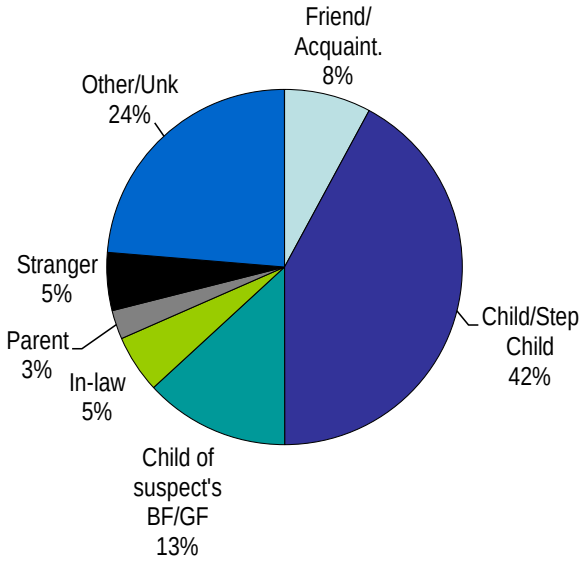


Includes 109 male intimate partner victims. Race was unknown for one person.

Figure 6. IP Victims' and Bystanders' Relationship to the Suspect, IPV-related Deaths, Oklahoma, 1999-2010



IP Victims



Bystanders

IPV-related homicide among blacks (2.6 per 100,000) was more than 3 times higher than the rate among whites or Native Americans (0.8 and 0.9 per 100,000, respectively). The rate among blacks was higher among all age groups including bystanders less than 5 years of age. There were no IPV-related deaths among blacks 75 years and older and no IPV-related deaths among Asians.

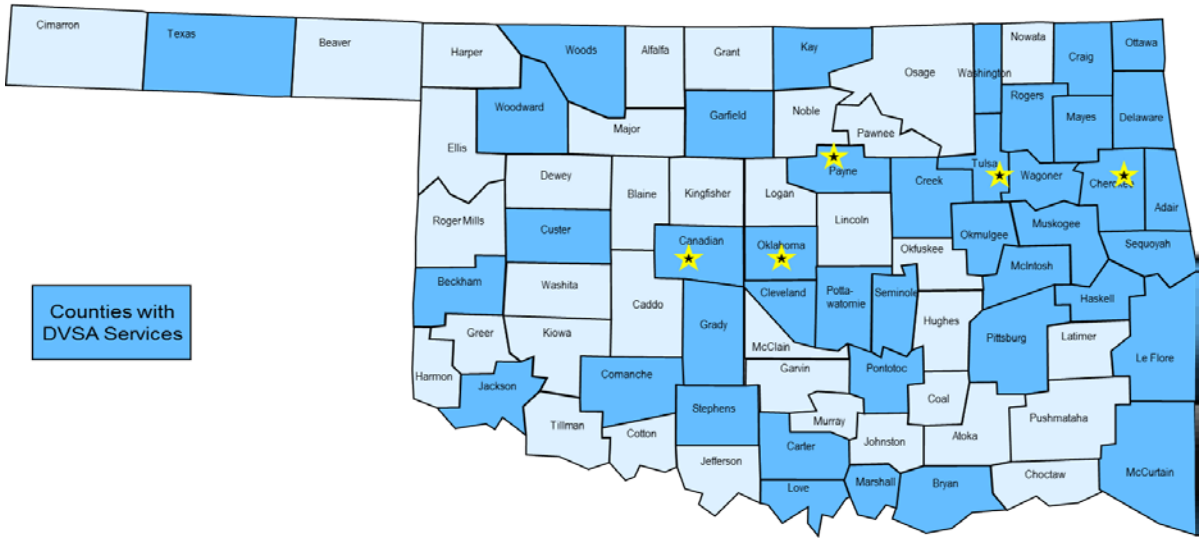
The intimate partner homicide rate among black females (4.1 per 100,000 population) was 2.7 times higher than Native American females (1.5) and 3.2 times higher than white females (1.3). Among females, intimate partner homicide rates were highest among black females 25-34 years of age (6.9 per 100,000). Among Native American females, the rate peaked among women 25-34 years of age and among white females, the rate peaked among women 35-44 years of age (3.2 and 2.3, respectively) (Figure 4).

The intimate partner homicide rate among black males (2.6) was also higher than males of other races. The rate among black males was 5.2 times higher than white males (0.5) and 26 times higher than Native American males (0.1). Unlike the intimate partner homicide rates among white and Native American males, the intimate partner homicide rate among black males generally remained high in every age group from age 25 through 74 years of age, ranging from 2.5 among black males 55-64 years of age to 3.8 among black males 35-44 years of age. The intimate partner homicide rate among Native American males peaked among persons 25-34 years of age (0.2) and among white males the rate peaked among persons 35-44 years of age (Figure 5).

In 81% of the incidents, the perpetrator/suspect was a current marital or non-marital partner of the intimate partner victim. In 15% of the incidents the perpetrator/suspect was an ex-boyfriend or ex-girlfriend and in 4% of the incident the status of the relationship was unknown. More than half (55%) of bystanders killed in these incidents were children or step-children of the perpetrator/suspect (42%) or the perpetrator/suspect's boyfriend or girlfriend (13%).

Domestic Violence Services in Oklahoma

Figure 7. State-Certified Domestic Violence and Sexual Assault Programs by County Location, Oklahoma (Stars indicate LAP study sites. More than one program may be located in a county. Programs may serve surrounding counties.)



There are 30 domestic violence and sexual assault (DVSA) service providers certified by the Oklahoma Attorney General's Office located throughout the state. These programs provide services in 44 cities.

By law, certified programs in Oklahoma are required to provide both domestic violence and sexual assault services to victims. Additionally, we are aware of 26 tribal-operated DVSA programs that provide a variety of services for domestic violence and/or sexual assault. Several tribes have functioning shelters, including the Chickasaw, Seminole, Osage, and Comanche tribes. Services that are provided to victims of domestic violence include emergency and transitional shelter, crisis intervention, counseling, advocacy, and assistance with resources such as housing, employment, and training. Domestic violence programs also provide court-ordered batterers' treatment. Persons who are eligible to receive domestic violence services include: victims of domestic violence and their dependent family members, children exposed to domestic violence, and homeless persons as a result of family violence and/or sexual violence. Victims of rape, adult survivors of child sexual assault, and victims of professional sexual misconduct, and sexual harassment are also eligible to receive services.

By Oklahoma Statute, health care providers, second responders to IPV, are not required by law to report domestic violence unless requested to do so orally or in writing by the patient (O.S. Title 22, Chapter 2, Section 58). If the patient requests that law enforcement be notified, the provider is to report the abuse to the law enforcement agency nearest where the domestic abuse occurred. Additionally, the health provider is required to refer the victim to a domestic violence services program and, at a minimum, provide the number for the 24-hour statewide domestic violence hotline, 1-800-522-72.33 (SAFE). Upon the request of law enforcement, copies of examination, other clinical notes, X-rays, photographs, and other records are provided to the investigating officer. Health providers are required to document all injuries, treatments and referrals in the health care record (Isaac & Pulani, 2001).

Native American Women and IPV

In 2010, the U.S. population included an estimated 5.2 million American Indian and Alaskan Native (AI/AN) people (1.7% of the total population), either alone or in combination with one or more other races (Norris, Vines & Hoeffel, 2012). IPV victimization is highly prevalent among AI/AN women in the United States (Fletcher, 2009). The average annual rate of nonfatal IPV from 2001 to 2005 was found to be higher for AI/AN women than for women from other racial/ethnic groups (Bureau of Justice Statistics, 2013). In the 2010 CDC national survey of physical and sexual violence against women the weighted prevalence of lifetime prevalence of IPV against AI/AN women was 45.9% (399,000 victims) in comparison to 40.9% of African American and 31.7% of white women (Black et al., 2011). In a community-based survey of 112 AI/AN women in New York City, 60% reported at least one form of interpersonal violence, 40% reported IPV, and 40% reported experiencing multiple types of victimizations (Evans-Campbell, Lindhorst, Huang & Walters, 2006). Research also provides evidence of high rates of intimate partner homicide among indigenous populations (Jackson, 2013). According to the 2009 FBI Supplementary Homicide Report, AI/AN females were more likely than white females to be killed by a male perpetrator (Violence Policy Center, 2011). Because tribal communities are very diverse with many women living in urban areas off of tribal lands, intimate partner homicide among AI/AN women may not receive attention from the dominant news media and therefore may not be included in newspaper stories or state homicide reports. In the 2007 National Violent Death Reporting System report for 16 states, three of which have high concentrations

of AI/AN women, the rate of homicide of AI/AN women was 7.3 per 100,000, higher than for any other racial/ethnic group (Karch, Dahlberg & Patel, 2010).

Indigenous women are at elevated risk of IPV due to complex interplay of factors arising out of their historical experience of colonization. With colonization, some indigenous populations were forced to adopt values such as gender inequality and patriarchal domination, compounded by internalization (i.e., comparing themselves to white standards, feelings of shame, rejection of themselves and other indigenous people). Further, lack of full acceptance in the dominant culture and other stressors – particularly trauma from enforced boarding school experiences and ongoing marginalization, racism and poverty – contributed to increases in family abuse and other post traumatic responses such as Post Traumatic Stress Disorder (PTSD) and substance misuse among indigenous people (Sotero, 2006). Indigenous populations have been found to be overrepresented in several known risk markers of violence against women such as patriarchal dominance, child abuse, low education, unemployment, rural residence and alcohol abuse (Brownridge, 2009). This is supported by studies that have found an association between IPV and alcohol problems, rural residence and lack of access to legal/victim services among AI/AN populations (Oetzel, 2004).

Intimate Partner Violence against Native American Women in Oklahoma. Because it is a non-reservation state (excepting the Osage Nation, which claims Osage County as a reservation), and no organizations track the incidence of domestic violence reported by AI/AN women, tracking domestic violence against AI/AN women in Oklahoma is difficult. According to the Director of the Oklahoma Native Alliance Against Violence (NAAV), most Native women are directed to seek services through their county court, which does not enter the data into state or national databases. Similarly, if the women use tribal police and court systems, that information is also not entered into state or national databases (D. Stover of Native Alliance Against Violence, personal communication, November 22, 2013). Because of the lack of adequate statistics, the number of AI/AN women experiencing IPV are calculated through examining users of domestic violence services and comparing this to county census data by race. This system shows that the proportion of AI/AN women who utilize domestic violence services is three times greater than the proportion of AI/AN women in the population in Oklahoma County in 2010 (US Census, 2014). This does not include women who do not access domestic violence services, but who are experiencing IPV and may utilize informal supports or the legal system.

Although Oklahoma has had the Full Faith and Credit Law since 1995, tribal orders of protection are not fully enacted in all areas of the state and women are directed to go to the county court if they want local law enforcement to honor a tribal protective order. There is no penalty if tribal orders are not enforced. Other barriers identified by the Native Alliance Against Violence were a lack of consistent funding for tribes involved in providing domestic violence services, resulting in inconsistent access in some areas.

Intimate Partner Violence Risk Assessment

It has been suggested that any effort to manage perpetrators of IPV implies a calculation of risk (Hilton, Harris, Popham & Lang, 2010; Kropp, 2004). The use of IPV risk assessment within the social service and criminal justice fields is growing, as is scholarly literature devoted to the subject. Within these overburdened systems, the need to determine and treat the most serious cases of IPV has brought about a proliferation of statistical assessments and standardized decision-making tools that allow for allocation of resources where they

are most needed. There is a clear need, and growing mandate, for validated systems to assess both risk of re-assault and risk of homicide in IPV cases. At least two entire provinces in Canada as well as some states require some form of risk assessment in IPV cases. It has been suggested that risk assessments be used to inform police, prosecutorial, and judicial responses to domestic violence (e.g., Bennett, Goodman & Dutton, 2000; Hilton et al., 2004; Roehl & Guertin, 2000) as well as for intervention in victim advocacy settings (Campbell, 2004; Kress, Protivnak & Sadlak, 2008).

Many victims of IPV, especially those that have been severely abused, are acutely aware of the possibility of homicide (Langford, 1996; Stuart & Campbell, 1989), but have difficulty assessing their degree of risk (Sharps et al., 2001). There is evidence that abused women who perceive their partner to be extremely likely to re-assault them are correct about that perception (Goodman, Dutton & Bennett, 2000; Cattaneo, Bell, Goodman & Dutton, 2007; Heckert & Gondolf, 2004; Messing & Thaller, 2013; Weisz, Tollman & Saunders, 2000), but in one study approximately 50% of the women who were killed or almost killed by their intimate partner did not accurately assess him (or her) as capable of homicide (J. Campbell, personal communication, April 17, 2014). Indeed, research has found that survivors are more likely to underestimate than overestimate their risk (Campbell, 2004; Heckert & Gondolf, 2000), possibly as a coping strategy in an effort to maintain a normal life (Dutton, 1996; Dutton-Douglas & Dionne, 1991) or due to the effects of cumulative trauma on awareness and/or memory (Browne, 1987; Campbell, 1995). In addition, some IPV risk assessment instruments have demonstrated a higher predictive validity than survivor prediction (Campbell, Webster & Glass, 2009; Messing & Thaller, 2013; Wilson, Batye & Riveros, 2010). Experts believe that victims of IPV should be educated about their risk and potential risk factors (Campbell, 2004), particularly because protective actions often occur upon recognition that violence is escalating, and concerns for safety may motivate victims of IPV to leave their abuser (Burke et al., 2004; Campbell et al., 1998; Fischer & Rose, 1995; Gondolf & Fisher, 1988; Martin et al, 2000; Pape & Arias, 2000; Short et al., 2000).

Victims and perpetrators of IPV interact with many intervention systems, and risk assessment instruments have the ability to provide a consistent language and measurement of risk across systems and actors (Kropp, 2004; Shepard, Falk & Elliott, 2002). Conducting risk assessment with victims brings fears of her partner into the open and allows her to discuss the issue with an informed professional. In addition, the process also helps the professional gain a better idea of the victim's degree of risk, what kinds of safeguards are needed, and how assertive the professional needs to be with both the woman and the systems in order to get her help. Risk communication – the transfer of information gathered during risk assessment – connects the science and practice of risk assessment (Heilbrun, O'Neill, Strohman, Bowman & Philipson, 2000; Kropp, 2004). Indeed, some researchers refer to risk assessment instruments as risk communication tools (Hilton et al., 2010) and risk assessments, such as the Danger Assessment and the Lethality Screen, are explicitly focused on the communication of risk from the professional to the victim of IPV or between the criminal justice and social service systems.

The Danger Assessment. The Danger Assessment (DA; www.dangerassessment.org; Campbell et al., 2003; Campbell, 1986) was originally created for use with abused women, in collaboration with domestic violence advocates and health care professionals, and is intended to empower abused women toward decisions of self-care, or protective actions. The DA has been used and validated in a variety of victim service and criminal justice

settings. It is usually administered by a victim advocate, healthcare professional, or criminal justice practitioner who will assist the victim in recalling incidents past abuse, with the help of a 12-month calendar, and completing 20 yes/no questions about risk factors present within the past year. The calendar is used to aid the victim in recalling severity and frequency of violent incidents and to avoid minimization of abuse. A weighted scoring system identifies women at the following levels of danger: variable danger (<8), increased danger (8-13), severe danger (14-17) and extreme danger ($\geq$18). The DA is intended as a collaborative effort between the victim and survey administrator, who may assist the victim in developing a safety plan. This risk assessment is unique in that it is the only risk assessment that gathers data from only the victim of violence and is intended specifically to be used in collaboration with the victim of violence to promote safety behaviors.

In its original form, the DA was comprised of 15 dichotomous questions created based on a review of the literature and interviews with domestic violence survivors and advocates (Campbell, 1986). In 2003, based on evidence from a study funded by the National Institute of Justice (in collaboration with the National Institute on Drug Abuse, the National Institute of Mental Health, and the Centers for Disease Control and Prevention), 5 additional items were added (Campbell et al., 2003). The study included interviews with 220 proxies (e.g., a mother, sister, best friend) of women killed by their intimate partner, 143 women who experienced attempted intimate partner femicide, and 356 abused controls across 10 cities in the U.S. Each hypothesized risk factor was examined for its ability to predict femicide (compared against the abused control group). The Receiver Operating Characteristic (ROC) Area Under the Curve (AUC) – the most common means to assess predictive validity of risk assessment instruments (Douglas, Guy, Reeves & Weir, 2005) – is .90 when examining femicides (Campbell, Webster & Glass, 2009). That is, there is a 90% chance that a randomly selected victim of homicide would have a higher score on the DA than a randomly selected victim of assault. When examining attempted femicide the AUC=.918, and the specificity of the DA is 98% at the extreme danger level; that is, there were only 2% false positives (overestimate of risk).

The DA has also been shown to be predictive of intimate partner re-assault and severe re-assault in six additional research studies, five of them by independent research teams (Campbell et al., 2005; Goodman, Dutton & Bennett, 2000; Heckert & Gondolf, 2004; Hilton, Harris, Rice, Houghton, Eke, 2008; Hilton et al., 2004; Weisz, Tolman & Saunders, 2000). The DA predicts repeat assault with similar or better accuracy than most other validated IPV risk assessment instruments (Messing & Thaller, 2013), and the ability of the DA to predict severe assault is particularly noteworthy. When examining severe re-assault controlling for victim protective actions, the AUC = .687 (Campbell et al., 2005). The DA has also been found to be significantly better at prediction than victims' perception of risk – this is especially true of intimate partner homicide and near lethality but also of re-assault and severe re-assault (Campbell et al 2003; Campbell et al., 2005).

The questions on the DA are consistent with risk factors identified through research as predictive of intimate partner re-assault, severe re-assault and homicide. These are an increase in the frequency and severity of abuse (Campbell et al., 2003), having a child that is not the abusers (Campbell et al., 2003), recent estrangement (Dawson & Gartner, 1998; Websdale, 1999; Wilson & Daly, 1993; Wilson, Johnson & Daly, 1995), controlling behaviors (Campbell et al., 2003), stalking (McFarlane et al., 1999), threats to kill or threats with a weapon (Campbell et al., 2003), strangulation (Glass et al., 2008), partner access to a firearm (Campbell, 1995; Campbell et al., 2003; Campbell et al.,2007; Fox & Zawitz, 2000), perpetrator unemployment (Campbell et al., 2003),

partners use of illegal drugs or problem drinking (Sharps, Campbell, Campbell, Gary & Webster, 2003), avoiding arrest for domestic violence (Campbell et al., 2003), abuse during pregnancy (McFarlane, Campbell, Sharps & Watson, 2002), forced sex (Campbell et al., 2003), extreme sexual jealousy (Campbell et al., 2003), and suicide threats or attempts (Koziol-McLain et al., 2006).

The Lethality Screen. The Lethality Screen (Appendix A) is an 11-item version of the Danger Assessment created by a 23-person multi-disciplinary Lethality Assessment Committee under the guidance of Dr. Jacquelyn Campbell and Dr. Daniel Webster in collaboration with the Maryland Network Against Domestic Violence (http://www.mnadv.org/lethality.html). The Lethality Screen is intended for use by field practitioners or first responders in combination with the Lethality Assessment Protocol (together, the screen and the protocol make up Lethality Assessment Program, see section below). The questions on the Lethality Screen are asked to the victim of IPV and the scoring system is designed for ease of use with results of "high danger" or "not high danger." Questions on the Lethality Screen include risk factors from the DA previously found to predict re-assault, severe re-assault and homicide. A perpetrator is automatically classified as high danger if victim reports threats to kill the victim or the victim' children, use of or threats with a weapon, or if the victim thinks that the perpetrator poses as lethal threat. If the victim does not answer in the affirmative to any of these three risk factors, but answers "yes" to four or more of the following risk factors, the perpetrator is also classified as high danger: perpetrator access to weapons, strangulation, recent separation, extreme jealousy and/or controlling behaviors, perpetrator suicide threats or attempts, stalking, perpetrator unemployment or if the victim has a child that is not the abusers (Campbell, 1995; Campbell et al., 2003; Campbell et al.,2007; Dawson & Gartner, 1998; Fox & Zawitz, 2000; Glass et al., 2008; Koziol-McLain et al., 2006; McFarlane et al., 1999; Websdale, 1999; Wilson & Daly, 1993; Wilson, Johnson & Daly, 1995).

Help Seeking Among Victims of IPV

Calling the police is one of the most commonly employed help seeking strategies by women in abusive relationships (Hutchinson & Hirschel, 1998). In published studies, among women not seeking help for IPV from the criminal justice or social service systems, between 6.7% and 60% of IPV victims report that the police had been called due to domestic violence (Bachman & Coker, 1995; Catalano et al., 2009; Kantor & Straus, 1990; Rennison & Welchans, 2000; West, Kantor & Jasinski, 1998). When including women seeking help from the courts, assistance with orders of protection, legal assistance, and/or seeking victim services (e.g., advocacy, shelter), this proportion ranges up to 92% (Berk et al., 1984; Goodkind et al., 2004; Goodman et al., 2003). The proportion of women seeking help from the police significantly increased from 1993-1998 (Rennison & Welchans, 2000) and, when the victim identifies IPV as a crime, domestic violence is reported to the police at rates equal to the reporting of other crimes (Felson, Messner, Hoskin & Deane, 2002).

As the severity or frequency of abuse increases so do calls to the police (Bonomi, Holt, Martin & Thompson, 2006; Gondolf, 1998; Johnson, 1990; West, Kantor, Jasinski, 1998). Among victims of intimate partner homicide, 56% had called the police in the year before they were killed and 24.5% had an order of protection (Campbell et al., 2003). Thus, the majority of victims of femicide have had contact with the police, yet the police response was unable to save their lives (Campbell et al., 2003). Indeed, research is mixed on the deterrent effects of arrest of perpetrators (Campbell et al, 2003; Cho & Wilke, 2010; Felson et al., 2005; Hirschel, 2008; Maxwell, Garner &

Fagan, 2001). When relying on victim self-report, while 74.8% of one sample found contacting law enforcement to be helpful (Goodman et al., 2003) only 42% of another sample stated that calling the police made the situation better (Goodkind et al., 2004). This wide range of satisfaction may be due to racial / ethnic differences in the samples, differential recruitment strategies, or a difference in the question asked of participants.

Accessing domestic violence services, such as obtaining counseling or staying at a shelter, occurs much less often. Among samples of women not recruited from shelters or domestic violence service agencies, but generally recruited after coming into contact with the police or seeking an order of protection, the percent of abused women accessing domestic violence services ranges from 4.8%-38% (Brookoff et al., 1997; Coker et al., 2000; Gondolf, 1998; Hutchinson & Hirschel, 1998; Macy et al., 2005) and the percent of women accessing shelter services ranges from 3%-8.9% (Brookoff et al., 1997; Gondolf, 1998; Hutchinson & Hirschel, 1998; Wiist & McFarlane, 1998). While research has found that accessing domestic violence services (Coker et al., 2000; Gondolf, 1998; Henning & Klesges, 2002; Macy et al., 2005) and shelter (Gondolf, 1998; West, Kantor, Jasinski, 1998) increases as the severity of physical violence increases, in one study examining homicide only 4% of the women murdered by their intimate partner had accessed domestic violence shelter or crisis services in the previous year (Sharps et al., 2001).

Women report that contacting a domestic violence service provider and going to a domestic violence shelter are helpful or make the situation better in the majority of cases (Goodkind, Sullivan, Bybee, 2004; Goodman et al., 2005) and shelter services were shown to be most effective in reducing severe and moderate re-assault in one prospective study (Campbell et al., 2005).

The cornerstone of shelter services is safety planning. The objectives of safety planning are empowerment and the woman's autonomy; it is an opportunity for the abused woman to gain information, thoroughly assess her situation, support her resistance, reinforce her sense of agency, and strategize her responses (McFarlane et al., 1997; McFarlane et al., 2004; Campbell, 2001). Safety planning must be tailored to the individual woman and her situation (Campbell, 2001). Lack of awareness regarding available resources and difficulties accessing services are factors associated with remaining in an abusive relationship (Patzel, 2006).

Research suggests that low cost, clear, simple assessments and referrals – such as teaching women safety strategies over the telephone – can be effective in helping women in abusive relationships enhance their safety skills (McFarlane et al., 2004; McFarlane et al., 2006). Women have reported that the use of emergency safety planning strategies are useful, with over half of women reporting that they are helpful or make the situation better (Goodman et al., 2003; Goodkind, Sullivan & Bybee, 2004). While referral has been shown to increase safety behaviors and decrease violent victimization, it may be more protective to include assessment and case management; the assessment process itself may be a helpful intervention that increases victim awareness of violence levels and safety behaviors (McFarlane et al., 2006). Theoretically, there may be an optimal time for intervention shortly after an abusive episode when women are likely to believe that violence will not cease and are more likely to reach out for help (Curnow, 1997). Women have reported no longer practicing safety behaviors once they feel safer as they want to forget about abusive incidents (McFarlane, et al., 2004).

Collaborative Interventions

Police officers face a daunting array of difficulties when attempting to protect victims of IPV. Officers are responsible for intervening in a large number of cases and it is not always clear if the perpetrator poses a lethal threat to his victim. Even when officers believe it is a high risk case, it may be difficult for them to communicate this information to victims or other actors in the system. Most police units have been trained to provide IPV victims with information about domestic violence services, but only a very small proportion (12.2%) of women access advocacy services after police leave the scene (Messing, 2007). In spite of increasing coordination between criminal justice agencies and social services in some communities, ongoing coordination is lacking in most. Although police may have a unique and ideal opportunity to intervene with victims at the scene of the IPV incident and connect them to advocacy and safety planning (Curnow, 1997), no previous research has examined the effects of coordinating police and domestic violence advocacy services to provide immediate safety planning when police are called to the scene of an IPV incident.

The Lethality Assessment Program

In 2000, the Maryland Network Against Domestic Violence (MNADV; http://www.mnadv.org/lethality.html) decided – among other issues – to tackle the problem of domestic homicide in Maryland. In order to do this, the MNADV set the goals of identifying victims at high risk for homicide by an intimate partner and creating a plan to assist them with decreasing that risk. To meet these goals, the MNADV established a statewide multi-disciplinary Lethality Assessment Committee in the fall of 2003 to create a protocol for response to domestic violence in Maryland. The committee included advocates, police officers, and professionals from other related disciplines including prosecution and probation, as well as three researchers from Johns Hopkins University and the University of Maryland, including Dr. Jacquelyn Campbell and Dr. Daniel Webster. Four research findings from Dr. Campbell's study on intimate partner homicide (Campbell et al., 2003) were utilized as touchstones: nearly half of domestic homicide offenders had been arrested in the year prior to the homicide, women do not access domestic violence services at high rates, there is a significant reduction in risk of severe assault when victims utilize the services of a domestic violence advocacy program, and abused women who used community-based domestic violence services were rarely the victim of murder or attempted murder.

