Assessing The Impact of an Innovative Response to Intimate Partner Violence Related Strangulation

Final Report & Outcome Evaluation

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AMA: Against Medical Advice

ANOVA: Analysis of Variance Statistical Test

ANP: Affidavit of Non-Prosecution

ATE: Average Treatment Effect

BFD: Burleson Fire Department

BPD: Burleson Police Department

CAD: Computer Aided Dispatch

CALEA®: Commission on Accreditation for Law Enforcement Agencies

CJS: Criminal Justice System

COVID-19: Coronavirus 2019

CT: Computed Tomography Scan

CTA: Computed Tomography Angiography

DA: Danger Assessment

EA: Evaluability Assessment

EMP: Emergency Medical Personnel

EMT: Emergency Medical Technician

EPO: Emergency Protective Order

ETO: Efforts to Outcomes Database

FVP: Family Violence Packet

IACP: International Association of Chiefs of Police

ID: Identification Number

IPV: Intimate Partner Violence

IPVRS: Intimate Partner Violence-Related Strangulation

IRB: Institutional Review Board

IPW: Inverse Probability Weighting

NIJ: National Institute of Justice

OE: Outcome Evaluation

OLS: Ordinary Least Squares Regression

OSP: One Safe Place

PDF: Portable Document File

PE: Process Evaluation

PSM: Propensity Score Matching

PSW: Propensity Score Weighting

RMS: Records Management System

SANE: Sexual Assault Nurse Examiner

SPSS: IBM SPSS Statistical Software

STATA: StataCorp LLC Statistical Software

STF: Strangulation Task Force

TCOLE: Texas Commission on Law Enforcement

URL: Uniform Resource Locator

VA: Victim's Assistance

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EXECUTIVE SUMMARY

Introduction

Strangulation is experienced by many IPV victims and represents extreme control over the victim by the perpetrator (McKay, 2023; Petreca et al., 2023; Stansfield & Williams, 2021). However, little is known about the prevalence of strangulation within IPV incidents due to the lack of literature in the area (Glass et al., 2008; Thomas et al., 2014). Of the available studies, it is estimated that the number of women who experience non-fatal strangulation is at least 10%, and could be as high as 68%, for women with a history of IPV depending on the location and study sample (Campbell et al., 2007; Garza et al., 2021; Glass et al., 2008; Zilkens et al., 2016). Of those, only about 10% actually reported the strangulation to law enforcement (Bates, 2008; Cole, 2004; Funk & Schuppel, 2003).

The prevalence and rate of injury from intimate-partner violence-related strangulation (IPVRS) is largely unknown because victimization is routinely underreported and only approximately 29% of victims receive medical intervention following strangulation (Cole, 2004; De Boos, 2019; Wilbur et al., 2001). IPVRS is especially difficult to detect and treat for a variety of reasons. Little is known about the injuries that result from strangulation (Sheridan & Nash, 2007). Injuries from intimate partner violence, and strangulation in particular, may not be visible to first responders (Oehme et al., 2016; Pritchard et al., 2018). In fact, many strangulation victims show no visible signs or symptoms because asphyxiation by strangulation takes relatively little pressure to the neck (Bates, 2008; Faugno et al., 2013; Pritchard et al., 2018; Strack & McClane, 1998b). Victims who report strangulation frequently present with

what appears to be minor or non-visible, external injuries that may go unrecognized by first responders who do not have specialized knowledge regarding the unsuspecting signs and harmful consequences of strangulation. In fact, strangulation victims often suffer from considerably more serious, internal injuries that have long-lasting health outcomes, including increased mortality (De Boos, 2019; Gwinn et al., 2014; Wilbur et al., 2001). According to Harning (2015), the initial strangulation victim presentation to medical and law enforcement responders is not a reliable predictor of the medical outcome. Strangulation signs and symptoms are often subtle and unnoticed, or underappreciated, by first responders, medical personnel and victims themselves (De Boos, 2019; Harning, 2015; Strack, Gwinn, Hawley, et al., 2014).

These statistics are concerning as studies indicate that victims of intimate partner violence strangulation (IPVRS), have an increased risk of homicide and are almost seven and a half times more likely to die at a later time from their abusers (Block 2004; Campbell et al. 2003; Glass et al. 2008; Strack, Gwinn, Fineman, Green, Smock, and Riviello 2014). In addition to the increased risk of lethality for IPV victims, studies and anecdotal evidence indicate that men who strangle their partners are also more likely to assault and kill law enforcement officers (Gwinn et al. 2014; Johnson 2011; Stone 2015).

Due to the possibility of adverse medical outcomes and the potential lethality of strangulation, it is important to build capacity among first responders to: recognize the signs and symptoms of IPVRS, understand delayed medical complications, provide appropriate treatment and transport, and properly document signs/symptoms for potential prosecution (Harning, 2015). Early detection of strangulation and appropriate medical intervention can provide critical information for first responders to prioritize service decisions, improve victim

medical outcomes, and enhance IPVRS evidence collection (Gwinn et al., 2014; Reckdenwald et al., 2022; Strack & McClane, 1998b).

In 2018, the City of Burleson enacted the "Effective Response to Strangulation" ordinance (hereinafter Ordinance) that mandates specific first responder protocols in cases of potential family violence related strangulation. Developed by a group of community stakeholders including the Burleson City Council, Police and Fire Departments, community service providers, and emergency medical staff, the Ordinance outlines clear actions by all parties to improve the detection and treatment of strangulation victims. The Ordinance includes: (1) a defined protocol for addressing strangulation, (2) training for first responders (police, fire, and EMS/paramedics), (3) newly designed assessment instruments to improve the identification of IPV asphyxiation, and (4) specific intervention strategies for strangulation across multiple agencies.

Purpose and Goals

To determine the effectiveness of the initiative (hereinafter referred to as Ordinance or strangulation protocol), the National Institute of Justice (NIJ) provided support for a full program evaluation that progressed across three research phases: (1) an evaluability assessment; (2) a process evaluation and (3) an outcome evaluation. The evaluation includes two jurisdictions: one Texas treatment location (Burleson, Texas), and one Control Site in Johnson County.[1] Several goals and overarching research questions guided the study. First, law enforcement and first responders lack an evidence-based approach to IPVRS despite research demonstrating the serious risk to victim safety and well-being. To address this gap, the study

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[1] The identity of the Control Site will remain anonymous for reporting and data archiving purposes. NIJ approved this research site.

examined if (and how) the Burleson Ordinance and strangulation protocol affected outcomes for first responders and the IPVRS victims they serve. Second, without proven strategies for addressing IPVRS, victims may be less likely to engage with the criminal justice system. For this reason, the study examined if the new Ordinance increased victim engagement in the Criminal Justice System. Third, anecdotal research indicates that officers responding to IPVRS incidents may be at greater risk for assault and serious injury. The final overarching research question examined: Are officers responding to IPVRS incidents more likely to be assaulted and injured than other IPV incidents? By addressing these overarching research questions and the specific questions that informed the process and outcome evaluations, the study sought to achieve the following goals:

(1) Support the development of innovative strangulation reduction efforts through research.
(2) Advance the scientific literature on the severity and risk associated with intimate partner violence strangulation for both victims and law enforcement officers.
(3) Identify strategies to increase victim engagement in the criminal justice system as it pertains to IPVRS.

Methodological Approach

To achieve study goals, the evaluability assessment, process, and outcome evaluations used a mixed methodological research strategy to examine evaluation readiness, the design of the Ordinance and strangulation protocol, program fidelity, and associated outcomes. Across the three project phases, the research team reviewed extant documents related to the Ordinance; fielded two waves of stakeholder interviews (29 evaluability assessment and 20 process evaluation); five surveys (a pre and post first responder training survey, a process evaluation survey, and a pre and post-ordinance victim surveys); in-depth coding of police case files ($n =$ 407); content analysis of 407 police case file narratives for strangulation signs and symptoms;

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and analysis of secondary data provided from the Burleson Fire Department, MedStar, and One Safe Place – a family justice center in the region.

The outcome evaluation phase of the study, and the central focus of this final report, used a matched comparison pre-posttest quasi-experimental design to examine the effectiveness of the Ordinance on an array of expected outcomes utilizing quantitative and qualitative sources of data. The specific research questions informing the outcome evaluation were tested across the pre- and post-ordinance groups in Burleson (January 1, 2016 - March 5, 2018) and across the post-ordinance period (March 6, 2018 - December 31, 2020) in both Burleson (treatment) and the control group using bivariate analyses and then propensity score weighting to estimate the average treatment effect (ATE) of the Ordinance on several study outcomes in the pre-post and treatment-control groups. Seven research questions and the outcomes of interest included:

(1) Does the Protocol increase the number of victims identified by law enforcement as high-risk for IPVRS victimization?
(2) How does the Protocol affect the number of located high-risk victims?
(3) Does the Protocol improve the detection of IPV strangulation by medical first responders?
(4) Does the Protocol improve the number of arrests related to IPV strangulation crimes?
(5) Do identified victims have more engagement with the criminal justice and other service providers because of the Protocol?
(6) Are officers in Burleson more knowledgeable about signs and symptoms associated with IPVRS compared to officers working in jurisdictions without a specialized protocol?
(7) Do officers experience injuries when responding to IPV strangulation crimes?

Key Findings

The results of the process evaluation are available in a standalone report. In brief, the Ordinance and strangulation protocol were adequately designed for implementing a coordinated response to IPVRS, training and educating first responders, and developing processes to enable emergency medical screenings for victims. Surveys of Burleson first responders and qualitative findings taken from interviews of strangulation task force members confirmed strong support for

the initiative and disclosure of implementation problems were rare. Key components for implementation were achieved (e.g., development of specialized forms, training, inter-agency cooperation) and implementation processes were positively evaluated by Burleson first responders in surveys and stakeholder interviews.

Program fidelity was systematically assessed across five predetermined indicators that were taken directly from the Ordinance and examined using a diverse array of data. Results indicated general adherence to the goals and objectives of the Ordinance and strangulation protocol with room for improvement across several indicators. For example, while Burleson medical first responders were almost always on-scene when requested, they were only requested to be on-scene in 62% of protocol eligible cases. There were also additional fidelity problems related to the documentation of the presence of medical first responders in police reports and making/documenting referrals to appropriate support agencies (see process evaluation report for further discussion). The findings of the process evaluation revealed that while not at 100% fidelity the Burleson strangulation intervention was robust enough for an outcome evaluation.

The results of the outcome evaluation indicate that the Ordinance significantly increased first responder strangulation knowledge and expertise, their ability to recognize and document signs and symptoms of it, and police identification of IPVRS. The Ordinance also significantly improved the prevalence of on-scene medical responses and increased medical assessments of IPVRS victims. Arrest outcomes improved generally but not for impede breath—a felony crime in Texas. Across multiple indicators, the Ordinance had negligible influence on victim engagement with criminal justice system. More EPOs were requested and granted in Burleson versus the Control Site. The study was unable to find that IPVRS was associated with harm to law enforcement, or other first responders involved in IPVRS responses.

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Implications

The study has broad implications for law enforcement and EMS professionals seeking to improve identification and response to IPVRS. Improved response to IPVRS produces the most benefit to IPVRS victims who receive a more qualified police response as well as increased medical attention. In short, given the dangers associated with strangulation and adverse medical problems, the Ordinance has the potential to save lives.

CHAPTER I: INTRODUCTION

Violence against women is largely intimate partner violence (Tjaden et al., 2000). Approximately 2,000,000 injuries and 1,300 deaths result from intimate partner violence (IPV) incidents in the U.S. (Oehme et al., 2016). IPV Victims suffer a wide-range of medical and psychosocial consequences from strangulation (Bonomi et al., 2009). In fact, it is estimated that between 22%-35% of women who visit the emergency room are there for problems related to IPV, and one out of every three female trauma patients is a victim of IPV (Oehme et al., 2016) and 1 out of every 10 deaths could be related to IPV (Kafka et al., 2021).

Strangulation is experienced by many IPV victims and represents extreme control over the victim by the perpetrator (McKay, 2023; Petreca et al., 2023; Stansfield & Williams, 2021). However, little is known about the prevalence of strangulation within IPV incidents due to the lack of literature in the area (Glass et al., 2008; Thomas et al., 2014). Of the available studies, it is estimated that the number of women who experience non-fatal strangulation is at least 10%, and could be as high as 68%, for women with a history of IPV depending on the location and study sample (Campbell et al., 2007; Garza et al., 2021; Glass et al., 2008; Zilkens et al., 2016). Of those, only about 10% actually reported the strangulation to law enforcement (Bates, 2008; Cole, 2004; Funk & Schuppel, 2003).

The prevalence and rate of injury from intimate-partner violence-related strangulation (IPVRS) is largely unknown because victimization is routinely underreported and only approximately 29% of victims receive medical intervention following strangulation (Cole, 2004; De Boos, 2019; Wilbur et al., 2001). IPVRS injuries are especially difficult to detect and treat for a variety of reasons. First, little is known about the injuries that result from strangulation (Sheridan & Nash, 2007). Second, injuries from intimate partner violence, and strangulation in particular, may not be visible to first responders (Oehme et al., 2016; Pritchard et al., 2018). In fact, many strangulation victims show no visible signs or symptoms because asphyxiation by strangulation takes relatively little pressure to the neck (Bates, 2008; Faugno et al., 2013; Pritchard et al., 2018; Strack & McClane, 1998b). Victims who report strangulation frequently present with what appears to be minor or non-visible, external injuries that may go unrecognized by first responders who do not have specialized knowledge regarding the unsuspecting signs and harmful consequences of strangulation. In fact, strangulation victims often suffer from considerably more serious, internal injuries that have long-lasting health outcomes, including increased mortality (De Boos, 2019; Gwinn et al., 2014; Wilbur et al., 2001). According to Harning (2015), the initial strangulation victim presentation to medical and law enforcement responders is not a reliable predictor of the medical outcome. It is well documented that strangulation signs and symptoms are often subtle and unnoticed, or underappreciated, by first responders, medical personnel and victims themselves (De Boos, 2019; Harning, 2015; Strack, Gwinn, Hawley, et al., 2014).

In strangulation, loss of consciousness can occur within 10 seconds from a pressure of only 11 pounds per square inch, and brain damage and brain death can occur within three to five minutes at this pressure (Bates, 2008; Sorenson et al., 2014). IPV offenders who strangle

victims often do not intend to kill the victim, but do so to extend the cycle of power and control (Gwinn et al., 2014; Pritchard et al., 2018; Strack, Gwinn, Fineman, et al., 2014; Strack, Gwinn, Hawley, et al., 2014; Strack & Gwinn, 2011; Thomas et al., 2014). Although the offender may not initially intend to kill the victims, strangulation can quickly escalate to homicide (Block, 2004; Campbell et al., 2003; Glass et al., 2008).

Studies indicate that victims of intimate partner violence strangulation (IPVRS), have an increased risk of homicide and are almost seven and a half times more likely to die at a later time from their abusers (Block 2004; Campbell et al. 2003; Glass et al. 2008; Strack, Gwinn, Fineman, Green, Smock, and Riviello 2014). In addition to the increased risk of lethality for IPV victims, studies and anecdotal evidence indicate that men who strangle their partners are also more likely to assault and kill law enforcement officers (Gwinn et al. 2014; Johnson 2011; Stone 2015). Due to the possibility of adverse medical outcomes and the potential lethality of strangulation, it is important to build capacity among first responders to: recognize the signs and symptoms of IPVRS, understand delayed medical complications, provide appropriate treatment and transport, and properly document signs/symptoms for potential prosecution (Harning, 2015). Early detection of strangulation and appropriate medical intervention can provide critical information for first responders to prioritize service decisions, improve victim medical outcomes, and enhance IPVRS evidence collection (Gwinn et al., 2014; Reckdenwald et al., 2022; Strack & McClane, 1998b).

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CHAPTER II: LITERATURE REVIEW

Existing literature clearly supports the need for strategies to address the problem of strangulation within Intimate Partner Violence (IPV) incidents. Approximately 2,000,000 injuries and 1,300 deaths result from intimate partner violence (IPV) incidents in the U.S. (Oehme et al., 2016). In fact, it is estimated that between 22%-35% of women who visit the emergency room are there for problems related to IPV, and one out of every three female trauma patients is a victim of IPV (Oehme et al., 2016).

Strangulation is experienced by many IPV victims. Strangulation occurs when the neck and/or upper torso of an individual is compressed in a manner that impedes airflow or blood circulation (Pritchard et al., 2017; Reckdenwald et al., 2022). However, little is known about the prevalence of strangulation within IPV incidents due to the lack of literature in the area (Glass et al., 2008). Of the available studies, it is estimated that the number of women who experience non-fatal strangulation is at least 10%, and could be as high as 68%, for women with a history of IPV depending on the location and study sample (Campbell et al., 2007; Garza

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Victims who report strangulation frequently present with what appears to be minor or non-visible, external injuries that may go unrecognized by first responders who do not have specialized knowledge regarding the unsuspecting signs and deleterious consequences of strangulation (Garza et al., 2021). In fact, strangulation victims often suffer from considerably more serious, internal injuries that have long-lasting health outcomes, including increased mortality (De Boos, 2019; Gwinn et al., 2014; Monahan et al., 2022; Wilbur et al., 2001). Strangulation can also result in a brain injury and some research suggests that IPV-related traumatic brain injury (TBI) also exists in IPVRS victims (Adhikari et al., 2023; Iverson et al., 2019).

According to Harning (2015), the initial strangulation victim presentation to medical and law enforcement responders is not a reliable predictor of the medical outcome. Strangulation signs and symptoms are often subtle and unnoticed, or underappreciated, by first

responders, medical personnel and even victims themselves (Garza et al., 2021; Harning, 2015). Even in a strangulation homicide, little external injury may be present and only detectible in an autopsy (Turkel, 2005). Given the frequency of strangulation, medical professionals need additional training on the proper evaluation and management when strangulation is suspected (Stellpflug et al., 2022).

In strangulation, loss of consciousness can occur within 10 seconds from a pressure of only 11 pounds per square inch, and brain damage and brain death can occur within three to five minutes at this pressure (Bates, 2008; Sorenson et al., 2014). IPV offenders who strangle victims often do not intend to kill the victim, but do so to extend the cycle of power and control (Gwinn et al., 2014; McKay, 2023; Pritchard et al., 2017; Strack, Gwinn, Fineman, et al., 2014; Strack, Gwinn, Hawley, et al., 2014; Strack & Gwinn, 2011; Thomas et al., 2014). Although the offender may not initially intend to kill the victims, strangulation can quickly escalate to homicide (Block, 2004; Campbell et al., 2003; Glass et al., 2008). Studies indicate that victims of intimate partner violence strangulation (IPVRS), have an increased risk of homicide and are almost seven and a half times more likely to die at a later time from their abusers (Block 2004; Campbell et al. 2003; Glass et al. 2008; Strack, Gwinn, Fineman, Green, Smock, and Riviello 2014). In addition to the increased risk of lethality for IPV victims, studies and anecdotal evidence indicate that men who strangle their partners are also more likely to assault and kill law enforcement officers (Gwinn et al., 2014; Johnson 2011; Stone 2015).

Due to the possibility of adverse medical outcomes and the potential lethality of strangulation, it is important to build capacity among first responders to: recognize the signs and symptoms of IPVRS, understand delayed medical complications, provide appropriate treatment and transport, and properly document signs/symptoms for potential prosecution

(Harning, 2015). Early detection of strangulation and appropriate medical intervention can provide critical information for first responders to prioritize service decisions, improve victim medical outcomes, and enhance IPVRS evidence collection (Gwinn et al., 2014; Peterson & Bialo-Padin, 2012; Pritchard et al., 2018; Reckdenwald et al., 2019, 2022; Strack & McClane, 1998b).

CHAPTER III: OVERVIEW OF THE BURLESON ORDINANCE, STRANGULATION PROTOCOL & IMPLEMENTATION

Ordinance Background

Events at the national, state, and local levels have brought increasing attention to the problem of intimate partner violence related strangulation (IPVRS). In 2009, the State of Texas amended the Penal Code to increase penalties in family violence cases involving impeding breath (Texas Penal Code §22.01, n.d.). As a result, impeding breath and/ or circulation during an IPV incident was elevated to a third-degree felony punishable by two to ten years in prison for a first offense.[2] In 2014, the International Association of Chiefs of Police (IACP) addressed the seriousness of strangulation in IPV incidents through a resolution stating:

> This resolution supports statutes and legislation that hold perpetrators accountable for the potentially lethal strangulation assaults. It also supports policy and training content guidelines, documentation forms and processes, and multi- disciplinary partnerships for law enforcement that specifically address the occurrence, signs, symptoms, effective investigation, and the increased lethality of the power and control dynamics of strangulation assaults in cases of domestic and sexual violence. (2014, p. 3)

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[2] (B) "…the offense is committed by intentionally, knowingly, or recklessly impeding the normal breathing or circulation of the blood of the person by applying pressure to the person's throat or neck or by blocking the person's nose or mouth." In some instances, strangulation may still be charged as a misdemeanor or an aggravated assault, depending on the facts and circumstances of the offense (Texas Penal Code §22.01).

Burleson stakeholders became aware of the resolution (International Association of Chiefs of Police, 2014) addressing IPVRS (see Appendix A) and the dangers of strangulation through the work of the Training Institute on Strangulation Prevention. Recognizing that IPVRS was an increasing danger to victims, and a more formal response was warranted, strangulation was formally addressed at the community level in the Burleson Public Safety Committee Meeting on August 14, 2017. During this meeting, stakeholders formed a multi-jurisdictional Strangulation Task Force (STF) to address IPVRS. In keeping with the multidisciplinary spirit of the IACP resolution, the STF involved representatives from Police, Fire, MedStar Mobile Healthcare (MedStar)[3], former City of Burleson Mayor - Ken Shetter, and the Johnson County and Tarrant County District Attorney's Offices. The STF opted for the use of an Ordinance to address IPVRS and after several revisions the final version of the "Effective Response to Strangulation" ordinance was approved by the Burleson City Council on January 22, 2018, and then signed and enacted on February 19, 2018 (see Appendix B).

Overview of the Ordinance

In Sec. 54-181 of the Ordinance (Effective Response to Strangulation CSO#781-02-2018, 2018) strangulation is defined as "…impeding the normal breathing or circulation of the blood of the person by applying pressure to the person's throat or neck or by blocking the person's nose or mouth" and includes the following provisions:

- A defined protocol that mandates the use of a comprehensive screening instrument.
- A defined protocol directing that when the act of strangulation is alleged or suspected, Burleson police must summon emergency medical personnel (Burleson Fire Department or MedStar) to respond to the scene of the victim for medical evaluation and treatment.

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[3] The Ordinance and strangulation protocol only applies to BPD and BFD because MedStar personnel are not employees of the City of Burleson. For this reason, BFD handles the strangulation protocol with support from MedStar as needed. BFD and MedStar already work collaboratively to provide patient care across a wide spectrum of crime incidents that involve injury.

- Training for first responders (police, fire, and emergency medical personnel).
- Newly designed assessment instruments to improve the identification of strangulation.
- Specific intervention strategies for strangulation across multiple agencies.

Strangulation Task Force (STF)

The Ordinance also directs the chief of police to designate a strangulation task force (STF) consisting of members from law enforcement, emergency medical personnel, medical community personnel, advocate representatives, and any other members deemed appropriate by the Burleson chief of police. Following the passage of the Ordinance, the STF assisted in the development and implementation of checklists, questionnaires, and an education training program for peace officers, emergency medical personnel, and other first responders encountering strangulation scenarios (Effective Response to Strangulation CSO#781-02-2018, 2018).

Strangulation Protocol

In Section 54-182 of the Ordinance (Effective Response to Strangulation CSO#781-02-2018, 2018) a specific strangulation protocol must be followed by first responders:

(a) When the act of strangulation is alleged or suspected within the city, the peace officer will summon emergency medical personnel to the scene to evaluate and render aid to the victim.
(b) The peace officer will document emergency medical personnel's presence and role in the police report by including their name, identification number, employment agency and unit number.
(c) Peace officers shall provide the victim referral information to the appropriate support agency for assistance and document the referral in their police report.
(d) Peace officers will thoroughly document the suspect's behavior, actions, and any comments made during the act of strangulation.

(e) When the act of strangulation is alleged or suspected within the city, peace officers shall utilize a checklist approved by the chief of police to help evaluate the situation and provide aid to the victim.

(f) When the act of strangulation is alleged or suspected within the city, emergency medical personnel shall conduct a medical evaluation and assessment to help evaluate the situation and provide aid to the victim.

Overview of BPD Strangulation Response

When BPD responds to a family violence incident,[4] the first-responding officer secures the scene, identifies incident participants, and looks for cues that may indicate that strangulation was present. Once strangulation is alleged or suspected, the strangulation protocol dictates that officers complete a sequence of specialized strangulation questions that are embedded in a family violence packet (FVP) that officers complete for most family violence crimes. These questions include:

- Has the suspect strangled or choked you in the past?
- Were you able to see the suspect while you were being choked?
- What was used to strangle/choke you?
- Did the suspect say anything before/during/ or after strangling you?
- Why did the suspect stop strangling you?
- Was medical personnel called to the scene (Fire or Ambulance)?

In addition, BPD is required to notify and request BFD to make scene so that they can medically assess the strangulation victim and render aid if appropriate.

Overview of BFD Strangulation Response

Response to an IPVRS call by BFD is typically initiated by a request from BPD unless there was another medical emergency at the time of the initial call that necessitates their presence. For this reason, BFD is unable to complete their portion of the strangulation protocol without BPD recognizing strangulation occurred and then requesting a medical response. Once on scene, BFD medical personnel complete a standardized 21 item injury assessment (visible and

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[4] In Texas, family violence is inclusive of domestic violence, intimate partner violence, and dating violence (Texas Department of Public Safety, 2018, p. 40).

non-visible) using the BFD Strangulation Protocol Worksheet (hereinafter BFD Worksheet) that was designed and implemented after the passage of the Ordinance. BFD Worksheet information (see Appendix C) is then entered via an iPad/tablet in the field and the data is uploaded into the electronic patient care report system. Depending on the situation and condition of the strangulation victim, BFD will recommend transport by MedStar for additional hospital screening and treatment or encourage follow up with a medical provider. At the request of the police department, worksheet information and the run report are provided to support the investigation and eventual prosecution of the crime.

Ordinance Non-Compliance

A key element of the Ordinance is how it addresses non-compliance whereby violators can be punished through administrative means (by the city manager or the city manager's designee). The imposition of a penalty for Ordinance non-compliance is not a criminal conviction but the penalty provided in the Ordinance is cumulative of other remedies provided by state law (Effective Response to Strangulation CSO#781-02-2018, 2018).

CHAPTER IV: METHODOLOGY

Overarching Research Questions, Study Goals, & Evaluation Phases

There were several overarching research questions and goals guiding the study. First, law enforcement and first responders lack an evidence-based approach to IPVRS despite research demonstrating the serious risk to victim safety and well-being. The study also examines how the new Ordinance and strangulation protocol affect outcomes for IPVRS victims. Second, without proven strategies for addressing IPVRS, victims may be less likely to engage with the criminal justice system. Does the new Ordinance increase victim engagement in the Criminal Justice

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System? Third, anecdotal research indicates that officers responding to IPVRS incidents may be at greater risk for assault and serious injury. The final overarching research question examines: Are officers responding to IPVRS incidents more likely to be assaulted and injured than other IPV incidents?

By addressing these general questions and the specific research questions informing the process and outcome evaluations, the study seeks to achieve the following goals:

(1) Support the development of innovative strangulation reduction efforts through research.
(2) Advance the scientific literature on the severity and risk associated with intimate partner violence strangulation for both victims and law enforcement officers.
(3) Identify strategies to increase victim engagement in the criminal justice system as it pertains to IPVRS.

To determine the effectiveness of the Burleson Ordinance and strangulation protocol, the National Institute of Justice (NIJ) provided support for a full program evaluation that progressed across three research phases: (1) an evaluability assessment; (2) a process evaluation, and (3) an outcome evaluation. This technical research report concentrates on the methods and findings supporting the outcome evaluation; however, a brief review of the other research phases is included to orientate the reader to the broader study.

Research Sites & Collaborating Organizations

The evaluation includes two jurisdictions: one Texas treatment location (Burleson, Texas), and one Control Site in Johnson County.[5] Both selected sites participated in all aspects of the project and provided data throughout the study. Burleson is located near Fort Worth, Texas. As shown in Table 1, Burleson has been growing steadily since 2016, with a current population of 58,771 with an average median average income of $79,692 over the study period. In 2020,

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[5] The identity of the Control Site will remain anonymous for reporting and data archiving purposes. NIJ approved this research site.

most of the Burleson population was White (77%) with Hispanic/Latinos (19%) and Blacks (4%) and these percentages were relatively steady through the duration of the study (ACS, 2024). During the study period, the Burleson Police Department employed an average of 61.8 police officers and 46.6 fire fighters. The service jurisdiction for both agencies covers approximately 30 square miles (Burleson Fire Department, 2024; Burleson Police Department, 2024; U.S. Census Bureau, 2024).

While it is impossible to control all possible environmental effects, we selected a comparable Control Site. Both research sites are Commission on Accreditation for Law Enforcement Agencies (CALEA®) certified, located in Johnson County, Texas and are generally comparable across agency size, city square miles, family violence incidents, violent and property crime, as well as comparable across several socio-demographics indicators (U.S. Census Bureau, 2024). Some notable exceptions: (1) Burleson residents earn a higher median income ($85,655 in 2020) than the Control Site residents ($54,302 in 2020); (2) Burleson residents are more educated; and (3) Burleson is somewhat unique because it traverses two counties—Johnson County and a small pocket of Tarrant County that is roughly 2.27 square miles and constitutes roughly 7.7% of the city (City of Burleson GIS Division - Information Technology Department,

[Table on next page]

Table 1. *Burleson and Control Site Comparisons*

	Burleson and Control Site Comparisons During Study Period				
	2016	**2017**	**2018**	**2019**	**2020**
# Sworn Officers					
Burleson	61	60	62	61	65
Control Site	52	50	49	52	52
# Fire Fighters/EMTs					
Burleson	40	47	48	49	49
Control Site	63	63	63	63	63
Family Violence Incidents[6]					
Burleson	248	224	255	285	314
Control Site	267	273	263	271	316
Violent Crime					
Burleson	84	94	133	84	110
Control Site	87	69	77	87	104
Property Crime					
Burleson	843	919	776	843	788
Control Site	765	700	543	765	524
Population					
Burleson	45,166	46,531	47,612	48,743	51,167
Control Site	30,069	30,320	30,317	30,860	32,248
Race/Ethnicity					
Burleson	White: 82%	White: 82%	White: 80%	White: 79%	White: 77%
	Black: 4%	Black: 4%	Black: 4%	Black: 4%	Black: 4%
	Hisp.: 14%	Hisp.: 15%	Hisp.: 17%	Hisp.: 18%	Hisp.: 19%
Control Site	White: 79%	White: 79%	White: 77%	White: 77%	White: 76%
	Black: 5%	Black: 5%	Black: 5%	Black: 5%	Black: 5%
	Hisp.: 18%	Hisp.: 18%	Hisp.: 18%	Hisp.: 19%	Hisp.: 20%
Education					
Burleson					
High School+	88%	90%	91%	91%	91%
Bachelor's	23%	23%	24%	24%	26%
Degree+					
Control Site					
High School+	80%	81%	82%	83%	83%
Bachelor's	15%	15%	15%	16%	17%
Degree+					
Median Age in Years					
Burleson	35.4	35.7	36.2	36.5	36.7
Control Site	34.6	34.9	35.1	35.2	35.3
Median Average Income					
Burleson	$68,758	$72,305	$72,335	$79,407	$85,655
Control Site	$48,237	$48,590	$50,788	$52,178	$54,302
City Square Miles					
Burleson	26.1	26.9	27.7	28.6	30.0
Control Site	30.5	30.8	31.3	32.0	33.5

Note: Data from the Burleson and Control Site Fire Departments, (Texas Department of Public Safety, 2024; U.S. Census Bureau, 2024; U.S. Department of Justice Federal Bureau of Investigation, 2024a, 2024b).