Based both on these research findings and on practice expertise, the committee made two important decisions: (1) although the project would be designed for field practitioners who came into contact with a victim of domestic violence during the course of their work, they would focus on law enforcement, the practitioners who would most frequently come in contact with domestic violence victims at risk for homicide and (2) it was important to create a collaborative intervention between officers and domestic violence advocates in order to ensure that victims were receiving the services that they needed. Therefore, the goal of the committee was to develop a field protocol that would identify victims of domestic violence who were at the greatest risk of being killed and encourage them to access domestic violence services. The committee worked for two full years creating the Lethality Screen and an accompanying protocol, field-testing it, and gathering feedback from the officers and advocates who had participated in the field-test. In the field test, the pilot protocol was described as "very easy" to "fairly easy" to implement by 84% of officers and 95% of advocates. The combination of the screen and

protocol, called the Lethality Assessment Program (LAP), was implemented by the Kent County, Maryland Sheriff's Office and the Mid-Shore Council on Family Violence on October 1, 2005.

The Lethality Assessment Program. The LAP involves an 11-question risk assessment instrument called the Lethality Screen (see above) and an accompanying proactive response called the "Protocol Referral" that occurs at the scene of domestic violence calls for service. The LAP is initiated by police officers at the scene of a domestic violence incident. The officer determines whether it is appropriate to use the Lethality Screen, though it is suggested that the officer use the Lethality Screen when a past or current intimate relationship is involved and there is a "manifestation of danger" by evidence of at least one of the following criteria: (1) the officer believes that an assault or other violent act has occurred whether or not there was probable cause for arrest, (2) the officer is concerned for the safety of the victim once they leave the incident scene, (3) the officer is responding to a domestic violence call from a victim or at a location where domestic violence had occurred in the past, or (4) the officer has a "gut feeling" that the victim is in danger. Administration of the Lethality Screen usually occurs near the end of the officer's investigation.

At the core of the LAP process is a willing partnership between law enforcement and a local domestic violence service provider. If a victim screens in as "high danger," meaning that the victim is at an increased risk of homicide, the police officer conveys to the victim the danger that she/he is in and tells the victim that people in the same situation have been killed. The officer then tells the victim that she/he would like to call the local 24-hour domestic violence hotline at the collaborating advocacy organization in order to get some information to help the victim. The officer asks whether the victim would consider speaking with the hotline worker. Whether or not the victim chooses to speak to the hotline worker, the officer makes the call to the hotline and provides some basic information to the hotline worker. This may give the victim some time to consider speaking to the hotline worker; therefore, while the officer is on the telephone, she/he will ask the victim if they have reconsidered and would now like to talk. It is the victim's choice whether or not they want to speak to the hotline worker and, if the victim declines to speak, the officer no longer pursues his/her effort to put the victim on the phone. Instead, the hotline worker provides the officer with some immediate safety planning tips for the next 24 hours to share with the victim.

If the victim chooses to speak with the hotline worker, the conversation is brief (no more than 10 minutes) and focused, both because the officer must return to service and because the victim may not be in a position to attend to a great deal of information. Because being on the phone with the victim at the scene of a domestic violence incident is a different type of call for hotline workers, they are trained to use special guidelines to communicate with and engage victims in situations where they do not have much time and where the victim may not have come to terms with the seriousness of their situation. Guidelines for hotline workers convey four main points: 1) gaining the victim's trust, 2) reinforcing the information that the officer has provided about the danger that the victim is in (and thus reinforcing the partnership with law enforcement), 3) educating the victim and doing immediate safety planning, and 4) actively encouraging the victim to come in for services.

Through years of experience implementing the LAP in Maryland, advocates have learned that most victims encountered in calls for service from the scene of a domestic violence incident are different from victims who initiate calls to the hotline for help. Victims at the scene of an incident may not be ready to reach out to social

services for help or may have not yet even recognized that they are victims of abuse. The hotline worker, therefore, may need to provide more education about domestic violence, provide more information about services, and give more encouragement to access services than they would if a victim had reached out for services on their own. This moment, at the scene of a volatile call for service with a police officer present and an advocate readily available, may be the best time and opportunity for a victim of domestic violence to act. Throughout the LAP, self-determination and empowerment are the cornerstones of this intervention intended to guide survivors toward decisions of self-care.

In Maryland, 100% of law enforcement agencies that respond to calls for service are LAP participants, including the Maryland State Police, as are all 20 domestic violence programs in all 24 state jurisdictions (D. Sargent, personal communication, May 12, 2014). Some participants have been doing the LAP in Maryland for more than 8 years. Between 2006 and 2012, officers have administered more than 56,000 screens. During that time period, 53% of victims screened at high risk with 57% of those talking with the advocate at the scene and 31% following up with the agency (Maryland Network Against Domestic Violence [MNADV], 2013). Each year, more agencies have been added, the populations served have increased, and new variations on the protocol have been undertaken. Concerns –such as phone use, officers being on the scene longer, legal discovery of the Lethality Screen by defendants, and liability – have not materialized as problems or have resolved themselves due to the voluntary nature of participation, the effectiveness of the protocol, and officer acceptance of the intervention.

Expanding the Lethality Assessment Program. The MNADV received numerous inquiries about the LAP in the years after implementation, but did not have the resources to assist agencies that wanted to participate. In 2008, the MNADV applied for a Federal Byrne grant to expand the LAP outside of Maryland through provision of LAP training to other states. The MNADV was awarded the grant and, under this funding mechanism, trained 29 jurisdictions across six states. Each of these 29 jurisdictions has implemented the LAP, five of these have made themselves available to provide training to other jurisdictions in their state, and three jurisdictions have actually provided training in their respective states. New Hampshire, for example, under the guidance of the state attorney general's office and a coordinator who is a retired Chief of police, has now trained all ten counties in the state. The LAP has continued to expand. Hundreds of law enforcement agencies and their partner domestic violence programs have been trained and the LAP has been implemented in jurisdictions of 31 states besides Maryland. In some of those states (e.g., Pennsylvania, Connecticut), the state Coalition Against Domestic Violence has taken the lead and are implementing the LAP statewide.

The LAP has been improved upon in many ways in many jurisdictions. In Maryland, follow-up with high danger victims has become a virtually integral part of the LAP, with advocate telephone calls or officer-advocate home visits. The initiation of this practice has caused an increase in the number of victims who go into services. In 2008, 28% of the high risk cases went in for services; in jurisdictions with follow-up, this proportion was 56% in the same year. Some participating jurisdictions outside of Maryland have begun this practice as well. The LAP has also extended into other settings and disciplines. Lethality Screens are being done when petitioners come out of temporary protective order hearings in six Maryland counties and in seven hospitals. In 2012, the high danger rate for screens done with temporary protective order petitioners was 77% and with hospital patients the high danger rate was 68% (MNADV, 2013). This is higher than for screens done at the scene of a domestic violence incident,

indicating a much higher level of danger among these particular groups of victims. In addition, high danger petitioners and patients went in for services at a higher rate than those victims from the scene of a domestic violence incident: 38% and 48% respectively (MNADV, 2013). A protocol has been developed for the faith community, and, in conjunction with the state of Maryland, LAP protocols are being developed for three cabinet-level departments.

Previous Evaluations of the Lethality Assessment Program. From the outset, the MNADV Lethality Assessment Committee believed it was necessary to maintain data on the performance of the LAP. Every participating agency voluntarily gathers and reports data to the MNADV; this data is then reported back to the participating agencies. In 2012, 100 agencies in Maryland reported doing 12,108 screens. Of those screens, 6,224 (51%) victims were assessed by officers as being at high risk for homicide. Of the victims at high risk, 3,277 (53%) spoke on the phone to a hotline worker. Of those victims that spoke on the phone to a hotline worker, 925 (28%) went into services (MNADV, 2013). This means that they took the concrete action of either going into shelter or into the domestic violence program for counseling, legal, or other direct services. This is a remarkable number of victims who spoke to the hotline worker and went in for services - credit for this lies directly with officers and advocates.

The MNADV has kept statistics on domestic violence related fatalities in Maryland since 1987. Between the years 1987 and 2005, the average annual domestic homicide rate has been 68 fatalities per year. Between July 2007 and June 2012, the number of domestic homicides in one year in Maryland was the lowest recorded at 33. Since July 2007, and during the time that the LAP has been implemented in the state, Maryland has recorded 56, 45, 33, 33 and 37 fatalities for a five year total of 204 domestic fatalities, or an average of 41 fatalities per year. There have been previous downward trends in the data (e.g., 1989-1992); however, the homicide rate has jumped dramatically after previous downturns. While it is too early to tell whether the pattern of the past 5 years will hold, this is a 34% decrease over 5 years.

Significance for Criminal Justice System

This LAP is grounded in the idea that the criminal justice and social service responses to intimate partner violence must work in collaboration with one another in order to provide the best intervention possible in IPV cases. In this model, the criminal justice system provides accountability for the offender while the social service system collaborates with the criminal justice system to provide safety options to the victim. The Lethality Assessment Program uses an IPV risk assessment based on the Danger Assessment and developed for field practitioners or first responders to assist police officers and victims with identifying risk in the intimate relationship. As women tend to underestimate their risk (Campbell, 2004; Heckert & Gondolf, 2000) and safety concerns often motivate help seeking (Burke et al., 2004; Campbell et al., 1998; Fischer & Rose, 1995; Gondolf & Fisher, 1988; Martin et al, 2000; Pape & Arias, 2000; Short et al., 2000), increasing an IPV victim's perception of risk may help encourage protective actions (Campbell et al., 2005). The LAP is the only intervention that we are aware of to provide immediate telephone advocacy support and safety planning for the victim at the scene of the domestic violence crime. As lack of awareness of community resources is associated with remaining in an abusive relationship (Patzel, 2006), this intervention may provide women with needed information and resources. Finally, because the LAP utilizes existing community agencies and resources, it can be implemented in a large number of

jurisdictions and reach a greater number of victims. This research is an exciting first step toward the use of risk assessment tools and evidence based intervention to integrate the criminal justice and social service response to IPV.

Interdisciplinary Community-Based Research

This research study relied heavily on engagement with the community, police departments and advocacy organizations. In order to foster the relationships necessary to successfully conduct this research, we adopted principles of community participatory action research that included: participation, co-learning, capacity building, systems change, balancing research with action, and fostering sustainability through long term collaboration (Minkler & Wallenstein, 2010).

Participation

Analysis of 2006 homicide data showed that Oklahoma ranked 4th in the nation for domestic violence femicides perpetrated by men and the state had consistently been among the top 15 in the nation for domestic violence homicides since 2001 (Violence Policy Center, 2012). Oklahoma has the second largest American Indian/Alaska Natives (AI/AN) population after California; 9% of the state's population is AI/AN (US Census, 2014). AI/AN and African American women historically had disproportionately higher intimate partner homicide rates (Oklahoma State Department of Health, 2002). Utilizing these data as a starting point for conversation, researchers approached the Oklahoma Association of Chiefs of Police (OACP) and asked if they would be interested in participating in a study to evaluate if a domestic violence lethality assessment intervention protocol would reduce IPV and intimate partner homicides. The Director of Oklahoma Association of Chiefs of Police and the researchers served on the Oklahoma Domestic Violence Fatality Review Board for many years together and were aware of the data that showed the severity of the problem for the state, region, and nation. The Oklahoma Domestic Violence Fatality Review Board also had been studying danger and lethality assessments that might work to reduce IPV fatality and injury. Six police department chiefs agreed immediately to join the study; one other large police department was asked to join because the chief was absent from the meeting and he readily agreed. The researchers arranged meetings with the police chiefs and top police department management to describe the study. Although the topic was initially identified by academic researchers, police departments had been talking with researchers for some time about the existing problem in Oklahoma and the nation. It was suggested and agreed upon that to have the study take place, a chief's directive would have to be issued in each police department. This turned out to be a good decision because when the study and intervention training began, police officers asked if the research team had a chief's directive. During trainings we asked officers what had been their prior experience with academic researchers. Statements such as, "They hand out surveys and leave," "They just come to get their publication and tenure." Or, "We never hear from them again," informed us that we should give frequent feedback to not only top police management, but also to line officers who were recruiting study participants and implementing the LAP. We brainstormed with police management about how we could effectively communicate with the field officers about the study. We developed short (10-20 minute) roll-call power point presentations that could be emailed to all officers and media site training refreshers on the LAP.

Community Advisory Committees

We formed 3 community advisory committees (Law enforcement, Native American, and Advocacy), representing the study's participants. The purpose of these groups was to discuss the study's progress and seek feedback, consultation, and information whenever necessary. We chose to ask the leadership of the involved community actors to be on the advisory committees so that they would be able to effect change quickly if that was needed.

Native American Advisory Committee. The Native American Advisory Committee consulted on all Native American issues that arose during the course of the research study. This committee provided advice and support to researchers and the other committees regarding Native American traditions and culturally sensitive service provision and research methods. The main functions of this committee were to ensure that the protocols and research strategies were culturally sensitive and to assist with the interpretation of study findings as they related to Native American survivors of IPV.

Social Service Advisory Committee. The Social Service Advisory Committee was available to consult with researchers and practitioners regarding the implementation of the Lethality Assessment Program within Oklahoma social service agencies. The main functions of this committee were to create a strategic plan to manage the increased demand for services in social service agencies, to develop protocols for accommodating the unique needs of clients referred by police during the intervention, to provide a link between social service providers and researchers, and to work with the Law Enforcement Advisory Committee to facilitate collaboration between social service providers and law enforcement.

Law Enforcement Advisory Committee. The Law Enforcement Advisory Committee was available to consult with researchers and practitioners regarding the implementation of the Lethality Assessment Program within Oklahoma Law Enforcement Agencies. The main functions of this committee were to assist Oklahoma law enforcement agencies with the implementation of the Lethality Assessment Program (e.g., providing advice on training, troubleshooting, and program fidelity), to provide a link between law enforcement and researchers, and to work with the Social Service Advisory Committee to facilitate collaboration between social service providers and law enforcement.

Additional Strategies. In addition to the use of formal advisory committees, we utilized teleconferences and face to face meetings with police departments and collaborating advocacy centers in order to ensure that community partners and researchers maintained similar goals and objectives throughout the course of the study and to report preliminary results. We sent weekly email updates to police departments and advocacy agencies to inform them of our progress with recruitment. Finally, we invited our community partners to present with us at the Oklahoma Association of Chiefs of Police, the Oklahoma Domestic Violence, Sexual Assault, and Stalking Partnership Conference and the International Association of Chiefs of Police Conference where they demonstrated the LAP and discussed their experience working with researchers.

Co-Learning

Although researchers collected data from interviews with victims of intimate partner violence, police as co-researchers recruited participants into the study and collected data on the Lethality Screen and referral instrument at the scene of the domestic violence incident, reporting the data to researchers. Police also went over preliminary findings from the study and gave us insight about results. For example, we shared the high rate of Posttraumatic Stress Disorder (PTSD) symptoms found among IPV survivors recruited into the study (Wilson, West, Messing, Brown, Patchell & Campbell, 2011). Police found this particularly troubling, and connected it to an issue that they had been struggling with – they had seen an increase in untreated PTSD among police veterans returning from war zones. As a result of this connection and collaboration, PTSD training was included in all Academy police training.

Because of the complexity of this study, it was necessary for researchers and community collaborators to devise communication strategies by which we could discuss recruitment, training needs, and other issues that arose. In collaboration, police departments, advocacy agencies, and researchers developed an ongoing series of updates, presentations, and collaborations. These included weekly email updates on study recruitment, trainings, study pitfalls and progress as well as face to face meetings with police chiefs, police management, and collaborating advocacy agency staff and management. We also developed 10-20 minute training "refreshers" through a media site that could be sent out in emails to all officers for roll call presentations.

Researchers provided local, regional, and national presentations about the study's progress, the Lethality Assessment Program, and preliminary findings. For example, we presented the study to the Tribal Police Chief's Association when it was newly formed. Two groups that received regular updates about the study are the Oklahoma Domestic Violence Fatality Review Board and the Oklahoma District Attorney's Quarterly Victim Services Roundtable. The research team was also regularly invited to the State Tribal Victims Services Roundtable Discussions as part of the ongoing outreach initiative from the Oklahoma District Attorneys Council to Native American violent crime victims. The meetings have been hosted by the Citizen Potawatomi Nation, Choctaw Nation, Kaw, Osage, Otoe-Missouria, Pawnee, Ponca, and Tonkawa Nations. These meetings provide a forum in which tribal victims' services providers, victim witness coordinators/victim witness assistants, and area victims' service providers can meet, talk about respective services offered, discuss any gaps in delivery of resources /support to victims, and learn about progress on the Lethality Assessment Study.

In order to ensure broader knowledge about the intervention in the community, the research team and community partners (police, advocacy, and victim) participated in news conferences that were arranged by the University of Oklahoma. This resulted in numerous news stories and profiles of the Lethality Assessment Program throughout participating jurisdictions and throughout Oklahoma.

Balancing Research and Action, Systems Change

Participatory action research has two symbiotic goals: to conduct research and to translate the research findings into change for communities (Minkler & Wallenstein, 2010). Community partners outside of the study – members of the Oklahoma Domestic Violence Fatality Review Board who regularly were informed of the study and preliminary findings – planned much of the action component of this research. This included the planning and

implementation of 3 initiatives. First, they developed two Oklahoma legislative interim studies that informed state legislators of the ongoing study, the significance of the study, community participation, and preliminary findings. Second was the writing and passing of Oklahoma Senate Bill 567 (2012) that included the Lethality Assessment Program in all Oklahoma Police Academy domestic violence training and education. Finally, they have been working with key state mental health licensing boards to require intimate partner violence training for all licensed mental counselors, including training on the LAP.

Sustainability and Long Term Collaboration

As the research study drew to a close, the research team wrote to the Chiefs of Police participating in the study to inform them of the impending study end and to encourage their departments to continue with the Lethality Assessment Program. Given that the police officers had already been trained in the intervention and considering the strong relationship that police departments built with their partner advocacy organizations, researchers believed that continuing use of the LAP after the study close would further cement these relationships and would ultimately benefit victims of IPV. An additional benefit of the LAP has been a strengthening of evidence collection for stronger prosecution. Police attach copies of the Lethality Screen to police reports and applications for protection orders so that prosecutors and judges can take into account risk for homicide when making decisions. Continuing use of the LAP would also meet the requirements of Oklahoma Senate Bill 567 (2012) which mandates that all new police officers will have the Lethality Assessment Program as part of their evidence based 8-hour Domestic Violence training.

The research team offered to assist with consultation, collaboration, and refresher trainings for the departments in the future as needed. Researchers also maintained their relationship with community partners in order to gather feedback on the final study report and to inform collaborators of the final study results. Standard Operating Procedures for use of the LAP are being written by two of the major police departments in the state. The police are writing the Standard Operating Procedures with the assistance of their collaborating advocacy agency. Given the success of this research-practitioner partnership, two additional research projects have been suggested by the community: the use of the Lethality Assessment Program in hospital Emergency Departments and Financial Exploitation Intervention Protocols for older adult abuse.

Methods

The overarching purpose of this nonequivalent groups quasi-experimental research was to examine the effectiveness of the Lethality Assessment Program (LAP). Specifically, we examined the effectiveness of the LAP at (1) decreasing the rates of repeat, lethal and near lethal violence and (2) increasing the rates of emergency safety planning and help seeking among women who experienced IPV and called the police in a participating jurisdiction during the study time frame (the evaluation aim). Additionally, we examined the predictive validity of the Lethality Screen (the validation aim), officers' implementation of the LAP with the appropriate victims of IPV (the implementation fidelity aim) and victim satisfaction with the police response and the LAP (the satisfaction aim). Finally, we examined state data on homicide and violent deaths during and prior to the study period.

Human Subjects Protocols and Approval

Six Institutional Review Boards (IRBs) were involved in the study: the University of Oklahoma Health Sciences Center, Oklahoma State Department of Health, Arizona State University, The Johns Hopkins University, Cherokee Nation, and the National Institute of Justice. Each required an initial application, protocol modifications, and 1-year continuing review submissions. In addition, the Cherokee Nation IRB required submission of all manuscripts before publication. Because all study participants were to be recruited from Oklahoma, it was decided that the University of Oklahoma Health Sciences Center IRB would take the lead in assuring human subjects protections. The University of Oklahoma Health Sciences Center IRB determined the study to be high risk because of the inclusion of AI/AN women, pregnant women, and women at moderate to severe risk for domestic violence fatality. This meant that the study went to the full board for approval of the initial application, yearly continuing reviews, protocol modifications, protocol deviations, and adverse events.

The following Table outlines the major IRB issues that arose before and during the study and how they were resolved by the research team. The majority of the issues that occurred were resolved before the study began, and the study start was delayed for 5 months in order to resolve various IRB issues.

Issue	Resolution
Community Partners: Police did not understand academic IRB requirements and the regulations of human research protections (e.g., why did the officer have to read a recruitment statement?). The police departments also had a history of relationships with researchers where they did not receive study results.	We explained the federal regulations for the protection of human subjects in research studies. This was a segue to a discussion of the police department regulations and how academic researchers and police can work together on research. We discovered two officers with PhDs and many with Masters degrees who were very interested in the study and partnership. We also had a similar conversation with the advocates, though they had more prior experience with being involved with research and knew many of the regulations and requirements (e.g., human subjects training and protections). With the police, we devised a plan to present study results. We also included police as co-presenters on local and national presentations.
Privacy Certificate: The University of Oklahoma Health Sciences Center IRB was unsure that a privacy certificate would afford the same participant protections as a National Institutes of Health confidentiality certificate.	We arranged a conference call among the researchers, University of Oklahoma Health Sciences Center IRB chairs, legal counsel, and NIJ personnel to discuss the human subject protections afforded by both certificates. The privacy certificate was accepted by University of Oklahoma Health Sciences Center as comparable to the National Institutes of Health Certificate of Confidentiality

Issue	Resolution
Child Abuse: By state law, as social workers and nurses, all of the researchers on the study are legally mandated reporters of child abuse. The Informed Consent document approved by University of Oklahoma Health Sciences Center IRB informed participants that if child abuse was reported in an interview, we were required by law to report this. According to NIJ, researchers would be breaching confidentiality by reporting child abuse and could not do so.	We arranged a conference call among the researchers, University of Oklahoma Health Sciences Center IRB chairs, legal counsel, and the NIJ IRB director to discuss the issue and reach a solution. We designed 2 separate consents. First, a consent to participate in the research study. Second, a separate consent to allow researchers to report child abuse if revealed during the course of the study. Researchers did not ask any questions about child abuse during the interview.
Affiliation Agreements: Since there would be no research participants recruited from Arizona or Maryland, researchers requested affiliation agreements between Arizona State University and University of Oklahoma Health Sciences Center IRB and Johns Hopkins University and University of Oklahoma Health Sciences Center IRB that would allow University of Oklahoma Health Sciences Center IRB to make the human subjects protections decisions.	Johns Hopkins University would not consent to an affiliation agreement. Arizona State University was willing to explore an affiliation agreement, but University of Oklahoma Health Sciences Center legal counsel was concerned about prior legal actions between Native American tribes and Arizona State University and wanted to make sure that an affiliation agreement with them would not affect the University's relationship with existing tribes. We arranged a conference call among the researchers, University of Oklahoma Health Sciences Center IRB chairs, legal counsel, Arizona State University IRB, and NIJ personnel. University of Oklahoma Health Sciences Center legal counsel agreed to the Affiliation agreement between the IRBs on the basis that research participants are being recruited in Oklahoma and University of Oklahoma researchers have a long history of working with the Native tribes in Oklahoma.
Pregnant Study Participants: Under Federal regulations, pregnant women can only be enrolled in a research study if the study holds direct benefit to the mother or the fetus or if the research has no more than minimal risk. Since the research had more than minimal risk, the University of Oklahoma Health Sciences Center IRB wanted additional justification for inclusion of pregnant women in the study.	Researchers wrote a letter and presented to the IRB justification of inclusion of pregnant women in the study, particularly that their exclusion from the intervention phase of the study may deprive them of a potentially helpful intervention. We also put together a health packet of information with information on local and national domestic violence resources embedded in the materials to offer to all pregnant study participants after their follow-up interview as a direct benefit that they would receive from their participation in the study. This complied with federal human subjects protections requirements, and pregnant women were included in the research study.

Issue	Resolution
Inclusion of Men: University of Oklahoma Health Sciences Center IRB board members thought that inclusion of men in the study would be more equitable.	Researchers agreed to recruit and interview both men and women.
Disagreement between IRBs: With 6 IRB decision-making bodies, there was not always agreement across IRBs as to study procedures and modifications.	When disagreement occurred, the study team took the strictest regulations handed down by any of the IRBs and re-presented these to the remaining IRBs.

Collaborating with multiple IRBs in one study, including the major AI/AN IRB (Cherokee Nation) in Oklahoma, is a complex endeavor. For projects that include protected populations and/or more than one IRB, additional time should be allocated at the beginning of the study to work out collaborative arrangements among various IRBs. University of Oklahoma Health Sciences Center IRB changed to electronic submissions in the middle of the study and communication was greatly expedited among the IRBs because of this. Cherokee Nation IRB had slightly different stipulations (e.g., reviewing all publications prior to the study) that had to be observed and respected.

University of Oklahoma Health Sciences Center researchers have a long history working with AI/AN communities in cardiovascular research (e.g., Strong Heart Study). Therefore, University of Oklahoma Health Sciences Center IRB wanted to ensure that our study would continue this history of integrity with the tribes. We actively engaged a member of the Cherokee Nation to be on our research team, Dr. Beverly Patchell, to help us with all aspects of the study, but also with issues arising with the Cherokee Nation and the IRB as well as with interpretation of results specific to AI/AN participants and dissemination to the tribes. This greatly helped with our understanding of the Cherokee Nation IRB and reporting back to tribal members.

Research Sites

Sites for the study were originally 8 police departments and their collaborating domestic violence advocacy agencies in Oklahoma: Oklahoma City Police Department, Tulsa Police Department, Lawton Police Department, the El Reno Police Department, the Stillwater Police Department, Broken Arrow Police Department, Cherokee county Sherriff's Office, and Tahlequah Police Department.

Lawton Police Department dropped out of the study during the first year, and is not included in the research data. The police department was having difficulty with their electronic communications systems and they believed that the study – particularly the communication required with the research team and partner advocacy organization – would be too great a burden on an already overburdened system. Lawton Police Department subsequently upgraded their electronic communications system, but did not want to re-join the study midstream when researchers offered. El Reno Police Department dropped out of the study during the last year because of a change in police chiefs. The new police chief did not "buy in" to the study and did not believe that it was possible to improve policing of domestic disputes. Despite this, we continued to receive a very small number of referrals from this police department as well as comments from some of the officers about the value of the study.