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[6] These statistics were taken from the Texas Department of Public Safety so that reporting was standardized from the same source for the two research sites. These statistics also represent *all forms of family violence* and are not exclusive to IPV.

personal communication, May 8, 2024). The Control Site by contrast is exclusively located in Johnson County.

Other collaborating agencies involved in the STF included MedStar Health Services and One Safe Place (OSP). Because employees of MedStar and OSP are not city employees, neither agency is governed by the Ordinance; however, both agencies provide important system supports that were relevant to the study. MedStar provides mobile healthcare and emergency services to thirteen cities within Tarrant County, including Burleson (MedStar, 2024). MedStar is an administrative governmental agency formed through the creation of an Interlocal Government Cooperating Agreement between Fort Worth and the thirteen other member cities in North Central Texas. MedStar was the main emergency and non-emergency ambulance provider for Burleson during the study time frame and maintains accreditation from the Commission on Accreditation of Ambulance Services (MedStar, 2024).

It is well known that not all victims seek a criminal justice response (Hart & Klein, 2013), and so, the research team involved One Safe Place (OSP), a Family Justice Center in Fort Worth that provides coordinated and centralized family violence services across 23 partners (One Safe Place, 2024). OSP serves a diverse population of clients from across Tarrant and Johnson counties and uses an array of assessments to determine the presence of strangulation amongst their clients that are relevant for consideration as it allowed the research team to identify how many Burleson victims were not seeking police intervention for IPVRS in Burleson and for those who did, whether aspects of the protocol were followed.

Evaluation Plan Overview

Evaluability Assessment Methodological Overview

The evaluability assessment (EA) reviewed the evaluation and research readiness of the Burleson intervention (i.e., Ordinance and strangulation protocol) and Control Sites. First and foremost, the Ordinance and strangulation protocol were well underway during the EA phase of the research project because the intervention was implemented prior to applying for and receiving the NIJ grant. Ideally researchers are involved in the planning stages of an intervention to help inform policy, practice, training, and record keeping in ways that are conducive to future evaluation (Davis 2013; Van Voorhis and Brown 2019). However, fielding an EA during an active project does afford researchers the opportunity to "see" the Intervention in progress and provide feedback on strengths and growth areas before further research (Peersman, et al., 2015). Second, during the EA process, the research team discovered that the initial Control Site was not suitable for comparison to the Intervention location. This required the identification of a new Control Site, additional site visits, and a new additional evaluability assessment.

The goals of the EA were to:

(1)   Establish whether the planned process (Phase II) and outcome evaluation (Phase III) should proceed based on: (a) the adequacy of the Intervention design (e.g., is it plausible and does it have utility?), (b) monitoring and accountability (e.g., the ability of stakeholders to maintain and monitor fidelity of the Intervention); and (c) institutional capacity to support the evaluation (e.g., resources, staff availability).
(2)   Determine if modifications to the evaluation methodology are required and develop strategies to accomplish evaluation goals.
(3)   Make suggestions regarding the improvement of the current Intervention design prior to the implementation of Phase II – Process Evaluation.

To accomplish the goals of the EA, the research team designed and executed a two-pronged methodology based on: (1) extant document and policy review; and (2) site visits and semi-structured interviews with stakeholders representing key partner agencies (i.e., police, fire, OSP,

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MedStar) associated with the strangulation protocol or the Control Site. Additional information about EA methodology is available in the Evaluability Assessment report.

Process Evaluation Methodological Overview

The process evaluation examined the development of the Ordinance, implementation, management, modifications, and fidelity to the strangulation protocol. Research questions for the process evaluation questions included:

    (1) Is the initiative being implemented, operated, and managed as designed?
    (2) What challenges have agencies faced collecting and sharing data on IPV Strangulation?
    (3) Is there a quality assurance and fidelity monitoring system in place to assess the operation of the initiative?
    (4) Is there sufficient agency financial, administrative, and technical support for the initiative?
    (5) Has staff received adequate training?
    (6) Is there support for the initiative from other organizations?
    (7) Are there formal or informal agreements with collaborating agencies to assist with the Protocol?

The research questions for the process evaluation were addressed with both qualitative and quantitative methods and produced a diverse array of data (see Figure 1 below). The research team conducted semi-structured interviews, reviewed extant documents, fielded multiple surveys, reviewed police case files and fire department worksheet data for strangulation incidents, and conducted observations of body camera footage to learn more about how the Ordinance and strangulation protocol operate in practice. To assess program fidelity, the research team drew on several sources that included: review of police case files and family violence packets, victim assistance spreadsheet and flagged fidelity cases, the BPD self-monitoring fidelity spreadsheet, OSP survey of clients regarding strangulation and medical care (with a focus on Burleson clients if known), body camera observations, and information from MedStar. The use of triangulation allowed for the contextualization of research findings in the process

evaluation and informed the development of data collection instruments for the outcome

evaluation. Additional information about the process evaluation methodology is available in the

process evaluation report.

Figure 1. *Overview of Process Evaluation Methods and Data*

Review of Case Files & Extant Documents	Victim Assistance Spreadsheet	Body Camera Observations
Process Evaluation Interviews	**Process Evaluation Survey**	**First Responder Training Survey**
OSP Strangulation Survey	**Victim Survey**	**BFD Worksheet Data**
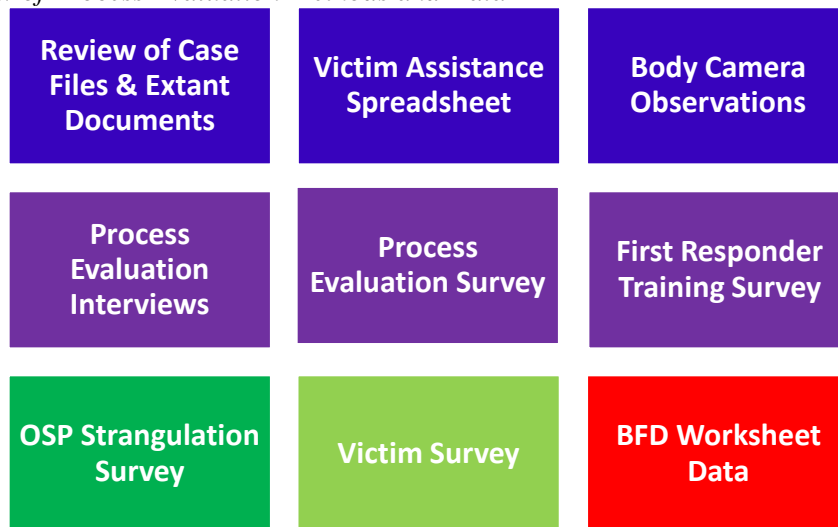
Outcome Evaluation Overview

The outcome evaluation uses a matched comparison pre-posttest quasi-experimental

design to examine the effectiveness of the Ordinance on an array of expected outcomes tied to

seven research questions (RQ). These include:

(1) Does the Protocol increase the number of victims identified by law enforcement as high-risk for IPVRS victimization?
(2) How does the Protocol affect the number of located high-risk victims?
(3) Does the Protocol improve the detection of IPV strangulation by medical first responders?
(4) Does the Protocol improve the number of arrests related to IPV strangulation crimes?
(5) Do identified victims have more engagement with the criminal justice and other service providers because of the Protocol?
(6) Are officers in Burleson more knowledgeable about signs and symptoms associated with IPVRS compared to officers working in jurisdictions without a specialized protocol?
(7) Do officers experience injuries when responding to IPV strangulation crimes?

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These research questions were tested across the pre- and post-ordinance groups in Burleson (January 1, 2016-March 5, 2018) and across the post-ordinance period (March 6, 2018-December 31, 2020) in both Burleson (treatment) and the control group. Data for this study were collected from multiple agency partners who provided data or access to data from official sources in Burleson, TX and a comparable control site location. This included the Burleson Police Department, Burleson Fire Department, MedStar, Control Site Police Department, and Control Site Fire Department. Like the process evaluation, both qualitative and quantitative methods were utilized to collect and analyze data on a range of outcome variables. Each will be described in greater detail in the following sections of the report beginning with the quantitative methods.

Quantitative Data Collection: Incident Reports and Case File Data

To collect incident level data on the population of IPV-strangulation incidents reported to police from January 1, 2016, to December 31, 2020, in Burleson, Texas and a comparable control site location, researchers collaborated with crime analysts at both police partner locations. Cases that met at least one of the following criteria were included in the initial incident list: (1) the case was identified as family violence (FV) in the Records Management System (RMS) *and* involved an intimate partner victim-suspect dyad (IPV);[7] (2) the offense was listed as *impede breath*[8] on

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[7] Relationship codes in the police partner's RMS system that constitute IPV included: BG (boyfriend); GF (girlfriend); CS (common law spouse); SE (spouse); XS (ex-spouse); and HR (homosexual relationship).
[8] Impeding the breath of another or impede breath is defend under Texas law in Section 22.01 - Assault(a) A person commits an offense if the person:(1) intentionally, knowingly, or recklessly causes bodily injury to another, including the person's spouse;(2) intentionally or knowingly threatens another with imminent bodily injury, including the person's spouse; or (3) intentionally or knowingly causes physical contact with another when the person knows or should reasonably believe that the other will regard the contact as offensive or provocative.(b) An offense under Subsection (a)(1) is a Class A misdemeanor, except that the offense is a felony of the third degree if the offense is committed against:(1) a person the actor knows is a public servant while the public servant is lawfully discharging an official duty, or in retaliation or on account of an exercise of official power or performance of an official duty as a public servant;(2) a person whose relationship to or association with the defendant is described by Section 71.0021(b), 71.003, or 71.005, Family Code, if:(A) it is shown on the trial of the offense that the defendant has been previously convicted of an offense under this chapter, Chapter 19, or Section 20.03, 20.04, 21.11, or 25.11

the incident report in RMS; and/or (3) just for the Burleson site, the case was flagged as

strangulation in RMS.[9] Incidents were excluded from the study under the following

circumstances: (1) the case was not identified as family violence in RMS; (2) RMS did not list a

relationship between the victim and the suspect or if the relationship was unclear (e.g.,

relationship unknown, acquaintance, otherwise known);[10] (3) the case was unfounded; and/or (4)

the alleged or suspected strangulation occurred in a jurisdiction other than Burleson or the

Control Site.[11] After applying these eligibility criteria, the research team was left with a list of

867 IPV incidents reported in Burleson and 833 IPV incidents reported to the Control Site.

Incidents in the initial case lists from each site were reviewed to determine if the incident

involved an *alleged or suspected strangulation* and were therefore eligible for inclusion in the

study. Strangulation was identified in one of multiple ways: (1) official indicators in RMS (i.e.,

impede breath offense, impede breath charge, RMS strangulation flag, Burleson FVP

strangulation indicators), or (2) through content in the case file narrative documents indicative of

strangulation. PIs read all contents of incident in the electronic RMS file (i.e., officer narratives

and supplements, witness/suspect statements, family violence packet, CAD notes) for reference

to or descriptions of alleged or suspected strangulation. Explicit use of the term "strangulation"

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against a person whose relationship to or association with the defendant is described by Section 71.0021(b), 71.003, or 71.005, Family Code; or **(B) the offense is committed by intentionally, knowingly, or recklessly impeding the normal breathing or circulation of the blood of the person by applying pressure to the person's throat or neck or by blocking the person's nose or mouth**.

[9] The RMS strangulation flag did not exist at the Control Site and was only used in the post-ordinance timeframe for the Burleson site.

[10] Relationship codes that did not constitute intimate partners or where the nature of the relationship was unclear include ST (stranger), RU (relationship unknown), FR (friend), AQ (acquaintance), and OK (otherwise known). Cases with missing relationship codes were also excluded from inclusion in the study.

[11] Occasionally, a crime incident was reported to the Burleson Police Department or to the Control Site Police Department where officers documented in the incident report that the crime did not physically occur in their service jurisdiction. It is not uncommon for crime victims to seek help from an agency as a form of safe haven from an offender (i.e., crime happened earlier in the day somewhere else, but they seek help later) or for some to confuse which police department to make a non-emergency report to—particularly in an area with several police agencies in close proximity (i.e., incidents reported directly to the agency and not through the 911 system).

in the case file was not necessary for designation of IPVRS and inclusion in the study because survivors and others often reference strangulation as "choking," or "chokeholds" "headlocks" "neck hold" and similar terminology to refer to pressure applied to the neck in some manner.[12] Cases were also carefully scanned for victim injury consistent with the signs and symptoms of strangulation (see Garza et al., 2021) for a similar methodological approach). As a validation step for identifying the population of strangulation incidents for this study, officer narratives were uploaded into NVivo and qualitatively analyzed using the search terms "choke/choking/choked, strangle/strangulation/strangling/strangled and impede breath." This produced a population of strangulation incidents reported in Burleson ($n = 272$) and the Control Site ($n = 139$) for additional review. Once the population of cases in the treatment and control group were identified, response data from medical agency partners was collected (see below for additional details). The process for establishing strangulation case eligibility in the outcome evaluation is discussed in the next subsections.

Determination of Strangulation Case Eligibility for Outcome Analysis

Two figures clarify how the IPVRS incidents were selected for each site. Each figure illustrates the case selection process (and explains case attrition) for the two components of the outcome evaluation: (1) Burleson pre and post-ordinance analyses, and (2) Burleson/Control Site comparisons.

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[12] This designation is consistent with the national Training Institute on Strangulation Prevention's operationalization of strangulation whereby any pressure to the neck that blocks airflow, blood flow, or both qualifies as strangulation (Training Institute on Strangulation Prevention, 2019). This designation is also consistent with the Ordinance definition of strangulation that indicates: *"Strangulation means impeding the normal breathing or circulation of the blood of the person by applying pressure to the person's throat or neck or by blocking the person's nose or mouth"* (Effective Response to Strangulation CSO#781-02-2018, 2018).

Burleson Pre-Post Analysis. Figure 2 illustrates the process for selecting and retaining cases in the Burleson pre-post analysis beginning with the initial case list of 867 family violence incidents involving intimate partners ($n = 354$ pre and $n = 513$ post). These cases were inspected and only incidents with indicators of IPVRS were retained. The resultant Burleson pre-post strangulation population ($N = 272$) was further reduced using a standardized coding instrument (described in greater detail in the next section) and additional consideration based on when each case was reported relative to the strangulation ordinance and the timing of the strangulation as gleaned from the comprehensive case file review.

Of the population IPV strangulation cases reported during the study period ($N = 272$), 71 were reported before the Ordinance was passed ("pre-ordinance") and 201 were reported after the ordinance ("post-ordinance"). The 7-day policy change implemented by first responders during the post-ordinance period directly affected the conditions under which a strangulation incident triggered the strangulation protocol as outlined in the Ordinance. Specifically, after the 7-day policy change, only incidents with "current" strangulation or those where the alleged or suspected strangulation took place within a 7-day period relative to the incident report date were protocol-eligible and required a medical response. This change was accounted for and studied in the process evaluation, but it had consequences for the outcome evaluation. Specifically, any IPVRS incident involving an "old" strangulation was no longer comparable to the post-ordinance cases as an observation in the data. All outcome analyses examine the treatment effect of the Ordinance employed strangulation cases classified as "current' strangulation events. Accordingly, 85 cases were excluded from the outcome evaluation. The final population of current IPV-strangulation cases in Burleson was 187 incidents.

Figure 2. *Strangulation Incident Selection for Burleson Pre/Post Comparisons*
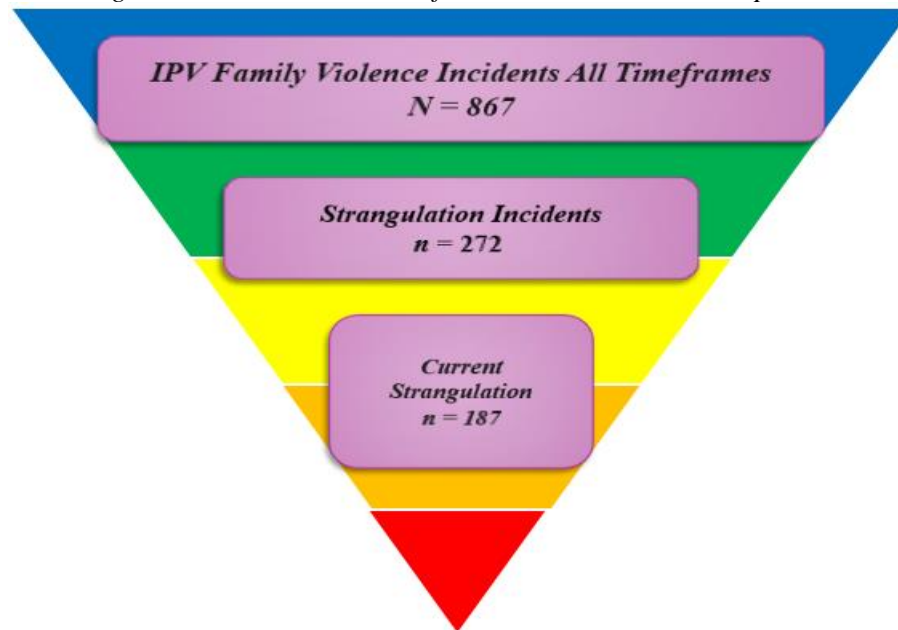
Control Site Comparison Analysis. Outcome eligibility for the Burleson/Control Site comparison involved two important caveats. First, these comparisons only involved current IPVRS incidents reported during the post-ordinance timeframe. Second, incidents reported in Burleson but that took place in Tarrant County (*n* = 14) were removed from the control comparison subsample to hold constant county-level factors that may have impacted the outcome analysis. Figure 3 below presents the attrition process for selecting cases at the Control Site for the Burleson/Control comparison analysis.

An initial list of 833 family violence incidents involving intimate partners reported to the Control Site police department (353 pre and 480 post) was reduced using the same process described above to remove cases that did not involve strangulation.[13] This produced a population of 139 IPVRS cases in the control sample. To maintain consistency in the control group for the outcome comparison with Burleson, only "current" strangulation cases were retained, leaving a

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[13] While family violence packets were reviewed for Burleson cases, the Control Site does not use a Family Violence Packet.

sample of 135 "current" incidents for formalized coding with the same standardized coding

instrument (described in greater detail in the next section). Of the 135 current IPVRS incidents,

63 were reported during the pre-ordinance period and 72 were reported during the post-ordinance

period. To create a comparable counterfactual for outcome analyses with current strangulations

in Burleson and estimate the treatment effect of the Ordinance, only cases reported in the Control

Site during the post-ordinance period were retained ($n = 72$). Finally, the Burleson current

Figure 3. *Strangulation Incident Selection for Burleson and Control Site Comparisons.*
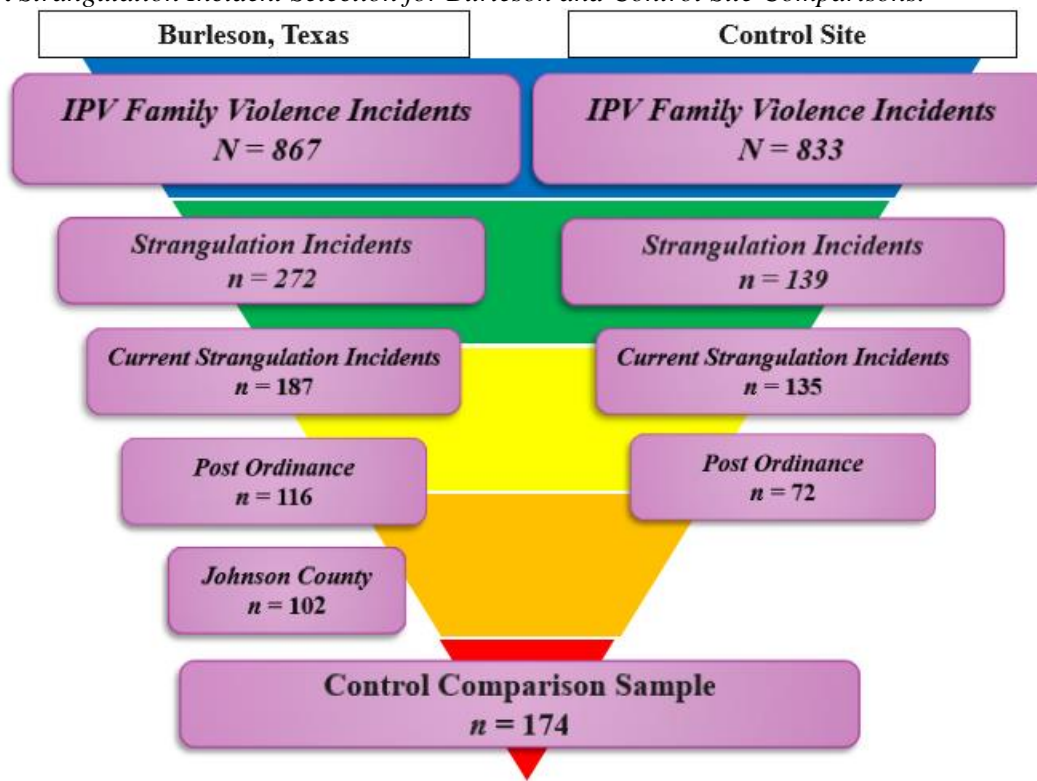
strangulation population was reduced so that only post-ordinance incidents were retained (n

=116) and only those post-ordinance incidents that occurred in Johnson County ($n = 102$). These

102 Burleson incidents were combined with the 72 Control Site incidents for a total of $n = 174$

cases used for the analyses involving Burleson/Control Site comparisons.

Police Case File Data Collection

Data were collected from the electronic case file in RMS using a coding instrument, created by the study PIs. Early in the study, the PIs piloted the instrument and revisions were made accordingly—refinement of the instrument was iterative. Coders carefully reviewed and coded available information about each IPVRS case in RMS (described above), including incident characteristics, details about the strangulation, victim and suspect information (e.g., relationship status), evidence collected by the police (e.g., photos), the presence of witness statements, and case outcomes (e.g., arrest). De-identified medical response data was collected directly from the medical providers involved in each respective city's incident response—the city fire departments and the private emergency and ambulatory medical services provider, MedStar. Data relevant for assessing fidelity to the Burleson Strangulation Ordinance requirements was also collected during the coding process.

Data were systematically collected with built-in redundancy and quality-control (QC) verification procedures to minimize error. Data coding and entry involved the PIs, six graduate research assistants, a detailed codebook, and weekly virtual meetings. First, case file details were extracted from RMS for each incident and redacted information was recorded on the paper coding instrument (CI) by two of the project's three PIs and one graduate research assistant (GRA). Depending on the length and complexity of each case, this initial data coding ranged from approximately 60 minutes to several hours per incident. The first QC data check involved a cursory review of the CI for each case. This included a visual inspection and reconciliation of the CI for obvious errors, inconsistencies, and missing data. During this first QC check, incident details were verified in RMS. Next, data were entered from the CI into SPSS 29.0 by trained GRAs. Two of the PIs also held recurring weekly virtual meetings with the GRAs to answer data

entry queries and address any data coding errors that were detected during the data entry process. Prior to data cleaning and analysis, SPSS data were systematically verified a third time in a QC process where a randomly selected number of cases in the dataset were validated against the corrected CI by a senior GRA. To prioritize data entry for the process evaluation, post-ordinance cases were coded and entered first, followed by pre-ordinance cases in Burleson and then the Control Site.

When all data had been coded, entered, and cross-checked, separate submaster data files were created and maintained for data cleaning of the pre-and post-ordinance case files. Case file data in the submaster data files were: (1) cross-validated and screened again for coding or data entry errors and inconsistencies, and (2) checked against CIs for accuracy verification. When coding inconsistencies were discovered in the SPSS dataset or on the CI, cases were set aside for correction with systematic RMS verification. Figure 4. diagrams the case file data collection process.

Figure 4. *Data Coding, Entry, and Cleaning Process for the Police Case File Data*
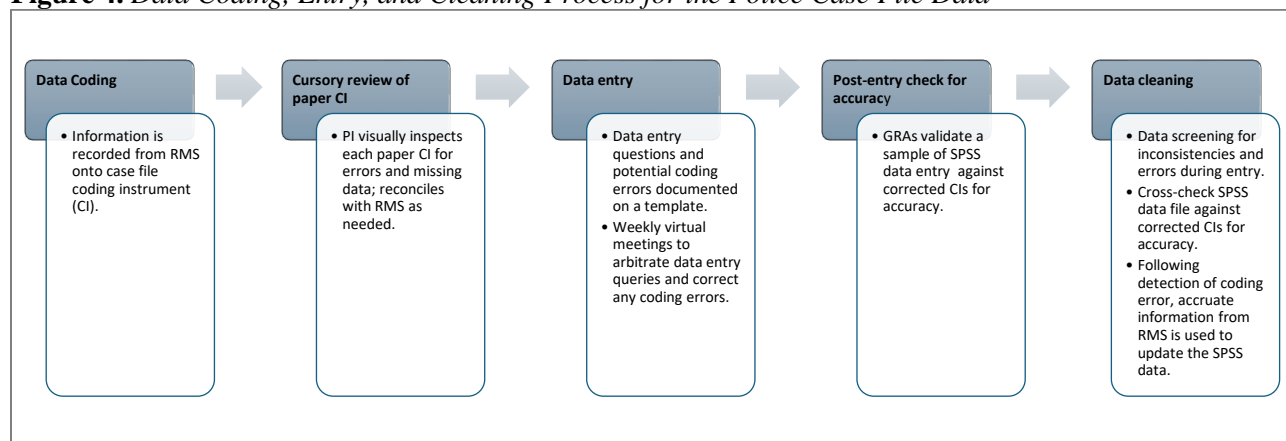
Medical Response Data Collection

During the study period, the key medical first responders for crime victims were the Burleson Fire Department (BFD), MedStar Mobile Health Care, and the Control Site Fire

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Department. All three agencies are staffed with paramedics and emergency medical technicians (EMTs). BFD delivers a range of emergency services and MedStar provides mobile healthcare ambulance services to Burleson residents; however, it is important to note that the Ordinance only applies to city employees and does not apply to MedStar or its employees. While the Ordinance did not directly apply to MedStar, their presence and the services they provide to IPVRS victims are an important feature of the study. The Control Site Fire Department also provides a range of emergency services to the community and operates its own ambulance service so there was no need to partner with an additional provider for the purpose of this study.

Medical services can only be rendered by first responders to IPVRS victims if they are requested on-scene by the police. For this reason, the process evaluation focused on fidelity related to the request and execution of medical services in the post-ordinance period as BFD could not implement it's part of the ordinance without being summoned first. The outcome evaluation expands this focus to examine several medical response outcomes that include presence, assessment/screening, treatment, AMA, and transport.

Information about medical responses from BFD, MedStar, and the Control Site Fire Department were collected from January 1, 2016, through December 31, 2020, to determine: (1) if the provider was on-scene, and (2) if any services were rendered to an IPVRS victim. During the process evaluation phase, researchers reviewed police incident reports and case files to collect information about medical presence and response to IPVRS incidents but found this data to be incomplete and inconsistent. For this reason, the three agencies provided the research team with deidentified information regarding each of the four key medical outcomes for IPVRS incidents (presence, assessment, treatment, AMA, and transport).

Measurement and Operationalization of Variables from Police Case Files

The CI contained items relevant for both process and outcome evaluations. This section focuses on variables captured from RMS for use in the outcome evaluation.

Dependent Variables for Police Case File Data

Police-Identified Strangulation (RQ1). One of the objectives of the robust police and medical response to strangulation was to increase first responder identification of strangulation during the incident response. To accomplish this, researchers were tasked measuring which cases in the population were "known" to police as strangulation. Because it was not possible to intuit what the police were thinking during the incident response (e.g., did the responding officer recognize and classify the case as strangulation?), this required creating observable and measurable criteria that were consistently and systematically captured in the data (and recorded by police) across the entire study period. Furthermore, any indicators had to be independent from the Ordinance to avoid confounding the outcome findings (e.g., specialized screening tools/worksheets that were used after the Ordinance to identify strangulation could not be used). Several objective and measurable indicators were identified in the police case files and then used to operationalize police-identified strangulation.

Impede Breath. Two official designations of impede breath in RMS were used to create part of the police-identified strangulation item. The first, *Impede Breath Incident* was a binary item (*Impede Offense:* No = 0, Yes = 1) that captured the responding officer's assessment and classification of the offense as Impede Breath (Assault Fam/House Mem Impede Breath/Circulation – PC 22.01(B)(2)(B)[F3]) on the crime incident report in RMS. Impede breath is a violent crime and recognized as a felony in Texas. Police use their discretion in deciding how to assign an offense on the incident report during the initial incident response. This

decision is based on the officer's assessment of: (1) what has transpired in the current incident, and (2) how the officer interprets this considering state law. The second official designation, *Impede Breath Charge* was also a binary item (*Chrg Impede*: No = 0, Yes = 1) that captured when a suspect was charged by police with impede breath. Note that an impede breath charge is conceptually independent from an impede breath arrest. While both often happen together, they can occur independently (e.g., impede breath charge was listed on an arrest warrant but no arrest was made at the time researchers coded the case). Additionally, officer narratives were screened for any one of the following key words to describe the event: choke/choked/choking or impede breath or strangle/strangulation/strangled/strangling (*PD Narrative STGL*: No = 0, Yes = 1). Inclusion of the narrative content provided a measurable way to capture when police may have recognized strangulation but did not officially designate an incident as strangulation using any of the more formalized indicators. Of note, narrative designations were limited to how police officials elected to describe and characterize the IPVRS incident in their report writing. This narrative designation, together with impede breath offense and impede breath charge was used to identify when an officer classified an incident as strangulation. The Burleson incident response included one additional indicator found in their Family Violence Packet that was used to augment the police-identified strangulation item for the Burleson pre-post analysis (*FVP DI Strangle*; see below for further details).

  Burleson Police-Identified Strangulation. Police-identified strangulation in Burleson for the pre-post analysis was captured through any one of the four possible indicators described above: (1) impede breath was listed as the criminal offense on the incident report in RMS; (2) the suspect was charged with impede breath; (3) the FVP "description of incident characteristic" was marked for "choking/strangulation;" or (4) the officer narrative contained any one of the

following key words to describe the event: choke/choked/choking, impede breath, or strangle/strangulation/strangled/strangling. Inclusion of this quantified narrative content provided a measurable way to capture when police may have recognized strangulation but did not officially designate an incident as strangulation using any of the other three more formalized indicators. Of note, narrative designations were limited to how police officers elected to describe and characterize the IPVRS incident in their report writing. If any of the four criteria were met, the incident was designated as "police-identified" for the Burleson pre-post analysis (*PD STGL Narrative PD3*: No = 0, Yes = 1).

Unlike Burleson, the Control Site does not screen family violence incidents with a family violence packet (FVP) instrument so this required the creation of a new variable that could be used for the Burleson/Control comparisons. *Control comparison police-identified strangulations* were captured using the two official RMS indicators described above (*impede breath* offense designation or *impede breath charge*) and the binary item that quantified when an officer narrative referenced the incident using any one of the terms: choke/choked/choking, impede breath or strangle/strangulation/strangled/strangling. These three items were aggregated to create a binary item for both the Burleson and Control site locations in the comparison analyses (*PD STGL Narrative PD2*: No = 0, Yes = 1).

Emergency Protective Orders (RQ2). Data on EPO requests and EPO requests that are granted by a magistrate were initially collected by researchers using information from the electronic case file in RMS. Due to considerable missing data, this strategy was abandoned in favor of an alternative approach that varied slightly at each police department. In Burleson, EPO requests and their respective outcomes were obtained directly from the victim assistance coordinator who searched files in the victim assistance unit and consulted official records

maintained by dispatch. The Control Site did not have a victim assistance coordinator to help collect and verify information about EPOs. Researchers worked with the Information Technology Department (IT) who created a repository of agency emails related to emergency protective orders. EPO request forms are sent via email and if granted by the magistrate, a notification is then sent to a central email address for the records and dispatch units. Researchers searched the content of these emails to identify and match cases where an EPO was requested and received. Both *EPO Requested* and *EPO Granted* were binary items (No = 0, Yes = 1).

On-Scene Medical Response (RQ3). Each of the key medical outcome variables were measured dichotomously (No = 0, Yes = 1) for on-scene presence, assessment, treatment, against medical advice (AMA), and transport (MedStar and Control Site FD only). *On-Scene* means the provider was at the scene, but it does not necessarily mean services were rendered because providers can be waived off or cancelled as incident dynamics change. In the majority of IPVRS incidents, if the provider was on-scene, some type of service was generally provided. For the purpose of this study, *Assessment* refers to looking over the patient, asking questions, and taking vitals. For BFD, the administration of the strangulation worksheet to identify signs and symptoms of strangulation was also a form of assessment. *Treatment* included activities involving first aid (CPR, administering an IV, etc.). *AMA* includes designations of a patient acting in a way that is against medical advice of the first responder and requires a signature of the patient to that effect. *Transport* captured whether MedStar or the Control Site FD transported a patient if it was medically advised or necessary. It should be emphasized that while AMAs and patient agreement to transport are important elements of the IPVRS incident, these are often beyond the control of the first responder.

Arrest Dispositions (RQ4). Case disposition was recorded directly from RMS and included seven substantive categories of case clearance (cleared by arrest, exceptionally cleared, unfounded, pending/active investigation, suspended, cleared other, and closed). Using information from the case disposition, a binary variable (*Status Disposition Arrest*: No = 0, Yes = 1) was created to capture when a case was disposed by arrest (regardless of the charge) in police-identified strangulation incidents. *Impede Breath Arrest* was a binary item (No = 0, Yes = 1) to capture cases characterized by an arrest for impede breath.

Victim Engagement (RQ5). Four items from the police case files were used to capture victim engagement: victim activate, victim written statement, victim recant, and victim signed an affidavit of non-prosecution. *Victim Activate* was a binary item (No = 0, Yes = 1) that captured when the victim initiated the criminal justice response by activating the system as the reporting party (e.g., calling 911). *Victim Statement* was a binary variable that captured the presence of a victim statement in RMS. Police have tended to view those victims willing to provide a statement as more believable and credible (Alderden & Ullman, 2012). Any documentation by police in the narrative to describe if a *Victim Recanted* the assault (partial or full) was captured as a binary item (No = 0, Yes = 1). Finally, A*ffidavit of Non-Prosecution* or *ANP* was a binary item (No = 0, Yes = 1).

Officer Assaults and Injuries (RQ7). To estimate the effect of the ordinance on first responder safety among incidents in the police case file data, researchers made determinations about officer assaults and injuries from the totality of the electronic case file in RMS (*Assault Any*: No = 0, Yes = 1). This included any incident offense or official charges for crimes against public servants and/or any description of an assault or injury to a first responder in the incident narrative or report supplementals.

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Independent Variables and Police Case File Data

There are two primary predictor variables in the outcome analysis of strangulation case file data: *Ordinance Status* and *Jurisdiction.*

Ordinance Status. Ordinance status was a binary item that measured when the strangulation incident was reported to police relative to the passage and implementation of the Burleson strangulation ordinance. Cases reported on or before March 5, 2018, were classified as pre-ordinance and comprised the control or comparison group in the Burleson pre-post outcome analysis. Cases reported between March 6, 2018, and December 31, 2020, were classified as post-ordinance and comprised the treatment or experimental group in the Burleson pre-post outcome analysis (Pre-ordinance = 0, Post-ordinance = 1).

Jurisdiction. Jurisdiction was a binary item (Control = 1, Burleson = 0) that identified the site location where the strangulation case was reported. Cases reported in Burleson comprised the treatment or experimental group in outcome analyses including comparisons with the Control Site. For analyses involving propensity score weighting, this variable was recoded into **Treatment_Control_Compare** where (Control = 0, Burleson = 1).

Covariates and Police Case File Data

There were several covariates including indicators related to victim characteristics, suspect characteristics, and case characteristics.

Victim Characteristics. *Victim Sex* was a categorical variable (Male = 0, Female = 1, Unknown = 2).[14] *Victim Race/Ethnicity* was also a categorical variable (White = 0, Black/African

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[14] RMS defined "sex" as "male" or "female" and this information was collected directly from RMS and recorded on the CI. Additionally, when RMS listed the victim's sex as "unknown" this information was recorded verbatim during data collection. This occurred in two incidents.

American = 1, Asian = 2, Hispanic[15] = 3, 4 = American Indian/Native American, 5 = Unknown); this was aggregated to create a binary variable (*Victim Race White*, No = 0, Yes = 1) to retain cell counts in subsequent statistical analyses. *Victim Visible Injury* was a binary variable that captured when police documented injury in the case file narrative (No = 0, Yes = 1). When the responding officer documented any *Inconsistencies in a Victim's Story*, incidents were coded using a binary item to capture the officer's perception of a victim's credibility (No = 0, Yes = 1). *Victim Statement* was a binary item that captured the presence of a victim statement in the electronic case file (No = 0, Yes = 1).

Suspect Characteristics. *Suspect Sex* was a categorical variable (Male = 0, Female = 1, Unknown = 2). *Suspect Race/Ethnicity* was also a categorical variable (White = 0, Black/African American = 1, Asian = 2, Hispanic[16] = 3, 4 = American Indian/Native American, 5 = Unknown); this was aggregated to create a binary variable (S*uspect Race* W*hite,* No = 0, Yes = 1) to retain cell counts in subsequent statistical analyses. *Suspect Statement* was a binary variable (No = 0, Yes = 1) that captured if the case file contained a suspect statement.

Incident and Case Characteristics. The *County* in which the incident occurred was captured as a binary variable (Johnson = 1, Tarrant = 2) from the official location of the incident as designated in RMS. Both Burleson and the Control Site are in Johnson County and a small portion of Burleson is located in neighboring Tarrant County. Qualitative differences across the two counties emerged in the case file data in terms of how local prosecutors differed in their response to family violence offenses and for this reasons Tarrant County cases were not studied in comparisons involving the Control Site. Any presence of a *Child* or children on-scene was a

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[15] Researchers intended on collecting data on ethnicity for Hispanic, but it was not possible to capture this information from RMS in a reliable way.
[16] Researchers intended on collecting data on ethnicity for Hispanic, but it was not possible to capture this information from RMS in a reliable way.

binary variable (No = 0, Yes = 1), captured through the explicit, affirmative mention of children in RMS, police report narratives or supplements, screening tools (e.g., FVP), in victim, suspect, or witness statements, or in CAD notes.

Witness Statement was a binary variable that documented the presence of a witness statement in RMS (No = 0, Yes = 1). Incidents with witness statements may have increased strangulation disclosure and/or may have enhanced the evidence available so officers could more readily assess and recognize strangulation. Research on police investigations has established that case clearance is improved when first responders take victim and witness statements (Eck, 1992; Eck & Rossmo, 2019; Greenwoord et al., 1977). Moreover, police have tended to perceive the overall incident as more credible, in part because a witness can corroborate a victim's allegation.

Finally, using the victim and suspect demographic characteristics, three binary variables were created to account for the sex composition of the victim-suspect dyad in each incident and included *Male Suspect/Female Victim* (*M_F Dyad:* No = 0, Yes = 1), *Female Suspect/Male Victim* (*F_M Dyad:* No = 0, Yes = 1)*,* and S*ame-Sex Dyad* (No = 0, Yes = 1). The IPV relationship was captured from standardized categories in RMS that designated the relationship of the victim to the suspect (e.g., boyfriend/girlfriend, spouse, common law spouse, ex-spouse) and from here, a binary item was created (*IPV Dyad Spouse*: No = 0, Yes = 1) for use in the propensity score weight estimations (see analytic strategy).

Analytic Strategy for Police Case File Data

Case file and incident data from each research site were merged and imported into SPSS 29 where they were further cleaned, screened, and prepared for analysis. The outcome evaluation employed a pre-post-test control group design to identify the effect of the Burleson strangulation ordinance on response to IPVRS incidents. The research questions outlined earlier in this

Chapter were tested across the pre- and post-ordinance groups in Burleson and across the post-ordinance period in both Burleson (treatment) and the control group. For each of these facets of the study, analyses proceeded in two stages. First, univariate and bivariate statistics were estimated. Descriptive statistics are presented and include frequency counts, percentages, means, standard deviations, and value ranges (minimums and maximums) for study variables. A series of Chi-Square tests of independence were estimated to examine bivariate differences across groups (pre-post, treatment-control) on each of the research outcomes. In analyses of categorical data where cell counts were low (e.g., ≤ 5), Fisher's Exact Tests were conducted (see Upton, 1992). Second, propensity score weighting was used to estimate the average treatment effect (ATE) of the strangulation ordinance on study outcomes in the pre-post and treatment-control groups.

Propensity score analytic strategies are appropriate inferential tools to use in observational research studies because these approaches address concerns associated with selection bias in quasi-experimental designs when randomized control tests are not possible (Rosenbaum & Rubin, 1983). In non-randomized study designs, there is measured and unmeasured error that may have an impact on the outcome, beyond the effect of the treatment because cases are selected into treatment and control groups for reasons other than random selection (D'Augustino, 1988; Rubin, 1974). Due to the smaller sample sizes in the current study, propensity score *weighting* estimation methods were employed in lieu of propensity score *matching* methods, which generally require a larger number of available cases from which to select appropriate matches.[17] As a first step, propensity score weighting requires assessment of the treatment and control samples for balance on key measures that may differ across groups (and also influence the outcomes of interest). Because the sample sizes were relatively small in

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[17] In some cases, the outcome was constant or had very little variation. In these instances, propensity score weighting was not appropriate and instead, bivariate statistics are reported.

the current study, propensity score models were kept parsimonious by relying only on (or primarily on) the use of unbalanced covariates to calculate the propensities (discussed further below). First, a propensity score was estimated for each case and that value was used to calculate an inverse weight. Each case in the two groups was assigned a propensity score weight that represented a propensity for assignment into the treatment and control groups. By applying these weights, the samples achieved balanced so that cases in the treatment group could be compared with a methodologically similar counterfactual (see Bai & Clark, 2019; Guo & Fraser, 2010).

To identify sample characteristics for inclusion in the propensity score weighting estimation, standardized difference scores were calculated in Excel using the methodology employed by Paternoster & Brame (2008) for variables across the two groups (see also McCaffrey et al., 2004).[18] The emphasis is to focus on variables that may differ between the treatment and control groups and may also impact the outcome variable. The standardized difference score provides an indication of how different the groups are on each characteristic and is the metric to determine whether variables need to be balanced across the two groups. Standardized difference scores that fall outside the acceptable threshold (+/- .20) indicate whether a variable must be balanced and should be included in the propensity score calculation (See Paternoster & Brame, 2008). Standardized difference scores were calculated across the treatment and control groups for both the Burleson pre-post and Burleson-Control comparison analysis on four subsamples (See Appendix D): (1) the current strangulation population, (2) the sample of police-identified strangulations, (3) subsample of current strangulations where medical were on-scene, and (4) the subsample of current strangulations where an EPO was requested. The data were imported into STATA for propensity score analyses. Analyses were conducted

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[18] To calculate the standardized difference score across two samples: $M_1 - M_2/SD_1$, where 1 = treatment.

using STATA's *teffects* command, which estimates treatment effects using inverse probability weighting (IPW).

Quantitative Data Collection and Repeat Victimization (RQ2)

Data Collection and Repeat Victimization

Data were collected by victim assistance (VA) personnel at the Burleson Police Department[19] (BPD) to triangulate data sources for the process and outcome evaluations (Greene & McClintock 1985) and augment content from case files. BPD VA data consisted of a series of variables involving the incident, victim, suspect, strangulation, repeat victimization, and fidelity problems from existing client tracking sheets supplemented by archival notes collected while communicating with and offering support/assistance to victims.

VA personnel entered study information into separate Excel spreadsheets designated by quarter and year. These separate Excel files were later merged and redacted to protect victim information and then imported into SPSS 29.0 for screening, cleaning, and analysis that occurred offsite. Following the merging process, data were screened again for inconsistencies and cleaned for errors. To preserve the conceptual independence of variables captured by VA, researchers had regular contact with VA personnel to discuss and clarify issues that arose during the data screening and cleaning process. The examination of repeat victimization here utilized a subsample of the BPD VA data that included the population of strangulation incidents identified by research team during the study period (January 1, 2016, to December 31, 2020). While the IPVRS population includes $n = 287$, repeat victimization data on these incidents was only available for a total of $n = 244$ cases.

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[19] There is no victim assistance unit or coordinator at the Control Site so similar data could not be collected.

Repeat Victimization: Measurement and Operationalization

While repeat victimization is notoriously difficult to measure (Goodlin & Dunn, 2010), victim assistance data was utilized to examine several aspects of the concept including: (1) previous and repeat IPV victimization involving the same dyad, (2) any history of previous strangulation involving the same dyad, and (3) any repeat IPV victimization of the victim in another IPV incident.

A variable on previous family violence involving the IPV couple (*Previous_FV__Dyad*) captured *"Has previous family violence or IPV been reported to BPD with the same original victim and the same original suspect?"* This was determined based on the prior history in RMS that was officially reported to BPD visible through RMS. In other words, this variable captures prior offenses that were officially reported to BPD and for which an incident report was generated. This means that a case where the victim includes information about prior IPV history in the witness statement but was never formally reported to BPD (and therefore there is no separate incident report number), this would not be included in this variable. IPV dyads with previous family violence were coded (No = 0 and Yes = 1). Previous official instances of IPV strangulation in BPD's jurisdiction involving the same dyad were also captured and coded dichotomously (*Previous_STGL_Dyad,* No = 0 and Yes = 1). This included IPVRS that was officially listed as impede breath on the incident report *OR* incidents where VA identified strangulation based on their independent review of case files.

Victim experiences with repeat IPV victimization were captured in one of two ways. First, if the IPV victim appeared more than once in the dataset they were tracked as a repeat victim (*Repeat_Vic_Data*, No = 0 and Yes = 1). Second, a more encompassing version of this variable tracked if the IPV victim had been identified as a repeat victim by appearing in the

dataset more than once *or* was also identified by the VA coordinator as a repeat IPV victim (*Repeat_VIC_ANY*, No = 0 and Yes = 1).

Analytic Strategy

The manner in which the data was captured does not allow for analytic techniques beyond descriptive statistics. While data was collected to reflect the study timeframe (2016-2020) no information prior to 2016 or after 2020 was collected to allow for a full accounting of repeat victimization involving the IPV dyad. Additionally, because the repeat victimization was tracked by VA wholistically (i.e., any occurrence) rather than sequentially meaningful pre/post-ordinance comparisons are not feasible.

Quantitative Data Collection and OSP Client Data (RQ5)

Local law enforcement officers across north Texas make referrals to victim service providers such as One Safe Place (OSP) a large family justice center in the Fort Worth Metroplex that services clients across the region. To understand the extent to which Burleson IPVRS survivors engaged local law enforcement services and to learn more about how survivors experienced the Ordinance, OSP client data were obtained to reflect the study period 2016-2020. Of particular interest were Burleson and Control Site clients who reported they: (1) experienced IPVRS and (2) involved law enforcement in their strangulation incident. Of those that did, it was important to discern if law enforcement spoke to them about the strangulation and if medical options were sought or received after their interaction with law enforcement.

OSP Data Collection

Researchers obtained de-identified data from One Safe Place's[20] Efforts to Outcome

(ETO) database for Burleson and Control Site clients from 2016 to 2020. Client data for specific

items relevant to the study were requested and received in several separate individual Excel files

for each year. These items included the date of the client's visit, their city, their response to the

strangulation/choking item on the evidence-based Danger Assessment (DA)[21] *"Does he ever try*

to choke/strangle you or cut off your breathing?" and client responses to select items from the

OSP designed strangulation survey given to clients that reported strangulation. These files were

subsequently matched, merged, and uploaded into SPSS 29.0.

OSP serves clients across the region and therefore, it was necessary to work with OSP

staff to identify clients associated with Burleson and the Control Site. The resultant sample

consisted of $n = 99$ clients ($n = 89$ from Burleson and $n = 10$ from the Control Site). Based on the

date of their visit to OSP, clients were grouped into pre (i.e., January 1, 2016, - March 5, 2018)

and post-ordinance periods (i.e., March 6, 2018 - December 31, 2020). Two Burleson clients had

missing data on the date of their visit and were removed from subsequent analyses. The final

Burleson sample ($n = 87$) consisted of 41 Burleson clients in the pre-ordinance timeframe (i.e.,

January 1, 2016, - March 5, 2018) and 46 clients in the post-ordinance timeframe while Control

Site clients were evenly split across the pre ($n = 5$) and post-ordinance periods ($n = 5$).

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[20] One Safe Place (OSP) is a Family Justice Center, is a multi-agency network consisting of 23 partner agencies providing coordinated services to IPV victims in Tarrant County (One Safe Place, 2024).
[21] The Danger Assessment helps establish the level of danger a victim is in and their risk of being killed by their intimate partner (Campbell et al., 2003).

Dependent Variables and OSP Data

Two dependent variables were derived from client responses to two questions on the OSP Strangulation Survey. The relevant survey questions examined: (1) if there was law enforcement involvement in the strangulation incident; and (2) whether the client sought and received medical attention. *Law Enforcement Involved* was determined by client responses to a question that asked, "Was law enforcement involved? If so, did they ask or talk to you about the strangulation/choking?" Answer choices included and were coded as follows:

- *Yes* law enforcement was involved, *yes* they spoke about the strangulation/choking (2)
- *Yes* law enforcement was involved, *no* they did not speak about the strangulation/choking (1)
- *No* law enforcement was not involved (0)

Medical was determined by *"Did you seek medical attention?"* This was an open-ended question, and clients were also probed by the victim advocate to determine if they *received* medical attention, what type, etc. Due to the way the question was designed and the manner of administration, client responses varied. While a standardized question and response set would have been preferrable, the open-ended responses provided by OSP clients were reviewed and then coded into the following categories: (No = 0, Yes = 1, Yes - but not for strangulation = 2).

It is important to recognize that for clients to have the opportunity to answer these questions, they must first have been given a danger assessment, reported strangulation on the danger assessment, and then administered the strangulation survey that contains these questions. For unknown reasons, some clients were not administered the danger assessment ($n = 15$ Burleson clients; $n = 2$ Control Site clients) and some who reported strangulation on it were not given the strangulation survey ($n = 5$ in Burleson; $n = 2$ at Control Site). The loss of this

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information was unfortunate as the number of clients studied in the analysis of OSP data was already small.

Independent Variables and OSP Data

There are two central independent variables used in the outcome analysis of OSP client data: *Ordinance Status* and *City.*

Ordinance Status. Ordinance status (pre or post) was determined by the date that client visited OSP relative to the passage and implementation of the Burleson strangulation ordinance. Two dichotomous variables were created: (1) Clients with visits on or before March 5, 2018, were classified as pre-ordinance (1,0) and comprised the control or comparison group in the Burleson pre-post outcome analysis. Clients with visits between March 6, 2018, and December 31, 2020, were classified as post-ordinance (1,0) and comprised the treatment or experimental group in the Burleson pre-post outcome analysis.

City. The city was determined by where the client resided and the police department that responds to crime in their location (Control = 0, Burleson = 1).

Analytic Strategy for OSP Data

Given the small sample size there are serious limitations on what the analytic strategy can accomplish, limiting the analysis to univariate and some bivariate analyses. Reported results include valid frequencies and two-tailed tests from bivariate tests. Of interest for the analysis is the number of strangled clients in Burleson who reported on the OSP strangulation survey that law enforcement was involved, that their strangulation was discussed, and whether they sought or received medical services. Due to the limitations with the sample and question construction on

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the OSP survey instrument, extreme caution should be exercised when reviewing associated

findings later in the report.

Quantitative Data Collection: First Responder Surveys (RQ6)

To answer research question six: *"Are first responders in Burleson more knowledgeable about signs and symptoms associated with IPVRS compared to first responders working in jurisdictions without a specialized protocol?,"* and research question seven: *"Do officers experience assaults and injuries when responding to IPV strangulation crimes?"* the research team administered a series of confidential self-report surveys to first responders from Burleson, the Control Site, and MedStar on a range of topics[22] that included:

(1) limited demographic and occupational characteristics;[23]
(2) the first responder's strangulation training history;
(3) their self-assessed knowledge about strangulation and overall expertise;
(4) safety concerns and officer assaults during an IPVRS incident; and
(5) an objective assessment of their technical knowledge related to signs, symptoms, and dangers of strangulation.[24]

Following the completion of a large-scale training initiative[25] related to the Ordinance and strangulation, Burleson first responders were then surveyed a second time using identical survey questions from the baseline instrument to examine improvements in self-assessed knowledge, self-rated expertise, safety views, and an objective assessment of their technical

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[22] The baseline survey also contained additional items relevant for the process evaluation. These items are not relevant for this report and were analyzed in the process evaluation report.

[23] To encourage survey participation, questions related to officer demographics were kept to a minimum and included agency affiliation, position, and years worked at their agency.

[24] The assessment was based on training content that was developed by the city of Burleson, One Safe Place, and the Training Institute on Strangulation Prevention (Institute). Researchers utilized the same assessment questions the Institute utilizes to assess its own training effectiveness.

[25] One of the key findings of the evaluability assessment was that the initial strangulation training conducted in 2018 was insufficient, and a re-training initiative would be necessary. For this reason, "baseline" or "pre-survey" references refer to the period *prior* to the re-training initiative. Unfortunately, due to COVID-19 restrictions, re-training activities at the police/fire departments were suspended, delaying the strangulation re-training initiative until online formats could be designed and administered.

knowledge about the signs, symptoms, and dangers associated with strangulation. Prior to recruitment and administration, surveys were pre-tested by partner leadership to ensure face validity (Glesne, 2016; Kerlinger, 1966; Maxwell, 2012).

First Responder Survey Recruitment

Data were collected via a self-report survey administered to first responders from Burleson, the Control Site, and MedStar via Qualtrics, a web-based and secure online survey platform. For each agency, email information for the population of agency employees was provided to the research team by the partners. From this information, potential participants were assigned a randomly issued ID number that was used to access the survey. Because Burleson first responders took several surveys over the duration of the project (e.g., pre and post-training), they utilized the same assigned ID number to access each survey. Personal identifying information for each participant (e.g., names, email) was password protected and stored separately from de-identified survey responses.

An initial email with information about the purpose of the survey was distributed by each agency's leadership prior to survey administration. A member of the research team also visited each partner agency to brief first responders about the study and the purpose of the survey. Following these recruitment efforts, researchers solicited voluntary participation through an email that invited recipients to participate in the survey. The email utilized a standardized IRB approved script that described the survey's purpose, general content, and included the participants assigned ID number and the survey URL with instructions to access and complete the survey. Each email recipient was also provided with an electronic PDF copy of the consent document for their own record keeping. Upon accessing the Qualtrics survey link, participants were shown the consent document again that emphasized the voluntary and confidential nature

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of the survey. Participants had to provide electronic consent before the survey could be accessed. The baseline survey took approximately 20 minutes to complete while the post-survey ranged from 10-15 minutes.

To facilitate accurate tracking of participants, emails were individually distributed from a generic Tarleton State University email address exclusively devoted to the project and each email contained the participant's unique ID number to enable access to the survey. The participant ID number was also used to track participation to ensure that follow-up contact reminders were only distributed to those individuals who had not already accessed and submitted the survey. Electronic email reminders (up to three) were strategically scheduled and administered in terms of day and time of day to account for shift and scheduling variation among first responders. Each follow up email contained the same information that had been in the initial email invitation.

First Responder Survey Administration and Response Rates

Given the complex nature of scheduling training across two first responder Burleson agencies, baseline survey administration timing was adjusted to launch *prior* to when each Burleson agency planned to begin their training initiatives. In the baseline or pre-training survey,[26] BPD invitations were sent to the total potential participant list ($n = 65$) on September 28, 2020, with the final reminder sent on October 16, 2020. For BPD, the participant response rate was 83% (54 out of 65 total potential participant contacts). BFD invitations were sent on October 14, 2020 ($n = 48$) and their final reminder was sent on October 29, 2020. The overall response rate for BFD was also 83% (40 out of 48 total potential participant contacts). Across both partner agencies, the baseline pre-training survey response rate was 83% (94 out of 113 potential participants).

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[26] These terms are used interchangeably in this report.

In the post-training survey that was administered to Burleson participants only,[27] surveys were sent after completion of the strangulation training initiative. After BPD notification that training was complete, post-survey invitations were then sent to the total BPD participant list (*n* = 65) on November 2, 2020, with the final reminder sent on December 15, 2020. For BPD, the participant response rate for the post-training survey was 55% (36 out of 65 total potential participant contacts).

Like BPD, the administration of the BFD post-training survey was planned for the Fall of 2020, but BFD postponed completion of its training initiative until March 17, 2021. This delayed the administration of their post-training survey. There were several reasons for this delay. Due to the COVID-19 pandemic, the Burleson Fire Department (BFD) became Burleson's public health authority; whereby they were responsible for: providing health guidance, contact tracing, a drive-through COVID-19 testing facility, as well as providing data to city leadership related to COVID-19 cases in the community. In addition, they were also a provider of COVID-19 vaccines which further depleted BFD's resources. After BFD notified the research team that training was complete, researchers sent survey invitations to the total BFD participant list (*n* = 48) on March 10, 2021, and a final reminder was sent on March 30, 2021. The overall response rate for BFD was also 79% (38 out of 48 total potential participant contacts). Across both partner agencies, the post-training survey response rate was 65% (74 out of 113 potential participant contacts).

The same baseline survey was administered to first responders at the Control Site and MedStar. Survey invitations for the Control Site police department were sent to the total potential

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[27] The strangulation training is a key element of the Ordinance and the strangulation protocol being assessed in the evaluation. By design, the Control Site and MedStar first responders did not participate in the training and were not issued a post-training survey.

participant list ($n = 49$) on January 26, 2021, with a final reminder sent on February 23, 2021. For the Control Site police department, the participant response rate was 57% (28 out of 49 total potential participant contacts). Survey invitations were sent to the Control Site fire department on January 26, 2021, and their final reminder was sent on February 12, 2021. The overall response rate for the Control Site fire department was 28% (18 out of 63 total potential participant contacts), lower than generally preferred, but the Control Site fire department was struggling with the same Covid-19 issues that BFD encountered. Across both Control Site agencies, the baseline survey response rate was 41% (46 out of 112 potential participant contacts).

The administration of the first responder survey for MedStar was also delayed for numerous reasons: challenges associated with the Covid-19 pandemic, increased service demand during the Texas ice storms and power grid failure of February 10-18, 2021 (Austin/San Antonio Weather Forcast Office, 2021), and other administrative priorities during the summer of 2021. MedStar survey invitations were sent on September 13, 2021, and their final reminder was sent on September 29, 2021. The overall response rate for MedStar was 19.7% (68 out of 344 total potential participant contacts).

First Responder Surveys: Measurement and Operationalization

Dependent Variables. The first responder survey contained six dependent variables that were designed to cover various aspects of officer knowledge related to strangulation, safety concerns, and self-reported experiences with being assaulted during an IPVRS incident. Because anecdotal evidence suggests that individuals who strangle their intimate partners may be more likely to assault or kill law enforcement (Gwinn, 2014; Harning, 2015; Johnson, 2011), and this topic was covered in the training curriculum, all first responders were asked two questions to assess their knowledge about IPVRS-related risks and safety concerns. *OwnSafety* was a

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categorical variable captured from, "*What level of concern do you have for your own safety when responding to IPVRS?*" response options to this question were coded as follows: I have no concern = 0; My level of concern decreases when responding to IPVRS incidents compared to other violent crime = 1; My level of concern is the same as when responding to other violent crime = 2; and My level of concern increases when I respond to IPVRS incidents compared to other violent crime = 3. The second item, *SafetyAware* was a dichotomous variable (Not Aware = 0, Aware = 1) and was captured from *"Are you aware of the increased risk to first responder safety when responding to IPVRS incidents?"*

A series of variables were utilized to gauge first responders' self-rated expertise, self-assessed knowledge, and an objective indicator to determine their technical knowledge about strangulation. *Expertise* was an ordinal variable derived from a survey question that asked *"How would you rate your level of expertise in IPVRS?"* Responses were captured as: High = 3, Moderate = 2, Low = 1, and None = 0. *Self-Assessed Knowledge* was captured from a three-item scale with the same set of Likert response options: No Knowledge = 0, Some Knowledge = 1, Average Knowledge = 2, Above-Average Knowledge = 3, Expert Knowledge = 4. The three questions were added together to develop this scale resulting in a possible response range of 0 - 12:

1. *"How much do you know about the signs and symptoms of IPVRS?"*
2. *"How much do you know about health risks associated with IPVRS?"*
3. *"How much do you know about the increased homicide risk for victims of non-fatal IPVRS?"*

Depending on the sample examined, Cronbach's alphas for the *Self-Assessed Knowledge Scale* ranged from .707 - .901. These will also be reported in the findings chapter.

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A technical knowledge scale (*TechKnowledge*) was developed from a 31-item

strangulation assessment. Each of the items (see Appendix E) were graded and scored by two

members of the research team for accuracy. Once scored, these items were added together to

form a technical knowledge scale with a possible range of 0 to 31. Depending on the sample

examined, Cronbach's alphas ranged from .851 - 1.00. As before, these will also be reported in

the findings chapter.

Two survey questions were used to examine harm first responders may experience during

responses to IPVRS incidents. While the case file data captures official reports of such events,

the survey offers an unofficial account of assaults and injuries that are important for addressing

research question seven. First responders were asked, "*Have you ever been assaulted by a*

suspect while responding to an IPVRS incident?" (No = 0, Yes = 1). If participants answered

"*yes*" to this question, they were then asked: *"If yes, please specify how many times___?"*

Independent Variables. The central independent variable for the analysis of the training

surveys was *Agency*. Respondents were asked, *"What agency do you work for?"* and responses

formed the *Agency* affiliation variable with responses coded as follows: Burleson Police

Department = 1, Burleson Fire Department = 2, Control Police Department = 3, Control Fire

Department = 4, and MedStar = 5. Several recodes of this item were done to support subsequent

analyses that included aggregated versions of first responders from Burleson, the Control Site,

and MedStar as well as disaggregated versions to facilitate comparisons across police (e.g., BPD

versus Control Site PD) and fire personnel (e.g., BFD versus Control Site FD).

Covariates. There were several covariates used in the multivariate regression analyses

that included indicators related to officer characteristics, experience responding to IPVRS

incidents, and exposure to any strangulation training. Questions about specific individual

characteristics were kept at a minimum to encourage officer participation in the surveys.

Frontline First Responder (No = 0, Yes = 1) was a recode of responses to a question about the first responder's official position in their agency. Frontline personnel generally have different perceptions and experiences than those holding a higher rank (Coon, 2016; Crank, 1998) and they are more often exposed to IPVRS incidents. Frontline first responders from all agencies included those working as police officers, fire fighters, and paramedics/EMT versus administrators, supervisors, and detectives. *Agency Years* represented the amount of time in years that the first responder was employed at their agency. To account for the possibility that some first responders at the Control Site or MedStar may have had some training on Strangulation, a survey question examined their training experience on this topic. *Training* was derived from participant responses to "*Have you ever received training about strangulation?*" and was measured dichotomously (No = 0, Yes = 1). To determine their experience with responding to IPVRS incidents, first responders were asked, "*Have you ever responded to an IPVRS Incident*?" (0 = No, Yes = 1).

First Responder Surveys: Analytic Strategy

Survey data were merged and exported into STATA 17.0/18.0, where they were cleaned, screened, and analyzed using univariate, bivariate, and multivariate statistics. To assess the effect of the strangulation training completed by Burleson first responders, two strategies were utilized to guide the analyses. As demonstrated in Figure 5 below, the first analytic strategy involved analysis of a sample of Burleson first responders who participated in *both* the baseline survey *and* in the post-training survey to identify if there were statistically significant differences over time (Derrick et al., 2017).