Police Department (PD)	Community Stats	Partner Domestic Violence Advocacy Agency
Broken Arrow PD 124 Officers 104 IPV Calls for Service/Month	Pop: 97,500; 7% Native American, 85% White, 4% Black, 2% Asian or Pacific Islander, 1% Other	Domestic Violence Intervention Services (DVIS): 100 Staff, 85 Volunteers; Services: 24-hour hotline, counseling, shelter, transitional living, court and law enforcement advocacy, legal services, child care, community education and outreach
El Reno PD 32 Officers 59 IPV Calls for Service/Month	Pop: 17,000; 12% Native American, 76% White, 8% Black, 1% Asian or Pacific Islander, 3% Other	Women's Service and Family Resource Center: Services: crisis intervention (24-hour hotline), emergency shelter and transportation, support and advocacy groups and individual services, court advocacy, hospital response, public education
Lawton PD 96 IPV Calls for Service/Month (60 IPV Arrests)	Pop: 95,000; 5% Native American, 59% White, 22% Black, 1% Asian/Pacific Islander, 5% Other	Marie Detty Youth and Family Services Center, Inc: 12 full time staff; Services: 24-hour hotline, shelter, case management, counseling, self-sufficiency classes, advocacy and community education
Stillwater PD 71 Officers 231 IPV Calls for Service/Month	Pop: 44,818; 3.9% Native American, 82.5% White, 3.9% Black, 5.1% Asian/Pacific Islander, 4.2% Other	Stillwater Domestic Violence Services (SDVS): Services: 24-hour hotline; safety planning, no-cost individual, group, and family counseling; parent/child, school, and community education programs; parenting support groups; batterer's intervention program; shelter; legal and vocational education
Tulsa PD 800 officers	Pop: 381,780; 3.7% Native American, 68.3% White, 16.9% Black, 1.5% Asian or Pacific Islander, 4.1% other	Domestic Violence Intervention Services (DVIS): 100 Staff, 85 Volunteers; Services: 24-hour hotline, counseling, shelter, transitional living, court and law enforcement advocacy, legal services, child care, case management, community education
Oklahoma City PD 1033 Officers	Pop: 543,524; 2.8% Native American, 67.8% White, 14% Black, 4% Asian or Pacific Islander, and 4.5% other	YWCA of Oklahoma: Staff, Volunteers Services: 24-hour hotline, shelter, transitional Housing, advocacy services, individual counseling for women and children, and a Sexual Assault Nurse Examiner (SANE) program. Economic empowerment program
Cherokee County Sheriff's Office 1 Sheriff 1 Under Sheriff 14 Deputies 4 Investigators 219 domestic violence calls (2007)	Pop: 42,521; 32.4% Native American, 56.4% White, 1.2% Black, 0.3% Asian or Pacific Islander, 2.1% other, and 7.6% more than one race.	Help-In-Crisis (HIC): 29 trained personnel, and 100+ volunteers. Service: shelter, transitional housing, 24-hour crisis hotline, court advocacy, counseling, child abuse services, supervised visitation, community education, Batterers Intervention, and referral
Tahlequah City PD 30 Officers	Pop: 14,458; 26.9% Native American, 59.0% White, 2.5% Black, 0.5% Asian or Pacific Islander, 4.1% other, and 6.9% more than one race.	Help-In-Crisis (HIC): 29 trained personnel, and 100+ volunteers. Service: shelter, transitional housing, 24-hour crisis hotline, court advocacy, counseling, child abuse services, supervised visitation, community education, Batterers Intervention, and referral

Participant Recruitment

Participants were recruited into the study at the scene of domestic violence incidents in participating police jurisdictions. After developing an initial recruitment protocol, researchers collaborated with administrators from each police department (PD) to adjust the protocol to meet the unique needs and departmental structure within each police jurisdiction. This collaboration included aspects of participation and co-learning; PDs used this opportunity to teach researchers about their structure while researchers used this opportunity to demonstrate the importance of uniformity across officers and jurisdictions.

During the first phase of the research study (called the comparison phase), when police officers responded to a domestic violence incident and there was a past or current intimate relationship, the officer recruited the victim of violence into the study when at least one of the following criteria was met: the officer (a) believed that an assault or other violent act had occurred whether or not there was probable cause for arrest, (b) was responding to a DV call from a victim or at a location where domestic violence had occurred in the past, (c) had a "gut feeling" that the victim was in danger or was concerned for the safety of the victim once they left the incident scene. These are the same criteria that initiated the use of the LAP protocol during the second phase of the research study (called the intervention phase). During the intervention phase, police officers were asked to recruit any victim for whom they initiated the LAP protocol, whether or not the victim answered the 11-questions, whether or not the victim screened in as high danger, and whether or not the victim spoke on the phone to the hotline counselor. During the comparison phase, officers had this information on a pocket card. During the intervention phase, officers had the information on a pocket card and on the Lethality Screen document.

Based on these criteria, when a victim was appropriate for referral, officers first completed the appropriate intervention (treatment as usual during the comparison phase or the LAP protocol during the intervention phase). Once the intervention was complete, they were asked to read the following advisement statement:

The police department is working with the University of Oklahoma to see if the response that you got from the police today helped you or may help other people in your same situation. Someone will call you from a 405 area code within the next few days to explain the study and ask if you would like to participate. Or, you can call 877-503-0550 to contact them. After finishing the survey, you will receive a $15 gift card. The person who calls is trained to keep you safe during the call. Your participation is voluntary and all information given to this person is confidential.

This statement was adapted slightly based on the needs of the particular police department. For example, one PD asked that the amount of the incentive not be included in the research statement, and this sentence was removed from the advisement for that particular PD. If the victim was willing to have a researcher contact her, the officer asked for and recorded 1 to 2 safe telephone numbers and a safe time to call the victim. Depending on the department, this information was first forwarded to administrative personnel or a representative from the PD domestic violence unit and then faxed or emailed to researchers, typically within 1 to 5 days.

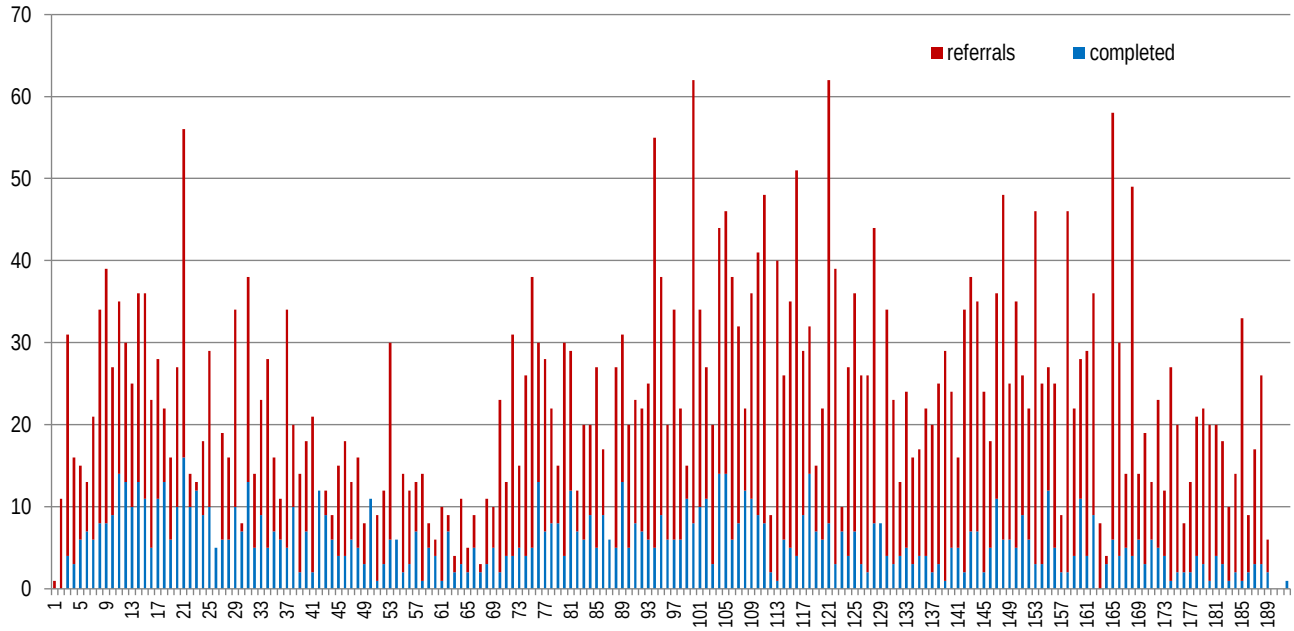
Recruitment for the comparison group occurred between July 2009 and October 2010, during which time 1,137 women were referred into the research study. Recruitment for the intervention group occurred from October 2010 through February 2013, during which time 2,022 women were referred to the study. During the intervention

phase, officers initiated the LAP protocol with 795 women who declined to be contacted by researchers (this information was not collected during the comparison phase). In total, recruitment lasted 189 weeks, or slightly over 3.6 years. Between 1 and 62 referrals were received each week for an average of 16.71 referrals per week over the study period (see Figure 8).

We additionally received 244 referrals for male victims of domestic violence (110 during the comparison phase and 134 during the intervention phase). Male interviewers were able to interview 39 of the men referred to the study (3.5% of interviewed participants). Male referrals were more likely to be unable to be contacted (n=151, 61.88%) than female referrals. Also, once contacted and determined eligible (n=85), they were more likely to refuse to participate (54.11%). Similar to this research, the majority of people who call the police department due to domestic violence are women (Cho & Wilke, 2010; Melton & Sillito, 2012). Surveillance data from the Oklahoma State Department of Health's CDC IPV study (2000-2002) showed a rate of 9-10% male IPV injuries in the Oklahoma City Metropolitan Area and state. The Maryland Network Against Domestic Violence Lethality Assessment Program indicates that approximately 15% of IPV victims in Maryland who were screened by police officers conducting the LAP were men. Because of the small number of men interviewed for this study, and the greater likelihood that male perpetrated violence within an intimate relationship includes coercive control (Stark, 2007), results in partner injury (Graham-Kevan & Archer, 2008) and leads to homicide (Reed, Raj, Miller & Silverman, 2010), men were excluded from final analyses of the data presented here.

Recruitment Difficulties. Early in the recruitment process, the research team realized that police departments were not recruiting the number of women expected into the study based on the number of domestic violence calls for service made to participating police departments (estimated to be at least 490 / month). There were several reasons for this. First, not all domestic violence calls for service met study eligibility criteria. Domestic violence calls for service include altercations between people who are not intimate partners (e.g., relatives, roommates). Further, calls that involve intimate partners may not meet the eligibility criteria outlined for the research study. In

Figure 8. Number of referrals and completed interviews by week



order to generate a clear picture of the proportion of domestic violence victims being referred to the study, we implemented 2 strategies. During the 2 years and 4 months that we received referrals for the intervention group, we asked police departments to send us information on the number of women who refused to be contacted by researchers; this was 28.22% of the women that officers attempted to recruit into the study during the intervention phase. We also used data from the Maryland Network Against Domestic Violence (MNADV) that was gathered from police departments that have implemented the LAP in Maryland to estimate the number of victims eligible for recruitment based on the population of Oklahoma at the study start. Based on Maryland data, it is estimated that, for every 452 people in the population, one victim meeting the eligibility criteria for the study calls the police due to domestic violence per year. The total population of participating jurisdictions (excluding Lawton PD, including El Reno PD) at study start was 1,132,601. Using the Maryland formula, approximately 2,506 women should have been referred into the study per year. Averaging over the recruitment period, 869 women were referred per year; this is 34.68% of the estimated eligible domestic violence victims who called the police during the study period.

Our strategy was to seek "buy-in" for the study first from the Oklahoma Association of Chiefs of Police and then from Oklahoma police chiefs who expressed interest in participating. Police chiefs issued directives – orders in writing that must be followed jurisdiction-wide – stating that police officers were to cooperate with the recruitment and intervention procedures developed by researchers. Given the top-down nature of police departments, this approach was congruent with police culture. And, indeed, in training sessions, officers consistently asked whether a chief's directive was in place. Nonetheless, it remained difficult to obtain officer buy-in to the study (see Messing et al., 2011). While some officers believed that the research was important and may save lives, others saw the recruitment and intervention process as more paperwork and another tedious task in an already overworked schedule. In addition, some officers had previous experiences with researchers in which data was gathered, but the results of the study were never reported back to the units.

We developed several strategies in order to address the issue of officer buy-in. First, the message from the chief and other administrators that participation in the study is important was crucial to the recruitment and intervention process. Additionally, throughout the study period, we maintained contact with officers through frequent refresher trainings (through mediasite, power points, and roll call), progress emails, study updates, preliminary findings, and meetings. The research team then followed up with the chiefs of police and their staff as frequently as possible to discuss study progress, and scheduled additional meetings when recruitment numbers began to decline. We invited advocacy organization representatives to these meetings in order to foster relationships between police departments and advocate partners and, in some cases, the advocacy partners met with police and provided additional training with research team support, but without research team attendance. In some jurisdictions, this was an important part of building collaborations between police and social service providers. We included representatives from the police departments at all news conferences and in conference presentations where appropriate. The research team worked with the police officer training academy to include the LAP in police officer training statewide. Finally, we began to collect stories from advocates about the impact that police officers doing the LAP had on the lives of victims; these stories were sent to the chiefs and relayed to officers. Even with multiple strategies to enhance officer buy-in, recruitment did not occur on all domestic violence calls, and was neither consistent across time or across study sites (see Messing et al., 2011).

Duplicate Referrals

Given the length and scope of the research study, we expected to receive duplicate referrals. Our data entry system flagged names that were the same or similar and the majority of duplicate referrals were screened out and never entered into the system. However, this system was not foolproof as names may change or be spelled differently by different officers. Once the intervention started, we allowed women who participated in the comparison phase of the study to participate in the intervention phase of the research study with the expectation that we would remove their data from the comparison group for final analyses. Therefore, once data collection was complete, we screened the database for duplicate names and duplicate birthdates. Given the large number of participants, we expected that some participants would have the same birthdates, so duplicate birthdates were checked against names and other identifying information. In total, we found 16 duplicate participants. From these 16 duplicates, one participant record was chosen for inclusion based on the following ordered criteria. If one of the participant records had a complete Time 1 and Time 2 interview and the other did not (n=6), the complete record was chosen for inclusion. If one record was an intervention record and the other was not (n=3), the intervention record was chosen for inclusion. Finally, if the records did not differ on either of these 2 criteria (n=7), the earlier record was chosen for inclusion.

Data Collection

Structured telephone interviews lasting approximately 45 minutes were conducted with women referred to the study by police officers who subsequently agreed to participate in the research study. Over the course of the study, 35 undergraduate and graduate student interviewers were hired and trained. Interviewers were selected because they had some knowledge of the dynamics of violence against women (either through their course work and/or community volunteer experience), their overall attitude and compassion towards survivors, and their expressed interest in education or research about intimate partner violence, social services, criminal justice, social justice, and/or social support systems. Also taken into account was the student's availability, maturity, articulation on the telephone and in person, and previous work experience. Despite an extensive interviewing process, there were large variations in skill, motivation, and suitability for the position across interviewers. Some of those that were hired were subsequently screened out during training and never interviewed a participant (n=3), others conducted a single interview and decided that the position was not a good fit (n=3), and still others worked on the study for years. Our most dedicated interviewer worked on the study for the entire project period (starting as an undergraduate and continuing through her Masters in Social Work degree), conducting 691 interviews (314 baseline, 374 follow-up). This particular interviewer became our interview trainer and then the study project manager. On average, an interviewer completed 76 interviews during their time on the research team.

All interviewers were trained and supervised at Arizona State University under the direction of Jill Messing, MSW, PhD. Interviewers were trained to administer interviews over the telephone using an online interview guide system maintained by Johns Hopkins University. A two-stage approach was used in order to train interviewers in the mechanics of telephone interviewing and prepare them to ask sensitive questions to survivors of intimate partner violence. First, interviewers were taught how to administer the interview protocol and to use the online interview guide. During this time, all interviewers were certified by the National Institutes of Health training on the protection of human research participants. The second portion of the training included familiarizing the interviewer

with policies and procedures used when contacting potential participants including the safety protocol, use of a health survey cover story, obtaining informed consent, calling protected locations, mandated reporting, dual arrests, and domestic violence resources. Interviewers practiced using the telephone script, obtaining informed consent, and administering the interview guide by role-playing with the trainer. Following role-plays, new interviewers listened to an interview being conducted by a current interviewer. The new interviewer's first interviews were then listened to by the trainer to ensure that policies and procedures were being followed, provide constructive feedback, and answer any questions that the interviewer may have.

Safety Protocols

Due to the potential risk that IPV victims face if their partner learns that they have participated in a survey about the abuse that occurs in their relationship, telephone interviewers were trained to follow safety protocols (adapted from the Canadian domestic violence survey; see Appendix B; Johnson, 2005) and to be diligent in protecting confidentiality. The interviewer's first priority during all contacts with participants was to ensure participant safety. Participants were offered a cover story (that they were participating in a "women's health survey") and interviewers collected information to make this cover story more believable (if the participant suffered from migraines or back problems, for example). If at any time the interviewer believed that someone was listening to the telephone call, they were trained to revert to a series of yes / no questions focusing on the participant's health. Additional safety precautions were also in place, such as making sure it was a safe time for the participant to talk by asking only questions with yes/no responses (e.g., "*Is this a good time to talk?*" and "*Should I call you back tomorrow?*") and advising the participant that, if at any time she feels unsafe during the interview, to say "*It's not a good time for me to talk now*." Interviewers were trained to be respectful of women's privacy, to allow them the right to refuse to answer any questions, and to never press the participant for information. The participants were informed that if at any time they needed to terminate the conversation, the interviewer would call her back or she could call the interviewer back using a toll free number. Participants were encouraged to talk only if they had time and privacy and it was not likely that they would be interrupted during the interview. Interviewers were trained to listen for any disturbances and to offer to call emergency services through a series of yes/no questions if there was a commotion or disturbance of any kind, asking first "*Is someone making you feel unsafe now?"* and, if the participant answered affirmatively, "*Do you want me to call 911 for you?"*

During training, interviewers were also taught about the dynamics of intimate partner violence, interviewing skills, social service interventions, and criminal justice responses to violence against women. The interviewers received ongoing training on the dynamics of intimate partner violence that included webinars, assigned readings, and team discussions on causes of violence, myths and facts, diversity and cultural sensitivity, safety planning, and community resources and supports. Because Native American women are at high risk for IPV and intimate partner homicide, specific training was done regarding prevalence, strengths, supports, and barriers experienced by Native American women.

Participants were not interviewed if they had excessive hearing or speech difficulties or were ill, drunk, drugged, or emotionally upset. Interviewers were trained to discuss these specific situations with their supervisor to determine whether or not a return telephone call should be made. In addition, interviewers discussed with their

supervisor whether or not a referral to the Oklahoma Department of Mental Health and Substance Abuse "211" phone system for local crisis intervention or the state Reachout hotline (1-800-922-9054) was appropriate.

Interviewers were also trained on what procedures to follow if a participant became angry or upset with the questions. Interviewers were trained to listen to participants and react with compassion and understanding (saying things like, *"I understand these questions are a bit upsetting"* and *"Please take your time"*). Interviewers let participants know that the questions may be upsetting, but are important. Participants were given the option to withdraw from the study or re-schedule an interview for another time. Self-determination was encouraged and respected throughout the interview process. Interviewers understood and communicated that participants have the right to refuse to participate in the interview, that they have the right to decline to answer any questions throughout the interview, and that they can stop participating at any time without penalty or loss of benefits to which they are otherwise entitled. Interviewers provided information to make the participant feel more comfortable with the interview process (for example, information about the confidentiality of their responses), and a participants right to refuse was always respected. During the informed consent process, interviewers were trained to cover the details of informed consent and then to ask participants to briefly explain what they are agreeing to, answer any questions they may have, and offer to send participants a copy of the consent document.

Interviewer performance reports were created and distributed to the team weekly. Supervision of interviewers included closely monitoring their call logs and queues of active interviews to ensure that participants were being called in a timely manner, only when they indicated that it was a safe time to call, frequently, and at all contact numbers. Telephone calls were always made during the times that participants indicated were safe times to call. Within these constraints, interviewers were to call participants frequently until they were reached. The newest assigned participants were called up to twice a day for the first few days, daily for the next week, and then twice a week until a supervisor determined that the participant was not reachable. Participants often gave secondary contact information because of the instability of their present situation and interviewers were instructed to use secondary contact information as well. The full interviewing team met once a month address interviewer challenges and difficulties, review performance progress, continue with additional training on interviewing techniques, and debrief regarding the emotionality of the work. Interviewers were advised that if they needed or wanted to talk about a case or a person that they interviewed, they could discuss it with other members of the research team only. Interviewers were impressed upon to call their supervisor if they had a particularly difficult case, and to not discuss it with a friend or partner.

Telephone Interviewers were trained as mandated reporters. In cases of child abuse, interviewers were required to report to authorities. Participants were notified during the informed consent process that interviewers would report child abuse to the appropriate authorities, though no questions about child abuse were asked during the interview process. Specific information about what was to be reported, to whom and how reports should occur was thoroughly covered in training. Interviewers were reminded that even though they present themselves as a researcher, some participants would view them as an advocate or social worker and it was important that interviewers be clear about their role with the participant.

Self-Care and Secondary Trauma. Interviewing survivors of IPV is both rewarding and challenging, and may at times feel overwhelming. Interviewers were made aware of their risk for vicarious trauma and other stress outcomes due to their position as an interviewer. Secondary trauma is known to professionals by many names

including secondary victimization, secondary traumatic stress disorder, compassion fatigue, and vicarious traumatization. Secondary trauma can impact the emotional, psychological, physical, social and spiritual well-being of an individual. Similar to those who work in the helping professions, interviewers are at risk for experiencing stress, burnout, compassion fatigue, and secondary traumatic stress or vicarious trauma.

An effective way to cope with stress and trauma is self-care and compassion (Workers, 2008), and all interviewers were encouraged to engage in self-care activities. Self-care can be practiced in many ways such as maintaining mental health, taking care of body, nurturing spirit, and also being conscious of physical, mental and spiritual boundaries. Interviewers were encouraged to be self-aware and prepare for their work by seeking strong supportive networks (Murphy & Dillon, 2003). Interviewers were educated about secondary trauma and, during training and ongoing team meetings, were encouraged to discuss self-care practices and to ensure that they set aside time to engage in self-care activities.

Comparison Group

For the 1,137 women referred into the study during the comparison phase of the research, the telephone numbers given to the research team through the referral process were disconnected, never answered, or incorrect for 486 (42.74%) women. An additional 47 (4.1%) women were not eligible to participate in the study (e.g., under 18 or not a victim of IPV). Therefore, 604 eligible referrals were contacted by researchers. Of these 604 women, 440 (72.8%) participated in a baseline interview and agreed to participate in a time two interview 6 months later. For all analyses of comparison group data only, these are the participants included. See Figure 9 for a recruitment and retention flow chart.

After examining duplicates across the comparison and intervention groups, 7 duplicate participants were removed from the comparison group data. Therefore, for analyses examining comparison and intervention group data, 433 women are included in the comparison group. All comparison group participants completed the Lethality Screen as part of the interview process. In order to simulate as closely as possible the experience of administering a the Lethality Screen at the scene of a domestic violence incident, after determining participant eligibility, researchers asked the Lethality Screen questions prior to administering any other portion of the survey. Of the 433 women, 342 (78.98%) would have screened in as high danger based on their scores on the Lethality Screen. These 342 women will be compared to those women who received the intervention and are referred to as the *high violence comparison group*.

Intervention Group

For the 2,022 women referred into the study during the intervention phase of the research, the telephone numbers given to the research team through the referral process were disconnected, never answered, or incorrect for 1041 (51.48%) women referred to the study. An additional 43 (2.1%) women were not eligible to participate in the study (e.g., under 18 or not a victim of IPV). Therefore, 938 eligible referrals were contacted by researchers. Of these 938 women, 657 (70.04%) participated in a baseline interview and agreed to participate in a follow-up interview 6 months later. Nine duplicate participants were removed from the data collected during the intervention phase, resulting in a total of 648 women interviewed during the intervention phase of the research study and included in the database.

Not all women referred to the study during the intervention phase were included in the intervention group. The intervention group consists of women interviewed during the intervention phase who also (1) screened in as high violence based on the Lethality Screen questions or were screened in as high violence based on the belief of the officer and (2) spoke with a hotline counselor on the telephone.