Figure 5. *Analytic Strategy for First Responder Comparisons (Burleson)*
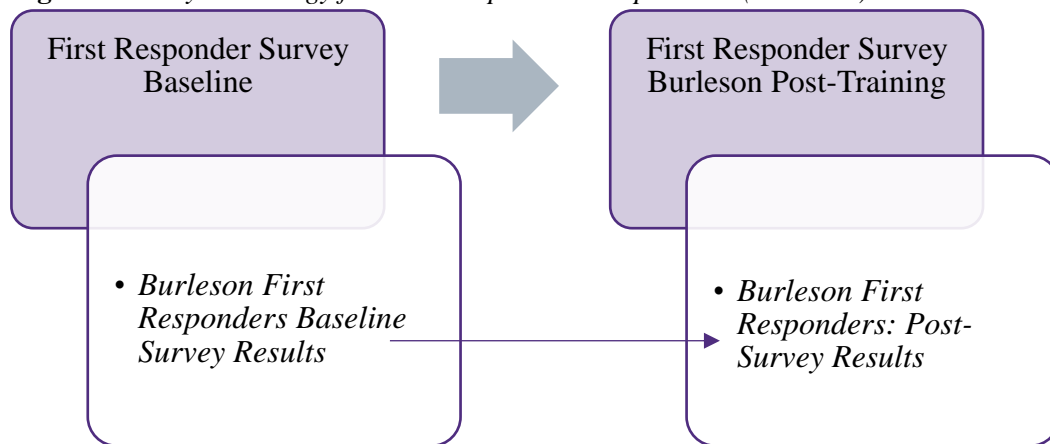
The second strategy involved a comparison of responses on the baseline survey from the Control Site and MedStar first responders compared to Burleson first responders captured from the post-survey following their training initiative. Figure 6 below demonstrates this analytic strategy. Because these surveys were administered separately across different partners, at different timeframes, and then merged into one data file, several new variables were created that include: Frontline First Responder, Expertise (self-rated), the three components of the Self-Assessed Knowledge scale (*knowledge about strangulation signs and symptoms, knowledge about strangulation health risks, knowledge about strangulation homicide risk*) and the Technical Knowledge Scale to facilitate a few of these cross agency comparisons. To examine all Burleson post-training respondents versus first responders from MedStar and the Control Site it was necessary to create "combined" versions of variables discussed above because of where the data for each of these groups is in the data file. Specifically, for these "combined" variables, cases 1 - 74 are Burleson post-training responses and cases 75 - 188 are non-Burleson responses (Control and Medstar) for these variables.

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Figure 6. *Analytic Strategy for First Responder Comparisons (All Agencies)*

First Responder Survey Baseline *(All Agencies)*

- Burleson First Responders
- ***Control Site First Responders***
- ***MedStar First Responders***

First Responder Survey Post-Training *(Burleson Only)*

- ***Burleson First Responders Post-Training***
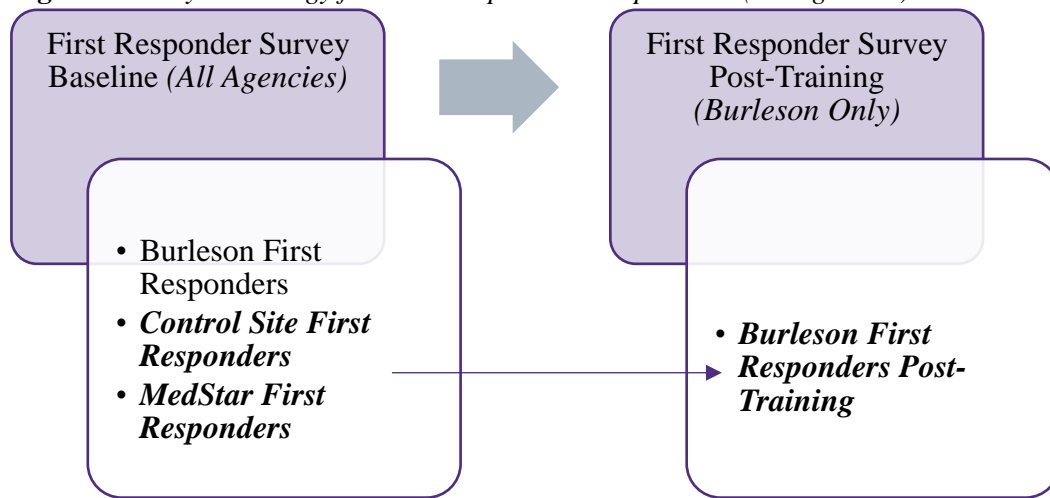
Each subsection reports count data (raw numeric counts) and associated valid percentages (when appropriate). Figures or tables display the distribution of data for participant responses aggregated by location/affiliation (Burleson, Control Site, MedStar) and then separately by agency affiliation (Burleson Police, Burleson Fire, Control Site Police, Control Site Fire, and MedStar) or time (Burleson Pre-Training versus Burleson Post-Training). Bivariate statistical comparisons were reported to identify statistically significant differences in participant responses across these groups. Depending on the survey item of interest and the groups being compared, quantitative survey responses were analyzed using independent samples *t*-tests, ANOVA, and Chi-Square tests of independence to identify statistically significant between-group differences for the all agency sample (Harpe, 2015) and repeated-measures parametric statistics for the matched sample including paired samples *t*-tests and McNemar's Chi-Square test of independence (Adedokum & Burgess, 2012). In analyses of categorical data from a 2 x 2 table where cell counts were low (e.g., less than five participant answers in a given response option), a Fisher's Exact Test was conducted and reported in the text (see Upton, 1992).[28] All tests were

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[28] Fisher's Exact Test relies on the assumption of independence of data and cannot be used for repeated measures (paired) comparisons. Fisher's Exact Test does not produce a test statistic (Upton, 1992).

two-tailed tests of significance. A series of Ordinary least squares (OLS) regressions were conducted to examine the association between several predictor variables on strangulation knowledge for the Burleson repeat measures sample and then separately for Burleson, Control Site, and MedStar all agency sample.

Qualitative Methods for Outcome Evaluation

Qualitative data for the outcome evaluation were gathered from select items on victim surveys and a content analysis of case file narratives. Qualitative data for the outcome evaluation were gathered from select items on victim surveys and a content analysis of case file narratives. Qualitative data were uploaded into NVivo 14.0 and analyzed to identify central themes (Lumivero, 2024).

Content Analysis of Incident Reports for Strangulation Signs and Symptoms

A content analysis was conducted to examine two of the research questions for the outcome evaluation—police-identified strangulation (RQ1) and officer knowledge about strangulation (RQ6). To determine if the Ordinance and the required strangulation training held any influence on Burleson first responders' ability to identify strangulation and document the signs and symptoms of it, researchers conducted a content analysis of narrative information from police files of IPVRS cases in Burleson ($n = 272$) and the Control Site ($n = 135$) from 2016 - 2020.

The content analysis involved the compilation of narrative information from the case files (i.e., incident summary, supplementals, statements). The researcher coding the case file conducted this initial compilation as part of the general coding process of IPVRS incidents previously discussed. Once compiled into a single document, the researcher screened and

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removed any direct or indirect identifiers from the narrative. A GRA then conducted a second review of narratives to remove any remaining identifiers missed during the initial coding process. Next, narratives were loaded into NVivo and key word searches were used to determine if the police recognized an incident as involving strangulation. These key words included: strangulation/strangled/strangle/strangling, choke/choking/choked and impede breath.[29] If the police described the incident using any one of these key words, it was determined to be "police-identified strangulation" and coded dichotomously in both NVivo and in a separate SPSS file. This process led to the creation of a dichotomous variable utilized in the analysis of case file data (*PD Narrative STGL*).

The next stage of the content analysis was more complex and involved reviewing each narrative for the presence of documented strangulation signs and symptoms. To determine the strangulation signs and symptoms to track, researchers reviewed: (1) the Strangulation Ordinance training materials for Burleson first responders and (2) a list of signs and symptoms from the Tarrant County Family Violence Packet (FVP). Burleson officers (and officers from police agencies across Tarrant County) use the FVP as part of their response to family violence incidents. This review process resulted in a comprehensive list of 28 items representing signs and symptoms of strangulation that informed the coding process for the content analysis. If the sign or symptom described by police was in reference to the strangulation incident (and not due to an injury caused by a different type of assault), then the item was coded as yes. Explicit use of the term representing one of the 28 signs or symptom was required to receive an affirmative code. These terms are shown in Table 2 in the variable operationalization section. Like the strategy

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[29] Misspelled versions of these words were included as well.

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employed in the key word searches, all content was coded in NVivo and simultaneously tracked in SPSS.

It should be emphasized that researchers only coded content that represented how the *police* described the incident and any signs, symptoms, or injuries experienced by the IPVRS victim. Descriptions from victims, witnesses, or other sources were excluded from the content analysis.

Measurement and Operationalization. The tracking process in SPSS allowed for the qualitative data to be quantified and analyzed. A strangulation signs and symptoms scale was developed and operated as the dependent variable while the Agency and the timing of the Ordinance served as independent variables.

Dependent Variable. An initial scale was constructed by adding the 28 items detailed in Table 2 to help gauge the presence and frequency of signs and symptoms documented by the police. If the sign or symptom was described by police in reference to the strangulation incident (and not due to an injury caused by a different type of assault), then 28 binary items were coded as (No = 0, Yes = 1). Explicit use of the term representing a sign or symptom was required to receive an affirmative code. These terms are shown in Table 2.

Table 2. *Strangulation Signs and Symptom Variables*

1.	Bleeding from Mouth, Lip, or Tongue	15.	Nausea or Vomiting
2.	Difficulty Breathing	16.	Neck – Abrasion(s)
3.	Inability to Breathe	17.	Neck – Bruising
4.	Almost Lost Consciousness	18.	Neck – Finger Impressions
5.	Lost Consciousness	19.	Neck – Ligature Marks
6.	Coughing	20.	Neck – Redness
7.	Dizziness	21.	Neck – Scratches
8.	Headache	22.	Neck – Pain and Tenderness
9.	Tinnitus	23.	Red Eyes/Petechiae
10.	Hyperventilation	24.	Sore Throat
11.	Defecation	25.	Spasms
12.	Urination	26.	Swelling of Throat or Tongue
13.	Loss of Feeling in Extremities	27.	Vision Problems
14.	Memory Loss	28.	Voice Changes

Over the four-year study timeframe, no officer documented a single instance where an IPRVS victim defecated because of the strangulation, and for this reason, this item was removed from the scale. The final scale (*SignSymptScale)* consisted of 27 items with a possible range of 0 - 27 and an observed range of 0 - 14 (Cronbach's alpha = .689) for all IPVRS cases.

Independent Variables. Two independent variables informed the subsequent analysis. *Agency* represented the treatment and control sites (Control Site = 0, Burleson = 1) and O*rdinance Time* represented when the incident occurred relative to the Ordinance (Post-ordinance = 1, Pre-ordinance = 0).

Analytic Strategy. While a qualitative approach was utilized to collect and code the narratives in NVivo, thematic categories were also simultaneously tracked in SPSS to allow for quantification of police-identified strangulation generally and their documentation of strangulation signs and symptoms more specifically. Cases where officers recognized strangulation were captured as a dichotomous variable (*PD Narrative STGL*) and this variable was included in the analysis of case file data (see previous discussion related to this indicator). To avoid redundancy, the analytic strategy for this item will not be repeated here.

The analytic strategy of police documentation of strangulation signs and symptoms began by filtering cases based on Ordinance timing (pre/post), if the IPVRS involved a current strangulation incident, and where officers had explicitly identified the case as strangulation using set criteria[30] described earlier in this report. For comparisons involving Burleson and the Control Site, only Johnson County cases were eligible for analysis.

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[30] Police-identified strangulation in Burleson consisted of any one of four indicators: (1) impede breath was listed as the criminal offense on the incident report; (2) the suspect was formally charged with impede breath; (3) choking/strangulation was listed on the description of incident in the FVP; and (4) the officer used any *one* of the key words in the narrative to describe the event: strangle/strangulation/strangled/strangling, choke/choked/choking, impede breath. Police-identified strangulation for the Control Site consisted of the same indicators except for the FVP incident description of choking or strangling. Because the Control Site did not have an FVP, a separate police-

Count data (raw numeric counts) and valid percentages are reported for each of the 27 sign, symptom, and injury variables while the mean, standard deviation, range, and Cronbach's alpha are reported for the one continuous variable – the signs and symptoms scale. Next, a series of *t*-tests (two-tailed) were conducted for comparisons between the pre/post-ordinance period in Burleson and then Burleson versus the Control Site.

Victim Survey

The research methodology for the study included a survey of individuals who formally reported an IPV-related family violence (FV) offense to the Burleson Police Department (BPD) in 2017 (pre-ordinance) or 2020 (pos-ordinance) and who elected to participate in a self-report survey about their experiences. IPV survivors who reported any intimate partner FV to police during these timeframes were included in the sample to capture those instances when strangulation may have occurred, but police did not detect, document, and/or respond to it.

The purpose of the victim survey was to collect information about survivor experiences following a formal report of IPV to assess the police response, characteristics of the strangulation event, if on-scene medical was requested (and other medical outcomes), and police adherence to the Strangulation Ordinance requirements pre and post-ordinance. These topics address several study research questions namely—how the protocol affects high-risk victims (RQ2) and victim engagement (RQ5).

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identified strangulation indicator was constructed for comparisons involving Burleson and the Control Site. This indicator consisted of any one of three indicators: (1) impede breath was listed as the criminal offense on the incident report; (2) the suspect was formally charged with impede breath; and (3) the officer used any *one* of the key words in the narrative to describe the event: strangle/strangulation/strangled/strangling, choke/choked/choking, impede breath.

Sample

Voluntary participation in the self-report survey was solicited from a sample of potential participants (*n* = 121) drawn from the population of individuals who had been victimized in a family violence incident involving an intimate partner that was formally reported to BPD in 2020 (post-ordinance) and a sample of potential participants (*n* = 71) for incidents reported to BPD in 2017 (pre-ordinance).

Creation of the sample for each survey involved a multi-staged process which began onsite at BPD. First, the population of flagged FV offenses in the record management system (RMS) was generated from three lists drawn by the BPD crime analyst for the entire project period, January 1, 2016, to December 31, 2020. These three incident lists included: (1) all cases flagged as FV in RMS, (2) all cases flagged as strangulation in RMS, and (3) all cases involving the designation of an official impede breath incident in RMS. These three incident lists were not mutually exclusive and so were reviewed to remove duplicate victims (e.g., an Impede Breath case involving an intimate partner dyad could have been documented in all three lists). From here, several criteria were used to develop the sample once the sampling frame was completed. Only IPV-involved, FV flagged incidents that involved an adult victim 18 or older and were reported to BPD from January 1, 2017, to December 31, 2017, and January 1, 2020, to December 31, 2020, were relevant for the 2017 and 2020 surveys respectively. Moreover, per BPD command staff, any FV case that also involved a sexual assault reported during the incident repose was excluded from the sampling frame.

Researchers also culled the population of incidents reported during this time frame to exclude all cases not involving intimate partner dyads based on the victim/suspect relationship code in RMS. An intimate partner dyad was defined as two adults in a current or former intimate

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relationship. Researchers retained incidents with codes that reflected a current or former intimate relationship (e.g., spouse, ex-spouse, cohabiting, girlfriend/boyfriend, same-sex couple, etc.). Cases where the victim and suspect were related by blood (e.g., parent/child, stepparent, grandparent, siblings, relatives) and those not related by blood but in a family unit (e.g., stepparent/stepchild, stepsiblings, siblings, etc.) were excluded from the sample. In incidents where a relationship code was missing or the nature of the relationship could not be easily discerned (e.g., acquaintance, otherwise unknown, etc.), researchers reviewed additional information in RMS for each incident to determine inclusion/exclusion in the sample.

The unit of analysis for this facet of the evaluation was the individual who experienced victimization, but to avoid inviting participation and/or administering the survey to a single victim multiple times, all cases were screened and those with known repeat victim information were excluded. This means that an individual may have been involved in multiple FV incidents during the study period, but to prevent duplication, only a single incident involving that individual victim was retained in the survey sample.

Once the initial sample of potential survey participants was developed, it was necessary to manually navigate RMS to locate email contact information for each potential participant.[31] This information was typically located in scanned victim witness statements. A preliminary participant list with contact information was compared to a spreadsheet managed by Victim Assistance (VA) to document service delivery. This was to verify that cases were not erroneously excluded from the survey participant sample list, and to cross-reference and remove any

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[31] While victim email contact information can be collected and retained in RMS via scanned documents, this data is not available to export into a spreadsheet.

remaining duplication. The VA coordinator also validated and/or supplemented email contact information from VA files, independent of RMS content.[32]

Survey Creation and Participant Recruitment

Survey Creation. The victim survey instrument and corresponding recruitment protocol was created in consultation with leadership from a local family justice center, One Safe Place (OSP)[33] to ensure the use of victim-centered and trauma-informed practices. Researchers also piloted the instrument with OSP's Voices Committee—an advisory group comprised IPV survivors, who provided input and feedback on the research protocol and survey instrument to ensure the use of survivor-centered and trauma-informed language and practices.

Several steps were included in the IRB-approved protocol to protect the confidentiality and safety of potential survey participants. First, each potential survey participant was assigned a random ID number that was not linked to the BPD incident number from which their respective sample eligibility was drawn. Second, the survey instrument did not collect demographic data from participants or request any identifying information regarding their FV report to BPD. Third, an emergency escape button was included in the online survey and offered at each stage during the survey so that participants could safely exit the online platform at any point without a digital footprint.

Survey Recruitment. The IRB-approved survey recruitment and administration protocol also reflected trauma-informed practices. Potential participants were recruited electronically in

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[32] Given the sensitive nature of the study content and the desire to signal endorsement of the NIJ study, police leadership directed VA personnel to initiate contact with each individual in the sample to officially inform them of the partnership with Tarleton and to expect a contact from researchers unless they wanted to opt out immediately. This notification process began January 2022 and was concluded in February 2022. After all potential participants had been contacted and given an opportunity to respond and decline participation by VA personnel, a final list of email addresses was provided to researchers to solicit participation in the survey.
[33] One Safe Place (OSP) is a Family Justice Center, is a multi-agency network consisting of approximately 22 partner agencies providing coordinated services to IPV victims in Tarrant Country (One Safe Place, 2023).

four waves. First, researchers solicited voluntary and confidential participation through the distribution of an electronic invitation for the web-based survey that was hosted on a secure, online survey platform. The IRB-approved email script described the survey's purpose and its general content and contained the survey URL with instructions for potential participants to access and complete the survey. To facilitate accurate tracking of participants, emails were individually distributed from a generic Tarleton State University email address[34] devoted to the project that did not signal anything specific about family violence. Each email invitation contained the participant's unique ID number, and that ID number was used to track potential participants to ensure that follow-up contact reminders were only distributed to those individuals who had not already accessed and/or submitted the survey.

Response Rate. Initial electronic invitations were sent to 193 potential participants ($n = 71$ for the 2017 pre-ordinance survey and $n = 122$ for the post-ordinance survey) with valid email addresses on February 4, 2022. Three subsequent reminder emails were sent to individuals who had not accessed the survey to facilitate increased participant response (e.g., Dillman et al., 1978). Follow-up electronic contact took place in three waves: 9 days (February 13, 2022), 5 days (February 18, 2022), and 6 days (February 24, 2022) following the initial electronic invitation. Out of the total 71 email invitations sent for the 2017 pre-ordinance survey, nine participants accessed the survey URL and opened the online survey; but only eight participants provided substantive responses to at least one item on the instrument for a final response rate of 11.0%. Out of the total 122 email invitations for the 2020 post-ordinance survey, 12 participants accessed the survey URL and opened the online survey; 11 participants provided substantive responses to at least one item on the instrument for a response rate of 9.0%.

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[34] The survey email address was password protected and only accessible by members of the research team.

A quantitative survey with eight pre-ordinance and 11 post-ordinance participant responses creates analysis challenges and does not permit the use of inferential statistics. As a result, the analytic strategy for examining these responses includes a qualitative and descriptive approach on a series of outcome evaluation-relevant items regarding the participant's strangulation and their interaction with Burleson Police and Burleson Fire (when appropriate) during the incident response. Given the limited sample, count data will be summarized and occasionally valid percentages when possible. Additionally, quotes from victims were also included to add further context to the results. Findings associated with victim survey data are presented in two subsections of the findings chapter—how the protocol affects high-risk victims (RQ2) and victim engagement (RQ5).

CHAPTER V: FINDINGS

This section will first overview key findings of the evaluability assessment and the process evaluation. For a complete review of the findings, please consult the respective reports. The remainder of this chapter focuses on the outcome evaluation.

Overview of Evaluability Assessment Results

In the Evaluability Assessment findings and recommendations, the research team suggested that stakeholders formalize a logic model that would map out the goals, objectives, activities, and performance measures for the Intervention. On January 31, 2020, stakeholders began a process to formalize a logic model and the research team reviewed the logic model. The research team provided minor recommendations, and these were approved by the stakeholders on July 12, 2021. The final logic model is attached as Appendix F and discussed in detail in the

process evaluation report. The research team used three central areas to guide decisions about proceeding with the process and outcome evaluations: plausibility, utility, and feasibility. In brief, *plausibility* examines the adequacy of the Intervention design and the likelihood that the Intervention will produce an impact, *utility* examines the likelihood that an outcome evaluation will be useful to stakeholders, and *feasibility* examines if it is possible to measure outcomes and impact in the future (Peersman, et al., 2015). Decision support consists of three possible outcomes for each of these central areas: (1) proceed with process and outcome evaluations; (2) proceed with process and outcome evaluations but address critical issues; and (3) not proceed with the process and outcome evaluations.

Based on extensive review of extant materials (e.g., forms, documents, instruments), site visits and examination of potential data sources, and interviews with 29 stakeholders from Burleson, the Control Site, and other task force members (OSP and MedStar), the research team made the following decisions with regards to plausibility, utility, and feasibility:

- *Plausibility:* Proceed with process and outcome evaluations but address critical issues.
- *Utility:* Proceed with both process and outcome evaluations.
- *Feasibility:* Proceed with process and outcome evaluation but address critical issues.

The first critical issues noted above included the need for the Burleson STF to develop a logic model that maps out goals, objectives, activities, outputs, and expected outcomes for the Intervention. The second critical issue was related to deficiencies in the strangulation training that would necessitate the need to retrain first responders in Burleson. The third critical issue concerned a change made to the strangulation protocol regarding the timing of the strangulation outcry and the need for a medical response. After a discussion with the BFD/MedStar Medical Director, a decision was made in June of 2019 to modify the strangulation protocol to only include victims who stated they had been strangled within the past seven days. This change,

while viewed as necessary by the STF, presented methodological challenges for the research team in the process and outcome evaluations. The fourth critical issue concerned the establishment of fidelity monitoring of the strangulation protocol by both BPD and BFD. The final critical issue was related to the discovery of contamination at the original Control Site[35] and the need to replace it with a more suitable city. Each of these critical issues were addressed prior to the initiation of the process and outcome evaluations.

Overview of Process Evaluation Results

Like the Evaluability Assessment, the results of the process evaluation are available in a standalone report. The process evaluation examined seven research questions detailed below in Table 3. In brief, the Ordinance and strangulation protocol were adequately designed for implementing a coordinated response to IPVRS, training and educating first responders, and developing processes to enable emergency medical screenings for victims. Surveys of Burleson first responders and qualitative findings taken from interviews of stakeholders confirmed strong support for the initiative and disclosure of implementation problems were rare. Key components for implementation were achieved (e.g., development of specialized forms, training, inter-agency cooperation) and implementation processes and program fidelity were generally positively evaluated by Burleson first responders in surveys and stakeholder interviews. Table 3 provides a snapshot of process evaluation results.

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[35] This is explained in greater detail in the EA report, but the original Control Site, Control Site A, began to implement a new response to IPV that while not strangulation specific it created concerns about the suitability of the site and about our ability to determine causality of the Ordinance in Burleson when using a contaminated control site.

Table 3. *Summary Review of Process Evaluation Results*

(1) Is the initiative being implemented, operated and managed as designed?	*Partial.* Fidelity was achieved, most but not all of the time. Improvements necessary.
(2) What challenges have agencies faced collecting and sharing data on IPV Strangulation?	*BPD:* Officers forget to complete FVP and specialized strangulation questions, failure to recognize all strangulation incidents and mobilize BFD. *BFD:* Occasionally skipped items on BFD worksheet, some miscommunication between BFD/BPD on-scene.
(3) Is there a quality assurance and fidelity monitoring system in place to assess the operation of the initiative?	*BPD:* Supervisor review and victim assistance monitoring. *BFD:* Supervisor and electronic quality control reviews.
(4) Is there sufficient agency financial, administrative and technical support for the initiative?	*Yes* – general agreement among first responders in process evaluation survey and stakeholder interviews.
(5) Have staff received adequate training?	*Yes* – All BPD and BFD staff trained as verified by examination of agency training records. Revised training curriculum was sufficient. Outcome evaluation to further determine "adequacy."
(6) Is there support for the initiative from other organizations?	*Yes* – Establishment of multi-agency Strangulation Task Force (STF).
(7) Are there formal or informal agreements with collaborating agencies to assist with the Protocol?	*Yes* – formalized through Ordinance and informal through the STF.

As revealed in Table 3, fidelity was systematically assessed across five predetermined binary indicators that were taken directly from the Ordinance and then examined using police case file data. Results from a review of IPV-related post-ordinance protocol-eligible strangulation incidents ($n = 155$) indicated general adherence to the goals and objectives of the Ordinance and strangulation protocol with room for improvement across several indicators. As Table 4 demonstrates, there was a cumulative effect among non-compliance to each fidelity item,

where non-compliance on one fidelity item might adversely impact compliance on a subsequent

Ordinance requirement. It appears that this has occurred here—the percentage of cases with

compliance to the Ordinance decreased at each subsequent Ordinance requirement.

Table 4. *Frequency Distribution of Fidelity Compliance on Ordinance Requirements*

	n = 155			
	Fidelity Compliance			
	No		**Yes**	
	n	**%**	***n***	**%**
Ordinance Requirements for Fidelity Compliance				
Administration of Family Violence Packet	19	12.3%	136	87.7%
Use of Specialized Strangulation Questions	35	22.6%	120	77.4%
BPD Requests Medical for Strangulation Victim	59	38.1%	96	61.9%
BFD Administers Strangulation Worksheet	65	41.9%	90	58.1%
Documentation of Referrals to Support Agency	87	56.1%	68	43.9%

More specifically, 87.7% (*n* = 136) of the protocol-eligible cases had the FVP, but among

cases without the FVP (*n* = 19, 12.3%), administration of the required strangulation questions is

not possible; thus, compliance decreases from 87.7% of cases with the FVP to 77.4% where the

specialized questions were administered. Moreover, when the specialized strangulation questions

are not administered, police miss an important opportunity to collect information about the

strangulation event, which inhibits the likelihood that police will request medical personnel to

assess and treat the strangulation victim during the incident response. This reduction is

observable in Table 4, where the percentage of compliant cases decreases from 77.4% (*n* = 120)

and the specialized questions were administered to 61.9% (*n* = 96) of cases where BPD requested

medical personnel respond to the scene. Again, when medical personnel have not been

notified/dispatched to the scene, then it is not possible for BFD to administer the strangulation

worksheet as part of their assessment and evaluation of the victim. Great caution must be

exercised when interpreting fidelity compliance results for BFD. Specifically, where Table 4 has

noted compliance for only 58.1% (*n* = 90) of cases and noncompliance for 41.9% of cases as

related to the Ordinance requirement for BFD. These low values do not reflect an inadequate response by BFD, but rather indicate that their presence was not requested by police when it should have been. In sum, fidelity was partially achieved, but not all of the time and improvements were deemed necessary.

Overview of Outcome Evaluation Approach and Organization of Results

The outcome evaluation uses a matched comparison pre-posttest quasi-experimental design to examine the effectiveness of the Ordinance on an array of expected outcomes tied to seven research questions (RQ). These include:

(1) Does the Protocol increase the number of victims identified by law enforcement as high-risk for IPVRS victimization?
(2) How does the Protocol affect the number of located high-risk victims?
(3) Does the Protocol improve the detection of IPV strangulation by medical first responders?
(4) Does the Protocol improve the number of arrests related to IPV strangulation crimes?
(5) Do identified victims have more engagement with the criminal justice and other service providers because of the Protocol?
(6) Are officers in Burleson more knowledgeable about signs and symptoms associated with IPVRS compared to officers working in jurisdictions without a specialized protocol?
(7) Do officers experience injuries when responding to IPV strangulation crimes?

These research questions were tested across the pre- and post-ordinance groups in Burleson (January 1, 2016 - March 5, 2018) and across the post-ordinance period (March 6, 2018 - December 31, 2020) in both Burleson (treatment) and the control group. The presentation of outcome evaluation findings begins with a review of descriptive results for population of IPVRS cases in Burleson and the Control Site before transitioning to each research question. Within each research question, results from Burleson pre and post comparisons are shown first and then followed by Control Site comparisons. A summary and synthesis of key findings across all research questions will occur in the discussion.

Burleson Pre vs. Post-Ordinance: Descriptive Statistics for IPVRS Incident

Tables 5 -7 present descriptive statistics for the 187 current[36] IPVRS incidents that were reported to BPD in the pre ($n = 71$) and post-ordinance ($n = 116$) periods. The three tables were organized across three central areas: (1) IPVRS victim and suspect characteristics, (2) IPVRS incident and case characteristics, and (3) Ordinance outcomes.

As indicated in Table 5, IPVRS victims were predominately White in both the pre (93%, $n = 66$) and post (86.2%, $n =100$) ordinance periods. There was a smaller percentage of Black IPVRS victims in the pre (4.2%, $n = 3$) and post (12.9%, $n = 15$) timeframes. IPVRS suspects were also predominately White across the pre (94.4%, $n = 67$) and post (83.6%, $n = 97$) ordinance periods. Like IPVRS victims, there was also a smaller percentage of Black suspects in both the pre (4.2%, $n = 3$) and post (16.4%, $n = 19$) ordinance timeframe. Most IPVRS incidents involved a male suspect/female victim dyad in both the pre (91.5%, $n = 65$) and post-ordinance (89.7%, $n = 104$) periods. Prior to the ordinance, the average age of an IPVRS victim was 30.65 years-old (*range* 16 - 56, $SD = 8.382$) and post-ordinance, the average age was 32.57 (*range* 15 - 64, $SD = 9.390$). The average age of an IPVRS suspect was 32.03 years-old pre-ordinance (*range* 17 - 52, $SD = 8.698$) and 34.07 (*range* 16 - 78, $SD = 10.400$) in the post-ordinance timeframe. The most common IPVRS relationship classification was Boyfriend/Girlfriend in both the pre (60.6%, $n = 43$) and post (59.5%, $n = 69$) ordinance time periods with married couples constituting the second most frequent relationship category in both timeframes (pre: 29.6%, $n = 21$ and post: 31.9%, $n = 37$).

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[36] Current references strangulations reported in the past 7-days. Old strangulations ($n = 85$) were excluded because the Ordinance does not apply to strangulation that occurred beyond the 7-day timeframe.

Table 5. *Burleson Pre vs. Post-Ordinance: Victim and Suspect Characteristics*

	N = 187			
	Pre-Ordinance *n = 71*		**Post-Ordinance** *n = 116*	
	n	**%**	**n**	**%**
Victim Race				
White	66	93.0%	100	86.2%
Black	3	4.2%	15	12.9%
Asian	2	2.8%	1	0.9%
Suspect Race				
White	67	94.4%	97	83.6%
Black	3	4.2%	19	16.4%
Asian	1	1.4%	--	--
IPV Dyad Type				
Male Suspect/Female Victim	65	91.5%	104	89.7%
Female Suspect/Male Victim	5	7.0%	6	5.2%
Same-Sex Dyad	1	1.4%	6	5.2%
IPV Relationship				
Boyfriend/Girlfriend	43	60.6%	69	59.5%
Spouse	21	29.6%	37	31.9%
Common Law Spouse	3	4.2%	--	--
Ex-Spouse	4	5.6%	5	4.3%
Other	--	--	5	4.3%

	Pre-Ordinance				**Post-Ordinance**			
	Min	*Max*	*Mean*	*S.D.*	*Min*	*Max*	*Mean*	*S.D.*
Victim Age	16	56	30.65	8.382	15	64	32.57	9.390
Suspect Age	17	52	32.03	8.698	16	78	34.07	10.400

As indicated in Table 6 below, most of the IPVRS incidents occurred in Johnson County across the pre (88.7%, *n* = 63) and post-ordinance (87.9%, *n* = 102) periods and most of these incidents occurred in a residence/home (pre: 91.5%, *n* = 65 and post: 84.5%, *n* = 98). Burleson IPVRS incidents typically involved one victim and one suspect, and children were present in 43.7% (*n* = 31) of pre-ordinance incidents and in 44% (*n* = 51) of post-ordinance incidents.