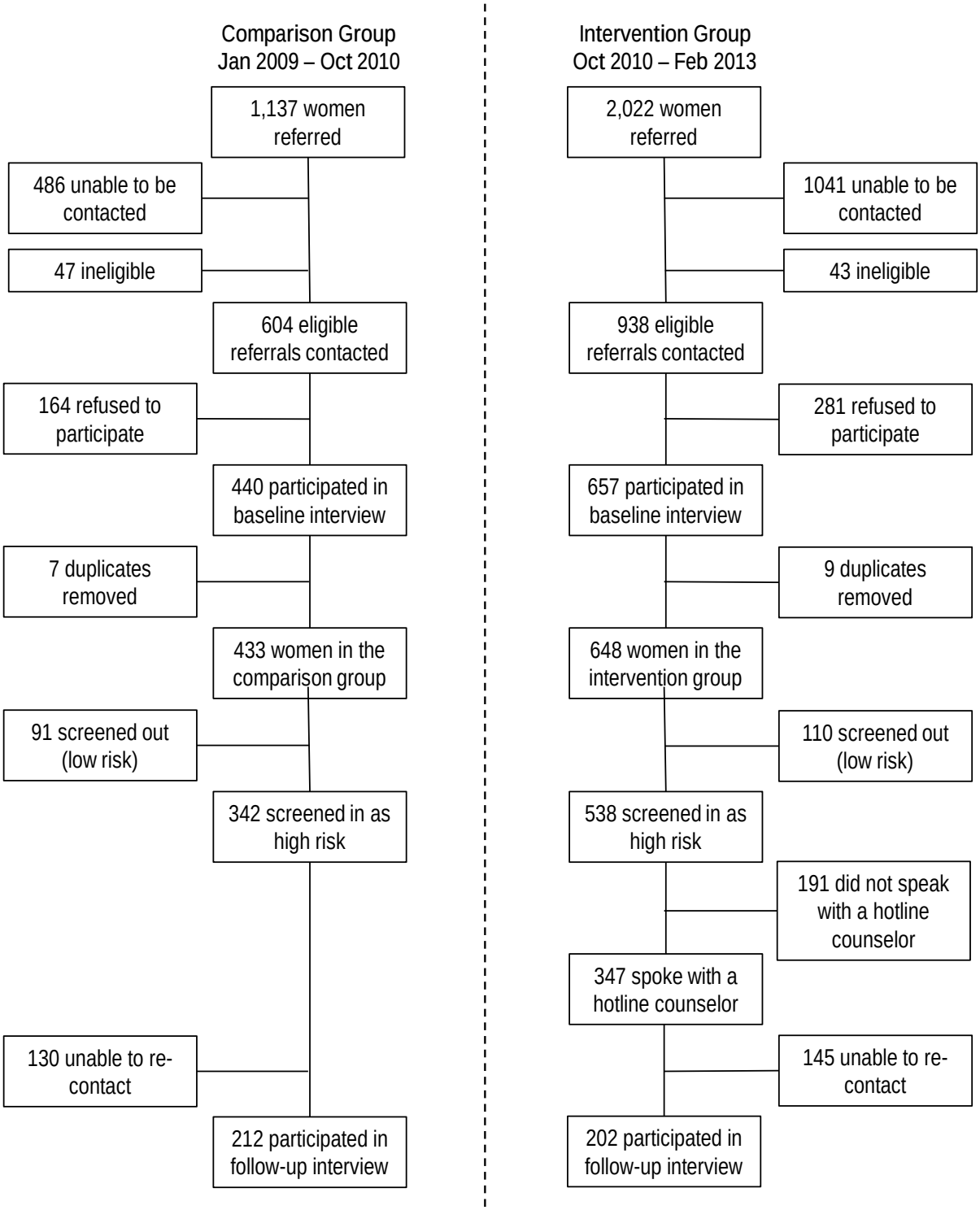
There were several difficulties in determining the intervention group (see specifics in the implementation fidelity section below). First, officers sometimes marked that a participant screened in according to the Lethality Screen when they did not. In order to maintain as much consistency as possible with the comparison group, we independently calculated the results of the Lethality Screen and included women who screened in based on this calculation. We also included women who screened in as high violence based on the belief of the officer, whether or not they screened in based on the Lethality Screen. Second, officers did not consistently mark whether the victim spoke to the hotline counselor. Therefore, we independently gathered information from the advocacy organization and from participants. Advocacy organizations completed advocacy logs for all participants who called the hotline during the study period. These logs were then forwarded to researchers. Similar to the police officers' report, however, we have reason to believe that not all advocacy logs were returned to researchers. Our third method of determining whether a participant spoke to the hotline counselor was participant report; during the baseline interview, we asked participants whether they spoke with a hotline counselor and whether they found this conversation helpful. If any one of these sources (police, advocacy, participant) reported that the participant spoke to the hotline counselor, this was recorded as the participant speaking to the hotline counselor. Based on these operational definitions, 563 women were classified as high violence based on their Lethality Screen responses (n=538) or based on officer belief (n=25), and 347 (61.6%) of those women spoke with a hotline counselor and are, therefore, classified as the *intervention group*.

Follow-up Interviews

When possible, researchers obtained safe alternate forms of contact (e.g., email, address, home telephone number, work telephone number, cellular telephone number) and the names and contact information of three safe people (not their abusive partner) who would know how to contact them if the research team was unable to reach the participant at follow-up. Follow-up interviews occurred as close to 6 months after the initial interview as possible. Researchers attempted to contact women until they had talked to the participant and she had completed the interview or until they had tried to call a disconnected or unanswered number for more than 30 days and exhausted leads provided by alternate contacts if applicable. In total, 615 follow-up interviews were completed (56.89% of 1081 total participants). One participant that researchers were able to contact refused to participate in a follow-up interview. The remaining participants were unreachable at follow-up.

When examining the intervention and high violence comparison groups only, 202 participants in the intervention group participated in a follow-up interview (58.21%) and 212 participants in the high violence comparison group participated in a follow-up interview (61.99%). There were no significant differences in the number of interviews completed at follow-up (X^2=11.02, p=.312). However, there are significant differences in the mean time to follow-up for the intervention and high violence comparison groups [t=3.577 (df=316.723), p<.0001]. Participants in the high violence comparison group averaged 8.28 (SD=3.72) months to follow-up and participants

Figure 9. Recruitment & Retention Flow Chart



in the intervention group averaged 7.25 (SD=1.89) months to follow-up. When examining the distribution of cases, this is largely because a small number of participants in the high violence comparison group were interviewed after longer intervals of time (up to 26 months) as compared to individuals in the intervention group (up to 18 months). The median time to interview for both groups was 7 months. The largest proportion of interviews was completed at 6 months for both groups (high violence comparison: 42.45%, intervention: 49.5%), followed by seven months (high violence comparison: 22.6%, intervention: 22.8%). Smaller proportions of participants completed interviews at 8 months (high violence comparison: 9.0%, intervention: 9.4%), 9 months (high violence comparison: 3.3%, intervention: 7.4%), 10 months (high violence comparison: 5.7%, intervention: 3.0%), 11 months (high violence comparison: 2.4%, intervention: 4.5%), and 12 months (high violence comparison: 4.7%, intervention: 1.0%). By one year after the first interview, 90.1% of high violence comparison group interviews had been completed and 97.5% of intervention group interviews had been completed. For the high violence comparison group, 21 interviews were completed between 13 and 26 months after the baseline interview. For the intervention group, 5 interviews were completed between 13 and 18 months after the baseline interview.

Measurement

Demographic and Relationship Characteristics. In order to describe the sample, at the baseline interview, participants were asked to report their educational achievement, employment status, racial/ethnic background, and age in years. Participants were able to self-report as many racial/ethnic identities as appropriate. These responses were collapsed into five mutually exclusive categories: White, African American, Latina, Native American and multiracial/other.

Participants were asked to report their legal marital status as single, married, or separated / divorced. Because legal marital status may not describe the state of a participant's relationship, participants were also asked to report whether they had children with their abusive partner, and their current level of involvement with their abusive partner (intimately involved and living in the same household, intimately involved and not living together, on again off again relationship, no intimate relationship currently). At follow-up, participants were asked to report whether they had been intimately involved with their partner since baseline and whether they were currently intimately involved with their partner.

The Lethality Screen. As described above, the Lethality Screen is a shortened version of the Danger Assessment (Campbell et al., 2003) intended to be used by first responders in combination with the Lethality Assessment Protocol. During the comparison phase of the research, in order to simulate as closely as possible the experience of administering the Lethality Screen in the field at the scene of a police involved IPV incident, researchers asked participants the Lethality Screen questions first, as soon as possible after the informed consent process. Participants' partners were classified as "high danger" or "not high danger" using the same scoring procedures that are used by police officers in the field. During the intervention phase of the research, the Lethality Screen was administered by police officers at the scene of a domestic violence incident and the participant responses were forwarded to researchers.

The 11-question screen includes 3 questions at the beginning that automatically classify the perpetrator as "high danger" if the victim responds in the affirmative. These questions are: "Has he/she ever used a weapon

against you or threatened you with a weapon?," "Has he/she threatened to kill you or your children?," and "Do you think he/she might try to kill you?" If the victim does not answer "yes" to any of these three questions, but answers in the affirmative to four or more secondary risk factors, the perpetrator is also classified as "high danger": perpetrator access to weapons, strangulation, recent separation, extreme jealousy and/or controlling behaviors, perpetrator suicide threats or attempts, stalking, perpetrator unemployment or if the victim has a child that is not the abusers. Each of the risk factors on the Lethality Screen has been found to increase risk for intimate partner femicide in previous research (Campbell, 1995; Campbell et al., 2003; Campbell et al.,2007; Dawson & Gartner, 1998; Fox & Zawitz, 2000; Glass et al., 2008; Koziol-McLain et al., 2006; McFarlane et al., 1999; Websdale, 1999; Wilson & Daly, 1993; Wilson, Johnson & Daly, 1995).

The Danger Assessment. The Danger Assessment is a 20-item clinical and research instrument designed to identify women at risk for intimate partner homicide. The questions on the DA are consistent with risk factors identified through research as predictive of intimate partner re-assault, severe re-assault and homicide. These are an increase in the frequency and severity of abuse (Campbell et al., 2003), having a child that is not the abusers (Campbell et al., 2003), recent estrangement (Dawson & Gartner, 1998; Websdale, 1999; Wilson & Daly, 1993; Wilson, Johnson & Daly, 1995), controlling behaviors (Campbell et al., 2003), stalking (McFarlane et al., 1999), threats to kill or threats with a weapon (Campbell et al., 2003), strangulation (Glass et al., 2008), partner access to a firearm (Campbell, 1995; Campbell et al., 2003; Campbell et al.,2007; Fox & Zawitz, 2000), perpetrator unemployment (Campbell et al., 2003), partners use of illegal drugs or problem drinking (Sharps et al., 2003), avoiding arrest for domestic violence (Campbell et al., 2003), abuse during pregnancy (McFarlane et al., 2002), forced sex (Campbell et al., 2003), extreme sexual jealousy (Campbell et al., 2003), and suicide threats or attempts (Koziol-McLain et al., 2006). The items on the Danger Assessment are weighted and summed to produce an overall score. This score can range up to 37 and higher numbers indicate greater risk. Weighted and summed scores can be placed into four categories of risk: variable danger (0-7), increased danger (8-13), severe danger (14-17), and extreme danger (18 or higher).

Participant Assessment of Risk. Following the example of Weisz, Tolman and Saunders (2000) and the Risk Assessment Validation Study (RAVE; Campbell, O'Sullivan, Roehl & Webster, 2005), participants' assessment of risk for future abuse and future injurious violence were examined. Participants were asked two questions at baseline: "How likely do you think it is that your partner will be physically abusive with you in the next year?" and "How likely is it that your partner will seriously hurt you in the next year?" Participants responded on a scale of 0-10 where zero indicates that there is "no chance" of their partner physically abusing / seriously hurting them in the next year, 5 is neutral, and 10 indicates that physical abuse and / or injury due to IPV is "sure to happen."

Intimate Partner Violence and Abuse. Experiences of intimate partner violence and abuse were assessed at follow-up using an adapted version of the revised Conflict Tactics Scale (CTS-2; Straus, Hamby, Boney-McCoy & Sugarman, 1996). Questions from the psychological aggression subscale, physical assault subscale, injury subscale, and sexual coercion subscale were included in both the baseline and follow-up interviews. Additional items examining near fatal violence were taken from the RAVE study (Campbell et al., 2005). At baseline, IPV and abuse was assessed in the past 6 months and, at follow-up, IPV and abuse was assessed since the last interview. For questions on the CTS-2, participants were asked whether their abusive partner had

perpetrated a particular form of violence or abuse once, twice, three to five, or six or more times in the timeframe. The participant could also respond that their partner had not perpetrated the particular form of violence in the timeframe, but had done so previously, or that their partner had never perpetrated that form of violence. Physical violence items on the CTS-2 were scored using the severity times frequency weighted score (Straus, 2004). Frequency scores were coded as follows: This has never happened (baseline) / This has not happened in the past 6 months (baseline) / This has not happened since we last spoke (follow-up) = 0, This has happened once in the last 6 months (baseline) / This has happened once since we last spoke (follow-up) = 1, This has happened twice in the last 6 months (baseline) / This has happened twice since we last spoke (follow-up) = 2, This has happened 3-5 times in the last 6 months (baseline) / This has happened 3-5 times since we last spoke (follow-up) = 4, This has happened 6 or more times in the last 6 months (baseline) / This has happened 6 or more times since we last spoke (follow-up) = 10. Frequency scores were then multiplied by severity scores (Straus, 2004). A severity score of '1' was assigned to "your partner threw something at you that could hurt," "your partner twisted your arm or hair," "your partner pushed or shoved you," "your partner grabbed you," and "your partner slapped you." A severity score of '3' was assigned to "your partner punched you or hit you with something that could hurt" and "your partner kicked you." A severity score of '5' was assigned to "your partner choked you," "your partner beat you up," "your partner burned or scalded you on purpose," and "your partner slammed you against a wall." Finally, a severity score of '10' was assigned to "your partner used a knife or gun on you." It is important to note that these scores do not include sexual violence. Scores from the baseline interview were subtracted from scores on the follow-up interview in order to examine changes (decreases / increases) in violence severity and frequency between baseline and follow-up.

In order to examine the presence or absence of particular forms / severities of violence occurring prior to the baseline interview or in the follow-up period, items from the CTS-2 were dichotomized and combined with items from the Risk Assessment Validation study (Campbell, O'Sullivan, Roehl & Webster, 2005) as follows. For the baseline interview, responses were dichotomized into "this has happened ever" (=1) and "this has not happened" (=0). For follow-up interviews, responses were dichotomized into "this has happened since the baseline interview" (=1) and "this has not happened since the baseline interview" (=0). Questions from the Risk Assessment Validation study were dichotomous (yes / no) and included the same time frames. Near lethal violence was assessed using two questions from the Risk Assessment Validation study that were combined for this analysis: "Has your partner ever done anything that might have killed you or nearly killed you, whether or not he intended to?" and "Has your partner tried to kill you?" An affirmative response to either or both of these questions resulted in a "yes" (=1) indicator for near lethal violence and a negative response to both questions resulted in a "no" (=0) indictor. Severe IPV was defined following the example of the Risk Assessment Validation study and included near lethal violence as described above and / or an experience of any of the following forms of physical or sexual violence either ever (baseline) or since the baseline interview (follow-up): "your partner used force (like hitting you, holding you down, or using a weapon) to make you have sex," "your partner used a knife or gun on you, "your partner punched you or hit you with something that could hurt," "your partner choked you," "your partner beat you up," "your partner burned or scalded you on purpose," and "your partner kicked you." Any IPV ever (baseline) or since the previous interview (follow-up) was defined as an experience of any of the above forms of violence and / or any one or more of the following: "your partner threw something at you that could hurt," "your partner twisted your arm or hair," "your partner made you have sex without a condom," "your partner pushed or shoved you," "your partner slammed you against a wall," "Your partner grabbed you," and "your

partner slapped you." Intimate partner abuse included any of the previous forms of violence and / or one more of the following forms of verbal or psychological abuse ever (baseline) or since the previous interview (follow-up): "insulting and swearing at you," "shouting and yelling at you," and "calling you fat or ugly or a lousy lover."

Protective Actions. Protective actions were assessed using an adapted version of McFarlane and colleagues (2004) safety promoting behavior checklist. At baseline, participants were asked whether they had engaged in any protective actions in the 6 months prior to the police coming to intervene in the index offense or since the police came to their home due to the index offense. At follow-up, participants were asked to report any protective actions that they engaged in since they last spoke to the interviewer. Participants could answer "yes" (=1) or "no" (=0) as to whether they had taken any of the following actions during any of these timeframes: (1) hidden money, an extra set of house keys, car keys, or another belonging or object that may help you to flee your relationship, (2) established a code with family or friends (to let them know when you are in trouble), (3) asked neighbors to call the police if violence begins, (4) removed or hidden their partner's weapons (5) made available paperwork such as Social Security numbers, rent and utility receipts, birth certificates, bank account numbers, driver's license or identification, insurance policies or numbers, (6) hidden valuable jewelry, (7) hidden extra money, and (8) made available a hidden bag with extra clothing. We added the following dichotomous (yes/no) questions regarding protective actions at the baseline and follow-up interviews utilizing the same timeframes as above: (9) "Have you applied for an order of protection / restraining order against your partner?" (10) "Have you received an order of protection / restraining order against your partner?" (11) "Have you received services related to domestic violence in this relationship?" (12) "Have you gone someplace where your partner couldn't find you or see you?" (13) "Has your partner been someplace where he couldn't find you or see you?" (14) "Has there been a period of time when you didn't see your partner for a while because one or both of you chose not to?" (15) "Have you been treated by a doctor or nurse for injuries or trauma that your partner caused in this relationship?" and (16) "Have you obtained something to protect yourself against your partner, such as mace, pepper spray, or a weapon?" Women who responded that they had received formal services related to IPV in their relationship were able to specify whether they had received shelter services, counseling services, safety planning services and/or legal services.

Posttraumatic Stress Disorder Symptoms. Posttraumatic Stress Disorder (PTSD) symptoms were measured with the Primary Care Post-Traumatic Stress Disorder Screen (PC-PTSD; Prins et al., 2003). The PC-PTSD is a recommended screen (Davis, Whitworth & Rickett, 2009) that has been used to examine the relationship of PTSD to childhood and adult victimization including IPV (Kimerling, Alvarez, Pavao, Kaminski & Baumrind, 2009; Messing, LaFlair, Cavanaugh, Kanga & Campbell, 2012; Wilson et al., 2011). Participants in this study were asked to respond "yes" (=1) or "no" (=0) to four items, each of which examines a different symptom of PTSD. These four symptoms of PTSD were tied directly to the participant's experience of IPV as the items examining each of the symptoms was prefaced with "Thinking about the violence you have experienced by your intimate partner, have you ever had any experience that was so frightening, horrible, or upsetting that…." Following this, participants were asked about the following symptoms: (1) Avoidance was measured with the question "…you tried hard not to think about it or went out of your way to avoid situations that reminded you of it?" (2) Numbing was measured with the question "…you felt numb or detached from others, activities or your surroundings?" (3) Re-experiencing the event is measured with the question "…you have had nightmares or thought about it when you did not want to?" Finally, (4) hyperarousal was measured with the question "…you were

constantly on guard, watchful, or easily startled?" For this analysis, the measured PTSD symptoms were examined as a linear variable (0-4) indicating the number of PTSD symptoms reported by the participant.

Results

Description of the Sample

Participant characteristics – including demographic and relationship characteristics, participant experiences of violence at baseline, and scores on the Danger Assessment at baseline – are described for the intervention and high violence comparison groups using univariate analyses. Participants in the high violence comparison group and in the intervention group were compared on these characteristics using chi-square tests for categorical dependent variables (e.g., race / ethnicity, marital status) and t-tests for continuous dependent variables (e.g., age, Danger Assessment score). Where no differences were found, these characteristics will be reported for the groups combined. Where differences between groups were found, these differences will be reported and the characteristics of the high violence comparison group and intervention group will be reported separately.

Demographic & Relationship Characteristics. Participants ranged in age from 18-79 years with a mean age of 32.52 (SD=9.94) years. The largest racial/ethnic group was White (42.8%), followed by African American (29.4%), Native American (10.0%), Latina (7.9%), multiracial (7.5%) and other (2.2%). Less than one-fifth of participants (16.8%) reported that they currently lived with their partner. Regarding children, 65% of participants report that they have children living in their household, 45.7% of participants report that they have a child in common with their partner, and 7.1% of participants reported that they were currently pregnant at the time of the baseline interview. Approximately half of the participants reported that they completed high school or have a GED (51.8%), and less than half of participants are employed part time or full time (40.64%).

There were significant differences (X^2=11.52, p<.009) in marital status between the high violence comparison group and the intervention group with over twice as many participants in the high violence comparison group reporting that they were divorced. In the high violence comparison group, 58.28% of participants reported that they were single, 22.78% reported that they were married, 5.03% reported that they were separated and 13.91% reported that they were divorced. In the intervention group, 64.62% of participants reported that they were single, 24.27% reported that they were married, 4.79% reported that they were separated and 6.14% reported that they were divorced. While few participants overall were born outside of the U.S., there were significant differences in immigration status (X^2=4.7, p<.03) with over twice as many women born outside of the U.S. in the intervention group. In the high violence comparison group, 2.35% of participants were born outside of the U.S. In the intervention group, 5.58% of participants were born outside of the U.S.

Intimate Partner Violence & Abuse at Baseline. The vast majority of participants in this research study reported that they had experienced IPV or abuse by their intimate partner, and many participants reported experiences of severe IPV (see Table 1 below). Because the majority of participants in this research study reported experiencing physical intimate partner violence (high violence comparison: 1 participant reported that they had not experienced any of these forms of IPV, intervention: 6 participants reported that they had not experienced any of these forms of IPV) and intimate partner abuse (high violence comparison: no participants reported that they had not experienced any of these forms of abuse, intervention: 4 participants reported that they

had not experienced any of these forms of abuse), statistical comparisons could not be made between groups. However, when examining severe IPV, there is a significant difference between the high violence comparison group and the intervention group (X^2=4.39, p<.05). Interestingly, this difference does not appear to be in the number of participants who reported severe IPV (high violence comparison: 81.9%, intervention: 82.1%), but in the number of participants who reported not experiencing severe IPV (high violence comparison: 4.4%, intervention: 8.6%), partially as an artifact of missing data (high violence comparison n=47, intervention=32). As can be seen in the table below, all comparisons of specific violent and abusive acts where there is a significant difference between the high violence comparison and intervention groups (insulting and swearing, threw something that could hurt, pushed or shoved, grabbed, strangulation, beating, nearly killed / might have killed), the high violence comparison group reported more violence than the intervention group. However, when examining the baseline CTS-2 frequency times severity weighted score, there are no differences between groups (t=-.987 (df=650.639), p=.324), though the score for the intervention group (M=78.67, SD 84.01) is slightly higher and more variant than the score of the high violence comparison group (M=72.96, SD 66.46).

Table 1. Experiences of violence and abuse at baseline

Type of violence / abuse reported at baseline	Comparison Group n(%)	Intervention Group n(%)	Chi-Square Analysis
Verbal Abuse: Has your partner been verbally abusive in the following ways?			
Insulting and swearing at you	329 (96.2)	321 (92.5)	X2=4.31, p=.038
Shouting and yelling at you	328 (95.9)	328 (94.5)	X2=0.35, p=.556
Calling you fat or ugly or a lousy lover	225 (65.8)	202 (58.2)	X2=3.51, p=.061
Non-Severe Physical / Sexual IPV: Your partner….			
Threw something at you that could hurt	219 (64.0)	190 (54.8)	X2=6.49, p=.011
Twisted your arm or hair	245 (71.6)	239 (68.9)	X2=0.15, p=.698
Made you have sex without a condom	88 (25.7)	99 (28.5)	X2=0.81, p=.370
Pushed or shoved you	320 (93.6)	309 (89.0)	X2=5.08, p=.024
Slammed you against a wall	259 (75.7)	239 (68.9)	X2=3.49, p=.062
Insisted on sex when you did not want to	155 (45.3)	155 (44.7)	X2=0.02, p=.886
Grabbed you	308 (90.1)	296 (85.3)	X2=3.87, p=.049
Slapped you	203 (59.4)	210 (60.5)	X2=0.17, p=.684
Severe Physical / Sexual IPV: Your partner…			
Used force to make you have sex	74 (21.6)	76 (21.9)	X2=0.07, p=.934
Used a knife or gun on you	79 (23.1)	82 (23.6)	X2=0.04, p=.836
Punched you/hit you with something that could hurt	233 (68.1)	229 (66.0)	X2=0.15, p=.699
Choked you (Strangulation)	273 (79.8)	233 (67.1)	X2=13.3, p=.000
Beat you up	249 (72.8)	226 (65.1)	X2=4.65, p=.031
Burned or scalded you on purpose	31 (9.1)	38 (11.0)	X2=0.72, p=.395
Kicked you	152 (44.4)	158 (45.5)	X2=0.13, p=.721
Did anything that might have killed you/nearly killed you	167 (48.8)	152 (43.8)	X2=2.90, p=.088
Tried to kill you	98 (28.7)	99 (28.5)	X2=0.07, p=.795

Danger Assessment at baseline. There are no mean differences in Danger Assessment score between the high violence intervention and comparison group at baseline (t=0.59 (df=664.321), p=.555). The mean Danger Assessment score for the comparison group is 18.11 (SD=6.80) with a range of 0-37 and the mean Danger Assessment score for the intervention group is 17.76 (SD=8.31) with a range of 0-35. However, when examining Danger Assessment categories (variable danger, increased danger, severe danger, and extreme danger), significantly more (X^2=18.94, p<.0005) intervention group participants fall into the variable danger category than in the high violence comparison group (high violence comparison: 3.8%, intervention: 12.7%). As shown in Table 2, it is interesting to note that a similar number of high violence comparison group participants (51.8%) and intervention group participants (50.4%) fall into the extreme danger categories, demonstrating that the differences are primarily at the lower end of the danger spectrum.

Evaluation Aim

Data Analysis

Logistic and linear regression models were used to examine the effect of intervention group status (versus high violence control group status) on the outcomes of violent victimization and protective actions at follow-up / after the index offense. Also included in the models are variables that control for the differences between groups at baseline that are outlined above. These include marital status, immigration status, Danger Assessment category *or* severe violence at baseline (variable chosen was dependent upon the analysis, these were not included together as they are collinear, X^2=59.86, p<.0005), and time between baseline and follow-up interview. Logistic regression is ideal for examining the effect of multiple linear, ordinal and binary independent variables on a single binary dependent variable (Long & Freese, 2006). Similarly, linear regression is ideal for examining the effect of multiple linear, ordinal and binary independent variables on a single linear (ordinal or ratio level) dependent variable. These analyses provide information about the likelihood that being in the intervention group (i.e., participants who screened in as high violence and spoke to a hotline counselor) influences (1) subsequent experiences of violence and (2) subsequent protective actions when compared to being in the high violence comparison group (i.e., participants who screened in as high violence and did not speak to a hotline counselor) after controlling for initial differences between groups. The main findings from the evaluation aim can be found in Figure 10.

Table 2. Danger Assessment categories at baseline

Danger Assessment Category	High Violence Comparison Group n(%)	Intervention Group n(%)
Variable Danger	13 (3.8)	44 (12.7)
Increased Danger	72 (21.1)	59 (17.0)
Severe Danger	80 (23.4)	69 (19.9)
Extreme Danger	177 (51.8)	175 (50.4)

Figure 10. Major Findings: Evaluation (Effectiveness) of the Lethality Assessment Program

Using logistic and linear regression models comparing intervention group (LAP; N = 202) with the high violence control group (N = 212), controlling for differences between groups at baseline and time between baseline and follow-up interview:

Violence Outcomes:

- The intervention group reported a significantly greater decrease in the weighted CTS-2 frequency by severity score (*B* = -14.71, p<.05) than the comparison (control) group.
    - The intervention group had a violence frequency/severity CTS score of 14.71 fewer points on average than the comparison group.
- Using an intent to treat framework for analysis, the intervention group reported a greater decrease in the weighted CTS-2 frequency by severity score significant at p = .074 (*B* = -10.99).
- There were no significant (p<.05) differences in the presence or absence of intimate partner violence or severe IPV between the intervention and high violence comparison groups at follow-up.
    - However, at the p<.10 level, the intervention group was less likely (Conditional OR=0.67) to experience intimate partner abuse (combined verbal/psychological, physical, and/or sexual abuse) than the comparison group.