Table 6. *Burleson Pre vs. Post-Ordinance: IPVRS Incident and Case Characteristics*

	Pre-Ordinance n = 71		Post-Ordinance n= 116	
	n	*%*	*n*	*%*
County				
Johnson County	63	88.7%	102	87.9%
Tarrant County	8	11.3%	14	12.1%
Premise Type				
Residence/Home	65	91.5%	98	84.5%
Hotel/Motel/Etc.	2	2.8%	3	2.6%
Road/Alley/Highway	2	2.8%	5	4.3%
Parking/Drop Lot/Garage	1	1.4%	3	2.6%
Business	--	--	2	1.7%
BPD Lobby	--	--	1	0.9%
Other	--	--	4	3.4%
Sexual Assault				
Yes	2	2.8%	2	1.7%
No	69	97.2%	114	98.3%
Children On-Scene				
Yes	31	43.7%	51	44.0%
No	40	56.3%	65	56.0%
Supervisor On-Scene				
Yes	23	32.4%	50	43.1%
No	48	67.6%	66	56.9%
Police Noted Victim Inconsistencies				
Yes	--	--	16	13.8%
No	71	100%	100	86.2%
Suspect Statement				
Yes	12	16.9%	12	10.3%
No	59	83.1%	104	89.7%
Witness Statement				
Yes	24	33.8%	35	30.2%
No	47	66.2%	81	69.8%
Victim Visible Injury				
Yes	57	80.3%	101	87.1%
No	14	19.7%	15	12.9%
Police Took Victim Photos				
Yes	55	77.5%	102	87.9%
No	16	22.5%	14	12.1%

	Pre-Ordinance				Post-Ordinance			
	Min	*Max*	*Mean*	*SD*	*Min*	*Max*	*Mean*	*SD*
Number of Victims per Incident	1	2	1.03	.167	1	6	1.74	1.104
Number of Suspects per Incident	1	1	1.00	.000	1	3	1.03	.226
Number of Officers On-Scene	1	5	2.18	1.125	1	22	3.04	2.297

During the study, the average number of police officers on scene increased from 2.18 (*range* 1 - 5, *SD* = 1.125) to 3.04 (*range* 1 - 22, *SD* = 2.297) in the post-ordinance period.[37] Supervisors were more often present at IPVRS incidents in the post-ordinance period (43.1%, *n* = 50) than the baseline timeframe (32.4%, *n* = 23). In terms of case evidence, most victims had some type of visible injury documented in the police case file across both the pre (80.3%, *n* = 57) and post-ordinance timeframes (87.1%, *n* = 101). Prior to the ordinance, the police photographed these injuries 77.5% (*n* = 55) of the time and this increased to 87.9% (*n* = 102) in the post-ordinance period. The prevalence of witness statements in IPVRS incidents did not vary much across the study with statements present in 33.8% (*n* = 24) of incidents in the baseline period compared to 30.2% (*n* = 35) post-ordinance. Across the study period, written statements from the suspect were rare as were instances where officers noted inconsistencies from the victim regarding the incident.

Table 7 displays summary statistics for study outcomes. The number of police-identified IPVRS incidents increased from 59.2% (*n* = 42) pre-ordinance to 87.1% (*n* = 101) post-ordinance—a finding discussed at length in the section below on findings associated with research question one. IPVRS incidents cleared by arrest increased from 64.8% (*n* = 46)

[Table on next page]

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[37] This increase was due to an outlier event involving 22 officers.

Table 7. *Burleson Pre vs. Post-Ordinance: Outcomes*

	Pre-Ordinance n = 71		Post-Ordinance n= 116	
	n	*%*	*n*	*%*
Police-Identified Strangulation				
Yes	42	59.2%	101	87.1%
No	29	40.8%	15	12.9%
Case Disposition				
Cleared by Arrest	46	64.8%	86	74.1%
Exceptionally Cleared	17	23.9%	7	6.0%
Pending/Active Investigation	--	--	1	0.9%
Suspended	1	1.4%	19	16.4%
Closed	7	9.9%	3	2.6%
Impede Breath Charged				
Yes	22	31.0%	58	50.0%
No	49	69.0%	58	50.0%
EPO Requested				
Yes	40	57.1%	74	63.8%
No	30	42.9%	42	36.2%
EPO Granted				
Yes	35	50.0%	53	46.1%
No	5	7.1%	20	17.4%
N/A	30	42.9%	42	36.5%
FD On-Scene				
Yes	10	23.8%	84	83.2%
No	32	76.2%	17	16.8%
MedStar On-Scene				
Yes	10	23.8%	73	72.3%
No	32	76.2%	28	27.7%
Victim Activated CJ System				
Yes	36	50.7%	69	59.5%
No	35	49.3%	47	40.5%
Victim Statement				
Yes	54	76.1%	84	72.4%
No	17	23.9%	32	27.6%
Victim Recanted				
Yes	1	1.4%	9	7.8%
No	70	98.6%	107	92.2%
Affidavit of Non-Prosecution				
Yes	4	5.6%	12	10.3%
No	67	94.4%	104	89.7%

pre-ordinance to 74.1% (*n* = 86) post-ordinance. Similarly, impede breath charges also increased

from 31% (*n* = 22) pre-ordinance to 50% (*n* = 58) post-ordinance. The percentage of EPOs

granted declined slightly from 50% (*n* = 35) to 46.1% (*n* = 53) pre to post-ordinance. Medical

presence increased for both BFD (23.8% n = 10 to 83.2%, n = 84) and MedStar (23.8%, n = 10 to 72.3%, n = 73).

In terms of IPVRS victim engagement, the victim activated the criminal justice system (CJS) response in most incidents across both the pre (50.7%, n = 36) and post-ordinance periods (59.5%, n = 69). Most victims were willing to provide a written statement, but this decreased slightly from 76.1% pre-ordinance (n = 54) to 72.4% (n = 84) post-ordinance timeframe. Recantations were rare but increased from 1.4% (n = 1) pre-ordinance to 7.8% (n = 9) post-ordinance. Affidavits of non-prosecutions (ANPs) were also rare but increased from the 5.6% (n = 4) pre-ordinance to 10.3% (n = 12) post-ordinance.

Burleson vs. Control Site: Descriptive Statistics

Tables 8 - 10 present descriptive statistics for the current IPVRS incidents (n = 174) that were reported to Burleson (n = 102) and the Control Site (n = 72) during the post-ordinance timeframe. The three tables were organized to display results across three central areas: (1) IPVRS victim and suspect characteristics, (2) IPVRS incident and case characteristics, and (3) Ordinance outcomes. It is important to emphasize that the Burleson's post-ordinance results presented in this section are NOT directly comparable to results reported previously that involve only the Burleson site. This is partly due to the exclusion of Tarrant County incidents[38] and narrower police-identified current IPVRS indicator that was employed to facilitate comparisons to the Control Site (see Chapter IV Methodology).

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[38] The Control Site is in Johnson County. About 2.27 square miles, or 7.7% of Burleson's jurisdiction, is in Tarrant County and the rest in Johnson County. For comparisons involving the control site, IPVRS incidents that occurred in this small part of the city were excluded from the analyses. When comparisons are made within the broader Burleson pre/post comparisons these Tarrant County incidents were retained for analyses. (City of Burleson GIS Division - Information Technology Department, personal communication, May 8, 2024).

As shown in Table 8, IPVRS victims were predominately White in both the Burleson (85.3%, *n* = 87) and the Control Site (93.1%, *n* = 67) during the post-ordinance period. Burleson had a slightly higher percentage of Black IPVRS victims (13.7%, *n* = 14) than the Control Site (6.9%, *n* = 5). IPVRS suspects were also predominately White across Burleson (82.4%, *n* = 84) and the Control Site (86.1%, *n* = 62). Like IPVRS victims, there was a higher percentage of Black suspects in Burleson (17.6%, *n* = 18) than the Control Site (13.9%, *n* = 10). Most IPVRS incidents involved a male suspect/female victim dyad in both Burleson (91.2%, *n* = 93) and the

Table 8. *Burleson vs. Control: Victim and Suspect Characteristics*

	N = 174			
	Burleson *n* = 102		Control *n* = 72	
	n	*%*	*n*	*%*
Victim Race				
White	87	85.3%	67	93.1%
Black	14	13.7%	5	6.9%
Asian	1	1.0%	--	--
Suspect Race				
White	84	82.4%	62	86.1%
Black	18	17.6%	10	13.9%
Asian	--	--	--	--
IPV Dyad Type				
Male Suspect/Female Victim	93	91.2%	67	94.4%
Female Suspect/Male Victim	5	4.9%	4	5.6%
Same-Sex Dyad	4	3.9%	--	--
IPV Relationship				
Boyfriend/Girlfriend	64	62.7%	40	55.6%
Spouse	29	28.4%	25	34.7%
Common Law Spouse	--	--	5	6.9%
Ex-Spouse	5	4.9%	2	2.8%
Other	4	3.9%	--	--

	Burleson				Control			
	Min	*Max*	*Mean*	*S.D.*	*Min*	*Max*	*Mean*	*S.D.*
Victim Age	15	64	32.05	9.563	18	53	30.65	8.768
Suspect Age	16	78	33.74	10.586	18	70	32.94	10.535

Control Site (94.4%, *n* = 67). The average age of an IPVRS victim in Burleson was 32.05 (*range* 15 - 64, *SD* = 9.563) and 30.65 at the Control Site (*range* 18 - 53, *SD* = 8.768). The average age of an IPVRS suspect in Burleson was 33.74 (*range* 16 - 78, *SD* = 10.586) and 32.94 at the

Control Site (*range* 18 - 70, *SD* = 10.535). The most common IPVRS relationship classification was Boyfriend/Girlfriend in Burleson (62.7%, *n* = 64) and the Control Site (55.6%, *n* = 40) with married couples constituting the second most frequent relationship category at both locations (Burleson: 28.4%, *n* = 29 and Control Site: 34.7%, *n* = 25).

As indicated in Table 9, most current IPVRS incidents involved one victim and one suspect with 83.3% (*n* = 85) of Burleson incidents and 81.9% (*n* = 59) of Control Site incidents occurring in the home. The documentation of children on scene during an IPVRS incident was higher in Burleson (39.2%, *n* = 40) than the Control Site (26.4%, *n* = 19). The average number of BPD officers on scene was 2.94 (*range* 1 - 7, *SD* = 1.488) compared to 2.49 officers at the Control Site (*range* 1 - 7, *SD* = 1.353). Burleson supervisors were more often present at IPVRS incidents (45.1%, *n* = 46) than the Control Site (38.9%, *n* = 28). Regarding case evidence, 30.4% (*n* = 31) of the IPVRS incidents in Burleson had a witness statement compared to 6.9% (*n* = 5) at the Control Site. Burleson victims had a visible injury documented in the case file more often than Control Site victims (85.3%, *n* = 87 compared to 73.6%, n = 53). BPD took photos of IPVRS victims in 86.3% (*n* = 88) of IPVRS incidents versus 48.6% (*n* = 35) at the Control Site. Across both jurisdictions, written statements from the suspect were rare as were instances where officers noted inconsistencies from the victim regarding the incident.

Table 10 displays descriptive statistics about Ordinance outcomes. The number of police-identified IPVRS incidents was higher in Burleson 87.3% (*n* = 89) compared to 63.9% (*n* = 46) at the Control Site—a finding discussed at length in the section below on findings associated with research question one. Current IPVRS incidents were cleared by arrest in 72.5% (*n* = 74) of the Burleson incidents versus 40.3% (*n* = 29) of the Control Site incidents. Impede breath charges occurred more often in Burleson (49%, *n* = 50) than the Control Site (26.4%, *n* = 19).

Table 9. *Burleson vs. Control Post-Ordinance: IPVPRS Incident and Case Characteristics*

	Burleson n = 102		Control n= 72	
	n	**%**	**n**	**%**
Premise Type				
Residence/Home	85	83.3%	59	81.9%
Hotel/Motel/Etc.	3	2.9%	7	9.7%
Road/Alley/Highway	5	4.9%	3	4.2%
Parking/Drop Lot/Garage	2	2%	2	2.8%
Business	2	2%	--	--
BPD Lobby	1	1%	--	--
Other	4	3.9%	1	1.4%
Sexual Assault				
Yes	2	98%	--	--
No	100	2%	--	--
Children On-Scene				
Yes	40	39.2%	19	26.4%
No	62	60.8%	53	73.6%
Supervisor On-Scene				
Yes	46	45.1%	28	38.9%
No	56	54.9%	44	61.1%
Police Noted Victim Inconsistencies				
Yes	16	15.7%	1	1.4%
No	86	84.3%	71	98.6%
Suspect Statement				
Yes	11	10.8%	--	--
No	91	89.2%	72	100%
Witness Statement				
Yes	31	30.4%	5	6.9%
No	71	69.6%	67	93.1%
Victim Visible Injury				
Yes	87	85.3%	53	73.6%
No	15	14.7%	19	26.4%
Police Took Victim Photos				
Yes	88	86.3%	35	48.6%
No	14	13.7%	37	51.4%

	Burleson				Control			
	Min	**Max**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**
Number of Victims per Incident	1	6	1.58	.989	1	2	1.03	.165
Number of Suspects per Incident	1	2	1.02	.139	1	3	1.04	.262
Number of Officers On-Scene	1	7	2.94	1.488	1	7	2.49	1.353

EPOs were requested more frequently in Burleson (63.7%, *n* = 65) than the Control Site

(29.2%, *n* = 21) and relatedly more EPOs were granted in Burleson (46.5%, *n* = 47) compared to

the Control Site (11.1%, *n* = 8). Medical presence was also higher in Burleson (76.5%, *n* = 78)

versus the Control Site (15.3%, *n* = 11).

Table 10. *Burleson vs. Control Post-Ordinance: Outcomes*

	N = 174			
	Burleson *n* = 102		**Control** *n*= 72	
	n	*%*	*n*	*%*
Police-Identified Strangulation				
Yes	89	87.3%	46	63.9%
No	13	12.7%	26	36.1%
Case Disposition				
Cleared by Arrest	74	72.5%	29	40.3%
Exceptionally Cleared	6	5.9%	35	48.6%
Pending/Active Investigation	1	1.0%	2	2.8%
Suspended	18	17.6%	4	5.6%
Closed	3	2.9%	2	2.8%
Impede Breath Charged				
Yes	50	49%	19	26.4%
No	52	51%	53	73.6%
EPO Requested				
Yes	65	63.7%	21	29.2%
No	37	36.3%	51	70.8%
EPO Granted				
Yes	47	46.5%	8	11.1%
No	17	16.8%	13	18.1%
N/A	37	36.6%	51	70.8%
Medical On-Scene				
Yes	78	76.5%	11	15.3%
No	24	23.5%	61	84.7%
Victim Activated CJ System				
Yes	61	59.8%	39	54.2%
No	41	40.2%	33	45.8%
Victim Statement				
Yes	72	70.6%	33	45.8%
No	30	29.4%	39	54.2%
Victim Recanted				
Yes	8	7.8%	1	1.4%
No	94	92.2%	71	98.6%
Affidavit of Non-Prosecution				
Yes	12	11.8%	8	11.1%
No	90	88.2%	64	88.9%

In terms of IPVRS victim engagement, Burleson victims activated the criminal justice

system (CJS) response in 59.6% (*n* = 61) of IPVRS incidents in contrast to 54.2% (*n* = 39) of

incidents at the Control Site. Most Burleson victims (70.6%, *n* = 72) were willing to provide a

written statement compared to 45.8% ($n = 33$) of Control Site victims. Recantations were rare with 7.8% ($n = 8$) of Burleson victims recanting in contrast to 1.4% ($n = 1$) of Control Site victims. Affidavits of non-prosecution (ANPs) were also rare with 11.8% ($n = 12$) of Burleson victims completing an ANP compared to 11.1% ($n = 8$) Control Site victims.

Organization of Findings

The outcome evaluation employed a pre-post-test control group design to identify the effect of the Burleson strangulation ordinance on response to IPVRS incidents. Findings are organized by research question beginning with bivariate results from the pre- and post-ordinance comparisons in Burleson followed by bivariate results from the post-ordinance period that compares Burleson (treatment) and the control group. Next, to assess the independent effect of the ordinance on several outcomes, propensity score weights were calculated and the ATE was estimated for each outcome of interest.

Research Question 1: Does the Protocol Increase the Number of Victims Identified by Law Enforcement as High-Risk for IPVRS Victimization?

Burleson Pre vs. Post-Ordinance: Police-Identified IPVRS

The population of current IPVRS incidents in Burleson across the entire study period ($N = 187$) was employed to assess the impact of the Ordinance on police identification of strangulation among IPV-related family violence incidents involving strangulation. Table 11 displays the percentage of all IPVRS cases that were officially identified as strangulation by the BPD. Over the study period, the BPD identified a higher percentage of cases increasing from 61.7% in 2016 to 90.4% in 2019 and 83.3% in 2020.

Table 11. *Burleson Police Identification of IPV Strangulation by Year*

Year	Burleson IPV Strangulation	Burleson Police-Identified IPVRS	% Identified
2016	34	21	61.7%
2017	33	18	54.5%
2018	36	31	86.1%
2019	42	38	90.4%
2020	42	35	83.3%
Total	187	143	--

Bivariate analyses also demonstrated differences in police identification of strangulation across the pre and post-ordinance time periods (see Table 12). Specifically, among cases reported during the post-ordinance period, 87.1% ($n = 101$) were classified as strangulation-involved by police compared to 59.2% ($n = 42$) identified as strangulation by police in the pre-ordinance period. While these initial bivariate results demonstrate some promise in terms of the impact of the Ordinance on increasing police identification of strangulation, multivariate statistical models are necessary to isolate the independent effect of the Ordinance on the outcome under investigation.

Table 12. *Burleson Police Identification of IPV Strangulation by Ordinance Status*

Ordinance Status	Police-Identified IPV Strangulation					
	No		Yes		Total	Chi Square
	n	%	*n*	%		$N = 187$
Pre	29	40.8%	42	59.2%	71	
Post	15	12.9%	101	87.1%	116	$\chi^2_{(1)} = 19.073$[39]
Total	44	23.5%	143	76.5%	187	

Propensity Score Weighted Estimates of Ordinance Effects of Police-Identified IPV Strangulation. Table 13 presents the average treatment effect (ATE) of the strangulation ordinance on police identification of IPV strangulation, using the population of strangulation cases reported to police across the study period. Results demonstrated a significant increase in the probability that police would identify strangulation after the ordinance was passed. In IPVRS

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[39] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, $p = <.001$.

cases reported during the pre-ordinance period, 62.2% of current IPV strangulations were classified as strangulation by police but the ATE (.252) of the Ordinance increased this probability from .622 to .875 after the ordinance. In other words, after the Ordinance, police-identified 87.5% of current IPV strangulations.

Table 13. *Average Treatment Effect of Strangulation Ordinance on Police-Identified Strangulation in Burleson using Propensity Score Weighting*

	BPD-Identified IPVRS
	N = 187
	b
Pre-Ordinance Probability	.622
Average Treatment Effect (ATE)	.252[40]
Post-Ordinance Probability	.875

Burleson vs. Control Site: Police-Identified IPVRS

Next, a similar set of analyses was conducted for Burleson and Control Site. The population of current IPVRS incidents across the post-ordinance period ($N = 174$) was employed to assess the impact of the Ordinance on police identification of strangulation among IPV strangulation incidents for the Burleson and the Control Site comparisons. Table 14 shows that during the post-ordinance period, the BPD identified a higher percentage of IPVRS cases

Table 14. *Police Identification of IPV Strangulation Post-Ordinance by Jurisdiction*

Year	Burleson IPV Strangulation	Burleson Police-Identified IPVRS	% IPVRS Identified	Control Site Strangulation	Control Site Police-Identified IPVRS	% IPVRS Identified
2018	28	24	86%	16	8	50%
2019	37	33	89%	28	19	67%
2020	37	32	86%	28	19	67%
Total	102	89	--	72	43	--

compared to the Control Site. For example, in 2020, BPD identified 86% of IPVRS cases while the Control Site identified 67% of IPVRS incidents.

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[40] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, $p = .000$.

Bivariate results also demonstrated differences in police identification of IPVRS by

jurisdiction (See Table 15). Specifically, among IPV strangulation cases reported in Burleson

during the post-ordinance period, BPD identified 87.3% ($n = 89$) of current IPVRS incidents

compared to 63.9% of cases reported at the Control Site ($n = 46$). While these initial bivariate

results demonstrate promise in terms of the impact of the Ordinance on increasing police

identification of IPVRS in Burleson, multivariate statistical models are necessary to isolate the

independent effect of the Ordinance on the outcome under investigation.

Table 15. *Police Identification of IPV Strangulation Post-Ordinance by Jurisdiction*

	Police-Identified IPV Strangulation					
Jurisdiction	**No**		**Yes**		**Total**	**Test Statistic**
	n	*%*	*n*	*%*		$N = 174$
Burleson	13	12.7%	89	87.3%	102	
Control	26	36.1%	46	63.9%	72	$\chi^2_{(1)} = 13.251$[41]
Total	39	22.4%	135	77.6%	174	

Propensity Score Weighted Estimates of Ordinance Effects for Police-Identified IPV

Strangulation. Table 16 presents the average treatment effect (ATE) of the strangulation

ordinance on police identification of IPVRS, using the population of strangulation cases reported

to police in each jurisdiction during the post-ordinance period ($N = 174$). Results indicate there

was a higher probability of police-identified IPVRS in Burleson (.852) compared to the Control

Site (.641). The ATE was .211 indicating that police identification of IPV strangulation in

Burleson was 21.1 percentage points higher in Burleson than the Control Site. In other words, in

the Control Site, police were identifying 64% of current strangulations compared to Burleson,

where after the Ordinance, police were identifying 85.2% of total strangulations.

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[41] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, $p < .001$.

Table 16. *Average Treatment Effect of Strangulation Ordinance on Police-Identified IPVRS using Propensity Score Weighting*

	Police-Identified IPV Strangulation
	N = 173
	b
Control Site Probability	.641
Average Treatment Effect (ATE)	.211[42]
Burleson Probability	.852

Research Question 2: How does the Protocol affect the Number of Located High-Risk Victims?

Victim-Centered Police Response

The second research question focused on assessing how the Ordinance can facilitate a victim-centered police response. More specifically, *"How does the Protocol affect the number of located high-risk victims?"* Three sources of data were used to address this research question: (1) IPVRS incident data from case files, (2) pre and post-ordinance surveys of Burleson IPV victims, and (3) repeat victimization data from BPD.[43] For analysis derived from the surveys, this was operationalized as *how* victims experienced their incident response from involved first responders. For analysis involving the case files, this was operationalized through emergency protective orders—both EPO requests, and among cases with EPO requests, those that were granted. Like the first research question, the population of IPV strangulation incidents for the study period was used to examine EPOs.

Burleson Pre and Post: EPOs

Bivariate results presented in Table 17 indicated no difference between EPO requests for cases reported during the pre and post-ordinance timeframes.

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[42] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .008.
[43] The Control Site did not have a victim assistance unit available to collect this information.

Table 17. *EPO Requests among IPV Strangulation Cases by Ordinance Status*

	No		**Yes**		**Total**	**Test Statistic**
						N = 186
Ordinance Status	***n***	**%**	***n***	**%**		
Pre	30	42.9%	40	57.1%	70	
Post	42	36.2%	74	63.8%	116	$\chi^2_{(1)} = .814^{44}$
Total	72	38.7%	114	61.3%	186	

Propensity Score Weighted Estimates of Ordinance Effects for EPO Requests. Table

18 presents the average treatment effect (ATE) of the strangulation ordinance on EPO requests,

using the population of strangulation cases reported to police across the study period. As can be

seen in Table 18, more than half of cases involving strangulation reported during the pre-

ordinance period involved an EPO request (61%) and the probability of an EPO request

increased only marginally (.035) during the post-ordinance period. In short, 61% of total

strangulation cases were associated with a request for an EPO in the pre-ordinance period and

this increased to nearly 65% in the post-ordinance period.

Table 18. *Average Treatment Effect of Strangulation Ordinance on EPO Requests using Propensity Score Weighting*

	EPOs
	N = 187
	b
Pre-Ordinance Probability	.610
Average Treatment Effect (ATE)	.035[45]
Post-Ordinance Probability	.649

The sample of cases where an EPO was requested (*n* = 114) was used to further

understand the potential impact of the strangulation ordinance on victim-centered responses.

Bivariate analyses are presented in Table 19 and illustrate no significant differences on EPO

requests that were granted across pre and post-ordinance time periods.

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[44] No *p*-value is reported because analysis involved the population of IPVRS incidents. For those with interest, *p* = .438

[45] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .602.

Table 19. *EPO Requests Granted Among IPV Strangulation Cases by Ordinance Status*

	EPO Requests Granted					
	No		**Yes**		**Total**	**Test Statistic**
Ordinance Status						
	n	*%*	*n*	*%*		*n* = 113
Pre	5	12.5%	35	87.5%	40	
Post	20	27.4%	53	72.6%	73	Fisher's Exact Test, *p* = .097
Total	25	22.1%	88	77.9%	113	

Propensity Score Weighted Estimates of Ordinance Effects for EPOs Granted. To assess the independent effect of the ordinance on EPO requests that were granted, propensity score weights were calculated and the ATE was estimated. Table 20 presents these results. Findings here suggest that the Ordinance decreased the probability of an EPO request being granted. In particular, prior to the Ordinance, the majority of IPV strangulation cases that involved an EPO request were granted (87.2%) and the probability of this decreased by .130 (*p* = .062). After the ordinance, EPO requests were granted in nearly 3 out of 4 strangulation cases or 74.2%.

Table 20. *Average Treatment Effect of Strangulation Ordinance on EPO Requests Granted using Propensity Score Weighting*

	EPO Requests Granted
	n = 113
	b
Pre-Ordinance Probability	.872
Average Treatment Effect (ATE)	-.130
Post-Ordinance Probability	.742

Burleson vs. Control: EPOs

Bivariate results presented in Table 21 demonstrate significant differences in IPVRS EPO requests between Burleson and the Control Site. Specifically, the percentage of EPOs requested among Burleson IPVRS victims was 63.7% (*n* = 65) compared to 29.2% (*n* = 21) of Control Site victims.

Table 21. *EPO Requests among IPV Strangulation Cases by Jurisdiction*

	EPO Requests					
	No		**Yes**		**Total**	**Test Statistic**
Jurisdiction	***n***	**%**	***n***	**%**		*n* = 174
Burleson	37	36.3%	65	63.7%	102	
Control Site	51	70.8%	21	29.2%	72	$\chi^2_{(1)}$ = 20.166 [46]
Total	88	50.6%	86	49.4%	174	

Propensity Score Weighted Estimates of Ordinance Effects for EPO Requests. Table 22 presents the average treatment effect (ATE) of the strangulation ordinance on EPO requests, using the population of IPVRS incidents reported to police across the post-ordinance period for both jurisdictions. Results indicate there was a higher probability of EPO requests among the population of cases in Burleson (.549) compared to the Control Site (.404). In particular, the Ordinance increased the probability of an EPO request by .144 between the Control Site and Burleson indicating that the probability of an IPVRS EPO request in Burleson was 14.4% higher than in the Control Site.

Table 22. *Average Treatment Effect of Strangulation Ordinance on EPO Requests using Propensity Score Weighting*

	EPO Requests
	N = 173
	b
Control Site Probability	.404
Average Treatment Effect (ATE)	.144 [47]
Burleson Probability	.549

The sample of cases where an EPO was requested (*n* = 86) in both jurisdictions was used to further understand the potential impact of the Ordinance on the granting of EPOs for IPVRS incidents. As shown in Table 23, bivariate results indicate that more EPOs were granted in

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[46] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = < .001.

[47] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .109.

Burleson and that there were statistically significant differences between Burleson and the Control Site.

Table 23. *EPO Requests Granted among IPV Strangulation Cases by Jurisdiction*

Jurisdiction	No		Yes		Total	Test Statistic
	EPO Requests Granted					
	n	*%*	*n*	*%*		*n* = 85
Burleson	17	26.6%	47	73.4%	64	
Control Site	13	61.9%	8	38.1%	21	$\chi^2_{(1)} = 8.648, p < .005$
Total	30	35.3%	55	64.7%	85	

*Not*e. One case was missing on this variable.

Propensity Score Weighted Estimates of Ordinance Effects for EPOs Granted. To assess the independent effect of the Ordinance on EPO requests (*n* = 85) that were granted for IPVRS incidents, propensity score weights were calculated and the ATE was estimated. Table 24 presents these findings. Results indicate there was a higher probability that Burleson's EPO requests were granted (.738) compared to the Control Site (.358) and this difference was sizeable. The ATE of the Ordinance was .380 (*p* =.000), indicating that the probability of an EPO request being granted in Burleson was 38 percentage points higher than the Control Site.

Table 24. *Average Treatment Effect of Strangulation Ordinance on EPO Requests Granted using Propensity Score Weighting*

	EPOs
	n = 85
	b
Control Site Probability	.358
Average Treatment Effect (ATE)	.380
Burleson Probability	.738

Victim Surveys

Topics on the victim survey addressed several study research questions specifically—how the protocol affects high-risk victims (RQ2) and victim engagement (RQ5). Results presented here in this section *how* IPV strangulation victims experienced responses from involved first responders. Topics related to victim experiences include the strangulation disclosure, the BPD incident response, the sharing of information related to IPVRS risks, receiving an EMS response,

and repeat victimization. As previously stated in the methodology, due to low response rates and an exceedingly small sample, statistical analysis was not possible, and conclusions derived from the descriptive characteristics and participant feedback described here cannot be generalized to the larger population of IPV survivors who reported a FV offense to BPD in 2017 or 2020.

Strangulation Screening and Detection. To capture participant willingness to speak with the Burleson Police during the incident response, a binary item presented early in the survey asked if the participant was "*willing to speak with police about the incident*" and all eight of the pre-ordinance and all 11 post-ordinance participants responded affirmatively (No = 0, Yes = 1). To examine the nature of the interaction between BPD and the participant during the incident response, one survey item asked, *"when talking with BPD about the incident…did they ask if you were strangled or choked by an intimate partner?"*[48] Responses were binary (No = 0, Yes = 1). None of the eight pre-ordinance survey participants remembered if the police had asked them about strangulation versus six (54.5%) of post-ordinance survey participants who indicated that they had been asked whether strangulation occurred. There were four additional participants in the post-ordinance survey who indicated that they had not been screened for strangulation by BPD representing a fidelity concern. Per department policy, all victims of family violence should have been administered a family violence packet (FVP) that includes prompts about strangulation to discern if a current incident necessitated an Ordinance response. While these post-ordinance survey participants may not have experienced strangulation during the IPV assault for which they contacted BPD, the FVP screening process is an important part of the Strangulation Protocol. This was an issue of concern noted in the process evaluation. Figure 7

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[48] It is important to note that this survey data was used to triangulate data collected from other sources.

presents the frequency of responses for this item among the 11 post-ordinance survey

participants.

Figure 7. *Burleson Police Screened for Strangulation During 2020 Incident Responses*
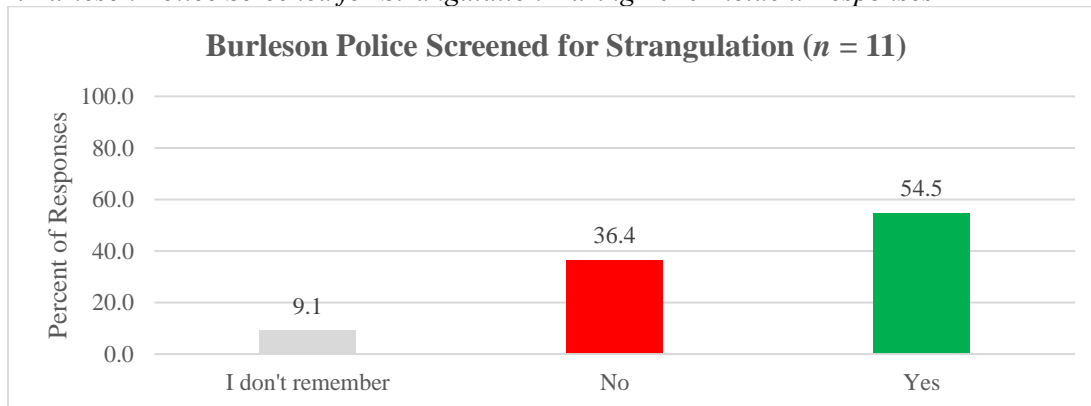
Strangulation Disclosure. To capture information about strangulation occurrence, one

survey item was presented to participants and asked if *"the incident involved strangulation or*

choking by an intimate partner?" (No = 0, Yes = 1). In the pre-ordinance survey, just one

respondent indicated that their 2017 incident involved strangulation versus three of 11 post-

ordinance participants.[49] When asked how Burleson police had learned about the strangulation in

these incidents, the single pre-ordinance participant, indicated that they had self-disclosed the

strangulation to the BPD. In the post-ordinance survey, one of the three participants who reported

strangulation also indicated that they self-disclosed their strangulation to BPD during the

incident response while two of these three participants reported being asked questions about

strangulation.

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[49] To account for the possibility that an individual may have had more than one FV incident in 2017/2020 and/or more than one strangulation-involved FV incident in 2017/2020 that was reported to BPD, the survey instrument included one screening item at the beginning of the survey that directed them to recall either *"the most recent incident involving strangulation or choking by an intimate partner in 2017/2020"* (coded 1) or *"the most recent family violence incident involving an intimate partner in 2017/ 2020"* (coded 0). Just one of eight pre-ordinance survey participants selected an incident involving "strangulation" and this was the same person who also reported strangulation on this survey item. Three of the 11 post-ordinance survey participants selected an incident involving "strangulation" and these were the same three participants in the total sample of 11 who also reported strangulation on this item.

Burleson Incident Response. A series of survey items captured the participant's recollection of the BPD incident response to strangulation, specifically. The following section focuses on the responses from the single pre-ordinance participant and the three post-ordinance survey participants who reported an IPV-related strangulation incident, as the other individuals did not report strangulation. Moreover, for the post-ordinance survey participants, the three individuals disclosing strangulation comprise the "protocol-eligible" subsample of participants to further assess Ordinance fidelity.

Seven questions were presented to assess BPD administration of the specialized strangulation evaluation checklist and asked the participant: (1) if BPD asked whether the participant *"was able to see the individual while [they] were being strangled or choked,"* (2) if BPD asked *"what the individual used to strangle/choke/impede [their]breath,"* (3) what was used by the intimate partner to perpetrate the attack, (4) if BPD asked *"if the individual…said anything before, during, or after strangling or choking [them],"* (5) what the perpetrator said before, during or after the attack, and (6) if BPD asked whether *"the individual stopped strangling or choking [them] for a specific reason."* In the seventh item, participants were also questioned why the perpetrator stopped the attack and encouraged to provide an open-ended response. Notably, these are not questions that officers were required to ask in the pre-ordinance period; however, these items are topics relevant to an incident response and allow for a contrast

Table 25. *Frequency Distribution of Pre and Post-Ordinance Participant Responses Capturing if Specialized Strangulation Items Were Addressed*

Survey Item	Pre-Ordinance Survey $n = 1$ Reported Strangulation		Post-Ordinance Survey $n = 3$ Reported Strangulation	
	n	*%*	*n*	*%*
"Did BPD ask if you were able to see the individual while you were being strangled/choked?				
No	--	--	--	--
Yes[50]	2	100%	2	66.7%
I don't remember	--	--	1	33.3%
"Did BPD ask what the individual used to strangle/choke/impede your breath?"				
No	--	--	--	--
Yes	--	--	2	66.7%
I don't remember	1	100%	1	33.3%
"What the perpetrator used to strangle, choke, impede your breath?"				
Hands	1	100%	3	100%
"If the individual…said anything before, during or after strangling/choking you?"				
No	--	--	--	--
Yes	--	--	--	--
I don't remember	1	100%	3	100%
"What the perpetrator said before, during, or after the attack?"				
I don't remember	1	100%	3	100%
"Did BPD ask if the individual stopped strangling/choking you for a specific reason?"				
No	--	--	--	--
Yes	--	--	1	33.3%
I don't remember	1	100%	2	66.7%

to be made over time. Table 25 above presents the frequency of responses for the six quantitative

survey items for both pre and post-ordinance survey participants.

For the pre-ordinance survey, one participant recalled being asked questions by the BPD

and specifically, they reported remembering being able to see the perpetrator during the

strangulation. For the post-ordinance survey, two of the three participants reported being able to

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[50] An additional pre-ordinance survey participant who had not previously reported strangulation on the survey also indicated that they had disclosed strangulation to the police, but this response appears to be in error because they indicate later in the survey, *"I was not strangled during this incident."*

recall that BPD asked follow-up questions about the strangulation and specifically, these two participants reported being able to remember seeing the perpetrator while they were being strangled. All participants regardless of survey timeframe, indicated that "hands" were used by an intimate partner to perpetrate the strangulation. None of the participants across both surveys could recall being asked by police if the perpetrator spoke or said anything during the strangulation attack and if the suspect had spoken, what specifically was said. Only one of the three participants from the post-ordinance survey remembered being asked by BPD why the perpetrator stopped the attack while the pre-survey participant was not able to recall. Across these items, the pre-ordinance participant had no recollection of whether these questions were asked, and post-ordinance survey respondents had mixed results.

When asked why the perpetrator stopped strangling them, the pre-ordinance survey participant selected one of the standardize answer choices, *"the individual stopped strangling me, but I don't know why."* One of the post-ordinance survey survivors also reported not knowing why the strangulation stopped and the other two offered specific reasons through an open-ended response. In one case, Participant 214 reported that a child walked into the room and offered, *"I fought with everything I had in me to stop him and our child was witnessing everything and screaming at him to stop, once I was able to get out of his hold, I ran out the front door."* In another incident, Participant 128 also reported, *"I grabbed the individual for their private parts* (sic)*."*

Participants were also queried if they had sustained any injuries and the strangulation survivor from the pre-ordinance survey reported, *"I remember my throat hurt, it hurt to swallow and felt sore inside my throat. But there was no bruising on my skin"* (Participant 338). Post-ordinance survey participants indicated the following injuries: scratches ($n = 2$), bruising ($n = 2$),

face swelling (*n* = 1), petechiae (*n* = 1), and Participant 203 explained, *"Red marks on neck, went away after a few hours."*

Information Sharing Regarding Risks of Intimate Partner Violence and Strangulation. While the Ordinance does not mandate that first responders provide victims with information regarding risks of IPV-related strangulation, education was an aspirational informal goal set by Burleson stakeholders. For this reason, a series of items were presented to survey participants that captured details regarding the information that Burleson first responders may have provided to them about the risks and dangers of intimate partner violence strangulation. Content was organized around four substantive risks: (1) *"negative physical and mental health consequences that could appear immediately or days after the assault,"* (2) that the perpetrator will *"engage in this type of intimate partner violence again"* (3) that the perpetrator will *"engage in strangulation again,"* and (4) that the perpetrator *"may try to kill you in the future."* Response options for these four items included "yes," "no," and "I don't remember." The following sections report responses to questions surrounding these four content domains from the one pre-ordinance survey participant and the three post-ordinance survey participants who disclosed strangulation.

- **Risk of Negative Consequences.** The single pre-ordinance survey participant indicated they were informed of the risk of negative physical and mental health consequences that could appear immediately or hours/days after the assault and that they learned this from BPD. Only one of the three post-ordinance survey participants reported being informed of the risk of negative physical and mental health consequences and this participant reported learning this information from Burleson Police, Burleson Fire, and MedStar first responders. The remaining post-ordinance participants reported not learning of this risk (*n* = 1) or not remembering if this information was offered (*n* = 1).

- **Risk of Repeat IPV.** When asked if participants were informed of the risk that the perpetrator will engage in this type of IPV again, both of the same survivors from the pre and post-ordinance surveys who were advised of negative consequences in the prior item responded affirmatively, identifying only Burleson Police first

responders as providing this information. The remaining two participants from the post-ordinance survey reported not learning of this risk ($n = 1$) or not remembering if this information was offered by first responders ($n = 1$).

- ***Risk of Repeat Strangulation***. Participants were then asked to recall if they were informed of the risk that the perpetrator will engage in strangulation again. The pre-ordinance survivor indicated that they were advised of this by BPD but all three participants in the post-ordinance survey reported not being able to remember if any Burleson first responder had provided information regarding the risk of repeat strangulation.

- ***Risk of Fatality.*** When asked if participants were informed of the risk that the perpetrator *"may try to kill you in the future,"* the pre-ordinance survey participant could not recall. Conversely the same one individual from the post-ordinance survey who reported receiving risk-related information from Burleson first responders on negative consequences and repeat IPV, also responded affirmatively and indicated that this information was offered only by BPD. The remaining two post-ordinance survey participants reported they did not remember being informed of this risk.

Emergency Medical Response. To capture the incident emergency medical response to IPVRS incidents, four items were presented to participants. Participants were asked to recall if emergency medical personnel (e.g., Burleson Fire, MedStar Ambulance) were *"on the scene of the incident that took place."* The pre-ordinance participant reported there was no EMS response and was skipped out of the remaining questions. Two of the three post-ordinance survey participants reported that emergency vehicles were on scene. One post-ordinance survey participant reported that both Burleson Fire Department (BFD) and Medstar were on scene and one participant reported that only MedStar were on scene during the incident response. Next, participants were asked if emergency medical personnel asked questions about *"strangulation or choking"* related to this incident. One of the three post-ordinance survey participants responded affirmatively and subsequently indicated that medical personnel asked about all relevant symptoms listed in the survey. The second reported not being able to recall if they were asked

any questions regarding strangulation or choking by emergency medical personnel.[51] Because BFD is required to be on-scene as part of the Burleson response to strangulation and to field specific questions about strangulation, these participant responses suggest potential fidelity concerns.

Repeat Victimization. Participants disclosing strangulation were also asked a series of questions about previous and subsequent strangulation incidents experienced after the Burleson response: (1) *Was the incident the first time this intimate partner ever strangled you?"* (2) (If yes to prior item), *"Approximately how many times have you been strangled by the individual that hurt you before this incident?"* and (3) *How many times since this incident have you called the Burleson Police for a similar strangulation-related assault?"*

The single strangulation survivor in the pre-ordinance survey reported that this was the first time their intimate partner had strangled them and that they had not since called the police for *"a similar strangulation-related assault"* because *"I have NOT experienced another strangulation-related incident since the 2017 incident."* Participant 338 elaborates, *"I do want to show appreciation that ultimately it was handled and he was arrested because that saved my life. I just needed it a lot sooner…I made it out alive, but many women do not."*

Among the three post-ordinance survey participants, they all specified that this incident had been the first time their intimate partner had strangled them. While Participant 203 indicated this had been the first instance of strangulation, they later reported two previous strangulations involving this intimate partner making their history harder to assess. Similarly, Participant 128 also designated this was the first instance of strangulation but then reported they were strangled

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[51] It is not possible to state this with any certainty as the exact date of the strangulation incident was unknown to researchers to determine if it fell in the post-7 day policy timeframe requiring the Strangulation Protocol.

four times previously by this intimate partner. All three survivors in the post-ordinance survey reported not having called the police for *"a similar strangulation-related assault"* because they *"...have NOT experienced another strangulation-related incident since the 2020 incident."*

Victim Survey Summary. Collectively, the limited participant responses present mixed findings. In general, there were slightly more favorable responses during the post-ordinance timeframe as it pertained to officers asking about strangulation generally to detect its occurrence and providing the IPVRS victim with an EMS response. There were no clear patterns regarding risk education with most respondents across both surveys unable to recall if features of this occurred during their incident response. Some survey participants in the post-ordinance timeframe were also uncertain about if they had experienced specific provisions of the strangulation protocol (e.g., if specific questions from BPD/BFD were asked of them) while other participant responses in this sample of three individuals indicated adherence to the Strangulation Protocol as mandated by the Ordinance.

Victim Assistance and Repeat Victimization

The examination of repeat victimization utilized a subsample of BPD victim assistance data that included the population of strangulation incidents identified by research team during the study period (January 1, 2016, to December 31, 2020). While the IPVRS population includes $n = 287$, repeat victimization data on these IPVRS incidents was only available for a total of $n = 244$ cases. Among the IPVRS dyads examined in Burleson, 27% ($n = 66$) had previous family violence reported to BPD involving the same original victim and suspect. In addition, some 9% ($n = 22$) of these dyads had a history of strangulation as couple (in addition to the reported strangulation incident).

Moving beyond the IPVRS dyad, victim experiences with repeat IPV victimization was captured in one of two ways. First, if the IPV victim appeared more than once in the VA dataset they were tracked as a repeat victim. Some 32.8% ($n = 80$) of Burleson victims appeared in the dataset more than once due to their involvement as a victim in another IPV incident. These incidents could include the same or a different IPV partner suspect. A more encompassing version of this variable considered if the IPV victim appeared in the dataset more than once *or* was also identified by the VA coordinator as a repeat IPV victim. Using this more inclusive indicator, increased the percentage of victims fitting this description from 32.8% ($n = 80$) to 43% ($n = 105$).

As previously discussed in Chapter IV, the manner in which the data was captured does not allow for analytic techniques beyond descriptive statistics. While data was collected to reflect the study timeframe (2016-2020) no information prior to 2016 or after 2020 was collected to allow for a full accounting of repeat victimization involving the dyad. Additionally, because repeat victimization was tracked by VA wholistically (i.e., any occurrence) rather than a sequentially, meaningful pre/post-ordinance comparisons are not feasible.

Research Question 3: Does the Protocol Improve the Detection of IPV Strangulation by Medical First Responders?

Burleson Pre and Post: On-Scene Response

The central purpose of the Ordinance is to offer a medical response to victims of IPVRS. A medical response is only possible when medical first responders are requested to be on-scene by the police. For this reason, this section first examines on-scene presence of a medical first responder using the sample of police-identified IPVRS ($n = 143$) as the starting point and then

disaggregates further to examine responses among those incidents where there was an on-scene medical response (*n* = 84).

Burleson Fire Department's on-scene medical response was assessed in incidents where the police identified strangulation (*n* = 143). It is important to note that medical first responders are unlikely to make scene unless police first recognize strangulation and then request a medical response. Table 26 presents results of the bivariate analyses and demonstrates statistically significant differences in BFD's on-scene response across the pre and post-ordinance periods. Specifically, BFD were on-scene in only approximately 24% (*n* = 10) of IPV strangulation cases identified by police during the pre-ordinance period, compared to 83.2% (*n* = 84) identified by police in the post-ordinance period.

Table 26. *Burleson Fire Department's On-Scene Response to Police-Identified IPVRS Incidents by Ordinance Status*

	On-Scene FD Response					
Ordinance Status	**No**		**Yes**		**Total**	**Test Statistic**
	n	*%*	*n*	*%*		*n* = 143
Pre	32	76.2%	10	23.8%	42	
Post	17	16.8%	84	83.2%	101	$\chi^2_{(1)}$ = 46.404, *p* < .001
Total	49	34.3%	94	65.7%	143	

Propensity Score Weighted Estimates of Ordinance Effects for BFD On-Scene. Table 27 presents the average treatment effect (ATE) of the Ordinance on an on-scene response from BFD among police-identified IPV strangulations. During the pre-ordinance period, the probability of an on-scene BFD response among police-identified and current IPV strangulations was .220 meaning that BFD were on-scene in 22% of these incidents. The ATE of the Ordinance on an on-scene BFD response for police-identified and current IPV strangulations was .608 (*p* = .000). This indicates that the probability of an on-scene BFD response increased from .220 pre-ordinance to .828 post- ordinance. After the Ordinance, BFD responded to the scene for 82.8% of these incidents (see Table 27).

Table 27. *Average Treatment Effect of Strangulation Ordinance on Fire On-Scene Response using Propensity Score Weighting*

	BFD On-Scene n = 143
	b
Pre-Ordinance Probability	.220
Average Treatment Effect (ATE)	.608
Post-Ordinance Probability	.828

Burleson Pre and Post: FD Medical Response Outcomes

The Burleson strangulation ordinance mandates a specific response protocol that requires a medical assessment (and treatment if needed) for all cases involving alleged or suspected strangulation. Further, medical first responders also encourage patient transport via MedStar. Some IPV strangulation patients go against medical advice (AMA). AMAs were tracked and analyzed for the overall outcome analyses, although they are not specifically tied to Ordinance provisions, because of an array of circumstances beyond the control of medical first responders that can produce an AMA. Still, frequency of AMAs provides important contextual information about the strangulation survivor and the respective medical outcomes.

Table 28 shows the results of bivariate analyses on each of these medical response outcomes among those IPVRS incidents where an on-scene response was requested by the police (*n* = 94). Bivariate results indicate statistically significant differences across groups where a greater frequency and percent of cases reported in the post-ordinance period involved a medical response compared to cases reported in the pre-ordinance period. Propensity Score Weighting was inappropriate for these three remaining medical outcomes because the outcome was either constant or had insufficient variation.

Table 28. *Burleson Fire Department Medical Response Outcomes by Ordinance Status*

Ordinance Status	No		Yes		Total	Test Statistic
	n	*%*	*n*	*%*		*n* = 94
BFD Assessment						
Pre	3	3.0%	7	70.0%	10	Fisher's Exact Test, *p* = .003
Post	1	1.2%	83	98.8%	84	
Total	4	4.3%	90	95.7%	94	
BFD Treatment						
Pre	10	100%	0	0.0%	10	Fisher's Exact Test, *p* < .001
Post	26	31.0%	58	69.0%	84	
Total	36	38.3%	58	61.7%	94	
Against Medical Advice (AMA)						
Pre	7	70.0%	3	30.0%	10	Fisher's Exact Test, *p* = .046
Post	30	35.7%	54	64.3%	84	
Total	37	39.4%	57	60.6%	94	

Burleson Pre and Post: MedStar On-Scene Response

As detailed earlier in the report, MedStar has no obligation under the Ordinance because personnel are not city employees, and the mandated medical response falls under the purview of BFD. Even so, MedStar plays an important role in responding to strangulation when identified by the police and they are called on-scene as part of the incident response. The sample of police-identified IPV strangulation incidents (*n* = 143) was used to assess MedStar's on-scene response (see Table 29). Bivariate analyses demonstrated statistically significant between group differences where a greater proportion of cases identified as strangulation by police during the post-ordinance period involved a MedStar on-scene response (23.8%, *n* = 10) compared to the pre-ordinance period (72.3%, *n* = 73). Table 29 presents these findings.

Propensity Score Weighting was inappropriate for these three remaining medical outcomes because the outcome was either constant or had insufficient variation.

Table 29. *On-Scene MedStar Response to Police-Identified IPV Strangulation Incidents by Ordinance Status*

Ordinance Status	No		Yes		Total	Test Statistic
						$n = 143$
	n	*%*	*n*	*%*		
Pre	32	76.2%	10	23.8%	42	
Post	28	27.7%	73	72.3%	101	$\chi^2_{(1)} = 28.614, p < .001$
Total	60	42.0%	83	58.0%	143	

On-Scene MedStar Response

Propensity Score Weighted Estimates of Ordinance Effects for MedStar On-Scene Response. To assess the independent effect of the Ordinance on an on-scene response by MedStar, propensity score weights were calculated and the ATE was estimated. Table 30 presents these results. Findings here suggest that the Ordinance increased the probability of an on-scene response from MedStar. In particular, prior to the Ordinance, the probability of an on-scene MedStar response among police-identified and current IPV strangulations was .224 meaning that MedStar were on-scene in 22.4% of these incidents. The ATE of the Ordinance on an on-scene MedStar response for police-identified and current IPV strangulations was .484 ($p =.000$). This indicates that the Ordinance increased MedStar's on-scene response to .708 so that after the Ordinance, MedStar responded to the scene for 70.8% of these incidents (see Table 30).

Table 30. *Average Treatment Effect of Strangulation Ordinance on Medstar's On-Scene Response using Propensity Score Weighting*

	MedStar On-Scene
	$n = 143$
	b
Pre-Ordinance Probability	.224
Average Treatment Effect (ATE)	.484
Post-Ordinance Probability	.708

Burleson Pre and Post: MedStar Medical Response Outcomes

As demonstrated in Table 31, MedStar was on-scene in 83 cases involving strangulation where their presence was requested by the police. To further examine MedStar's medical response, these 83 cases were assessed in a series of bivariate analyses, summarized in Table 31.

Bivariate results indicated no statistically significant differences between MedStar's medical

response pre and post-Ordinance. It is possible that the increased role BFD played in responding

Table 31. *MedStar Response Outcomes by Ordinance Status*

Ordinance Status	No		Yes		Total	Test Statistic
	n	***%***	***n***	***%***		*n* = 83
Medstar Assessment						
Pre	3	30.0%	7	70.0%	10	Fisher's Exact Test, *p* = 1.00
Post	25	34.2%	48	65.8%	73	
Total	28	33.7%	55	66.3%	83	
MedStar Treatment						
Pre	9	90.0%	1	10.0%	10	Fisher's Exact Test, *p* = 1.00
Post	67	91.8%	6	8.2%	73	
Total	76	91.6%	7	8.2%	83	
Against Medical Advice						
Pre	10	100%	0	0.0%	10	Fisher's Exact Test, *p* = .108
Post	53	72.6%	20	27.4%	73	
Total	63	75.9%	20	24.1%	83	
Medical Transport						
Pre	6	60.0%	4	40.0%	10	Fisher's Exact Test, *p* = .202
Post	60	82.2%	13	17.8%	73	
Total	66	79.5%	17	20.5%	83	

to strangulation survivors in the post-ordinance period may have supplanted some of the tasks

MedStar typically performed in the pre-ordinance period. Propensity Score Weighting was

inappropriate for these four medical outcomes because the outcome was either constant or had

insufficient variation.

Burleson vs. Control: On-Scene Response

This section first examines on-scene presence of a medical first responder using the

sample of police-identified IPVRS (*n* = 135) as the starting point and then disaggregates further

to examine responses among those incidents where there was an on-scene medical response (*n* =

87). As shown in Table 32, bivariate results indicate statistically significant differences in

Burleson's on-scene medical response in police-identified IPVRS incidents compared to the

Control Site. Specifically, Burleson medical first responders were on-scene in 87.6% ($n = 78$) of their police-identified IPVRS incidents compared to 19.6% ($n = 9$) at the Control Site.

Table 32. *On-Scene Medical Response to Police-Identified IPVRS by Jurisdiction*

	No		**Yes**		**Total**	**Test Statistic**
Jurisdiction						$n = 135$
	n	*%*	*n*	*%*		
Burleson	11	12.4%	78	87.6%	89	
Control	37	80.4%	9	19.6%	46	$\chi^2_{(1)} = 61.334, p < .001$
Total	48	35.6%	87	64.4%	135	

Header spanning "No" and "Yes": **On-Scene Medical Response**

Propensity Score Weighted Estimates of Ordinance Effects for On-Scene Medical Response. Table 33 presents the average treatment effect (ATE) of the Ordinance involving an on-scene response among police-identified IPV strangulations. Results indicate there was a higher probability that Burleson had an on-scene medical response (.872) compared to the Control Site (.161). In other words, in Burleson, medical first responders were present in 87.2% of IPV strangulation cases. Compared to only 16.1% in the Control Site. The ATE of the Ordinance was .711 ($p = .000$), indicating that the probability of an on-scene medical response in Burleson was 71.1 percentage points higher than the Control Site.

Table 33. *Average Treatment Effect of Strangulation Ordinance on Medical On-Scene Response using Propensity Score Weighting*

	Medical On-Scene
	$n = 135$
	b
Control Site Probability	.161
Average Treatment Effect (ATE)	.711
Burleson Probability	.872

Medical Response Outcomes

As previously discussed, the Burleson strangulation ordinance mandates a specific response protocol that requires a medical assessment (and treatment/transport if needed) for all cases involving alleged or suspected strangulation. Table 34 shows a series of bivariate analyses

on each of these medical response outcomes among those IPVRS incidents where an on-scene response was requested by the police for each jurisdiction. As demonstrated previously, it should be noted that it was rare for the Control Site to invoke an on-scene response to begin with. Table 34 demonstrates that there were only 9 cases to compare to Burleson on subsequent medical response outcomes requiring caution in interpretation of results.

Table 34. *Medical Response Outcomes by Jurisdiction*

Jurisdiction	No		Yes		Total	Test Statistic
	n	*%*	*n*	*%*		*n* = 87
Assessment						
Burleson FD/MedStar	--	--	--	--	--	N/A[52]
Control Site	--	--	--	--	--	
Total	--	--	--	--	--	
Treatment						
Burleson FD/MedStar	23	29.5%	55	70.5%	78	Fisher's Exact Test, *p* = .055
Control Site	6	66.7%	3	33.3%	9	
Total	29	33.3%	58	66.7%	87	
Against Medical Advice (AMA)						
Burleson FD/MedStar	24	30.8%	54	69.2%	78	Fisher's Exact Test, *p* = .058
Control Site	6	66.7%	3	33.3%	9	
Total	30	34.5%	57	65.5%	87	
Medical Transport						
Burleson FD/MedStar	66	84.6%	12	15.4%	78	Fisher's Exact Test, *p* = .012
Control Site	4	44.4%	5	55.6%	9	
Total	70	80.5%	17	19.5%	87	

The results of bivariate analyses comparing the two jurisdictions were mixed with most medical response outcomes showing no statistically significant differences between Burleson and the Control Site with transport as one notable exception. While the percentage of Burleson IPVRS incidents involving a transport to the hospital was significantly lower than the Control Site, caution should be exercised with interpretation of these results given the small samples involved (particularly in the Control Site) and the transport outcome in of itself occurs less

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[52] No statistics were computed because Medical (FD or MS) assessed the strangulation patient is a constant.

frequently at both sites (Howell, 2013). Propensity Score Weighting was inappropriate for these four remaining medical outcomes because the outcome was either constant or had insufficient variation (e.g., Guo & Fraser, 2015).

Research Question 4: Does the Protocol Improve the Number of Arrests Related to IPV Strangulation Crimes?

Burleson Pre and Post: Arrest Outcomes

The population of current IPVRS incidents ($N = 187$) was used to examine the impact of the Ordinance on arrest outcomes and this has been captured in two ways. First, cases identified by police as strangulation and disposed by any arrest, and (2) cases where a suspect was arrested and charged with impede breath. Note that all cases comprised as an *impede breath arrest* also appear as cases identified by police and cleared by arrest.

The analysis that follows casts a relatively wide net because it captures arrests when there is a non-strangulation crime listed in RMS. One benefit to this approach is that it accounts for crimes that police may have categorized as strangulation but for some unrecorded reason, have elected not to charge the offense as impede breath. As presented in Table 35 below, 56.7% ($n = 106$) of all cases involving strangulation were identified by police as strangulation and cleared by arrest. There was notable increase in the number of police-identified strangulation arrests between the pre-and post-ordinance periods. To further explore this research question, strangulation incidents in which a suspect was arrested and charged with impede breath were examined. Between group differences for impede breath arrests were not statistically significant.

Table 35. *Arrest Outcomes by Ordinance Status*

Ordinance Status	No		Yes		Total	Test Statistic
	n	*%*	*n*	*%*		$N = 187$
			Any Arrest			
Pre	40	56.3%	31	43.7%	71	$\chi^2_{(1)} = 7.905$[53]
Post	41	35.3%	75	64.7%	116	
Total	81	43.3%	106	56.7%	187	
			Impede Breath Arrest			
Pre	49	69.0%	22	31.0%	71	$\chi^2_{(1)} = 3.118$[54]
Post	65	56.0%	51	44.0%	116	
Total	114	61.0%	73	39.0%	187	

Propensity Score Weighted Estimates of Ordinance Effects for Arrest. The next

section reveals the propensity score weighting results for IPVRS any arrest. Table 36 displays the

first model predicting arrest disposition among incidents involving IPV and current

strangulation. During the pre-ordinance period, the probability of arrest was .469 meaning that

cases were disposed by arrest in 46.9% of all incidents involving IPV and current strangulation.

The ATE of the Ordinance on arrest for cases in the IPV strangulation population was .190. This

indicates that the probability of an arrest increased from .469 pre-ordinance to .659 post-

ordinance. During the post-ordinance period, incidents were disposed by arrest in nearly 66% of

all IPV strangulation incidents versus 46.9% in the pre-ordinance period.

Table 36. *Average Treatment Effect of Strangulation Ordinance on Arrest Outcome using Propensity Score Weighting*

	Any Arrest
	$N = 187$
	b
Pre-Ordinance Probability	.469
Average Treatment Effect (ATE)	.190[55]
Post-Ordinance Probability	.659

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[53] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .006.
[54] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .090.
[55] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .009.

Propensity Score Weighted Estimates of Ordinance Effects for Impede Breath

Arrest. Table 37 displays the propensity score weighting model predicting impede breath arrest disposition among incidents involving IPV and current strangulation. During the pre-ordinance period, the probability of arrest was .359 meaning that cases were disposed of by impede breath arrest in 36% of the population of incidents involving IPV and current strangulation. The ATE of the Ordinance on an impede breath arrest in the population was .076. This indicates that the probability of impede breath arrest increased from .359 pre-ordinance to .434 post-ordinance. During the post-ordinance period, 43.4% of all current IPV strangulation incidents were disposed by an impede breath arrest.

Table 37. *Average Treatment Effect of Strangulation Ordinance on Impede Breath Arrest Outcome using Propensity Score Weighting*

	Impede Breath Arrest
	N = 187
	b
Pre-Ordinance Probability	.359
Average Treatment Effect (ATE)	.076[56]
Post-Ordinance Probability	.434

Burleson vs. Control: Arrest Outcomes

The population of IPVRS incidents ($N = 174$) was used to examine the impact of the Ordinance on arrest outcomes and this has been captured in two ways. First, cases identified by police as strangulation and disposed by any arrest, and (2) cases where a suspect was arrested and charged with impede breath. Note that all cases that constitute *impede breath arrest* also appear as cases identified by police and cleared by arrest.

As presented in Table 38, Burleson had a higher percentage of cases involving police-identified IPVRS that were cleared by arrest compared to the Control Site and between group

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[56] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, $p = .303$.

differences on this item were statistically significant. To further explore this research question, IPVRS incidents in which a suspect was arrested and charged with impede breath were examined. Bivariate results indicate statistically significant differences for Burleson's impede breath arrests compared to the Control Site.

Table 38. *Arrest Outcomes by Jurisdiction*

Jurisdiction	No		Yes		Total	Test Statistic
	n	*%*	*n*	*%*		*N = 174*
Any Arrest						
Burleson	38	37.3%	64	62.7%	102	$\chi^2_{(1)} = 16.016$ [57]
Control Site	49	68.1%	23	31.9%	72	
Total	87	50.0%	87	50.0%	174	
Impede Breath Arrest						
Burleson	59	57.8%	43	42.2%	102	$\chi^2_{(1)} = 4.575$ [58]
Control Site	53	73.6%	19	26.4%	72	
Total	112	64.4%	62	35.6%	174	

Propensity Score Weighted Estimates of Ordinance Effects for Arrest. Table 39 presents the average treatment effect (ATE) of the Ordinance involving an arrest outcome among police-identified IPV strangulations. Results indicate there was a higher probability that Burleson had an arrest outcome for police-identified IPVRS incidents (.564) compared to the Control Site (.395). The ATE of the Ordinance was .168, indicating that the probability of an arrest outcome in Burleson was 16.8 percentage points higher than the Control Site.

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[57] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = < .001.
[58] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .037.