Protective Actions Outcomes:

- Between the time that the police responded to the index offense and the baseline interview, participants in the intervention group were significantly more likely than the comparison group to
    - remove or hide their partner's weapons (Conditional OR=2.57, p<.05)
    - obtain formal services for domestic violence in their relationship (Conditional OR=1.74, p<.05)
- Between baseline and follow-up interviews (approximately 7 months), participants in the intervention group were significantly more likely than participants in the high comparison group to:
    - establish a code with family and friends to alert them of trouble (Conditional OR=1.62, p<.05)
    - obtain some form of protection against their partner such as mace or pepper spray (Conditional OR=2.17, p<.01)
    - engage in other safety strategies such as improving security in their home (Conditional OR=1.53, p<.05)
    - obtain medical care from a doctor or nurse due to injuries or trauma sustained by intimate partner violence (Conditional OR=1.88, p<.05)
    - apply for an order of protection (Conditional OR=1.65, p<.05)
    - receive an order of protection (Conditional OR=1.59, p<.05)
    - go someplace where their partner could not find them or see them (Conditional OR=1.61, p<.05).
    - have their partners go someplace where he could not find or see her (e.g., jail; Conditional OR=2.53, p<.01).

Experiences of Violence at Follow-up

It was hypothesized that the Lethality Assessment Program would decrease violent victimization at follow-up. The difference between women's experiences of violence at baseline and experiences of violence at follow-up provides the clearest indication of change over time. Tables 3 and 4 provide the frequencies of violent acts included on the CTS-2 for all participants who responded to the questions at baseline and follow-up.

In order to create the most complete picture possible of change in the occurrence, severity and frequency of violence over time, we subtracted the baseline weighted frequency by severity CTS-2 score from the follow-up weighted frequency by severity CTS-2 score. What results is a linear scale ranging from -327 to 159 with a mean of -38.87 (SD=73.0) where negative numbers indicate that the participant reported less severe and frequent violence in the time between baseline and follow-up than in the 6 months prior to baseline (69.02% of all 410 participants who were at high risk and completed a follow-up interview had negative scores), 0 indicates that the participant reported exactly the same frequency and severity of violence in the time between baseline and follow-up than in the 6 months prior to baseline (2.93% of participants had a score of 0), and positive scores indicate that the participant reported more severe and frequent violence in the time between baseline and follow-up than in the 6 months prior to baseline (28.05% of participants had positive scores). When examining the scale as a linear score, lower scores indicate less violence at follow-up. The linear regression model provides useful information about predicting the outcome [$F(7,397)= 8.29$, $p<.001$) and explains 11.21% of the variance. The intervention group reported a significant decrease in the subtracted weighted CTS-2 frequency by severity score (B=-14.71, $p<.05$). Controlling for other variables in the model, on average, the intervention group had a subtracted weighted CTS-2 frequency by severity score of 14.71 fewer points than the high violence comparison group.

One limitation of this research design was *treatment dilution*; that is, not everyone who was assigned to treatment was treated. In this study, 61.63% of participants assigned to treatment were treated (see also the implementation fidelity aim below). This type of threat to internal validity is often managed in randomized controlled trials using an intent-to-treat model where all of those participants assigned to treatment are classified as the intervention group. Intent-to-treat models are considered conservative. Because not everyone in the treatment group receives the intervention, an intent to treat analysis will consistently provide a smaller estimate of the effect of the intervention than can be attributed to the intervention itself (Angrist, 2006). In this field study quasi-experimental research (versus a tightly controlled randomized controlled trial), we had a relatively low proportion of participants receiving the intervention which would be expected to seriously attenuate any effect. In addition, intent-to-treat analysis relies on the assumption that the proportion of people assigned to treatment and actually treated will be similar across all implementations of the intervention (Angrist, 2006). However, this proportion differs widely across jurisdictions in this study (Range: 42.1%-77.8%) and similarly differs across jurisdictions not included in this study where the intervention has been implemented (Range: 0% -100%, Mean=57%). Therefore, in this case, the intent-to-treat model would not provide an accurate average intervention effect across such a wide range of compliance rates. Nevertheless, utilizing an intent-to-treat framework may still provide useful information. In this case, the group that was assigned to treatment reported a decrease in the subtracted weighted CTS-2 frequency by severity score. The effect of the intervention was significant at $p<.10$ (B=-10.99, $p=.074$) although it was not significant at the $p<.05$ level.

Table 3. Reported frequency and severity of violence at baseline interview (intervention & high violence comparison groups)

Type of Violence	Never Happened n(%)	Once in the last 6 months n(%)	Twice in the last 6 months n(%)	3-5 times in the last 6 months n(%)	6 or more times in the last 6 months n(%)	Happened prior to 6 months ago n(%)
Insulting and swearing	34 (5.0)	30 (4.4)	38 (5.6)	87 (12.7)	485 (70.9)	10 (1.5)
Shouting and yelling	25 (3.7)	31 (4.6)	34 (5.0)	87 (12.8)	498 (73.1)	6 (.09)
Calling you fat or ugly or a lousy lover	254 (37.3)	24 (3.5)	29 (4.3)	65 (9.5)	298 (43.8)	11 (1.6)
Threw something at you that could hurt	273 (40.0)	89 (13.0)	76 (11.1)	91 (13.3)	111 (16.3)	42 (6.2)
Twisted your arm or hair	194 (28.6)	94 (13.9)	96 (14.2)	120 (17.7)	140 (20.6)	34 (5.0)
Made you have sex without a condom	495 (72.6)	21 (3.1)	19 (2.8)	25 (3.7)	101 (14.8)	21 (3.1)
Pushed or shoved you	52 (7.6)	116 (17.0)	103 (15.1)	143 (21.0)	242 (35.5)	25 (3.7)
Slammed you against a wall	180 (26.5)	154 (22.7)	92 (13.6)	87 (12.8)	111 (16.4)	54 (8.0)
Insisted on sex when you did not want to	362 (53.9)	28 (4.2)	45 (6.7)	58 (8.6)	141 (21.0)	38 (5.7)
Grabbed you	70 (10.4)	121 (18.0)	84 (12.5)	136 (20.2)	230 (34.1)	33 (4.9)
Slapped you	266 (39.2)	93 (13.7)	69 (10.0)	90 (13.3)	112 (16.5)	49 (7.2)
Used force to make you have sex	529 (77.9)	29 (4.3)	28 (4.1)	31 (4.6)	49 (7.2)	13 (1.9)
Used a knife or gun on you	520 (76.4)	78 (11.5)	18 (2.6)	13 (2.5)	17 (2.5)	35 (5.1)
Punched you/hit you with something that could hurt	215 (31.8)	107 (15.8)	77 (11.4)	100 (14.8)	132 (19.5)	46 (6.8)
Choked you (Strangulation)	174 (25.6)	149 (21.9)	92 (13.5)	106 (15.6)	99 (14.6)	60 (8.8)
Beat you up	205 (30.1)	176 (25.9)	73 (10.7)	100 (14.7)	87 (12.8)	39 (5.7)
Burned or scalded you on purpose	610 (89.8)	23 (3.4)	11 (1.6)	9 (1.3)	9 (1.3)	17 (2.5)
Kicked you	371 (54.5)	84 (12.3)	47 (6.9)	62 (9.1)	70 (10.3)	47 (6.9)

Table 4. Reported frequency and severity of violence at follow-up interview (intervention & high violence comparison groups)

Type of Violence	Never / Not since baseline n(%)	Once since baseline n(%)	Twice since baseline n(%)	3-5 times since baseline n(%)	6 or more times since baseline n(%)
Insulting and swearing	198 (48.2)	28 (6.8)	27 (6.6)	45 (10.9)	113 (27.5)
Shouting and yelling	199 (48.5)	27 (6.6)	34 (8.3)	37 (9.0)	113 (27.6)
Calling you fat or ugly or a lousy lover	266 (65.8)	13 (3.2)	22 (5.4)	31 (7.7)	72 (17.8)
Threw something at you that could hurt	340 (83.1)	14 (3.4)	23 (5.6)	17 (4.2)	15 (3.7)
Twisted your arm or hair	354 (86.4)	7 (1.7)	14 (3.4)	16 (3.9)	19 (4.6)
Made you have sex without a condom	385 (94.6)	3 (0.7)	6 (1.5)	3 (0.7)	10 (2.5)
Pushed or shoved you	329 (80.6)	16 (3.9)	13 (3.2)	11 (2.7)	39 (9.6)
Slammed you against a wall	357 (87.5)	16 (3.9)	8 (2.0)	9 (2.2)	18 (4.4)
Insisted on sex when you did not want to	368 (91.1)	3 (0.7)	9 (2.2)	8 (2.0)	16 (4.0)
Grabbed you	311 (78.7)	22 (5.4)	9 (2.2)	22 (5.4)	34 (8.3)
Slapped you	356 (87.1)	16 (3.9)	7 (1.7)	13 (3.2)	17 (4.2)
Used force to make you have sex	391 (95.6)	5 (1.2)	6 (1.5)	5 (1.2)	2 (0.5)
Used a knife or gun on you	388 (95.6)	13 (3.2)	4 (1.0)	0 (0.0)	1 (0.2)
Punched you/hit you with something that could hurt	357 (87.1)	13 (3.2)	12 (2.9)	13 (3.2)	15 (3.7
Choked you (Strangulation)	358 (87.7)	14 (3.4)	12 (2.9)	14 (3.4)	10 (2.5)
Beat you up	360 (88.7)	15 (3.7)	7 (1.7)	16 (3.9)	8 (2.0)
Burned or scalded you on purpose	401 (97.8)	6 (1.5)	1 (0.2)	1 (0.2)	1 (0.2)
Kicked you	377 (91.8)	10 (2.4)	7 (1.7)	8 (1.9)	9 (2.2)

Table 5. Linear regression (n=405)

Dependent Variable: Weighted Frequency by Severity CTS-2 Score			
Independent Variables	Indicator	Coefficient (95% CI)	p-value
Intervention Group	Yes	-14.71 (-28.60 to -0.81)	p=.038
Danger Assessment Category	Ordinal (0-3)	-23.10 (-29.78 to -16.43)	p=.000
Marital Status	Single Married Separated Divorced	Referent -13.43 (-29.56 to 2.69) 23.98 (-13.22 to 61.17) 16.36 (-6.49 to 39.22)	--- p=.102 p=.206 p=.160
Immigration Status	Born outside the US	-16.48 (-51.24 to 18.28)	p=.352
Time between baseline and follow-up interviews	Linear	-1.66 (-3.91 to .60)	p=.149
Fit Statistics: F(7,397)= 8.29, p<.001, Pseudo R^2=.1121			

Although the weighted CTS-2 frequency by severity of physical abuse score is the best way to capture the full range of physical violence that women experience, it does not include women's experiences of sexual violence or verbal / psychological abuse. These scores may also be less intuitively understandable than the more common and simplistic assessments of the presence or absence of violence (Straus, 2004). So, while this measure is sensitive and takes into account change over time, we also examined the impact of being in the intervention group on any experience of intimate partner violence at follow-up, any experience of intimate partner abuse at follow up (including verbal / psychological abuse, but excluding the negotiation subscale on the CTS2 since those behaviors are not abusive), and severe IPV at follow-up.

Severe IPV included near lethal violence and the following items from the CTS-2: forced sex, weapon use, punched / hit with an object, strangulation, beating, burning / scalding, kicking (Campbell et al., 2005). Any IPV included the above items as well as the following items from the CTS-2: throwing something, twisting arm / hair, made you have sex without a condom, insisted on sex when you did not want to, pushing / shoving, slamming you against a wall, grabbing you, and slapping. Intimate partner abuse included the above forms of violence and the following items from the CTS-2: insulting / swearing, shouting / yelling, calling you fat, ugly, or a lousy lover. These variables are described in more detail in the methods section. It is important to note that these definitions include only acts of violence; threats of violence are not included. Although it is important to examine sexual violence as a separate construct, women in this sample reported low levels of sexual violence at follow-up, including forced sex (comparison group: 5%, intervention group: 4%), forced condom non-use (comparison group: 3%, intervention group: 3%), and insisting on sex (comparison group: 3.5%, intervention group: 4%).

Logistic regression analyses controlled for differences between intervention and high violence comparison groups at baseline. While there were some slight differences between groups (see Table 6), there were no significant differences in the presence or absence of intimate partner violence or severe IPV between the intervention and high violence comparison groups at follow-up. At the p<.10 level, the intervention group experienced less intimate partner abuse (Conditional OR=0.67, p=.094) than the high violence comparison group.

Table 6. Experiences of violence and abuse at follow-up

Type of violence / abuse experienced at follow-up (n)	High Violence Comparison Group n(%)	Intervention Group n(%)
Severe Intimate Partner Violence (comparison n=190, intervention n=191)	36 (18.9)	38 (20.0)
Intimate Partner Violence (comparison n=187, intervention n=186)	56 (29.9)	53 (28.5)
Intimate Partner Abuse (comparison n=192, intervention n=187)	121 (63.0)	108 (57.8)

Protective Actions at Follow-up

It was hypothesized that the Lethality Assessment Program would increase women's use of protective actions at follow-up. We examined protective actions that women took immediately after the police intervention (prior to the baseline interview) as well as protective actions that participants engaged in between the baseline and follow-up interviews. The proportion of women in the high violence comparison group and the intervention group that engaged in the various protective actions during these 2 time frames is presented in Tables 7 and 8.

A series of logistic regressions examined the effect of intervention group status (as opposed to high violence comparison group status) on the various protective actions that were included in the baseline and follow-up interviews. Similar to the analyses presented above, these analyses control for the differences between groups at baseline including marital status, immigration status, Danger Assessment category and time between baseline and follow-up interview (for analyses at follow-up). In each analysis, participants' use of the protective strategy examined as the dependent variable is controlled for in the 6 months prior to the baseline interview. Regression models examining baseline data are presented in Table 9 and regression models examining follow-up data are presented in Table 10. All regression models provide useful information about predicting the outcome as evidenced by the fit statistics (included in the tables).

In order to examine the immediate safety strategies that participants engaged in, we examined the protective actions that participants took between the time that the police intervened in the index incident and the time that the interviewer spoke with the participant. This analysis has an added benefit of including participants that did not participate in the follow-up interview. Between the time that the police responded to the index offense and the baseline interview, participants in the intervention group were significantly more likely to remove or hide their partner's weapons (Conditional OR=2.57, $p<.05$). Holding all other variables at their mean, participants in the intervention group had a 3.32% chance of hiding or removing their partner's weapons, compared to participants in the comparison group who had a 1.32% chance of hiding or removing their partner's weapons. While 13 women in the comparison group reported hiding or removing their partner's weapons, 27 women in the intervention group did so. In addition, between the index offense and the baseline interview, participants in the intervention group were significantly more likely to obtain formal services for domestic violence in their relationship (Conditional OR=1.74, $p<.05$). Holding all other variables at their mean, participants in the intervention group had a 31.22% chance of seeking formal services while participants in the comparison group had a 20.43% chance of seeking formal services.

Seventy-five women in the comparison group reported seeking formal services while 106 in the intervention group reported seeking formal services for domestic violence.

Table 7. Immediate protective actions between index event and baseline interview (comparison n=342, intervention n=347)

Protective Actions	High Violence Comparison Group n(%)	Intervention Group n(%)
Hidden money or objects that may help you to flee your relationship	93 (27.2)	95 (27.4)
Established a code with family or friends	76 (22.2)	87 (25.1)
Asked neighbors to call the police if violence begins	82 (24.0)	73 (21.0)
Removed or hidden their partner's weapons	13 (3.8)	27 (7.8)
Made available paperwork	118 (34.5)	79 (22.8)
Hidden valuable jewelry	33 (9.6)	41 (11.8)
Hidden extra money	102 (29.8)	88 (25.4)
Made available a hidden bag with extra clothing	60 (17.5)	68 (19.6)
Applied for an order of protection / restraining order	100 (29.2)	120 (34.6)
Have you received services related to domestic violence	75 (21.9)	106 (30.5)
Have you gone someplace where your partner couldn't find you or see you	99 (28.9)	120 (34.6)
Have you been treated by a doctor or nurse for injuries	76 (22.2)	83 (23.9)
Have you obtained something to protect yourself from your partner, such as mace, pepper spray or a weapon	81 (23.7)	70 (20.2)

Table 8. Protective Actions between baseline and follow-up interviews (comparison n= 212, intervention n=202)

Protective Actions	High Violence Comparison Group n(%)	Intervention Group n(%)
Hidden money or objects that may help you to flee your relationship	99 (46.7)	84 (41.6)
Established a code with family or friends	84 (39.6)	97 (48.0)
Asked neighbors to call the police if violence begins	77 (36.3)	82 (40.6)
Removed or hidden their partner's weapons	11 (5.2)	17 (8.4)
Made available paperwork	80 (37.7)	56 (27.7)
Hidden valuable jewelry	25 (11.8)	26 (12.9)
Hidden extra money	85 (40.1)	66 (32.7)
Made available a hidden bag with extra clothing	55 (25.9)	57 (28.2)
Applied for an order of protection / restraining order	66 (31.1)	83 (41.1)
Received an order of protection / restraining order	50 (23.6)	69 (34.2)

Protective Actions	High Violence Comparison Group n(%)	Intervention Group n(%)
Have you received services related to domestic violence	62 (29.2)	57 (28.2)
Have you gone someplace where your partner couldn't find you or see you	72 (34.0)	82 (40.6)
Has your partner been someplace where he couldn't find you or see you	66 (31.1)	92 (45.5)
Has there been a period of time when you didn't see your partner	140 (66.0)	139 (68.8)
Have you been treated by a doctor or nurse for injuries	22 (10.4)	33 (16.3)
Have you obtained something to protect yourself from your partner, such as mace, pepper spray or a weapon	50 (23.6)	75 (37.1)

Table 9. Logistic Regressions, Protective Actions between the index offense and the baseline interview

Dependent Variable: Removed or their partner's weapons (n=689)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.94 (0.39)	2.57 (1.19-5.55)	p=.016
Danger Assessment Category	Ordinal (0-3)	0.28 (0.27)	1.32 (0.77-2.26)	p=.303
Marital Status	Single Married Separated Divorced	Referent 0.20 (0.44) -0.68 (1.11) 0.37 (0.58)	--- 1.22 (0.62-1.63) 0.51 (0.56-4.50) 1.44 (0.46-4.52)	--- p=.637 p=.541 p=.528
Immigration Status+	Born outside the US	---	---	---
Removed or hidden their partner's weapons 6 months prior to baseline	Yes	3.36 (0.43)	28.86 (12.45-66.86)	p=.000
Model Fit Statistics: Log Likelihood=-101.56, $X^2(6)$=102.21, p<.001, Pseudo R^2=.3347 + Immigration status was removed from the model because no women born outside the US removed or hid their partner's weapons				
Dependent Variable: Received services related to domestic violence (n=681)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.57 (0.18)	1.77 (1.24-2.53)	p=.002
Danger Assessment Category	Ordinal (0-3)	0.15 (0.09)	1.15 (0.97-1.38)	p=.113
Marital Status	Single Married Separated Divorced	Referent 0.52 (0.21) 0.67 (0.38) 0.16 (0.31)	--- 1.68 (1.10-2.54) 1.95 (0.91-4.13) 1.17 (0.64-2.16)	--- p=.014 p=.083 p=.599
Immigration Status	Born outside the US	-0.67 (0.52)	0.51 (0.18-1.42)	p=.199
Received services related to domestic violence in the 6 months prior to baseline	Yes	1.12 (0.32)	3.06 (1.64-5.72)	p=.000
Model Fit Statistics: Log Likelihood=-377.08, $X^2(7)$=32.43, p<.001, Pseudo R^2=.0412				

When examining the safety strategies that participants engaged in more long term (between baseline and follow-up interviews), participants in the intervention group were significantly more likely than participants in the high violence comparison group to engage in emergency safety strategies. First, participants in the intervention group were significantly more likely than participants in the high violence comparison group to establish a code with family and friends to alert them of trouble (Conditional OR=1.62, p<.05). Holding all other variables at their mean, participants in the intervention group had a 50.16% chance of establishing a code with family and friends while women in the comparison group had a 38.18% chance of doing so. Second, participants in the intervention group were significantly more likely than participants in the high violence comparison group to obtain some form of protection against their partner such as mace or pepper spray (Conditional OR=2.17, p<.01). Holding all other variables at their mean, participants in the intervention group had a 36.56% chance of obtaining protection while participants in the intervention group had a 20.95% chance of doing so. In addition, between baseline and follow-up interviews, participants in the intervention group were significantly more likely than participants in the high violence comparison group to report that they had engaged in other safety strategies such as improving security in their home (Conditional OR=1.53, p<.05). Holding all other variables at their mean, women in the intervention group had a 45.67% chance of engaging in another safety strategy while women in the comparison group had a 35.33% chance of doing so. With regard to formal services, between the baseline and follow-up interviews, participants in the intervention group were also significantly more likely than participants in the high violence comparison group to apply for an order of protection (Conditional OR=1.65, p<.05) and receive an order of protection (conditional OR=1.59, p<.05). Holding all other variables at their mean, women in the intervention group had a 40.81% chance of applying for an order of protection and a 32.33% chance of receiving an order. In contrast, women in the comparison group had a 29.52% chance of applying for an order of protection and a 23.15% chance of receiving an order. In addition, participants in the intervention group were significantly more likely than participants in the high violence comparison group to obtain medical care from a doctor or nurse due to injuries or trauma sustained by intimate partner violence between baseline and follow-up interviews (Conditional OR=1.88, p<.05). Holding all other variables at their mean, women in the intervention group had a 14.61% chance of seeking medical services while women in the comparison group had an 8.35% chance of doing so.

Between baseline and follow-up interviews, participants in the intervention group were significantly more likely than participants in the high violence comparison group to go someplace where their partner could not find them or see them (Conditional OR=1.61, p<.05). Holding all other variables at their mean, women in the intervention group had a 41.94% chance of going someplace that their partner could not find or see them while women in the comparison group had a 30.99% chance of doing so. The majority of participants in both groups reported that they went to stay with family or friends (high violence comparison n=34, intervention=55), followed by out of town (high violence comparison n=14, intervention=10), to a shelter (high violence comparison n=2, intervention=5) and to a hotel (high violence comparison n=4, intervention=3). Other places that participants reported going were to the hospital and jail. The partners of participants in the intervention group were significantly more likely than the partners of participants in the high violence comparison group to go someplace where he could not find or see the participant (Conditional OR=2.53, p<.01). Holding all other variables at their mean, women in the intervention group had a 48.59% chance of their partner going somewhere that he could not find or see the participant while women in the comparison group had a 27.24% chance of having a partner that did so. Of women whose partners went somewhere he could not find the participant, the majority of participants in both groups reported that their

partner went to jail (high violence comparison n=45, 68.2%; intervention n=59, 64.1%) and many fewer participants reported that their partner went to stay with family or friends (high violence comparison n=5, intervention=14) and out of town (high violence comparison n=7, intervention=9). Other places that partners of participants went were the hospital, residential treatment, shelter and a hotel/motel.

Additional data were collected by one participating advocacy agency regarding the number of women who sought additional services at their agency after receiving the intervention. The agency reported that 49 women entered shelter; 178 women sought protective order assistance, advocacy, or safety planning services; 5 women sought legal services; and 58 women came in for counseling or crisis services. In addition, 59 partners of women entered batterers' intervention. The advocacy organization cannot provide information on the proportion of women who sought services after receiving the intervention. However, based on study data, this particular jurisdiction referred 402 women to the study during the intervention phase of the research. On average, 52.8% of the women interviewed during the intervention phase, who screened in as high danger and were recruited from this jurisdiction spoke to a hotline counselor.