Table 39. *Average Treatment Effect of Strangulation Ordinance on Arrest Outcome using Propensity Score Weighting*

	Any Arrest N = 173*
	b
Control Site Probability	.395
Average Treatment Effect (ATE)	.168[59]
Burleson Probability	.564

*Not*e. One case was missing in this analysis.

Propensity Score Weighted Estimates of Ordinance Effects for Impede Breath

Arrests. Table 40 presents the average treatment effect (ATE) of the Ordinance involving an

impede breath arrest outcome among police-identified IPV strangulations. Results indicate there

was a higher probability that Burleson had an impede breath arrest outcome for police-identified

IPVRS incidents (.396) compared to the Control Site (.320). The ATE of the Ordinance was .075,

indicating that the probability of an impede breath arrest outcome in Burleson was marginally

higher (7.5%) than at the Control Site.

Table 40. *Average Treatment Effect of Strangulation Ordinance on Impede Breath Arrest Outcome using Propensity Score Weighting*

	Impede Breath Arrest N = 173*
	b
Control Site Probability	.320
Average Treatment Effect (ATE)	.075 [60]
Burleson Probability	.396

**Not*e. One case was missing from this analysis.

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[59] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .067.

[60] No *p*-value is reported because this analysis involved the population of IPVRS incidents. For those with interest, *p* = .390.

Research Question 5: Do Identified Victims Have More Engagement with the Criminal Justice and Other Service Providers Because of the Protocol?

The fifth research question in the outcome analysis focused on assessing how the Ordinance can facilitate victim engagement in Burleson. Two sources of data provide information about victim engagement. The first source of data is from police case files and the second source comes from One Safe Place, a local victim services provider.

Burleson Pre and Post: Victim Engagement

Four indicators of victim engagement were used to assess how the Ordinance may have influenced victim engagement among the sample of police-identified IPV strangulation incidents ($n = 143$). Victim engagement was operationalized as: (1) activation of the criminal justice system, (2) providing a written statement, (3) recanting, and (4) signing of an affidavit of non-prosecution (ANP).

Table 41. *Victim Engagement by Ordinance Status*

Ordinance Status	No		Yes		Total	Test Statistic
	n	*%*	*n*	*%*		*n* = 143
Victim Activated CJ System						
Pre	22	52.4%	20	47.6%	42	$\chi^2_{(1)} = 2.299, p = .142$
Post	39	38.6%	62	61.4%	101	
Total	61	42.7%	82	57.3%	143	
Victim Statement						
Pre	12	28.6%	30	71.4%	42	$\chi^2_{(1)} = .122, p = .836$
Post	26	25.7%	75	74.3%	101	
Total	38	26.6%	105	73.4%	143	
Victim Recanted						
Pre	41	97.6%	1	2.4%	42	Fisher's Exact Test, $p = .283$
Post	93	92.1%	8	7.9%	101	
Total	134	93.7%	9	6.3%	143	
Affidavit of Non-Prosecution						
Pre	39	92.9%	3	7.1%	42	Fisher's Exact Test, $p = .553$
Post	89	88.1%	12	11.9%	101	
Total	128	89.5%	15	10.5%	143	

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As shown in Table 41 above, two of these indicators, victim signed an ANP and recanted, occurred infrequently in the Burleson cases. Furthermore, the bivariate results presented in Table 41 indicated no statistically significant difference in victim engagement across the pre and post-ordinance periods.

The next section reveals the results for the propensity score weighted estimates of the effects of the Ordinance for each of the four indicators of victim engagement using the sample of police-identified IPV strangulations ($n = 143$).

Propensity Score Weighted Estimates of Ordinance Effects for Victim Activation of CJS. To assess the independent effect of the Ordinance on victim activation of the CJS, propensity score weights were calculated and the ATE was estimated. Table 42 presents these results. During the pre-ordinance period, the probability of the victim activating a criminal justice system response for a police-identified and current IPV strangulations was .497 meaning that Burleson victims were activating the CJS in 49.7% of these incidents. The ATE of the Ordinance on victim activation of the CJS was .094 ($p = .275$). This indicates that the probability of a victim activating the CJS increased from .497 pre-ordinance to .591 post-ordinance. After the Ordinance, victims activated the CJS in 59.1% of these incidents.

Table 42. *Average Treatment Effect of Strangulation Ordinance on Victim Activation of CJS Using Propensity Score Weighting*

	Victim CJS Activation $n = 143$
	b
Pre-Ordinance Probability	.497
Average Treatment Effect (ATE)	.094
Post-Ordinance Probability	.591

Propensity Score Weighted Estimates of Ordinance Effects for Victim Written Statement. Table 43 presents the ATE of the Ordinance on written statements from the victim. During the pre-ordinance period, the probability of receiving a written statement from the victim

in police-identified and current IPV strangulations was .744 meaning that victim statements were present in 74.4% of these incidents. The ATE of the Ordinance on receiving a written statement from the victim was -.005 (p = .941) or .05%. This indicates that the Ordinance decreased the probability of a victim providing a written statement from .744 pre-ordinance to .740 post-ordinance. In other words, after the Ordinance, victims submitted written statements in 74% of these incidents.

Table 43. *Average Treatment Effect of Strangulation Ordinance on Victim Written Statement Using Propensity Score Weighting*

	Victim Written Statement
	n = 143
	b
Pre-Ordinance Probability	.744
Average Treatment Effect (ATE)	-.005
Post-Ordinance Probability	.740

Propensity Score Weighted Estimates of Ordinance Effects for Victim Recant. To assess the independent effect of the Ordinance on victim recanting, propensity score weights were calculated and the ATE was estimated. Table 44 shows these results. During the pre-ordinance period, the probability of a victim recanting their assault/strangulation was .018 meaning that victims recanted in 1.8% of these incidents. The ATE of the Ordinance on victim recanting was .055 (p = .064). This indicates that the probability of a victim recanting their IPV assault/strangulation increased from .018 pre-ordinance to .073 post-ordinance. After the Ordinance, victims recanted their IPV assault/strangulation in 7.3% of these incidents compared to 1.8% in the pre-ordinance period.

Table 44. *Average Treatment Effect of Strangulation Ordinance on Victim Recanting Using Propensity Score Weighting*

	Victim Recanted
	n = 143
	b
Pre-Ordinance Probability	.018
Average Treatment Effect (ATE)	.055
Post-Ordinance Probability	.073

Propensity Score Weighted Estimates of Ordinance Effects for ANP. Table 45 presents the ATE of the Ordinance on affidavits of non-prosecution (ANP) signed by victims in police-identified IPVRS incidents. During the pre-ordinance period, the probability of a victim signing an ANP in police-identified and current IPV strangulations was .065 meaning that ANPs were present in 6.5% of these incidents. The ATE of the Ordinance on an ANP from the victim was .048 (p = .301). This indicates that the probability of a victim signing an ANP increased from .065 pre-ordinance to .113 post-ordinance, or 4.8%. After the Ordinance, victims signed ANPs in 11.3% of these incidents compared to 6.5% pre-ordinance.

Table 45. *Average Treatment Effect of Strangulation Ordinance on Victim Signing ANP Using Propensity Score Weighting*

	Victim ANP n = 143
	b
Pre-Ordinance Probability	.065
Average Treatment Effect (ATE)	.048
Post-Ordinance Probability	.113

Burleson vs Control: Victim Engagement

Like the Burleson pre and post-ordinance comparisons, four indicators of victim engagement from the case files were used to assess how the Ordinance may have influenced victim engagement among a sample of police-identified IPVRS incidents during the post-ordinance period for the Burleson and Control Site comparisons (n = 135). Victim engagement was operationalized as: (1) activation of the criminal justice system, (2) providing a written statement, (3) recanting, and (4) signing of an affidavit of non-prosecution (ANP). Bivariate results presented in Table 46 indicated no statistically significant differences in victim engagement for Burleson and the Control Site.

Table 46. *Victim Engagement by Jurisdiction*

Jurisdiction	No		Yes		Total	Test Statistic
	n	***%***	***n***	***%***		*n* = 135
Victim Activated CJ System						
Burleson	34	38.2%	55	61.8%	89	$\chi^2_{(1)} = .352, p = .582$
Control Site	20	43.5%	26	56.5%	46	
Total	54	40.0%	81	60.0%	135	
Victim Statement						
Burleson	25	28.1%	64	71.9%	89	$\chi^2_{(1)} = 2.410, p = .121$
Control Site	19	41.3%	27	58.7%	46	
Total	44	32.6%	91	67.4%	135	
Victim Recanted						
Burleson	81	91.0%	8	9.0%	89	Fisher's Exact Test, $p = .166$
Control Site	45	97.8%	1	2.2%	46	
Total	126	93.3%	9	6.7%	135	
Affidavit of Non-Prosecution						
Burleson	77	86.5%	12	13.5%	89	$\chi^2_{(1)} = .075, p = .798$
Control Site	39	84.8%	7	15.2%	46	
Total	116	85.9%	19	14.1%	135	

The next section reveals the results for the propensity score weighted estimates of Ordinance effects for each of the four indicators of victim engagement using the sample of police-identified IPV strangulations in both jurisdictions (*n* = 135).

Propensity Score Weighted Estimates of Ordinance Effects for Victim Activation of CJS. To assess the independent effect of the Ordinance on victim activation of the CJS, propensity score weights were calculated and the ATE was estimated. Table 47 presents these results. Results indicate there was a higher probability of victim activation of the criminal justice system in Burleson for police-identified IPVRS incidents (.643) compared to the Control Site (.433). The ATE of the Ordinance was .208 (*p* = .011), indicating that the probability of victim activation of the CJS in Burleson was 20.8 percentage points higher than the Control Site.

Table 47. *Average Treatment Effect of Strangulation Ordinance on Victim Activation of CJS Using Propensity Score Weighting*

	Victim CJS Activation
	n = 135
	b
Control Site Probability	.433
Average Treatment Effect (ATE)	.208
Burleson Probability	.643

Propensity Score Weighted Estimates of Ordinance Effects for Victim Written Statement. Table 48 presents the average treatment effect (ATE) of the Ordinance on written statements from the victim. Results indicate there was a higher probability of a written statement from the victim in police-identified IPVRS incidents in Burleson (.720) compared to the Control Site (.643). The ATE of the Ordinance was .076 (p = .363), indicating that the probability of a written statement from the victim was marginally higher (7.6%) than at the Control Site.

Table 48. *Average Treatment Effect of Strangulation Ordinance on Victim Written Statement Using Propensity Score Weighting*

	Victim Written Statement
	n = 135
	b
Control Site Probability	.643
Average Treatment Effect (ATE)	.076
Burleson Probability	.720

Propensity Score Weighted Estimates of Ordinance Effects for Victim Recant. To assess the independent effect of the Ordinance on victim recanting, propensity score weights were calculated and the ATE was estimated. As shown in Table 49, results indicate there was a higher probability of a victim recanting in police-identified IPVRS incidents in Burleson (.082) compared to the Control Site (.025). The ATE of the Ordinance was .056 (p = .109), indicating that the probability of a victim recanting was marginally higher (5.6%) in Burleson than at the Control Site.

Table 49. *Average Treatment Effect of Strangulation Ordinance on Victim Recanting Using Propensity Score Weighting*

	Victim Recanted
	n = 135
	b
Control Site Probability	.025
Average Treatment Effect (ATE)	.056
Burleson Probability	.082

Propensity Score Weighted Estimates of Ordinance Effects for ANP. Table 50 presents the ATE of the Ordinance on affidavits of non-prosecution (ANP) signed by victims in police-identified IPVRS incidents. As shown in Table 50, results indicate there was a higher probability of a victim signing an ANP in police-identified IPVRS incidents in Burleson (.143) compared to the Control Site (.133). The ATE of the Ordinance was .01 (*p* = .872), indicating that the probability of a victim signing an ANP was barely higher in Burleson (1 percentage point) than at the Control Site.

Table 50. *Average Treatment Effect of Strangulation Ordinance on Victim Signing ANP Using Propensity Score Weighting*

	Victim ANP
	n = 135
	b
Control Site Probability	.133
Average Treatment Effect (ATE)	.01
Burleson Probability	.143

Victim Self-Reported Engagement

Study research question five asked *"Do identified victims have more engagement with the criminal justice and other service providers because of the protocol?"* To help address this topic, a series of questions were asked on the victim survey to ascertain indicators of victim engagement following their strangulation incident. These indicators included providing a witness statement, receiving/seeking EPO and PPOs, interaction with victim assistance, cooperation with the police investigation, and if they had signed an affidavit of non-prosecution (ANP). Each survivor's self-reported engagement is highlighted below and while the survivors from the post-

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ordinance survey appear slightly more "engaged," making firm conclusions is not possible due to limitations with the exceptionally small sample. The reported experiences on this outcome are summarized for each survivor.

The single strangulation survivor in the pre-ordinance survey reported that they had provided a written statement and worked to assist BPD with the investigation of their case. They did not recall if they received an EPO, and they did not apply for a PPO. This participant indicated they could not remember if BPD's victim assistance reached out to them, and they did not contact them either. Eventually this survivor signed an ANP, and the prosecutor dropped the case. The survivor's rationale was as follows, *"The only reason I did not go through with pressing charges was because I did not know it was a felony. I was afraid to be the reason he was convicted of a felony. Although now that I am older I agree it should be"* (Participant 338).

There were three post-ordinance survey participants reporting strangulation. The first strangulation survivor (Participant 203) reported they had not provided a written statement and could not remember if they had assisted BPD with the investigation. They did not sign an ANP, but the prosecutor dropped the case. They reported not receiving an EPO and that they had not applied for a PPO. The survivor was contacted by victim assistance, and they found the communication helpful.

The second strangulation survivor (Participant 214) indicated they provided a written statement and had assisted BPD with the investigation. They eventually signed an ANP, and the prosecutor dropped the case. They reported receiving an EPO but did not apply for a PPO. The survivor was contacted by victim assistance, and they found the communication very helpful.

Like the previous survivor, this strangulation survivor (Participant 128) also reported that they provided a written statement and assisted BPD with the investigation. They did not sign an

ANP, and the prosecutor did not drop the case, but they reported the case did not go to trial. They indicated receiving both an EPO and a PPO. The survivor was contacted by victim assistance, and they also found the communication very helpful.

Victim Engagement with Service Provider

Local law enforcement across north Texas provide referrals to victim service providers such as One Safe Place (OSP), a large family justice center in the Fort Worth Metroplex that serves survivors across the region. To understand how survivors experienced law enforcement responses to strangulation (and the Ordinance for Burleson clients), de-identified client data were obtained from OSP that reflected the study period, 2016-2020. Of particular interest were Burleson and Control Site clients who reported that they experienced IPV strangulation and involved law enforcement in their strangulation incident to discern if law enforcement spoke to them about the strangulation, and if medical options were sought or received.

As demonstrated in Figure 8, OSP served 89 clients from Burleson during the study period (2016 - 2020) although significant data was missing on two of these clients, reducing the sample to 87 clients. Some 41 clients were seen during the pre-ordinance timeframe and 46 were seen in the post-ordinance period. Of these clients, 36 reported experiencing strangulation on the Danger Assessment ($n = 13$ pre and $n = 23$ post). Of the 36 clients reporting strangulation, 31 were administered OSP's strangulation survey ($n = 10$, pre and $n = 21$ post). The secondary data obtained from the OSP strangulation survey contained two important items for this study—law enforcement spoke to the client about the strangulation and if the client received or sought medical services. Eleven Burleson clients reported law enforcement involvement ($n = 2$ pre, $n = 9$ post) and eight of them indicated law enforcement asked about their strangulation ($n = 2$ pre, n

= 6 post). A small number reported seeking or receiving medical ($n = 1$ pre, $n = 4$ post). An

overview of the process and descriptive results are summarized below in Figure 8.

Figure 8. *Strangulation Victim Engagement and Experiences: Burleson Clients*

$n = 89$	• Began with 89 OSP clients from Burleson (2016 - 2020); 2 clients with missing data on key variables ($n = 87$)
$n = 41$	• 41 Burleson clients seen during the pre-ordinance timeframe (1/01/16 – 3/05/18)
$n = 46$	• 46 Burleson clients seen during the post-ordinance timeframe (3/06/18 - 12/31/20)
$n = 36$	• 36 Burleson clients with strangulation on Danger Assessment [Pre ($n = 13$), Post ($n = 23$)]
$n = 31$	• 31 Burleson clients completing OSP Strangulation Survey [Pre ($n = 10$), Post ($n = 21$)]
$n = 11$	• 11 Burleson clients reporting law enforcement involvement in their strangulation incident [Pre ($n = 2$), Post ($n = 9$)]
$n = 8$	• 8 Burleson clients reporting law enforcement asked them about the strangulation [Pre ($n = 2$), Post ($n = 6$)]
$n = 5$	• 5 Burleson clients reporting they sought or received medical [Pre ($n = 1$), Post ($n = 4$)]

As demonstrated in Figure 9 below, OSP served 10 clients from the Control Site during

the study period (2016-2020). Five of the Control Site clients were seen during the pre-ordinance

timeframe and five were seen in the post-ordinance period. Of these clients, five reported

experiencing strangulation on the Danger Assessment ($n = 4$ pre and $n = 1$ post). Of the five

Control Site clients reporting strangulation, three were administered OSP's strangulation survey

($n = 2$, pre and $n = 1$ post). The secondary data obtained from the OSP strangulation survey

contained two relevant items for this study—law enforcement spoke to the client about the

strangulation and if the client received or sought medical services. Of the three Control Site

clients taking the strangulation survey, two were from the pre and one was from the post

timeframe. All three of the Control Site clients reported no involvement with law enforcement

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and none sought or received medical care. An overview of the process and descriptive results are summarized below in Figure 9.

Figure 9. *Strangulation Victim Engagement and Experiences: Control Site Clients*

n = 10 • Began with 10 OSP clients from Control Site (2016 - 2020)

n = 5 • 5 Control site clients seen during the pre-ordinance timeframe (1/01/16 – 3/05/18)

n = 5 • 5 Control site clients seen during the post-ordinance timeframe (3/06/18 - 12/31/20)

n = 5 • 5 Control site clients with strangulation on Danger Assessment (post-ordinance) [Pre (*n = 4*), Post (*n = 1*)]

n = 3 • 3 Control site clients completing OSP Strangulation Survey (post-ordinance) [Pre (*n = 2*), Post (*n = 1*)]

n = 0 • Zero Control site clients reporting law enforcement involvement in their strangulation incident (post-ordinance)

n = 0 • Zero Control Site clients reporting they sought or received medical (post-ordinance)

Burleson Pre and Post-Ordinance Comparisons. Next, comparisons were made to examine if OSP clients from Burleson engaged with Burleson police, as well as whether they received or sought medical pre and post-ordinance. As shown in Table 51, the majority of OSP clients from Burleson reported that they *did not involve law enforcement* in their strangulation incident for *both* timeframes. For those clients that did involve law enforcement, none indicated that they were not spoken to about the strangulation in the pre-ordinance period but there were three clients in the post-ordinance timeframe who reported strangulation was not discussed. While this is a small handful of clients, these instances represent missed opportunities for intervention and suggest a fidelity problem (discussed previously in the process evaluation report). Clients reporting law enforcement involvement and that law enforcement spoke to them

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about their strangulation occurred in less than one-third of cases in both time periods. There was

no statistically significant difference between pre and post-ordinance timeframe.

Table 51. *OSP Burleson Clients Reporting Law Enforcement Involvement by Ordinance Status*

Ordinance Status	No, they were not involved	Yes, but they did *not* speak about the strangulation	Yes, and they spoke about the strangulation	Total	Test Statistic
	n	*%*	*n*	*%*	*n* = 30
Pre	7 (77.8%)	0 (0.0%)	2 (22.2%)	9 (100%)	
Post	12 (57.1%)	3 (14.3%)	6 (28.6%)	21 (100%)	Fisher-Freeman-Halton Exact Test, *p* =.598
Total	19 (63.3%)	3 (10.0%)	8 (26.7%)	30 (100%)	

Note. Because this table was larger than 2 x 2, a Fisher-Freeman-Halton Exact Test was conducted for this analysis (Lyderson et al., 2007).

Next, researchers examined Burleson clients who: (1) reported strangulation in their

Danger Assessment, (2) completed the OSP Strangulation Survey, and (3) indicated on the

survey that there was law enforcement involvement where the officer spoke to them about the

strangulation. After applying these selection criteria, the medical outcome item was reviewed

across the pre/post-ordinance periods. As shown in Table 52, most Burleson clients who reported

law enforcement involvement where strangulation was discussed also had some type of medical

outcome across both timeframes. Due to the small sample (*n* = 6), no further analyses were

conducted.

Table 52. *OSP Burleson Clients with Law Enforcement Involvement and Medical Outcomes by Ordinance Status*

Ordinance Status	Law Enforcement Involved & Medical Outcome				Total	Test Statistic
	No		Yes			
	n	*%*	*n*	*%*		*n* = 6
Pre	0	0.0%	1	100%	1	N/A
Post	1	20.0%	4	80.0%	5	
Total	1	16.7%	5	83.3%	6	

Burleson and Control Site Comparisons. Direct comparisons between the Control Site and Burleson were not possible as only one OSP client from the Control Site reported being strangled in the post-ordinance period and this client reported no law enforcement involvement, and that no medical was sought or received.

Research Question 6: Are Officers in Burleson More Knowledgeable About Signs and Symptoms Associated with IPVRS Compared to Officers Working in Jurisdictions Without a Specialized Protocol?

Organization of Findings

As discussed in the methodology chapter, study research question six addresses, "Are first responders in Burleson more knowledgeable about signs and symptoms associated with IPVRS compared to first responders working in jurisdictions without a specialized protocol?" To answer this study research question, two central methods were utilized. First, online self-report surveys were administered to first responders from Burleson, the Control Site, and MedStar to facilitate comparisons across agencies about strangulation knowledge. In addition to this initial baseline survey, Burleson first responders were also administered a second survey following the completion of a training course that consisted of learning content related to the Ordinance and technical information about strangulation. The survey covered a range of topics such as risks and safety issues associated with IPVRS, self-assessed expertise and knowledge, and an objective assessment of technical knowledge related to signs, symptoms, and dangers of IPVRS. Survey results are presented first and are organized into two separate subsections. The first subsection presents results from those Burleson first responders who elected to participate in both surveys using a merged sample of repeated data collected from the same sample on the same measures across two points in time ($n = 51$). This subsample of 51 participants were selected for inclusion in a series of analyses to identify significant differences in repeated

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measures across the two surveys, signifying their perceived knowledge and technical knowledge across time. The second subsection of the findings presents results from Burleson first responders compared to first responders at the Control Site and MedStar. Second, a content analysis of IPVRS police case file narratives was conducted to determine if the Ordinance and the required strangulation training, held any influence on Burleson first responders' ability to document the signs and symptoms of strangulation in police-identified strangulation IPVRS incidents.

First Responder Survey: Burleson Repeat Measures

Burleson Participant Sample & Descriptive Statistics: Merged Sample for Repeat Measures. Recall from the prior discussion in the methodology, Burleson first responders took a baseline survey prior to completing training and then again, after completion of a training initiative. Participant responses for the baseline or Pre-Training Survey (T1; $n = 94$ total participants) were merged with total participant responses from the Post-Training Survey (T2; $n = 74$ total participants). From here, only those who elected to participate in both surveys were retained and included in the merged sample of repeated data collected from the same sample on the same measures across two points in time ($n = 52$). One problematic outlier was removed leaving a subsample of 51 participants for inclusion in a series of analyses to identify significant differences in repeated measures across the two surveys, signifying their perceived knowledge and technical knowledge across time.

As shown in Table 53, of those Burleson first responders taking both surveys, 52.9% ($n = 27$) were from BPD and 47.1% were from BFD ($n = 24$). In terms of agency position or rank, 3.9% ($n = 2$) were administrators and 29.4% ($n = 15$) self-identified as supervisors. Most survey

respondents were front-line personnel working as police officers or fire fighters, EMTs or paramedics.

Table 53. *Participant Descriptive Statistics, Burleson Repeat Measures*

	n	*%*	*M*	*SD*	**Range**
Agency (n = 51)					
Burleson PD Pre/Post	27	52.9%			
Burleson FD Pre/Post	24	47.1%			
First Responder Position, Full Sample (n = 51)					
Administrator	2	3.9%			
Supervisor	15	29.4%			
Detective	5	9.8%			
Police Officer	12	23.5%			
BFD Fire Fighter/EMT	9	17.7%			
BFD Fire Fighter/Paramedic	5	9.8%			
Non-Sworn Personnel	2	4.0%			
Prefer not to answer	1	2.0%			
Years in Agency (n = 51)			11.8	7.7	1-36
Strangulation Training (n = 51)					
Yes	45	88.2%			
No	6	11.8%			
Ever Responded to IPVRS Incident (n = 51)					
Yes	27	52.9%			
No	18	35.3%			
IPVRS-Related Assault (n = 51)					
Yes	2	4.0%			
No	43	84.3%			
Not Applicable to my job duties	6	11.8%			
Frequency of IPVRS-Related Assault (n = 2)			1.5	0.7	1-2

The average length of service (years in agency) was 11.8 years (SD = 7.7) with a range of 1 to 36 years of service. Most or 52.9%, reported ever having responded to an IPVRS incident and few reported experiencing an assault while doing so (4%, n = 2).

Burleson Repeat Measures Results. Burleson first responders that took both the baseline survey and the post-training survey (*n* = 51) were asked a series of questions related to their knowledge about strangulation and first responder safety. Unless otherwise noted, only

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valid percentages are reported throughout this section. Given the small sample size here, statistical power could be problematic as larger samples generally provide more stable estimates (Aitken et al., 2018; Braga et al., 2018; Weisburd & Britt, 2007) and small samples can impair statistical power or the ability to discover a significant effect though this does not mean these results are not meaningful (Aitken et al., 2018).

Repeat Measures: Burleson First Responder Concern & Risks. The Burleson training materials report on annectodal evidence that strangulation suspects are more likely to assault first responders, particularly police officers (Gwinn, 2014; Johnson, 2011; Stone, 2015). For these reasons, Burleson first responders were asked, *"What level of concern do you have for your own safety when responding to IPVRS incidents?"* While the most frequently preferred response was *"my concern is the same as when responding to other violent crime"* this shifted downward overtime and some Burleson first responders reported that their concern increased in the post-training period (see Figure 10). These differences were statistically significant [$\chi^2_{(6)} = 16.28$, $p = .012$].

Figure 10. *Repeat Measures: Percent of Burleson First Responders with IPVRS Safety Concerns by Ordinance Status*
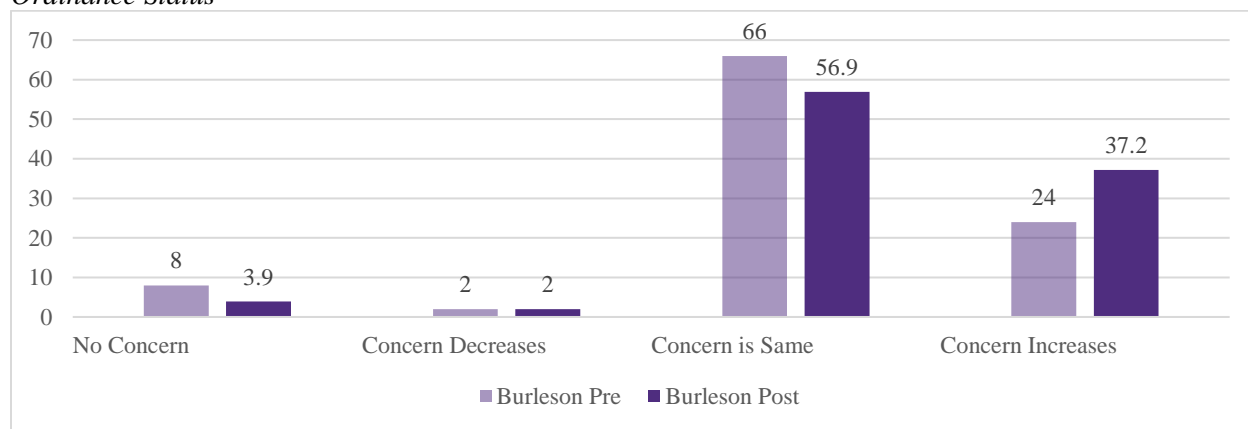
Note. Burleson Pre ($n = 50$), Burleson Post ($n = 51$).

Next, the sample was further disaggregated on this same item to compare responses among BPD and BFD over time. As shown below in Figure 11, for BPD responders, their safety

concern increased following the training initiative, and the difference across timeframes was statistically significant [$\chi^2_{(3)} = 9.34, p = .025$].

Figure 11. *Repeat Measures: Percent of BPD First Responders with IPVRS Safety Concerns by Ordinance Status*

Note. Burleson PD Pre ($n = 27$), Burleson PD Post ($n = 27$).

As indicated in Figure 12 below, for BFD responders, their safety concerns fluctuated somewhat across categories pre and post-training, but the differences were not statistically significant [$\chi^2_{(4)} = 4.31, p = .365$].

Figure 12. *Repeat Measures: Percent of BFD First Responders with IPVRS Safety Concerns by Ordinance Status*
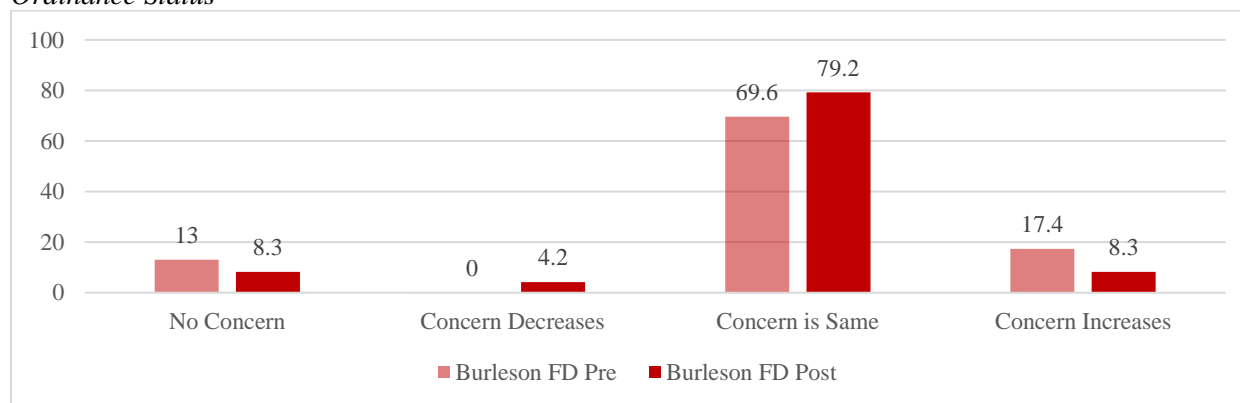
Note. Burleson FD Pre ($n = 23$), Burleson FD Post ($n = 24$).

Burleson first responders were then asked if they were *"...aware of the increased risk to first responder safety when responding to IPVRS incidents."* As shown in Figure 13 below, the Burleson first responders expressed increased awareness related to risk in the post-ordinance

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timeframe; however, these differences were not statistically significant [McNemar's $\chi^2_{(1)} = 2.0$, $p = .157$].

Figure 13. *Repeat Measures: Burleson First Responders Perceived IPVRS Risk and First Responder Safety by Ordinance Status*
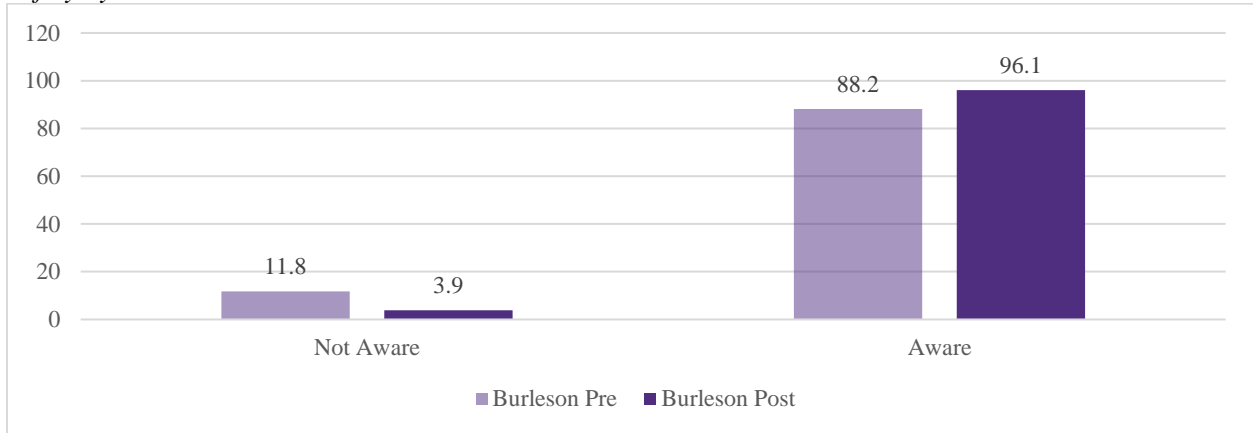
Note. Burleson Pre ($n = 51$), Burleson Post ($n = 51$).