Table 10. Logistic Regressions, Protective Actions between the baseline and follow-up interviews

Dependent Variable: Establish a code with family and friends at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.49 (0.22)	1.63 (1.07-2.49)	p=.023
Danger Assessment Category	Ordinal (0-3)	0.38 (0.11)	1.46 (1.18-1.80)	p=.000
Marital Status	Single Married Separated Divorced	Referent 0.00 (0.25) 0.73 (0.57) 0.02 (0.35)	--- 1.00 (0.62-1.63) 2.06 (0.68-1.63) 1.02 (0.51-2.04)	--- p=.991 p=.202 p=.946
Immigration Status	Born outside the US	0.92 (0.54)	2.51 (0.88-7.22)	p=.087
Establish a code with family and friends in the 6 months prior to baseline	Yes	0.43 (0.28)	1.54 (0.90-2.65)	p=.118
Time between baseline and follow-up interviews	Linear	0.07 (0.04)	1.08 (1.01-1.15)	p=.038
Model Fit Statistics: Log Likelihood=-266.32, $X^2(8)$=28.94, p<.001, Pseudo R^2=.0515				
Dependent Variable: Obtained something to protect yourself at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.78 (0.24)	2.17 (1.37-3.45)	p=.001
Danger Assessment Category	Ordinal (0-3)	0.44 (0.12)	1.55 (1.22-1.97)	p=.000
Marital Status	Single Married Separated Divorced	Referent -0.01 (0.27) 0.13 (0.59) -0.32 (0.41)	--- 0.99 (0.58-1.69) 1.13 (0.36-3.57) 0.73 (0.33-1.62)	--- p=.961 p=.830 p=.434
Immigration Status	Born outside the US	0.29 (0.57)	1.33 (0.44-4.07)	p=.50
Obtain a weapon in the 6 months	Yes	0.90 (0.26)	2.47 (1.48-4.13)	p=.001

prior to baseline				
Time between baseline and follow-up interviews	Linear	-0.09 (0.05)	0.91 (0.83-1.00)	p=.053
Model Fit Statistics: Log Likelihood=-228.98, $X^2(8)$=42.24, p<.001, Pseudo R^2=0844.				
Dependent Variable: Engaged in other protective actions at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.43 (0.22)	1.54 (1.01-2.35)	p=.046
Danger Assessment Category	Ordinal (0-3)	0.26 (0.11)	1.29 (1.05-1.59)	p=.016
Marital Status	Single Married Separated Divorced	Referent -0.04 (0.25) 0.69 (0.56) 0.23 (0.35)	--- 0.97 (0.59-1.57) 1.99 (0.67-5.91) 1.26 (0.64-2.49)	--- p=.887 p=.216 p=.498
Immigration Status	Born outside the US	-0.48 (0.56)	0.62 (0.21-1.84)	p=.386
Engaged in other protective actions in the 6 months prior to baseline	Yes	0.35 (0.24)	1.41 (0.88-2.27)	p=.152
Time between baseline and follow-up interviews	Linear	0.07 (0.03)	1.07 (1.00-1.14)	p=.054
Model Fit Statistics: Log Likelihood=-267.80, $X^2(8)$=16.80, p<.05, Pseudo R^2=.0304				
Dependent Variable: Applied for an order of protection at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.50 (0.22)	1.64 (1.07-2.53)	p=.023
Danger Assessment Category	Ordinal (0-3)	0.32 (0.11)	1.37 (1.10-1.71)	p=.005
Marital Status	Single Married Separated Divorced	Referent 0.11 (0.25) 0.33 (0.57) -0.12 (0.37)	--- 1.12 (0.68-1.84) 1.40 (0.46-4.23) 0.89 (0.43-1.83)	--- p=.656 p=.556 p=.747
Immigration Status	Born outside the US	-0.92 (0.66)	0.40 (0.11-1.45)	p=.162
Applied for an order of protection in the 6 months prior to baseline	Yes	0.51 (0.34)	1.66 (0.86-3.21)	p=.133
Time between baseline and follow-up interviews	Linear	-0.06 (0.04)	0.94 (0.87-1.02)	p=.160
Model Fit Statistics: Log Likelihood=-255.00, $X^2(8)$=23.06, p<.01, Pseudo R^2=.0433				
Dependent Variable: Received an order of protection at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.46 (0.23)	1.59 (1.01-2.51)	p=.048
Danger Assessment Category	Ordinal (0-3)	0.29 (0.12)	1.33 (1.06-1.68)	p=.014
Marital Status	Single Married Separated Divorced	Referent 0.21 (0.26) 0.63 (0.57) -0.64 (0.44)	--- 1.23 (0.73-2.07) 1.88 (0.61-5.78) 0.53 (0.22-1.26)	--- p=.429 p=.271 p=.150
Immigration Status	Born outside the US	-0.70 (0.66)	0.50 (0.14-1.82)	p=.292
Received an order of protection in the 6 months prior to baseline	Yes	-0.78 (0.40)	0.46 (0.21-0.99)	p=.049

Time between baseline and follow-up interviews	Linear	-0.38 (0.04)	0.96 (0.89-1.05)	p=.369
Model Fit Statistics: Log Likelihood=-233.80, $X^2(8)$=22.05, p<.01, Pseudo R^2=.0450				
Dependent Variable: Participant received medical care due to violence at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.63 (0.31)	1.88 (1.02-3.45)	p=.042
Danger Assessment Category	Ordinal (0-3)	0.64 (0.19)	1.89 (1.29-2.77)	p=.001
Marital Status	Single Married Separated Divorced	Referent 0.64 (0.34) -0.51 (1.08) 0.34 (0.50)	--- 1.89 (0.98-3.65) 0.60 (0.07-4.98) 1.41 (0.53-3.75)	--- p=.058 p=.639 p=.492
Immigration Status	Born outside the US	-0.72 (1.06)	0.49 (0.06-3.91)	p=.500
Participant received medical care in the 6 months prior to baseline	Yes	0.33 (0.34)	1.39 (0.72-2.69)	p=.331
Time between baseline and follow-up interviews	Linear	-0.05 (0.06)	0.95 (0.84-1.07)	p=.399
Model Fit Statistics: Log Likelihood=-148.85, X^2(25.24)=, p<.01, Pseudo R^2=.0782				
Dependent Variable: Went somewhere your partner could not find you at follow-up (n=409)				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.48 (0.22)	1.61 (1.04-2.48)	p=.032
Danger Assessment Category	Ordinal (0-3)	0.38 (0.12)	1.47 (1.17-1.84)	p=.001
Marital Status	Single Married Separated Divorced	Referent 0.22 (0.25) -0.84 (0.69) 0.39 (0.35)	--- 1.25 (0.76-2.04) 0.43 (0.11-1.67) 1.47 (0.74-2.92)	--- p=.381 p=.223 p=.272
Immigration Status	Born outside the US	-0.54 (0.60)	0.58 (0.18-1.89)	p=.365
Went someplace your partner could not find you in the 6 months prior to baseline	Yes	0.46 (0.22)	1.58 (1.02-2.44)	p=.041
Time between baseline and follow-up interviews	Linear	0.02 (0.04)	1.02 (0.95-1.09)	p=.600
Model Fit Statistics: Log Likelihood=-255.68, $X^2(8)$=28.38, p<.001, Pseudo R^2=.0526				
Dependent Variable: Partner went somewhere he could not see you at follow-up				
Independent Variables	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Intervention Group	Yes	0.93 (0.22)	2.53 (1.62-3.95)	p=.000
Danger Assessment Category	Ordinal (0-3)	0.50 (0.12)	1.64 (1.31-2.06)	p=.000
Marital Status	Single Married Separated Divorced	Referent -0.24 (0.26) 0.50 (0.57) -0.57 (0.39)	--- 0.79 (0.47-1.32) 1.65 (0.54-5.07) 0.57 (0.26-1.22)	--- p=.365 p=.383 p=.146
Immigration Status	Born outside the US	-0.34 (0.24)	0.71 (0.23-2.19)	p=.550
Partner went someplace he could not see you in the 6 months prior to baseline	Yes	0.53 (0.24)	1.70 (1.06-2.74)	p=.028

Time between baseline and follow-up interviews	Linear	0.09 (0.04)	1.10 (1.02-1.18)	p=.009
Model Fit Statistics: Log Likelihood=-248.13, $X^2(8)=48.47$, p<.001, Pseudo R^2=.0890				

Validation Aim

Data Analysis

Data from follow-up interviews conducted with the full comparison group (n=254) were used to examine the predictive validity of the Lethality Screen as well as to compare the scores of the Lethality Screen with those of the Danger Assessment. This includes women in the high violence comparison group as well as women who were interviewed during the comparison phase but did not screen in as high danger on the Lethality Screen. In order to simulate as closely as possible the experience of administering the Lethality Screen at the scene of a domestic violence incident, the Lethality Screen was administered by researchers to the comparison group as soon as possible in the interview process (immediately after determining eligibility and obtaining informed consent). Data from the comparison group are ideal to test the predictive validity of the Lethality Screen as women in the comparison group were referred by police based on the same criteria used to administer the LAP at the scene of a domestic violence incident, were administered the Lethality Screen by researchers, and were re-contacted for a follow-up interview approximately 7 months later. Unlike the intervention group, women who screened in as high danger in the comparison group were not provided any intervention (including the LAP) apart from the usual police response.

Predictive validity, the correct prediction of future events, is the most important measurement of the accuracy of a risk assessment instrument. The function of predictive validity is two-fold. First, it is important to correctly identify cases (called sensitivity = the number of true positives / number of true positives + number false negatives); that is, is the IPV risk assessment instrument able to correctly identify the people who will be re-victimized by near lethal, severe, or repeat violence on follow-up? Second, correct classification of non-cases (called specificity = number of true negatives / number of true negatives + number false positives) is also important; can an IPV risk assessment correctly identify those people who will not be re-victimized? Similarly, the positive predictive value (=number of true positives / number of true positives + number false positives) examines the proportion of people who were re-victimized out of those expected to be re-victimized and the negative predictive value (number of true negatives / number of true negatives + number of false negatives) provides information on the proportion of those who were not re-victimized out of the number expected not to be re-victimized. Predictive validity is generally considered high when the sensitivity, specificity, positive predictive value and negative predictive value of a risk assessment instrument are maximized and the false-positive (people expected to be re-victimized who are not re-victimized) and false negative (people expected not to be re-victimized who were re-victimized) rates are minimized.

Because the Lethality Screen is intended to screen women into a brief advocacy intervention, sensitivity and the negative predictive value are much more important than specificity and the positive predictive value. This is because false-negatives are much more costly than false positives. That is, screening a woman into a brief

Figure 11. Major Findings: Lethality Screen Validation

The Lethality Assessment Program (LAP) Lethality Screen was designed to screen as many women into the high risk protocol, Lethality Assessment Program, as possible who were at high risk (maximize sensitivity and minimize false negatives) without as much concern for including women who were not at high risk (specificity or false positives). Using data from the full comparison group (n = 254) the predictive validity or accuracy of prediction of the Lethality Screen findings are as follows:

Near Fatal Violence.

- The Lethality Screen correctly identified 92.86% (sensitivity) of the 28 women who experienced near fatal violence from their partner between baseline and follow-up (approximately 7 months later).
- 95.83% of the women classified as not high danger did not experience near fatal violence (negative predictive value).
- However, there were many women (N = 170) classified as high danger on the Lethality Screen who did not experience near fatal violence during the follow-up period. Therefore, the specificity is 21.30% for near fatal violence and the positive predictive value is 13.27%.

Severe Violence (near lethal violence, forced sex, weapon use, punched/hit with an object, strangulation, beat up, burned/scalded, kicked)

- The Lethality Screen correctly identified 93.18% of the 44 (18.80%) women who experienced at least one form of severe violence in the approximately 7 months since baseline as high risk (sensitivity).
- 93.18% of the women classified as not high danger did not experience severe violence at follow up (negative predictive value).
- Again there were a high number of false positives (N = 149) resulting in low specificity (21.58%) and low positive predictive value (21.58%) although slightly higher than for near fatal violence.

Comparisons with the Danger Assessment (4 levels of Danger: Extreme, Severe, Increased & Variable) and Participant Prediction of risk.

- Danger Assessment level of danger is significantly associated (X^2=99.14, p< .001) with the LAP Lethality Screen.
    - Of those classified as extreme danger (n=180) on the Danger Assessment, all but 1 was classified as high danger on the Lethality Screen and she did not experience IPV at follow-up.
    - All but 8 of those classified as severe danger (n=94) on the Danger Assessment were classified as high danger on the Lethality Screen.
    - At the severe and extreme danger levels, the Danger Assessment improves upon the specificity of the Lethality Screen for predicting near lethal and severe violence and the Lethality Screen improves upon the sensitivity of the Danger Assessment.
- The Lethality Screen is significantly associated (t=-2.69 (df=243), p<.01) with participants' predictions that their partner is likely to physically abuse them in the next year and even more strongly (t=-3.15 (df=239), p<.01) associated with participants' predictions that their partner is likely to seriously hurt them in the next year.

advocacy intervention when her partner will not be violent again may cost the woman, the advocate and the officer some time, but it does not do any harm and may be normalizing, educational or empowering. On the other hand, depriving a woman of a brief advocacy intervention when her partner is even moderately likely to commit repeat violence, severe violence or near lethal violence deprives her of an intervention that may educate her about safety options and / or encourage her to seek services from those best trained to provide in depth assessment and safety planning. This is clearly more costly. It is most important, therefore, that the Lethality Screen is sensitive, has a high negative predictive value, and avoids false-negatives.

The Lethality Screen is a shortened version of the Danger Assessment and it is, therefore, informative to compare the long and short versions of the instrument. Because the Lethality Screen and Danger Assessment categories are categorical variables, chi-square analyses will be used to make the comparison. We will also examine the relationship of the Lethality Screen with participants' perception of risk from the baseline interview using t-tests to examine the relationship between a dichotomous categorical variable ("not high danger" / "high danger") to a linear scale (0-10). The main findings from the validation aim can be found in Figure 11.

The Lethality Screen

The Lethality Screen (described above in the literature review and methods) is a shortened version of the Danger Assessment that was designed to be user-friendly for first responders and to maximize sensitivity. Thus, if the woman responds "yes" to any of the first three questions on the Lethality Screen – the factors most associated with risk for homicide or near homicide on the Danger Assessment (Campbell, Webster & Glass, 2009) – she screens in at "high danger." If the woman responds "no" to each of the first three questions, but responds "yes" to four or more of the additional 8 questions, she is also screened in as "high danger." In practice, if the officer screening the victim hears or observes something that makes him / her think that the woman is in a high danger situation, then the victim is also screened in as "high danger." Because researchers (not officers) were administering the Lethality Screen to this group of participants, this element of officer discretion is not included in these analyses.

Of the 254 women in the full comparison group who completed the follow-up interview, 205 (80.71%) were classified as "high danger" at the baseline interview. Of those who screened in as high danger, 172 (83.9%) answered "yes" to one or more of the first three questions on the Lethality Screen, screening them in as high danger automatically. Of the women screened in with one of the first three questions, 25 (14.5%) did not also answer "yes" to four or more of the secondary risk factors. The remaining 33 women who screened in as high danger responded "yes" to four or more of the eight secondary risk factors, but did not respond "yes" to any of the first three questions about their risk. A "yes" response to any of the first three questions is associated with a "yes" response to four or more of the additional 8 questions both for women who completed the follow-up interview (X^2=55.00, p=.000) and those that did not (X^2=81.80, p=.000). Table 11 provides the number and proportion of "yes" responses to the 11 questions on the Lethality Screen.

Recent separation was a risk factor for the highest proportion of respondents (77.95%), followed by strangulation (71.26%), and jealous or controlling behavior (70.87%). Of the first three questions, perpetrator threats to kill the participant or her children were most prevalent with over half (52.36%) of women responding yes to this question.

Table 11. Affirmative responses to questions on the Lethality Screen (n=254)

Lethality Screen Questions	Yes Response N(%)
1. Has he/she ever used a weapon against you or threatened you with a weapon?	92 (36.22%)
2. Has he/she threatened to kill you or your children?	133 (52.36%)
3. Do you think he/she might try to kill you?	96 (37.80%)
4. Does he/she have a gun or can he/she get one easily?	111 (43.70%)
5. Has he/she ever tried to choke you?	181 (71.26%)
6. Is he/she violently or constantly jealous or does he/she control most of your daily activities?	180 (70.87%)
7. Have you left him/her or separated after living together or being married?	198 (77.95%)
8. Is he/she unemployed?	146 (57.48%)
9. Has he/she ever tried to kill himself/herself?	55 (21.65%)
10. Do you have a child that he/she knows is not his/hers?	126 (49.61%)
11. Does he/she follow or spy on you or leave threatening messages?	137 (53.94%)

Predictive Validity

Near Fatal Violence. Ten women did not respond to the questions regarding near fatal violence, leaving a final sample size for this analysis of 244; 28 (11.48%) respondents reported experiences of near fatal violence between the baseline and follow-up interviews. Of the 28 women who experienced near fatal violence at follow-up, 24 (85.71%) had experienced near fatal violence at baseline. The Lethality Screen has 92.86% sensitivity when predicting near fatal violence at follow-up. That is, of the women who experienced near fatal violence at follow-up, nearly 93% were classified as high danger on the Lethality Screen. Two of the 28 women who experienced near fatal violence at follow-up were not classified as high danger on the Lethality Screen. When examining these two cases individually, there is not much consistency. One was scored as severe danger on the Danger Assessment and one was scored as variable danger. When examining individual items on the Lethality screen, one participant responded only that her partner was unemployed while the other responded that her partner had a gun or could get one easily and that they had recently separated.

The negative predictive value is also high; 95.83% of the women classified as not high danger did not experience near fatal violence. As the Lethality Screen is intended to minimize false negatives, the number of false positives is high. Thus, the specificity of the Lethality Screen is 21.30% for near fatal violence and the positive predictive value is 13.27%. This is primarily because of a large number of false positives. The Lethality

Screen classified many women as high danger (n=170) that did not experience subsequent near fatal violence during the follow-up period. Given the high number of false positives, near fatal violence on follow-up is not strongly associated with screening in as high danger on the Lethality Screen (phi=0.11).

Table 12. Near fatal violence on follow-up by Danger on the Lethality Screen (n=244)

Near Fatal Violence on follow-up	High Danger on the Lethality Screen		Row Totals
	No	Yes	
No	46	170	216
Yes	2	26	28
Column Totals	48	196	244

Table 13. The Predictive Validity of the Lethality Screen: Near Fatal Violence

Predictive Validity: Near Fatal Violence	
Sensitivity	92.86%
Specificity	21.30%
Positive Predictive Value	13.27%
Negative Predictive Value	95.83%

Severe Violence. Twenty women did not respond to the questions regarding severe violence at follow-up, and the final sample size for this analysis is 234. Of the women who responded to these questions, 44 (18.80%) experienced at least one form of severe violence since the baseline interview. Of the 44 women who experienced severe violence at follow-up, 38 (86.37%) had also experienced severe violence at baseline. The sensitivity of the Lethality Screen is approximately the same when predicting severe violence as when predicting near fatal violence, with 93.18% of the women who experienced severe violence at follow-up classified as high danger on the Lethality Screen. Three of the 44 women who experienced severe violence were not classified as high danger on the Lethality Screen. Two of these women also experienced near fatal violence and are described above. One additional woman experienced severe violence and was not screened in by the Lethality Screen. This participant was scored as being in severe danger on the Danger Assessment and responded "yes" to three items on the Lethality Screen: her partner was unemployed, he was violently or constantly jealous, and they had recently separated.

The negative predictive value is high with 93.18% of the women classified as not high danger not experiencing severe violence at follow up. Again, the specificity and positive predictive value of the Lethality Screen is low. Specificity for severe violence is 21.58% and the positive predictive value is 21.58%. While the positive predictive value is higher than in the prediction of near fatal violence, the Lethality Screen continues to have a high number (n=149) of false positives. Given the high number of false positives, near severe violence on follow-up is not strongly associated with screening in as high risk on the Lethality Screen (phi=0.15).

Table 14. Severe violence on follow-up by Danger on the Lethality Screen (n=234)

Severe Violence on follow-up	High Danger on the Lethality Screen		Row Totals
	No	Yes	
No	41	149	190
Yes	3	41	44
Column Totals	44	190	234

Table 15. The Predictive Validity of the Lethality Screen: Severe Violence

Predictive Validity: Severe Violence	
Sensitivity	93.18%
Specificity	21.58%
Positive Predictive Value	21.58%
Negative Predictive Value	93.18%

Intimate Partner Violence. The final sample size for the analysis of the ability of the Lethality Screen to predict any IPV is 233. Of the women who responded to these questions, 69 (29.61%) experienced IPV at follow up. Nearly all (97.10%) of the women who reported IPV at follow up also reported experiencing IPV at baseline. The sensitivity of the Lethality Screen dips slightly to 86.96% when predicting any IPV. That is, nearly 87% of the women who experienced IPV at follow-up were classified as high danger on the Lethality Screen. This means that the number of false negatives increased slightly and 9 of the 69 women who experienced IPV at follow-up were not classified as high danger on the Lethality Screen. Three of these women also experienced near fatal and/or severe violence and are described above. Of the six additional women not screened in as high danger, three were scored as variable danger on the Danger Assessment, two were scored as increased danger and one was scored as severe danger. In regard to specific items on the Lethality Screen, these women responded "yes" to one (n=1), two (n=2), or three items (n=3). The most common affirmative response was that there had been a recent separation (n=4), followed by having a child that was not their partner's child (n=3).

The negative predictive value is also reduced when examining any IPV; 80.00% of the women classified as not high danger did not experience IPV at follow-up. The specificity of the Lethality Screen is 21.95% for any IPV and the positive predictive value is 31.91%. Again, the positive predictive value or the proportion of those screened in as high danger who experienced violence at follow-up increased from the prediction of near fatal and severe violence, yet Lethality Screen continues to have a high number (n=128) of false positives. Given the high number of false positives, intimate partner violence on follow-up is not strongly associated with screening in as high risk on the Lethality Screen (phi=0.10).

Table 16. Any physical violence on follow-up by Danger on the Lethality Screen (n=233)

Any Physical Violence on follow-up	High Danger on the Lethality Screen		Row Totals
	No	Yes	
No	36	128	164
Yes	9	60	69
Column Totals	45	188	233

Table 17. The Predictive Validity of the Lethality Screen: Any Violence

Predictive Validity: Any Violence	
Sensitivity	86.96%
Specificity	21.95%
Positive Predictive Value	31.91%
Negative Predictive Value	80.00%

Intimate Partner Abuse. The number of women who reported intimate partner abuse is relatively high at follow-up, with 148 of the 240 (61.67%) women included the final sample reporting physical, emotional or psychological abuse. All but one of the women who experienced intimate partner abuse at follow-up reported experiencing intimate partner abuse at baseline. The sensitivity of the Lethality Screen is 83.78% when predicting intimate partner abuse. The Lethality Screen is classifying nearly 84% of women who experience physical, emotional or verbal abuse at follow-up as high danger. There are more false negatives when predicting intimate partner abuse with 24 women who experienced abuse at follow-up not classified as high danger on the Lethality Screen. Because of this increase in false negatives, the negative predictive value decreases somewhat substantially to 47.83% though the positive predictive value increases to 63.91%. The specificity of the Lethality Screen is 23.91% for intimate partner abuse. The Lethality Screen has fewer false positives (n=70) when examining intimate partner abuse as the outcome. Nevertheless, intimate partner abuse on follow-up is not strongly associated with screening in as high risk on the Lethality Screen (phi=0.09).

Table 18. Intimate partner abuse on follow-up by Danger on the Lethality Screen (n=240)

Intimate Partner Abuse on follow-up	High Danger on the Lethality Screen		Row Totals
	No	Yes	
No	22	70	92
Yes	24	124	148
Column Totals	46	194	240

Table 19. The Predictive Validity of the Lethality Screen: Intimate Partner Abuse

Predictive Validity: Intimate Partner Abuse	
Sensitivity	83.78%
Specificity	23.91%
Positive Predictive Value	63.91%
Negative Predictive Value	47.83%

Additional Validation Analyses

Comparisons with the Danger Assessment. Women's weighted and summed baseline Danger Assessment scores were categorized into variable danger, increased danger, severe danger and extreme danger categories (see Table 20). Danger Assessment category is significantly associated (X^2=99.14, p< .001) with the Lethality Screen. Of those classified as extreme danger on the Danger Assessment, all but 1 was classified as high danger on the lethality screen. This participant did not experience IPV at follow-up (see Table 21). Similarly, all but 8 of those classified as severe danger on the Danger Assessment were classified as high danger on the Lethality Screen. Of these 8 women, three experienced IPV on follow-up (including one participant who experienced near fatal violence and one additional participant who experienced severe violence). At the severe and extreme danger levels, the Danger Assessment improves upon the specificity of the Lethality Screen for predicting near lethal and severe violence and the Lethality Screen improves upon the sensitivity of the Danger Assessment.

Table 20. Comparison of Danger Assessment and Lethality Screen Categories (n=254)

Danger Assessment Category	High Danger on the Lethality Screen		Row Totals
	No	Yes	
Variable Danger	25	7	32
Increased Danger	15	38	53
Severe Danger	8	50	58
Extreme Danger	1	110	111
Column Totals	49	205	254

Survivor Assessment of Risk. Survivors have been found to be more likely right than wrong in their assessment of risk (Bell et al., 2008; Campbell, Webster & Glass, 2009; Cattaneo et al., 2007; Cattaneo & Goodman, 2003; Connor-Smith et al., 2010), though they are likely to underestimate their risk (Campbell, 2004; Heckert & Gondolf, 2000). As researchers have suggested that survivors' predictions be used to complement risk assessment instruments (Campbell, 2004; Connor-Smith et al., 2010; Heckert & Gondolf, 2004; Weisz, Tolman, & Saunders, 2000), we examined the relationship between the Lethality Screen and participants' predictions of the likelihood that their partner will physically abuse or seriously hurt them in the next year. The Lethality Screen

is significantly associated [t=-2.69 (df=243), p<.01] with participants' predictions that their partner is likely to physically abuse them in the next year and is significantly [t=-3.15 (df=239), p<.01] associated with participants' predictions that their partner is likely to seriously hurt them in the next year.

Table 21. Danger Assessment & Lethality Screen by Type of Violence Experienced on Follow-up

Danger Assessment Category ↓ / Lethality Screen →	Experienced Near Fatal IPV		Experienced Severe IPV		Experienced Any IPV		Experienced IPA	
	Not High Risk	High Risk	Not High Risk	High Risk	Not High Risk	High Risk	Not High Risk	High Risk
Variable Danger	1	1	1	1	4	2	11	4
Increased Danger	0	5	0	7	2	10	10	26
Severe Danger	1	4	2	8	3	14	3	29
Extreme Danger	0	16	0	25	0	34	0	65

Implementation Fidelity Aim

This research aim seeks to examine how reliably police officers implemented the intervention based on the procedures laid out by the protocol. Perfect adherence to the protocol includes a two-step response. First, that officers always completed the Lethality Screen when any of the criteria were met (i.e., the officer believed that an assault or other violent act had occurred, was responding to a domestic violence call from a victim or at a location where domestic violence had occurred in the past, had a "gut feeling" that the victim was in danger or was concerned for the safety of the victim once they left the incident scene). Second, for every case where a victim screened in as high danger based on the Lethality Screen responses or the officer's belief that the victim is in danger, the victim would speak on the telephone with the hotline counselor. In some cases, victims choose not to speak to the hotline counselor. Further, there are additional contingencies that may interrupt an officer's ability to adhere to the protocol. For example, early in the intervention phase officers reported to the research team that it was very difficult for them to conduct the LAP when the scene of a domestic violence incident was chaotic. These were scenes where, for example, only one officer was available to go to the home, where multiple children had been witness to the violence, and / or where one or more of the intimate partners continues to be physically aggressive, is unable to calm down and/or threatens the officer. Thus, in order to examine implementation fidelity in regard to the Lethality Screen, we will examine discrepancies between officer assessment of risk and researcher assessment of risk, as well as compare the proportion of women who screened in as high danger during the intervention phase (when officers were asking the Lethality Screen questions) and the proportion of women who screened in as high danger during the comparison phase (when researchers were asking the Lethality Screen questions). Additionally, in order to examine the implementation fidelity of the intervention (i.e., placing the victim on the phone with a hotline counselor) during the intervention phase and among women who screened in as high violence, we will examine the proportion of women who spoke with a hotline counselor at the scene and we will compare the characteristics of women who spoke with the hotline counselor and those that did

not. The sample for these analyses is all women who were interviewed during the intervention phase (n=648). The main findings from the implementation fidelity aim can be found in Figure 12.

Figure 12. Major Findings: Implementation Fidelity of the Lethality Assessment Program

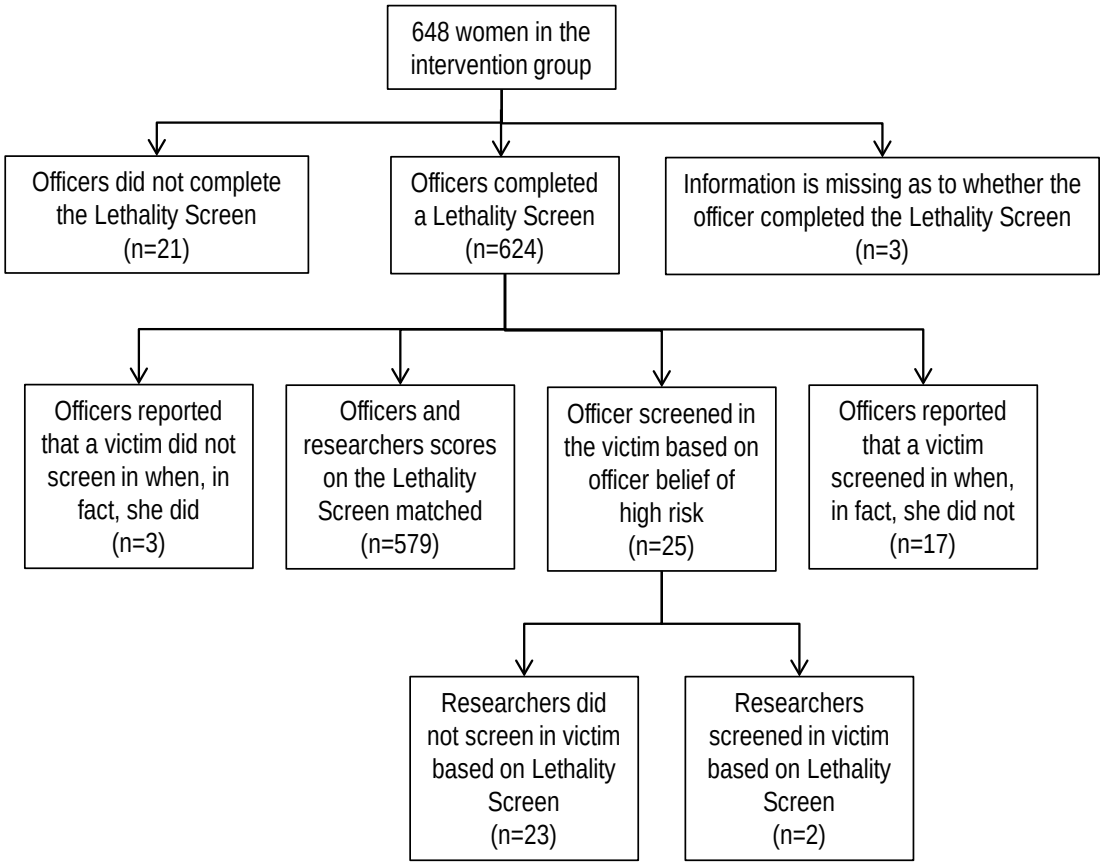
When implementing the Lethality Assessment Program (LAP), officers should assist women at high risk with contacting Domestic Violence Advocates (hotline counselors) by telephone at the scene of a domestic violence call. Fidelity findings related to assessing the extent of implementation (fidelity) of the LAP are as follows:

- The majority (61.6%; n= 347) or the 563 women classified as high danger (by Lethality Screen or officer judgment) spoke to a hotline counselor.
- Implementation varied according to jurisdiction
    - Oklahoma City and Stillwater police departments had a significantly higher proportion of women who spoke to the hotline counselor than in the other participating jurisdictions combined (64.5% in Oklahoma City, 77.8% in Stillwater, 52.8% in Tulsa, and 42.1% in Broken Arrow).
- Using logistic regression it was found that the following affected her likelihood of speaking with the DV hotline counselor:
    - Severe experiences of violence at the index incident – victim being punched or hit with an object – significantly increased in the likelihood that the victim spoke to the hotline counselor.
    - Participant's partner ever having used a knife or gun on her increased the likelihood that she spoke to the hotline counselor.
    - PTSD symptoms (0-4) that women experienced resulted in a significant *decrease* in likelihood of speaking to the hotline counselor.
    - Women who took prior informal protective actions (packing bags, arranging code with neighbor, hiding weapons) in the past 6 months prior to the index offense were more likely to speak with the hotline counselor.
    - However, if the victim had ever received formal domestic violence services (criminal justice, DV services), she was half as likely to speak to the hotline counselor.

Implementation Fidelity of the Lethality Screen. A total of 648 women were interviewed during the intervention phase, and officers did not complete the lethality screen in 21 cases (3.2%). In an additional 3 cases, information is missing as to whether the officer or researcher completed the Lethality Screen. Because the Lethality Screen was also the referral document, it was not possible to track the number of incidents where officers neither completed the Lethality Screen nor submitted a referral. However, based on the calculated referral rates (see the section on "Recruitment Difficulties," above), we can expect that this was not a rare occurrence. Given the available data, we were able to examine officer assessments of risk further (see Figure 13). Overall, officers misclassified victims (as high risk or not) in 3.1% (n=20) of cases. These misclassifications were more likely to screen low danger victims in as high danger than to screen high danger victims out as low danger. In 25 cases, officers reported that the victim did not screen in according to the protocol, but that the officer believed the victim to be at high risk. In 2 of these cases, when researchers calculated the victim's Lethality Screen score, the victim actually did screen in according to the protocol. Overall, there was a significant difference in the proportion of victims who screened in as high danger during the comparison phase and the proportion of victims who screened in as high danger during the intervention phase (X^2=9.46, p<.01). During the intervention phase,

participants were more likely to screen in as high danger. During the comparison phase, when researchers were administering the Lethality Screen, 79.0% of participating victims screened in as high danger; during the intervention phase, when officers were administering the Lethality Screen, 86.1% of participating victims screened in as high danger. This may be because victims screened closer to the incident of violence (at the scene, by an officer) have a more salient awareness of the abuse and/or are not engaging in denial, minimization or self-blame immediately after the abusive incident (Curnow, 1997). Women interviewed by researchers even a short time later may have re-engaged these defenses.

Figure 13. Implementation Fidelity of the Lethality Screen



Implementation Fidelity of the Intervention. Of the 563 women who were classified as high danger during the intervention phase (based on their Lethality Screen scores as calculated by researchers or an officer's belief that the victim is in danger), 347 (61.6%) spoke to a hotline counselor and 216 did not. In addition, 29 women who did not screen in as high danger spoke to a hotline counselor. In order to answer the question of whether the intervention was being applied evenly across women screened in as high danger, logistic regression was utilized to examine whether demographic and relationship characteristics, experiences of violence in the relationship and at the index incident, prior protective actions, mental health status, and jurisdiction had an effect on who spoke to the hotline counselor. Each potential independent variable was entered into the logistic regression model with the dependent variable alone, and independent variables associated with speaking to the hotline counselor at the

p<.10 level were considered for inclusion in the final model. The final regression model provides useful information about predicting the outcome as evidenced by the fit statistics (included in the table).

As shown in Table 22, Oklahoma City and Stillwater police departments had significantly more women speak to the hotline counselor than in the other participating jurisdictions combined (64.5% in Oklahoma City, 77.8% in Stillwater, 52.8% in Tulsa, and 42.1% in Broken Arrow). No demographic or relationship characteristics were associated with speaking to the hotline counselor. However, experiences of violence both at the index incident and ever in the relationship were associated with speaking with the hotline counselor. The victim's partner punching her or hitting her with an object at the index incident led to a significant increase in the likelihood that the victim spoke to the hotline counselor. Similarly, the participant's partner ever having used a knife or gun on her increased the likelihood that she would speak to the hotline counselor.

Table 22. Logistic Regression (n=557)

Dependent Variable: Did the participant speak to the hotline counselor?				
Variable	Indicator	Coefficient (SE)	Conditional OR (95% CI)	p-value
Jurisdiction	Other Oklahoma City Stillwater	Referent 0.45 (0.21) 1.40 (0.61)	--- 1.57 (1.05-2.35) 4.05 (1.23-13.34)	--- p=.029 p=.022
At the index offense, the participant's partner hit her with an object	Yes	0.77 (0.34)	2.15 (1.10-4.21)	p=.025
At the index offense, the participant's partner punched her	Yes	0.51 (0.19)	1.66 (1.15-2.40)	p=.006
The participant's partner had used a knife or a gun against her (ever)	Yes	0.55 (0.24)	1.73 (1.08-2.78)	p=.024
PC-PTSD Score	Linear (0-4)	-0.15 (0.06)	0.86 (0.77-0.96)	p=.007
Number of protective actions taken in the past 6 months	Linear (0-8)	0.12 (0.06)	1.13 (1.02-1.26)	p=.024
Participant has received domestic violence services in her relationship	Yes	-0.69 (0.27)	0.50 (0.30-0.85)	p=.010
Model Fit Statistics: Log Likelihood=-349.73, $X^2(8)$=43.49, p<.001, Pseudo R^2=.0585				

Women's prior protective actions and utilization of services due to domestic violence in their relationship also had an impact on whether or not they spoke to the hotline counselor. For each additional protective action or emergency safety planning strategy on the modified version of McFarlane's Safety Behavior checklist (e.g., asked neighbors to call police if violence begins, removed / hid weapons, packed a bag with extra clothing) that the participant had engaged in during the 6 months prior to the index offense, the participant was 13% more likely to

speak with the hotline counselor. However, if the victim had ever received formal domestic violence services in her relationship, she was half as likely to speak to the hotline counselor. Finally, for each additional PTSD symptom that women experienced (0-4), they were 15% less likely to speak to the hotline counselor.

Satisfaction Aim

During the baseline interview, participants were asked: "During the incident with [your partner], when the police intervened, how satisfied were you with the police response?" Participants were asked to respond on a likert scale ranging from 0-10, "where zero means not at all satisfied and 10 means as satisfied as possible." Participants in the intervention group were significantly more satisfied with the police response than were participants in the high violence comparison group [t=4.21 (df=631.218), p <.01]. Participants in the intervention group reported an average satisfaction of 8.07 (sd=2.9) and participants in the high violence comparison group reported an average satisfaction score of 7.01 (sd=3.5). During the intervention phase of the study, women who reported that they talked on the phone with the hotline counselor were asked: "How helpful was the person that you spoke with [on the phone]?" Of the women in the intervention group who responded to this question (n=246), 59.7% reported that the person was "very helpful," 26.2% reported that the person was "somewhat helpful," 5.5% reported that the person was "a little helpful" and 8.5% reported that the person was "not helpful." The main findings from the implementation fidelity aim can be found in Figure 14.

Figure 14. Major Findings: Women's Satisfaction with the LAP Intervention

- Participants in the intervention group were significantly more satisfied (on a scale of 0-10) with the police response than were participants in the comparison group [t=4.21 (df=631.218), p <.01].
- For women who spoke on the phone with the hotline counselor:
    - Almost 60% (59.7%) reported that the person was "very helpful" and 26.2% reported that the person was "somewhat helpful."
    - 5.5% reported that the person was only "a little helpful" and 8.5% reported that the person was "not helpful."

Homicide and Violent Death during the Study Period

The Oklahoma Violent Death Reporting System (OKVDRS) was used to examine homicides and violent deaths in the Lethality Assessment Program study areas. Oklahoma is one of 18 states participating in the National Violent Death Reporting System. The OKVDRS collects data from death certificates, medical examiner reports, and law enforcement police reports on all homicides, suicides, legal interventions, and unintentional firearm injury deaths in the state. The system also collects data on undetermined manner deaths that may be caused by violence. OKVDRS data have been collected by the Oklahoma State Department of Health ongoing since 2004. The current year of data collection is 2013. OKVDRS data were used to examine and compare overall homicide rates in the LAP study areas and the areas that were not included in the study (non-study areas) including intimate partner homicides (victim killed by a current or former intimate partner). Additionally,

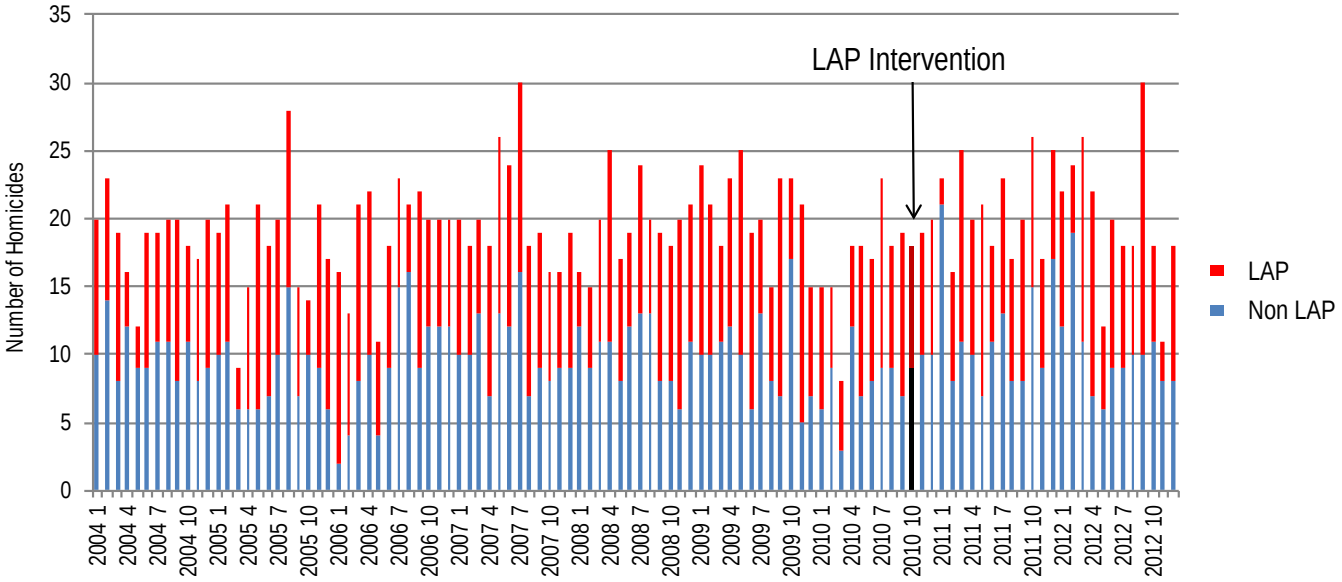
crosschecks were performed between study participant lists and OKVDRS data to determine if any of the study participants had been victims of fatal violence.

Homicide Rates

Currently, 2004-2010 OKVDRS data have been finalized. All records have been retrieved and entered in the database and the data have been cleaned for analysis. Data for 2011 and 2012 are nearly completed and have death certificate and medical examiner data entered, but law enforcement data have not been entered. About one-third of cases for 2013 have death certificate and medical examiner data entered. Intimate partner homicide includes homicides where the victim was the current or former marital or non-marital partner of the suspect as documented in the official records. Homicide data were aggregated into two geographic groups: the LAP-study area and the non-study area. The LAP study area included Oklahoma City, Tulsa, Broken Arrow, Stillwater, Tahlequah, and El Reno.

In 2010 and 2012, cities in the LAP-Study Area population represented 31% of Oklahoma's population, and 52% and 49%, respectively, of Oklahoma's homicides occurred in these cities. As shown in Table 23, according to current OKVDRS data, the LAP-study area had a lower percentage of intimate partner homicides among all homicides than the non-study area both prior to and after the intervention. The percentage of intimate partner homicides declined in both the study area and the non-study area after the intervention began in November 2010. The overall homicide rate in the LAP study area increased from 9.6 per 100,000 population in 2010 to 10.1 in 2012. The homicide rate in the Non-Study areas also increased from 4.0 in 2010 to 4.6 in 2012 (Table 24). The homicide frequency by month from 2004-2012 is shown in Figure 15 for LAP study area and non-study area.

Figure 15. Number of Homicides* by Month and LAP Study and Non-Study Jurisdictions, 2004-2012



*Includes 2,098 homicides where month and location of injury was known.

Participant Crosschecks

A list of participants was linked with the OKVDRS database using name and date of birth. Three individual matches were found. For two of the deaths the manner was ruled undetermined; both were related to poisoning or substance abuse. One death was ruled a suicide. All of the decedents had been included in the comparison group; one had experienced high violence and two had experienced low violence. The deaths occurred at 7, 4, and 2 months following the index offense.

Table 23. Number of intimate partner homicides and percent of all homicides in LAP Study Areas compared to Non-Study Areas

	Study Areas		Non-Study Areas	
Time Period	IPV Homicides	% of All Homicides	IPV Homicides	% of All Homicides
2011-2013*	21	8%	40	13%
2004-2010	84	10%	134	16%
Source: Oklahoma Violent Death Reporting System, Oklahoma State Department of Health, Injury Prevention Service. *Includes preliminary data for 2011 and 2012, and partial year data for 2013.				

Table 24. Comparison of homicide rates in LAP Study Areas and Non-Study Areas before and after the intervention

2010 Homicide Rates		2012 Homicide Rates	
Study	Non-Study	Study	Non-Study
9.6	4.0	10.1	4.6
Source: Oklahoma Violent Death Reporting System, Oklahoma State Department of Health, Injury Prevention Service.			

Discussion

Major Findings: Experiences of Violence

Both of the main study hypotheses were supported: the Lethality Assessment Program decreased women's experiences of violence and increased help seeking. Examining the subtracted weighted CTS-2 frequency by severity score, the intervention group reported significantly less violence at follow-up than the high violence comparison group. The intervention group also reported less psychological/emotional abuse at the $p<.10$ level, but there were no differences in the presence or absence of any intimate partner violence or severe IPV. At baseline, 98.85% of women reported experiencing IPV, 92.62% of women reported at least one form of severe

violence and 51.06% of women reported experiencing near fatal violence. Given the high levels of violent victimization that women reported at baseline, it is not surprising that the LAP decreased the frequency and /or severity of violence rather than having an effect on the presence or absence of physical violence or severe violence. In a relationship where there has been serious physical assault, such violence is unlikely to cease completely in a relatively short time frame, regardless of the protective strategies that a survivor uses. Even in situations where a woman leaves an abusive relationship, violence is likely to continue (and may even increase) whenever the violent partner manages to gain access to the survivor. Leaving is never a static event, and women who have successfully disengaged from an abusive partner has shown that this process involves stages of reclaiming life and self (Messing, Mohr & Durfee, 2012; Wuest & Meritt-Grey, 2001). As such, it is unrealistic to expect violence – or entire categories of violence – to end completely in the short (approximately 7 months) time between the intervention and follow-up interview. The reduction in frequency and/or severity of violence that the LAP afforded women in this study may provide victims the opportunity to utilize services that may assist with the process of breaking free from a violent relationship. It is additionally important to note that physical violence was defined, for the purposes of this study, as actual violence against an intimate partner. Unlike definitions utilized by the Centers for Disease Control and Prevention (e.g., Saltzman, Fanslow, McMahon & Shelley, 2002), we did not include threats of violence in our definition.

Major Findings: Protective Strategies

Women in the intervention group also reported using significantly more protective strategies both immediately after the index event and at approximately 7 months follow-up. Immediately (between the index offense and the baseline interview), women in the intervention group reported accessing more formal domestic violence services than women in the comparison group. Importantly, women in the intervention group were also significantly more likely to remove or hide their partner's weapons (although a small proportion in each group engaged in this protective strategy). Given that the majority of intimate partner homicides of women are committed with a firearm and, further, given that Oklahoma state law does not prohibit possession of guns by known domestic violence offenders (state law only prohibits purchase), this is a significant safety strategy. Vigdor and Mercy (2006), in an analysis of state laws on guns, found that states where possession of firearms was prohibited by known domestic violence offenders had a 13% reduction in domestic violence homicides.

Between baseline and follow-up, women in the intervention group were more likely to establish a code with family and friends, obtain some form of protection, apply for and receive an order of protection, receive medical care due to injuries, go somewhere their partner could not find them (e.g., shelter, the home of family or friends), and engage in other protective actions. Not only are women in the intervention group engaging in more protective actions than women in the high violence comparison group, they are engaging in a wide variety of protective actions over multiple time periods. After the intervention, women are engaging both the social service system (through the use of formal domestic violence services) and in the civil court system (through applying for a receiving orders of protection). Further, that the partners of women who were in the intervention group are more likely to go somewhere that they could not see the participant (such as jail) may indicate that women in the intervention group are more likely to engage in the criminal justice system and that the system saw these perpetrators as more dangerous also. Engagement in and perception of the criminal justice system should be more explicitly examined in future research.

That women in the intervention group are also more likely to be engaging in some informal protective actions demonstrates that the LAP provides a variety of intervention strategies and women may be choosing those best suited to their situation. Future research should examine why some protective strategies are used more by the intervention group and whether this is a function of the safety planning strategies suggested by hotline counselors, a function of survivor choice among myriad strategies offered or a function of the police visit being more effective when the LAP is used. Finally, these analyses indicate that women in the LAP intervention group are more likely to take immediate action and that they are more likely to engage in protective actions over the approximately 7 months after the intervention. This demonstrates some durability of the intervention, albeit over a relatively short time frame.

Lethal Intimate Partner Violence

In addition to increasing help-seeking behavior and protective actions, the goal of the LAP intervention is to reduce lethal violence. The Oklahoma Violent Death Reporting System is a useful tool for monitoring the incidence of lethal violence including IPV-related deaths. The overall homicide rate in the collective study area and non-study area populations was determined using Oklahoma Violent Death Reporting System data. The overall homicide rate in the study area both before and after the intervention was more than double that of the non-study area, likely due to the two large metropolitan areas included as study sites. However, the percentage of IPV homicides among all homicides in the study areas was 38% lower than in non-study areas. The percentage of IPV homicides among all homicides declined from pre-intervention levels in both the study area and the non-study areas at a similar rate (20% and 19%, respectively). Because of the lag in collecting surveillance data, only preliminary Oklahoma Violent Death Reporting System data were available for 2011 and 2012 and only partial data were available for 2013. Given that the intervention period continued through early 2013, it is likely too early to assess the impact of the intervention on IPV homicide rates until Oklahoma Violent Death Reporting System data are complete and finalized for analysis. Additionally, any impact would need to be considered in the context of other factors such as unemployment, economic environment, laws and policies. As demonstrated by historical data in Oklahoma, IPV homicide is an event with low incidence and the number of IPV-related deaths fluctuates considerably over time (e.g., over a twelve year period, the number of IPV related deaths ranged from 27 to 59 per year). To assess trends, surveillance data will need to be monitored over a longer period of time. In addition to assessing homicide trends, crosschecks with Oklahoma Violent Death Reporting System proved valuable to determine if any study participants had become victims of violent death. Unfortunately, three deaths of study participants were identified through the crosschecks, two undetermined manner deaths and one suicide, but no homicide deaths were identified. It will also be important to perform crosschecks for an extended period of time to determine the outcome of violent death among participants.

Major Findings: Lethality Screen

There was also evidence that the Lethality Screen has considerable sensitivity (92-93%) and a high negative predictive value (93-96%) for near lethal and severe violence. However, it is important to point out that specificity was low (21%) in these same analyses of the Lethality Screen. The Lethality Screen was constructed for maximum sensitivity with less concern for specificity and false positives in order to cast as wide a net as possible for high risk survivors while minimizing false negatives. The costs of screening someone into the intervention who

will not experience repeat or severe violence are much lower than the cost of screening someone out who does experience subsequent violence (especially if this violence results in a fatality or near fatality). Predictive validity is a combination of sensitivity and specificity and a measure with high predictive validity would have both high specificity and high sensitivity, which is not the case for the Lethality Screen. Thus the high sensitivity, low specificity and mediocre positive predictive validity indicates that the Lethality Screen is performing as intended and not that the predictive validity is high. It is also instructive that, when examining experiences of any IPV or intimate partner abuse at follow-up, the sensitivity of the Lethality Screen decreases because it was designed to identify the presence of risk factors for lethal and near lethal intimate partner violence and not re-assault. The Lethality Screen is adequate at predicting any repeat IPV and intimate partner abuse (84-87% sensitivity), but as not as sensitive as for lethality and near lethality. It should be noted that researchers, not police, administered the Lethality Screen in all validation analyses.

Given the high number of false positives, some police departments may want to explore not utilizing the Lethality Screen, and simply asking all women whether they would like to speak to an advocate over the telephone at the scene. In this sample, of the 648 women who were interviewed during the intervention phase, 555 screened in based on their responses to the Lethality Screen, 25 screened in based on officer belief, and 68 women did not screen in. In this particular case, the burden of asking an additional 68 women to speak to a hotline counselor may not add significantly to the burden on officers at the scene or tax the resources of local domestic violence service providers. However, according to data from The Maryland Network Against Domestic Violence, the proportion of women who screened in as high danger among this intervention sample (89.5%) is higher than the proportion of women who screened in as high danger across all 20 jurisdictions in Maryland participating in the LAP in 2012-2013 (69.5%). It is not clear why women in this study screened in at higher rates; possible explanations include sampling bias or that women who call the police in Oklahoma are at a uniquely high level of IPV and / or risk in their intimate relationships. Regardless of the explanation, expanding the scope of the intervention in this way across multiple jurisdictions may raise resource issues. For example, across the 20 participating jurisdictions that the Maryland Network Against Domestic Violence reported on, this is a difference of 1,570 women. Further, as previous research has shown that safety concerns often motivate help seeking (Burke, Dennison, Gielen, McDonnell & O'Campo, 2004; Campbell, Rose, Kub & Nedd, 1998; Fisher & Rose, 1995; Gondolf & Fisher, 1988; Martin et al, 2000; Pape, 2000; Short, McMahon, Chervin, Shelley, Lezin, Sloop & Dawkins, 2000), not using the Lethality Screen may take away the impetus for women to want to talk to an advocate. That is, because they have not had a discussion with the officer about the danger in their intimate relationship and received the news that they are at high risk for homicide or near homicide, women may be less likely to engage in the intervention.

The LAP is intended to be an intervention that educates women about their risk and risk factors within their intimate relationships and empowers them to make decision of self-care. Speaking to women about their potential for future severe and fatal violence through the use of a risk assessment tool may raise awareness about risk and risk factors and assist women to identify the risk within their intimate relationship, whether or not they screen in as high risk. This educational component may also be helpful for police officers as those who have been educated about risk assessment and risk assessment tools may become more aware of the dynamics of abusive relationships and the risk that women face in those relationships. As such, while particular jurisdictions may choose to provide all women with the opportunity to speak on the telephone with a hotline counselor, this should

be weighed against both the resources needed to provide telephone and in-person intervention (should the woman choose to access services) and the missed opportunity for education about risk factors and risk assessment.

The Lethality Screen also has good agreement with the Danger Assessment and women's perception of risk. Once a woman is screened in as high danger on the Lethality Screen and helped to access domestic violence services if they choose, the intent is that they would be administered the full Danger Assessment (DA) by an advocate. The Danger Assessment is calibrated to be more specific, particularly at the severe and extreme danger categories. The use of the calendar with the full Danger Assessment also helps women and advocates understand the full scope and pattern of the abusive relationship. Thus, the Danger Assessment is intended to be the starting point of comprehensive safety planning that can be conducted in an advocacy setting but is too lengthy a process to conduct at the scene of a police involved domestic violence incident. While the Lethality Screen and subsequent on-scene intervention that make up the Lethality Assessment Program is an important starting place for intervention, it should not replace the Danger Assessment and more lengthy advocacy interventions for women who screen in as high danger and access services.

Three women who experienced severe or near lethal violence were not screened in as high danger on the Lethality Screen; two of these women were classified as being in severe danger based on the Danger Assessment. While this is a small number of the women screened, it represents three important missed opportunities for intervention. As such, several analyses were conducted to determine whether we could increase the sensitivity of the Lethality Screen further. It is possible to increase the sensitivity of the Lethality Screen slightly, but this also increased the false positive rate even more. The best option consists of including unemployment in the first 3 questions and moving the question about threats / assaults with a weapon to one of the following 8 questions. In this case, the sensitivity for near lethal violence is 96.43% and the sensitivity for severe violence is 97.73%. This resulted in screening in 5% more people as high danger, one of whom experienced severe violence at follow-up.

We also examined the role of officer discretion in screening in women as high danger. Overall, 25 women screened in based on officer belief that they were in danger. When officer discretion has been examined in Maryland, a similar proportion of women have been screened in using this mechanism (Dave Sargent, personal communication, February 14, 2014). Of those women screened in based on officer belief, 14 participated in a follow-up interview. None of these women experienced violence on follow-up, though four experienced verbal / emotional abuse which thus contributed to the low specificity of the Lethality Screen. While the women screened in by officers did not experience additional violence during the follow-up timeframe, allowing officer discretion to screen women into the intervention may be empowering for officers and enhance their buy-in with the intervention. Further, asking officers to identify women at high risk may facilitate a dialogue between officers and victims about risk and risk factors present in an intimate relationship, furthering both education and relationship building. Nevertheless, future research may want to examine the role of officer discretion, how it is applied, and the outcomes linked to it.

When considering the predictive validity of the Lethality Screen and of officer discretion, it is important to recognize that the time to follow-up was relatively short (approximately 7 months). It may be that women who

screened in as high danger, but did not report subsequent severe or near fatal violence in the follow-up period (i.e., false positives), remain likely to experience severe violence in the future.

Major Findings: Implementation Fidelity

The majority (61.6%) of women who screened in at high risk spoke to the domestic violence advocacy organization on the phone at the scene of the incident. This number is slightly higher than the average of 57% of women who spoke to an advocate in Maryland between 2006 and 2012 (MNADV, 2013). It is, however, important to note that the proportion of women who spoke to the advocate on the phone varied from 41.2%-77.8% by police department. Data collected by the MNADV (2013) demonstrates that the highest performing police departments have between 70-95% of women speak on the phone to a hotline counselor. These variations between departments should be further explored in future research. It is important to note that we found similar variations in police department performance with regard to the recruitment of research participants (see Messing, Cimino, Campbell, Brown, Patchell & Wilson, 2011). While this particular research study cannot elucidate why more women speak to the hotline counselor in some departments than in others, possible explanations include a stricter adherence to the protocol and/or police officer attitudes that facilitate women's help seeking in this context. Future research should examine police officer roles in this context through observation and/or qualitative interviews.

There is evidence that women's experiences of violence at the index incident and in the relationship increased the likelihood of speaking to the hotline counselor. Similarly, women's prior emergency safety planning strategies increase the likelihood of speaking to a hotline counselor. On the other hand, women's prior use of formal domestic violence services decreases the likelihood that they will speak to an advocate on the telephone. These findings could have various causes. Our data did not allow us to determine if the officer at the scene did not offer some women the opportunity to speak on the telephone or if the officer may offered the opportunity and the victim declined. For example, women who experienced higher levels of violence during a particular battering episode or throughout their relationship may have been more willing to reach out to the advocate on the telephone. On the other hand, it may be that officers are more likely to offer the advocacy intervention to women who have experienced higher levels of violence as they perceive them to be in more immediate danger. The same may be true for women's use of protective strategies – women who have been using protective strategies may be more ready to reach out for assistance from an advocate or officers who ascertain that a woman is using protective strategies may see additional utility in placing her on the phone with an advocate. It is likely that both of these scenarios occurred. The LAP is intended to empower women with the immediate opportunity to engage in additional help seeking should they choose to do so. That not all women choose to speak to the hotline counselor (and that not all women choose to follow-up by seeking additional services) demonstrates that women are able to exercise their autonomy during the intervention and make the decisions that they perceive to be most beneficial for their particular situation. Future research should examine the decision making process of survivors and police officers to better elucidate the meaning behind these statistical relationships.

An increase in posttraumatic stress disorder (PTSD) symptoms (hyperarousal, numbing, re-experiencing, avoidance) was negatively related to speaking with the hotline counselor in this sample, and this is cause for concern. Given the high proportion of women in this sample experiencing PTSD symptomology (see Wilson et al., 2011) as well as the high proportion of IPV survivors that suffer from PTSD (e.g., Golding, 1999), this finding has

important implications for practice. Whether women who are experiencing PTSD symptoms are less willing to speak to a hotline counselor (because they are more distrustful of police and/or helping personnel or experiencing symptoms such as numbing that make them less able to respond) or police officers are less willing to offer the intervention when women are suffering from these symptoms (for example, PTSD hyperarousal is associated with presentations of anger and use of verbal and physical aggression), increased training for police on PTSD symptoms and the mental health effects of IPV is warranted. Officers who are aware of the effects of PTSD on a survivor's presentation, affect and behavior during a police interview may be more able to intervene effectively.

Major Findings: Satisfaction with the LAP

Finally, women who participated in the intervention were more satisfied with the police response than women in the high violence comparison group and were likely to report that the advocate was at least somewhat helpful. In addition to providing survivors of IPV with a much needed opportunity to connect with social services, the LAP attends to the dynamics of an abusive relationship and survivor safety in a way that the traditional police response does not. The traditional police response (at least since the advent of mandatory arrest) focuses on offender accountability for a single incident of violence. However, physical IPV is often experienced in the context of ongoing power and control within an intimate relationship (e.g., Stark, 2007). The LAP focuses attention on relationship history, dynamics and lethality (through the use of the Lethality Screen) and engages women with social services in the community that can attend to the diverse needs of survivors. The LAP is intended to provide women at the scene of a police involved IPV incident with education about their level of risk for lethal and near lethal IPV and an awareness of their options so that they can make decisions that are best for their situation. Previous research has found that a lack of awareness about community resources is associated with remaining in an abusive relationship (Patzel, 2006); as such, this educational component may be particularly important. A collaborative response that provides offender accountability (through criminal justice sanctions) and survivor safety (through social service intervention) makes available a broader scope of intervention and, as such, appears to be more effective (both in terms of survivor outcomes and satisfaction) than the traditional criminal justice response.

Strengths and Limitations

The study findings should be understood in the context of study limitations. First, this research was conducted with a sample of women in Oklahoma and may not be representative of women in other states. Further, the women who chose to participate in the research study may have been different than the women who chose not to participate. While the recruitment strategy was novel and emphasized safety, participant choice and police department collaboration, it most likely introduced selection bias. In some cases, the officer at the scene may not have asked the victim whether she wanted to be referred to the research study. If the officer did ask, the tone of the request, the demeanor of the officer, or the implicit authority held by police officers may have influenced the victim's likelihood of referral. Once the victim chose to participate, researchers needed to make contact with the victim. While over 70% of participants who could be contacted agreed to participate in research, many women were unable to be contacted and more were never referred by police departments.

Women who went to shelter immediately were generally not able to be reached. In some cases, researchers knew that the victim went to shelter, and shelter staff could leave a message for the victim, but due to

confidentiality constraints, could not let researchers know whether or not the victim was in shelter. As such, we had only one participant who reported that they had been to shelter between the baseline and intervention interviews. Yet, in a jurisdiction that provided approximately 1/5 of the participant referrals during the intervention phase of the research study, the shelter reported that 49 women entered shelter after being screened in as high danger and speaking to a hotline counselor. Therefore, it is reasonable to assume that the majority of women who entered shelter after receiving the LAP intervention did not participate in the study because we could not contact them.

It was more difficult to recruit women into the intervention group than into the high violence comparison group. Women in the intervention group needed to screen in as high danger at the scene *and* speak to the hotline counselor, while women in the comparison group needed only to screen in as high danger. As such, it was necessary to interview more women during the intervention phase in order to generate intervention and high violence comparison groups with relatively equivalent numbers of participants. In sum, the selection bias introduced in our recruitment strategies probably operated in multiple directions and likely resulted in both inflating and deflating the results regarding the effectiveness of the LAP, but the extent of either is unknown.

Attrition between baseline and follow-up interviews introduced another limitation to this research study. Across the intervention and high violence comparison groups, almost 40% of participants dropped out between the baseline and follow-up interview. Across the entire sample, the attrition rate was approximately 43%. While researchers requested additional contact information and the contact information for friends and family, attrition occurred primarily because interviewers were unable to reach participants on follow-up. In part, this is to be expected and is consistent with previous research (Campbell et al., 2005). Women who are experiencing violence in their intimate relationships may have unstable living situations, enter shelter, or otherwise hide from an intimate partner. They may also change their telephone number and / or instruct family members not to give out their contact information. Given that we recruited women from the scene of police involved IPV incidents, and that these women were experiencing relatively high levels of violence and danger, these difficulties may have been exacerbated. Women who did not complete follow-up interviews may have had different experiences of violence and safety at follow-up than the women who were interviewed. This is an additional bias within the sample that should be considered.

Given the use of a historical comparison group, the most concerning threat to internal validity was the threat of history effects as an event may occur (e.g., a high profile domestic homicide, the closing of a local shelter) between recruitment of the high violence comparison and intervention groups that affected research outcomes. Throughout the study, therefore, researchers were particularly attentive to changes in participating communities. Nonetheless, the intervention and high violence comparison groups were not equivalent and we controlled for initial measured differences between groups in all analyses. However, unmeasured differences between groups may have also affected the results of the research. For example, it is not known whether any particular woman in the comparison group would have agreed to speak with the hotline counselor had the intervention occurred during this time. It may also be that the interview itself affected the emergency safety planning and help seeking behavior of the women in the study. Simply asking questions about safety strategies may have encouraged women to engage in these strategies; indeed, interviewers reported that women would often say that they had never thought of engaging in a particular strategy until the interviewer asked about it.

Officers were trained on recruitment procedures prior to recruitment of the comparison group and were then trained on the intervention procedures prior to the intervention start. However, given multiple delays across the study period and the challenges of training multiple jurisdictions, training was not conducted at an optimal time. While the study team provided additional training throughout the study period through roll call trainings and mediasite refreshers, training of officers could have been better coordinated. Further, the presentation of the intervention as part of a research study and combined with additional study procedures (i.e., recruitment), may have affected officer attitudes toward the intervention in unanticipated ways.

When balancing the challenges of engaging in quasi-experimental field research against the requirements of a tightly controlled true experimental design, researchers determined that randomizing high risk victims of IPV to control and intervention groups would have presented even more difficult logistical and ethical issues. Ethically, implementing an intervention and withholding the treatment from high risk victims of IPV randomly assigned to a control group was in conflict with the researchers' professional imperatives and with those of the advocacy organizations with whom we collaborated. Logistically, randomization of a treatment initiated by police officers may lead to compensatory equalization of treatment where officers provide additional services to victims in the control group to compensate for their experimental status. That is, we could not be sure that officers would adhere to randomization procedures and, if they did, we additionally could not be sure that officers would not (knowingly or unknowingly) transfer some of the knowledge that they gained about the intervention to their treatment of the control group. Given that there were only two large population centers participating in the research study, the regional and geographic differences between them, and concerns about implementing an intervention in one department and not the other, researchers also decided against randomization of the intervention across jurisdictions. In retrospect, this was a good decision given differences in recruitment and implementation fidelity across police jurisdictions.

This research also had many noteworthy strengths. We were able to enlist the cooperation of a significant number of police jurisdictions in Oklahoma, including the two largest population centers in the state. We maintained relationships with these jurisdictions through a study that took longer to complete than originally intended. We were able to meet our recruitment and retention targets for both the intervention and comparison groups. Of the women that we were able to contact, 70-73% agreed to participate in the research study. The research used a quasi-experimental design to examine the effectiveness of an intervention. While assignment was not randomized, this type of design has the potential to answer our research questions. Few experimental community based research studies of this size and scope have been conducted to examine innovative police practices, and we are aware of no experimental research that has been conducted to examine the effectiveness of a collaborative police – social service intervention for IPV. This study examined a relatively well-established intervention with training and technical assistance available for police departments interested in utilizing it. The sample included a substantial number of Native American women, who are at higher risk for experiencing IPV and intimate partner homicide. We also used an outcome measure for repeat violence that took into account the frequency and severity of the violence, not just the presence or absence of different forms of violence. This allowed us to maximize power and give a more complete picture of the changes that occurred as a result of the intervention.

Conclusions and Implications

The preponderance of evidence, albeit in a quasi-experimental design with some important limitations as discussed above, is that the Lethality Assessment Program was effective in facilitating women at high risk for severe and near lethal violence to talk with a domestic violence advocate at the scene of a police involved domestic violence incident, both increasing survivors' use of formal and informal protective strategies and decreasing the frequency and / or severity of physical violence. However, there were some issues with implementation fidelity, areas where there was no evidence of the absence of certain types of violence due to the intervention (e.g., severe violence), no effect on the utilization of some measured protective strategies and limitations on the predictive validity of the Lethality Screen. Overall, while this intervention demonstrated effectiveness in this single study in a single state and has important policy and practice implications, future research is needed to assist in answering additional questions and building the evidence base for the LAP.

Given that we found no negative effects of the LAP (e.g., there were no protective strategies utilized significantly more by the high violence comparison group and no significant reductions in violence for the comparison group relative to the intervention group), combined also with the data gathered by the MNADV that suggests that 31% of women who engage in the LAP intervention seek services across multiple states and police jurisdictions, we feel comfortable recommending the Lethality Assessment Program as a collaborative police – social service intervention with an emerging evidence base. However, given that the only experimental research has been a single study in a single state, it is premature to label this intervention as "well-established" per the American Psychological Association Division 12 Task Force Guidelines (1993). As such, future research should replicate this study in order to garner a stronger evidence base.

In addition to future experimental research conducted in additional geographic locations, mixed methods research is important to understand and contextualize many of the findings presented here. In addition to the role that qualitative and observational research could play in understanding the implementation of the intervention and the reasons for differential application of the intervention across sites and participants, qualitative work could assist in gaining insight into women's experience of the LAP. Important questions remain about women's perception of the utility of the Lethality Screen and telephone call, as well as their experience of adopting and implementing additional safety strategies post-intervention. An exploration of how the intervention could be improved from the perspective of domestic violence survivors is also warranted. Along the same vein, future research may examine ways to strengthen the impact of the intervention. For example, systematically coordinating safety strategies presented on the telephone with information on risk factors gathered at the scene may increase the effectiveness of the intervention. Differential application of the intervention – such as providing safety strategies in person rather the over the telephone or providing follow-up phone calls or in-person visits as is done in some jurisdictions outside of Oklahoma – could also be examined. Future research should additionally examine police perceptions of the intervention and how the implementation of the LAP affects police officer attitudes toward IPV and IPV survivors, attitudes toward social service / advocacy organizations, and their perceptions of safety and danger when responding to domestic violence calls for service.

As electronic communication becomes more normative within police departments, the Lethality Screen and Protocol could be made electronic by, for example, creating a computer or iPad application for officers. This may

assist with standardization of the protocol, transfer of data back to the police central administration, accurate calculation of Lethality Screen scores, and consistently including information about risk factors for lethality in police reports. This may also facilitate data collection. In an electronic format, unlike in a paper format, the responses to some questions (e.g., "Did the victim speak to the hotline counselor?") could be required for officers. When a survivor did not speak to the hotline counselor, additional questions could inquire about why that choice was made. While these questions are worthwhile, it is important to remember that, throughout the intervention, survivors' self-determination is paramount. The LAP provides an opportunity for women to engage in an advocacy intervention, and it is their choice whether they respond to the questions on the Lethality Screen, speak to the hotline counselor and/or engage in protective actions. The LAP is intended to empower survivors toward decisions of self-care and should in no way be coercive.

This research study spanned five years and recruitment lasted more than three-and-a-half years. While this was originally intended to be a two year project, many difficulties with start-up, multiple IRB approvals, community engagement, changes in police chiefs and management, and recruitment repeatedly delayed the study. Community based interdisciplinary field trial research is complex and requires much communication and time to conduct. Relying on community partners to implement an intervention and recruit participants places a burden on community partners that may be difficult to manage depending on the buy-in and enthusiasm of both management and workers. Using participatory strategies – including reporting the findings of research to community partners – was an important component of engaging community partners over an extended study period. Building an evidence base in criminal justice and social service research requires time, funding, and commitment. The information that emerges, however, has the potential to change the response to IPV and prioritize survivor safety and empowerment within the context of criminal justice intervention.

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24-7 HOTLINE NUMBER TO CALL IF VICTIM SCREENS IN: XXX-XXX-XXXX

DOMESTIC VIOLENCE LETHALITY SCREEN FOR FIRST RESPONDERS

Officer:	Date:	Case #:
Victim:	Offender:	Arrested: ☐ Yes ☐ No
Victim Safe Telephone Number:	Victim Alternate Safe Telephone Number:	
Safe time to call victim:	Is the victim Native American? ☐ Yes ☐ No	

☐ ***Check here if victim refused to answer all of the questions.*** *(Ask the victim to participate in research.)*

► ***A "Yes" response to any of Questions #1-3 automatically triggers the protocol referral.***

1.	Has he/she ever used a weapon against you/threatened you with a weapon	☐Yes	☐ No	☐ Not Ans.
2.	Has he/she threatened to kill you or your children?	☐Yes	☐ No	☐ Not Ans.
3.	Do you think he/she might try to kill you?	☐Yes	☐ No	☐ Not Ans.

► ***Negative responses to Questions #1-3, but positive responses to at least four of Questions #4-11, trigger the protocol referral.***

4.	Does he/she have a gun or can he/she get one easily?	☐Yes	☐ No	☐ Not Ans.
5.	Has he/she ever tried to choke you?	☐Yes	☐ No	☐ Not Ans.
6.	Is he/she violently or constantly jealous or does he/she control most of your daily activities?	☐Yes	☐ No	☐ Not Ans.
7.	Have you left him/her or separated after living together or being married?	☐Yes	☐ No	☐ Not Ans.
8.	Is he/she unemployed?	☐Yes	☐ No	☐ Not Ans.
9.	Has he/she ever tried to kill himself/herself?	☐Yes	☐ No	☐ Not Ans.
10.	Do you have a child that he/she knows is not his/hers?	☐Yes	☐ No	☐ Not Ans.
11.	Does he/she follow or spy on you or leave threatening messages?	☐Yes	☐ No	☐ Not Ans.

► ***An officer may trigger the protocol referral, if not already triggered above, as a result of the victim's response to the below question, or whenever the officer believes the victim is in a potentially lethal situa***

Is there anything else that worries you about your safety? *(If "yes")* What worries you?

Check one: ☐ **Victim screened in according to the protocol** ☐ **Officer decided not to scree**

☐ **Victim screened in based on the belief of officer** *(ask victim to participate in the research whether/not screened)*

☐ **Victim did not screen in**

If victim screened in: After advising her/him of a high danger assessment, did the victim speak with the hotline advocate? ☐ **Yes** ☐ **No**

WHETHER OR NOT THE VICTIM SCREENS IN, READ THE FOLLOWING STATEMENT:
(IF THE VICTIM SPEAKS WITH AN ADVOCATE, WAIT UNTIL SHE/HE IS DONE)

The Police Department is working with the University of Oklahoma to see if the response that you got from the police today helped you or may help other people in your same situation. Someone will call you from a 405 area code within the next few days to explain the study and ask if you would like to participate. Or you can call 877-503-0550 to contact them. After finishing the survey you will receive a $15 gift card. The person who calls is trained to keep you safe during the call. Your participation is voluntary & all information given to this person is confidential. **CHECK ONE: ☐ VICTIM AGREES ☐ VICTIM DOES NOT AGREE**

Note: *The questions above and the criteria for determining the level of risk a person faces is based on the best available research on factors associated with lethal violence by a current or former intimate partner. However, each situation may present unique factors that influence risk for lethal violence that are not captured by this screen. Although most victims who screen "positive" or "high danger" would not be expected to be killed, these victims face much higher risk than that of other victims of intimate partner violence.* *MNADV 08/2005*

Safety Protocol

The interviewer's first priority during all contacts with the participant is to ensure participant safety. Only female interviewers will be used, participants will be offered a cover story ("women's health survey"), and the following safety precautions will be in place.

At the beginning of the interview, ask the participant if this is a good time to talk (*"Is this a safe time for you to talk, a time when you will not be overheard or interrupted?")*. If it is not a good time to talk, try to find out when a good time to talk would be and call back at that time. When you are not sure that it is a safe time for the participant to talk (e.g., before getting confirmation that it is a good time to talk, or if the participant would prefer that you call back), ask only questions with yes/no responses (e.g., "Is this a good time to talk?" and "Should I call you back tomorrow?"). Never press the participant to give you information.

At the beginning of each interview, tell the participant that if at any time she feels unsafe during the interview, advise her to say "It's not a good time for me to talk now." You will then respond as described in "If you hear a commotion or disturbance of any kind," below. Also tell her if you feel she is unsafe at any time you may begin asking yes/no questions about women's health.

If someone enters the room while you are interviewing the participant. Tell the woman that if she needs to terminate the conversation you will call her back or she can call you back. Encourage her to be sure she always has privacy and will not be interrupted during the interview.

If you hear a commotion or disturbance of any kind. Ask the following questions, which can be answered "yes" or "no:"

1. *Is someone making you feel unsafe now?*

   If no to this or further questions below: Continue with interview but first ask her if she would like you to call back in an hour or at another time and remind her that, if she feels unsafe at any time during the interview, she should say: "It's not a good time for me to talk now."

2. If yes, *Do you want me to call 911 for you?*

   If yes, call 911 on your cell phone and give them the participant's address.

   If no, *OK, but it sounds as though we may need to end the interview. May I call you back in an hour and ask if it is a good time to talk? If you say no, I will ask you again if you are safe, and if you say yes, I will hang up and call back tomorrow. Is that OK?* Then follow through.

3. If you have called 911, stay on the line if possible, until the police arrive. Tell the participant:
   I have called the police and they are on their way. I am going to ask you questions now from a women's health survey (provided to interviewer)*. Please answer yes or no*.

You can override the participant's decision about continuing with the interview at any time. If you think you hear her partner in the background, tell her that you would like to talk to her when she is alone and make arrangements to call back.

If the call is terminated, when you call back open with the standard questions about whether this is a safe time to talk.

If you suspect someone is eavesdropping. You must always be alert, listening for clicks or any other unusual background noise. If you suspect someone is listening in, move immediately the women's health survey. Say:

I am now going to ask several questions on women's health, to which you should answer yes or no.

Then ask 8-10 questions on the women's health survey (provided to the interviewer), thank the participant very much for her participation, and terminate the call. Call back the next day to explain and re-schedule the baseline interview if at all possible.

Language problems. If you encounter someone who speaks a language other than English, you will have to terminate the conversation graciously and record it on the Contact Sheet. Do not interview a respondent through an interpreter.

Do not interview the participant if... she has excessive hearing or speech difficulties or is ill, drunk, drugged, or emotionally upset. Discuss the situation with your supervisor to determine whether a return telephone call should be made as well as a referral to the Oklahoma Department of Mental Health & Substance Abuse, “211” phone system for local crisis intervention or the state Reachout hotline, 1-800-922-9054. On occasion, you may encounter a problem situation that you may not know how to handle. In this case, put the interview aside and call your supervisor.

When the participant becomes angry or upset with the questions. Listen to the participant and be understanding ("I understand these questions are a bit upsetting." "Please take your time."). Let her know that the questions may be upsetting, but are important. Tell her she can decline to answer any specific questions. She can also withdraw from the study, or preferably, re-schedule an interview for another time.

If needed, consider offering the following :

Do you need a minute to get yourself together?
Would you like to have a telephone number where there are people who can assist you, answer questions, and give you more information? Provide resources and contact information as appropriate.

General Principles of Interviewing

The interviewing principles in this section may be familiar to you, but we feel certain techniques must be emphasized. The following review covers the central principles you need to know before you start interviewing.

Confidentiality. As a member of the research team, you are bound by certain legal and moral requirements to safeguard the confidentiality and privacy of the women you will interview. As a condition of your employment, you have signed a Privacy Certificate agreeing that you will comply with the requirements of 42 USC Section 3789g and 28 CFR Part 22; these regulations' central assurances are summarized here.

Personal data collected for a federal government grant must be kept absolutely confidential except for specific situations in which others must be protected and reporting to authorities is required (See "Guidelines and Procedures for Mandated Reporting" below). The participant must be told the purpose of the study, what use will be made of the data, that the information they provide will be confidential, and that participation is voluntary. These requirements are met through the Informed Consent form the participant will sign.

Specific data handling procedures have been developed for this study in accordance with federal law. By adhering to these procedures, you will help ensure that the data are collected in compliance with the law:

Each interview will begin with the Informed Consent procedures citing the purposes and uses of the information, the voluntary nature of the data collection, and a guarantee of confidentiality.

Interviewers will not discuss any participant's participation, personal information, or answers with anyone outside the research team.

Interviewers will not interview participants known to them.

You will be talking about personal and difficult topics to participants who may have recently experienced domestic violence. You have a moral and ethical duty to people cooperating in the study (or not cooperating) to treat them with respect, handle the information they divulge as privileged, and do your utmost to respect their confidentiality and privacy. You will ask questions a person would not think of asking a close friend, questions that might be thought of as "too personal." You will find that women are willing to answer these personal questions, because you are a professional, and a stranger, and you promise to keep everything confidential. Your protection of all information about participants gained during the conduct of research is therefore essential.

We promise participants that we will never reveal what they have told us (except for mandated reporting situations). Their answers will be combined with those of everyone else in the study and the results are reported in group (aggregate) form only. Information collected during the course of the study can be shared only with the research team, whose members are under the same legal and ethical duty to the people interviewed as you are.

IT IS YOUR DUTY TO KEEP THE PROMISE OF CONFIDENTIALITY. NEVER TELL FACTS ABOUT, OR REVEAL THE ANSWERS OF, ANYONE YOU INTERVIEW.

If you need or want to talk about a case or a person you have interviewed, discuss it with other members of the research team only. You may also discuss personal reactions with your personal therapist or pastoral counselor, because they are also bound by confidentiality. If you have a particularly difficult case, please call your supervisor. Do not discuss it with a friend or partner.

Additional note: Even though you present yourself as a researcher, some participants will view you as an advocate or social worker. It is important to be clear with participants and with yourself that you are not able to help directly; you can only make referrals and you cannot follow up on those referrals.