Next, the sample was further disaggregated on this same item to compare responses among BPD and BFD over time. There was no notable significant difference for either subsample, BPD [McNemar's $\chi^2_{(1)} = 2.00$, $p = 0.157$] or BFD [McNemar's $\chi^2_{(1)} = 0.67$, $p = 0.414$].

Repeat Measures: Burleson First Responder Self-Rated Expertise and Knowledge.

Burleson first responders were asked *"How would you rate your level of expertise in IPVRS?"* They could respond across four items from high to none. As shown in Figure 14, following the training, Burleson first responders indicated significantly more expertise [$\chi^2_{(4)} = 23.70$, $p = 0.00$].

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Figure 14. *Repeat Measures: Burleson First Responder Self-Rated Strangulation Expertise by Ordinance Status*
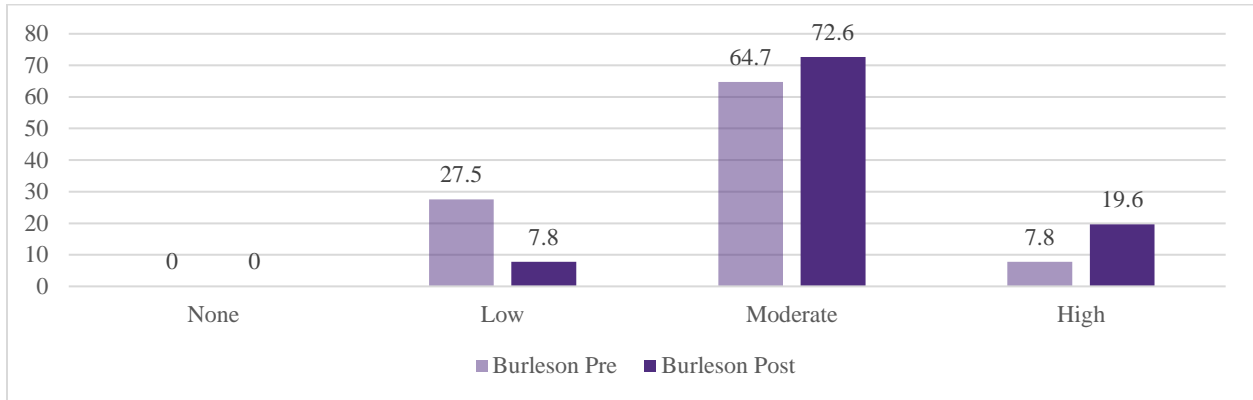
Note. Burleson Pre (*n* = 51), Burleson Post (*n* = 51).

Next, the sample was further disaggregated on this same item to compare responses among BPD and BFD over time. As displayed in Figure 15, for BPD responders, self-rated expertise increased before and after the training and those assessing themselves as low expertise decreased. The difference between these groups was statistically significant [$\chi^2_{(4)}$ = 12.15, *p* = 0.016].

Figure 15. *Repeat Measures: BPD First Responder Self-Rated Strangulation Expertise by Ordinance Status*
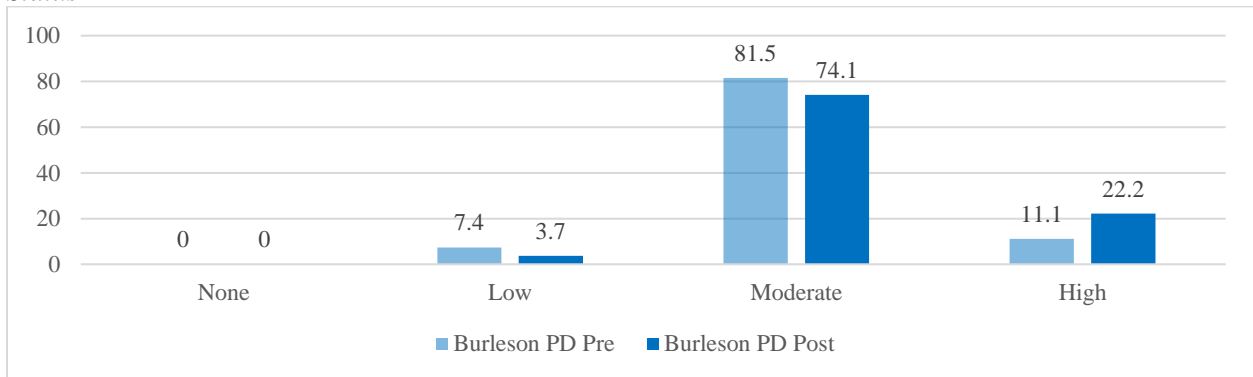
Note. Burleson PD Pre (*n* = 27), Burleson PD Post (*n* = 27).

When examining BFD responses on this item, fire fighters also reported a significant increase in perceived expertise following the strangulation training as shown in Figure 16 [$\chi^2_{(4)}$ = 10.65, *p* = 0.031].

Repeat Measures: Self-Assessed Strangulation Knowledge. As discussed in the

methodology, to assess Burleson first responder self-assessed knowledge, responses to three

survey questions were combined into a scale. These items included:

1. *"How much do you know about the signs and symptoms of IPVRS?"*
2. *"How much do you know about the health risks associated with IPVRS?"*
3. *"How much do you know about the increased homicide risk for victims of non-fatal IPVRS?"*

Figure 16. *Repeat Measures: BFD First Responder Self-Rated Strangulation Expertise by Ordinance Status*
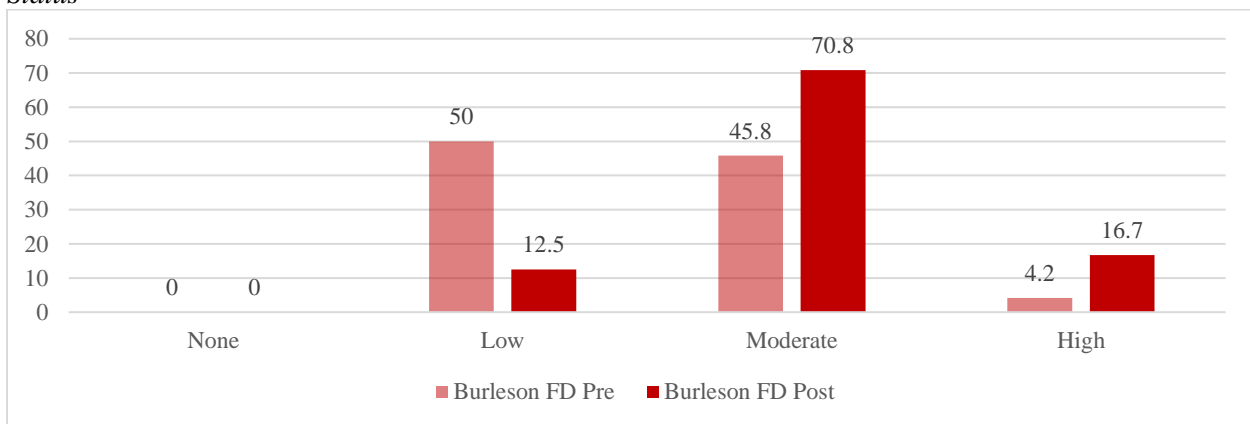
Note. Burleson FD Pre (*n* = 24), Burleson FD Post (*n* = 24).

Each of these survey items were assessed on a five item Likert scale: no knowledge (0), some

knowledge (1), average knowledge (2), above-average knowledge (3), and expert knowledge (4).

The Cronbach's alpha for the pre-survey scale was 0.707 and the post-survey scale was 0.901.

Figure 17 displays the results for Burleson first responders self-assessed knowledge about

strangulation. The possible range for this item was 0 - 12 but the observed range was 2 - 11 in the

pre-training results and 3-9 in the post-training results. Pre-training results indicate an average

score of 6.43 (*SD* = 1.92) that increased to 7.43 (*SD* = 1.79) in the post-training period and a

paired samples *t*-test revealed a statistically significant difference [$t_{(50)}$ = -4.53, *p* = 0.000].

Figure 17. *Repeat Measures: Burleson First Responder Self-Assessed Strangulation Knowledge by Ordinance Status*
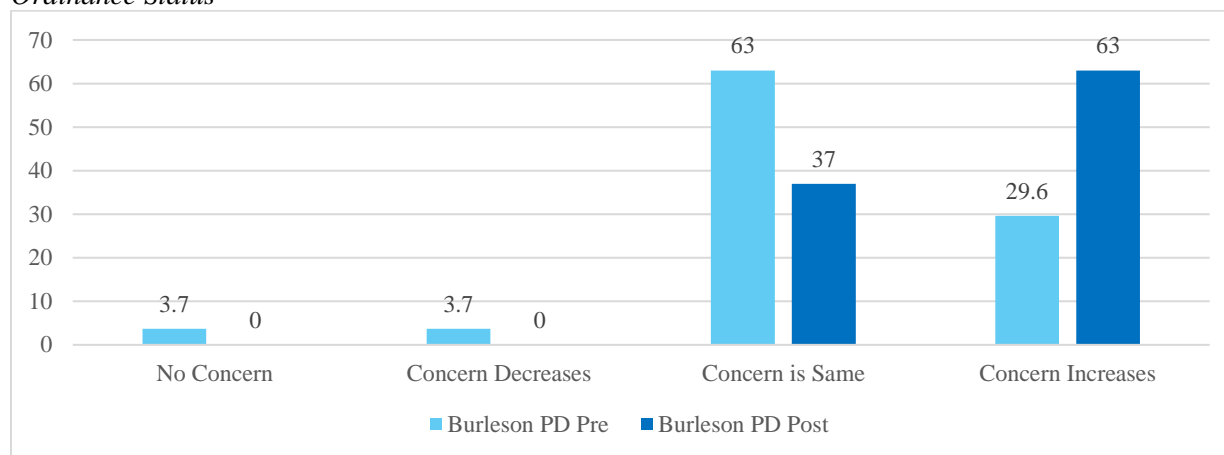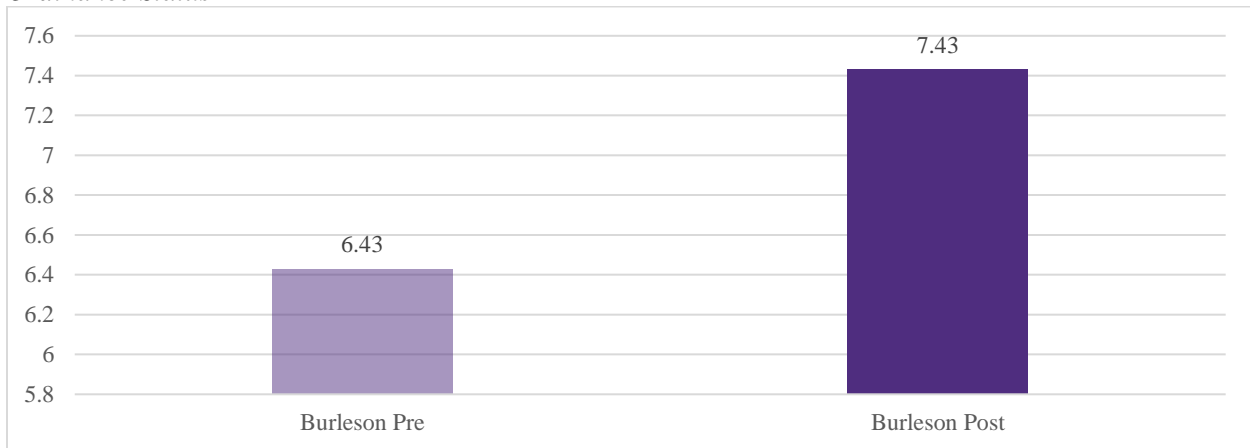

Note. Burleson Pre (*n* = 51), Burleson Post (*n* = 51).

Next, the sample was further disaggregated on this same item to compare responses among BPD and BFD over time. Paired samples t-tests revealed no statistically significant difference for BPD [$t_{(23)}$ = -1.762, *p* = 0.089] but there was a significant difference for BFD [$t_{(23)}$ = -5.124, *p* = 0.000]

Repeat Measures: Burleson First Responder Technical Strangulation Knowledge. To objectively assess Burleson first responders' technical knowledge about strangulation, participants were given an assessment within the survey that tested their technical knowledge about strangulation. The assessment consisted of 31 items (see Appendix E) that were graded and scored by two members of the research team for accuracy. The Cronbach's alpha for the pre-training was 0.851 and the post-training scale was 0.897.

Figure 18 displays the results for Burleson first responders' technical strangulation knowledge scores. The possible range for the knowledge scale was 0 - 31 and the observed range was 5 - 31. Pre-training, Burleson first responders demonstrated an average technical knowledge score of 23.02 (*SD* = 5.36) that increased to 26.47 (*SD* = 5.50) post-training. A paired samples *t*-test indicated a statistically significant difference [$t_{(50)}$ = -4.5046, *p* = .0000]. Next, the sample was further disaggregated on this same item to compare technical knowledge among BPD and

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BFD over time. Pre-training results for BPD revealed a mean score of 25.26 ($SD = 4.75$) that significantly increased to 28.48 ($SD = 2.95$) post-training, [$t_{(26)} = -3.9605$, $p = .0005$]. For BFD, there was a significant increase in their technical knowledge scores from 20.5 ($SD = 4.95$) pre-training to 24.2 ($SD = 6.69$) post-training, [$t_{(23)} = -2.7161$, $p = .0123$].

OLS regression analysis was conducted to examine the association between several predictor variables on technical strangulation knowledge for the Burleson repeat measures sample. As a reminder from the methods chapter, to increase confidence about confidentiality and survey participation, only limited socio-demographic variables were collected about each first responder which restricts what can be included in regression models. Independent variables

Figure 18. *Repeat Measures: Burleson First Responder Technical Strangulation Knowledge by Ordinance Status*
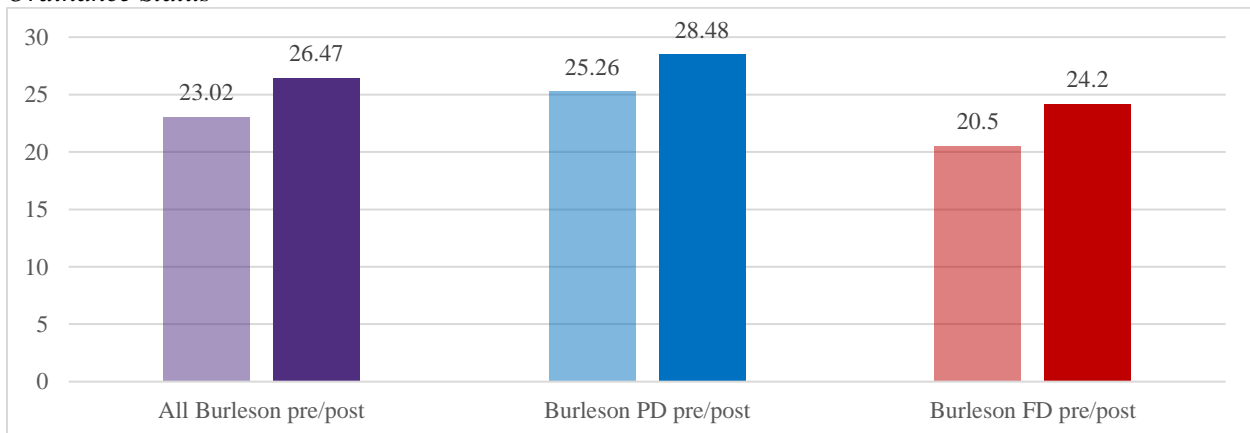
Note. All Burleson pre/post ($n = 51$), Burleson PD pre/post ($n = 27$), Burleson FD pre/post ($n = 24$)

used in the regression analyses included: Burleson police (No = 0, Yes = 1); years employed by agency, frontline first responder (officer, detective, firefighter, EMT, paramedic = 1, administrators/supervisors = 0), ever responded to IPVRS incident (No = 0, Yes = 1), and the three item self-assessed knowledge scale (the Cronbach's alpha for the pre-survey scale was .851 and the post-survey scale was .901). Prior to estimating the regression models, multicollinearity diagnostics were evaluated; and tolerances ranged from .67 to .93 and VIFs (variance inflation

factor) ranged from 1.07 to 1.49 across the three models, indicating multicollinearity was not a problem (Belsley et al., 1980).

Three separate models were estimated: (1) pre-training technical knowledge, (2) post-training technical knowledge, and then (3) a final model using technical strangulation knowledge difference scores as the dependent variable (D = Post−Pre). As shown in Table 54, the regression results indicate that previous experience responding to an IPVRS incident, and the self-assessed knowledge scale are unimportant for determining technical strangulation knowledge among Burleson first responders across all three models. Affiliation with BPD was positive and significant in the pre-training model (p = .047), positive and approaching statistical significance in the post-training model (p = .089), but not in the third model examining difference scores. Years employed in their respective agencies was only meaningful in the post-training results (p = .016) and approached statistical significance in the model using difference scores (p = .065). Perhaps the most meaningful results observed is the performance of the Burleson frontline first responders who initially had an inverse relationship with technical strangulation knowledge in the pre-training model (p = .005), a positive but non-significant coefficient in the post-training survey model, and then a positive and statistically significant coefficient in the model using difference scores (p = .007). In other words, the training was particularly effective for frontline first responders. This is a salient finding because frontline first responders are more likely to encounter strangulation. Increased knowledge about strangulation among frontline first responders could improve their detection and responses to it though these data do not allow us to determine whether that is the case; however, (see section Content Analysis of Incident Reports for Strangulation Signs and Symptoms).

Table 54. Repeat Measures: *OLS Regression Results for Determinants of Technical Strangulation Knowledge and Ordinance Status*

	Technical Knowledge Pre		Technical Knowledge Post		Technical Knowledge Post-Pre	
	b (SE)	*p*	*b* (SE)	*p*	*b* (SE)	*p*
Burleson PD	3.16 (1.54)	0.047	2.68 (1.54)	0.089	-0.69 (1.66)	0.676
Years in Agency	0.04 (0.11)	0.680	0.29 (0.12)	0.016	0.24 (0.13)	0.065
Frontline First Responder	-4.31 (1.50)	0.005	0.72 (1.62)	0.659	4.98 (1.74)	0.007
Ever Responded to IPVRS Incident	-0.57 (2.14)	0.790	2.55 (2.27)	0.266	2.57 (2.44)	0.298
Self-Assessed Knowledge Scale	0.40 (0.41)	0.333	0.54 (0.41)	0.201	-0.07 (0.45)	0.867
Constant	20.95 (3.23)	0.000	14.93 (4.24)	0.001	-3.32 (4.57)	0.471
N	48		48		48	
F	5.54	0.001	3.44	0.011	2.01	0.097
Adj. R^2	0.326		0.206		0.100	

First Responder Survey: Comparisons Across All Groups

The second subsection of the findings presents results from Burleson first responders compared to first responders at the Control Site and MedStar.

First Responder Participant Sample & Descriptive Statistics: All Agencies. The central sample of interest for the cross-agency comparisons is the Burleson post-training survey respondents versus the Control Site and MedStar survey participants (see analytic strategy for explanation). Tables 55 - 57 show descriptive statistics for the Burleson, Control Site, and MedStar participants. Following the strangulation training initiative, Burleson first responders were surveyed, and in this sample, participation was evenly split between BPD (49.3%, *n* = 36) and BFD (50.7%, *n* = 37).[61] In terms of agency position or rank, 4.1% (*n* = 3) were administrators and 19.2% (*n* = 14) self-identified as supervisors. Most survey respondents were

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[61] There were technically 38 BFD participants in the post-training survey but one was removed as an outlier case from all analyses.

front-line personnel working as police officers, fire fighters, EMTs, or paramedics. The average

length of service (years in agency) was 11.8 years (*SD* = 7.7) with a range of 1 to 36 years of

service; this question was not asked in the Burleson post-survey and

Table 55. *Participant Descriptive Statistics, Burleson Post-Training Sample*

	n	*%*	*M*	*SD*	**Range**
Agency Affiliation (*n* = 73)					
Burleson PD Post	36	49.3%			
Burleson FD Post	37	50.7%			
First Responder Position, Full Sample (*n* = 73)					
Administrator	3	4.1%			
Supervisor	14	19.2%			
Detective	5	6.9%			
Police Officer	17	23.3%			
BFD Fire Fighter/EMT	18	24.7%			
BFD Fire Fighter/Paramedic	11	15.1%			
Non-Sworn Personnel	2	2.7%			
Prefer not to answer	2	2.7%			
Other	1	1.4%			
Years in Agency (*n* = 51)[a]					
			11.8	7.7	1-36
Strangulation Training (*n* = 51)[a]					
Yes	48	94.1%			
No	3	5.9%			
Ever Responded to IPVRS Incident (*n* = 51)					
Yes	45	88.2%			
No	6	11.8%			
IPVRS-Related Assault (*n* = 73)					
Yes	2	2.7%			
No	43	58.9%			
Not Applicable to my job duties	6	8.2%			
Missing	22	30.1%			
Frequency of IPVRS-Related Assault (*n* = 2)			1.5	0.71	1-2

[a] The years in agency question was only asked in the baseline survey. The Burleson post sample data from the repeat measure sample was utilized because this information could be accurately matched to the participant.

thus, averages are reported from just those participating in the repeat measure sample because

this information could be matched to the participant. Most or 88.2% (*n* = 45) reported ever

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having responded to an IPVRS incident and few reported experiencing an assault while doing so (2.7%, $n = 2$) with 1 to 2 assaults per first responder.

Table 56 summarizes the Control Site sample. Participation was stronger among the Control Site police department (60.9%, $n = 28$) when compared to the fire department (39.1%, $n = 18$). In terms of agency position or rank, 19.6% ($n = 9$) were administrators and the same

Table 56. *Participant Descriptive Statistics, Control Sample*

	n	*%*	*M*	*SD*	**Range**
Agency Affiliation ($n = 46$)					
Control PD	28	60.9%			
Control FD	18	39.1%			
First Responder Position, Full Sample ($n = 46$)					
Administrator	9	19.6%			
Supervisor	9	19.6%			
Detective	3	6.5%			
Police Officer	11	23.9%			
CFD Fire Fighter/EMT	2	4.4%			
CFD Fire Fighter/Paramedic	12	26.1%			
Years in Agency ($n = 45$)					
Missing	1	2.2%			
			13.7	7.4	1-29
Strangulation Training ($n = 46$)					
Yes	33[62]	71.7%			
No	13	28.3%			
Ever Responded to IPVRS Incident ($n = 46$)					
Yes	31	67.4%			
No	15	32.6%			
IPVRS-Related Assault ($n = 46$)					
Yes	1	32.0%			
No	30	65.2%			
Not Applicable to my job duties	15	32.6%			
Frequency of IPVRS-Related Assault ($n = 1$)			4.0	-	4.0

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[62] The training Control Site first responders received was not like the specialized training like the Burleson first responders received as part of the Ordinance. For example, most of those reporting training were police officers who reported that "TCOLE training" was what they received which is general training on family violence and is offered to officers across the state of Texas. Burleson officers also had this same general training.

amount 19.6% ($n = 9$) self-identified as supervisors. Most survey respondents were front-line

personnel working as police officers, fire fighters, EMTs, or paramedics. The average length of

service (years in agency) averaged 13.7 years ($SD = 7.4$) with a range of 1 to 29 years of service.

Most or 67.4% ($n = 31$) reported experience with ever responding to an IPVRS and one Control

Site police first responder reported experiencing an assault while responding to IPVRS (2.2%, n

$= 1$) with a frequency of four incidents.

Table 57. *Participant Descriptive Statistics, MedStar Sample*

	n	*%*	*M*	*SD*	**Range**
Agency Affiliation ($n = 68$)					
Medstar	68	100.0%			
First Responder Position, Full Sample ($n = 68$)					
Administrator	1	1.5%			
Supervisor	6	8.8%			
MedStar Paramedic	33	48.5%			
MedStar EMT	26	38.2%			
Other	1	1.5%			
Missing	1	1.5%			
Years in Agency ($n = 67$)			5.7	5.9	1-30
Missing	1	1.5%			
Strangulation Training ($n = 67$)					
Yes	20	29.9%			
No	47	70.1%			
Ever Responded to IPVRS Incident ($n = 67$)					
Yes	48	71.6%			
No	19	28.4%			
IPVRS-Related Assault ($n = 68$)					
Yes	4	5.9%			
No	44	64.7%			
Missing	20	29.4%			
Frequency of IPVRS-Related Assault ($n = 4$)			1.3	0.5	1-2

Table 57 above summarizes the MedStar sample. In terms of agency position or rank,

1.5% ($n = 1$) was an administrator and 8.8% ($n = 6$) self-identified as supervisors. Most survey

respondents (86.7%, $n = 59$) were front-line personnel working as EMTs or paramedics. The

average length of service (years in agency) averaged 5.7 years (SD = 5.9) with a range of 1 to 30

years of service. Seventy-two percent (*n* = 48) reported experience with ever responding to an

IPVRS incident and few MedStar first responders reported experiencing an assault while

responding to IPVRS (5.9%, *n* = 4). Of these, most reported a single occurrence.

   All Groups: First Responder Results. Burleson first responder post-training responses

were compared to first responders at the Control Site and MedStar on a series of items related to

safety, expertise, and knowledge about strangulation. Unless otherwise noted, only valid

percentages reported throughout this section. Given small sample sizes, statistical power could

be problematic as larger samples generally provide more stable estimates (Aitken et al., 2018;

Braga et al., 2018; Weisburd & Britt, 2007) and small samples can impair statistical power or the

ability to discover a significant effect though this does not mean these results are not meaningful

(Aitken et al., 2018).

   All Groups: First Responder Concern & Risks. There is annectodal evidence that

strangulation suspects are more likely to assault first responders-particularly police officers

(Gwinn, 2014; Johnson, 2011; Stone, 2015) and this was a topic covered in the training

curriculum. For these reasons, all first responders were asked, *"What level of concern do you*

have for your own safety when responding to IPVRS incidents?" The most frequently preferred

response was *"my concern is the same as when responding to other violent crime"* across all

agencies (see Figure 19) and differences between these groups were not statistically significant:

[All Burleson vs. All Control [$\chi^2_{(3)}$ = 3.21, *p* = 0.360; Fisher's Exact Test = .292]; All Burleson

vs. All MedStar: [$\chi^2_{(3)}$ = 2.50, *p* = 0.475; Fisher's Exact Test = .513].

   Next, the sample was further disaggregated on this same item to investigate differences

between member agencies of each research group (*BPD versus Control PD*, *BFD versus Control*

FD, and *Burleson versus MedStar*). There were no notable significant differences for any of these comparisons: BPD and Control PD [$\chi^2_{(3)}$ = 1.69, *p* = 0.639; Fisher's Exact Test = .715], BFD versus Control FD [$\chi^2_{(2)}$ = 3.64, *p* = 0.162; Fisher's Exact Test = .180], BFD versus MedStar [$\chi^2_{(3)}$ = 1.83, *p* = 0.609; Fisher's Exact Test = .655].

Figure 19. *All Groups: Percent of First Responders with IPVRS Safety Concerns by Agency*
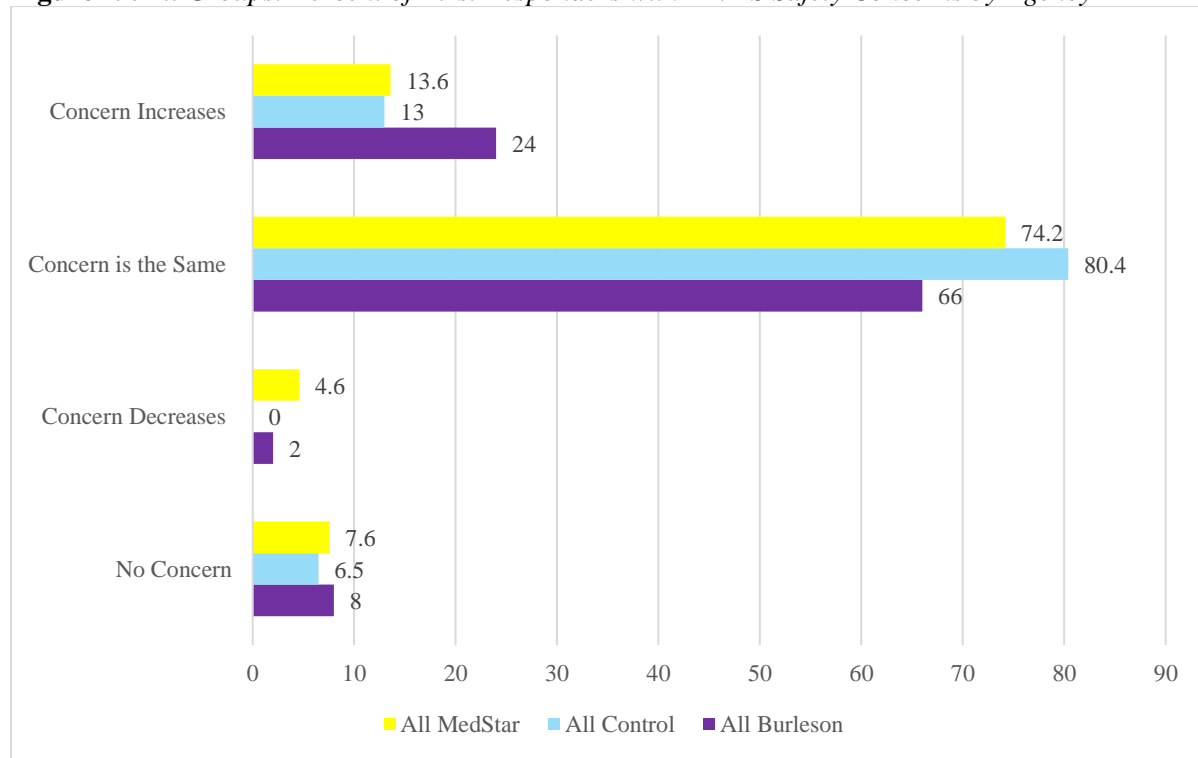
Note. N = 162: Burleson (*n* = 50), Control (*n* = 46), Medstar (*n* = 66)

First responders were then asked if they were *"…aware of the increased risk to first responder safety when responding to IPVRS incidents."* As shown in Figure 20 below, Burleson first responders expressed significantly elevated awareness relative to the Control Site first responders [$\chi^2_{(1)}$ = 11.03, *p* = 0.001] as well was Burleson versus MedStar [$\chi^2_{(1)}$ = 17.69, *p* = 0.000].

Next, the sample was further disaggregated on this same item to investigate differences between member agencies of each research group (*BPD versus Control PD, BFD versus Control FD*, and *BFD versus MedStar*). BPD reported higher levels of perceived IPVRS risk awareness

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than the Control Site PD and this difference was statistically significant [$\chi^2_{(1)}$ = 6.46, p = 0.011; Fisher's Exact Test = .020]. BFD comparisons also showed that BFD first responders had elevated IPVRS risk awareness relative to the Control Site fire department [$\chi^2_{(1)}$ = 5.35, p = 0.021; Fisher's Exact Test = .041] and the difference between BFD and MedStar was also statistically significant [$\chi^2_{(1)}$ = 7.42, p = 0.006; Fisher's Exact Test = .007].

Figure 20. *All Groups: First Responders Perceived IPVRS Risk and First Responder Safety by Agency*
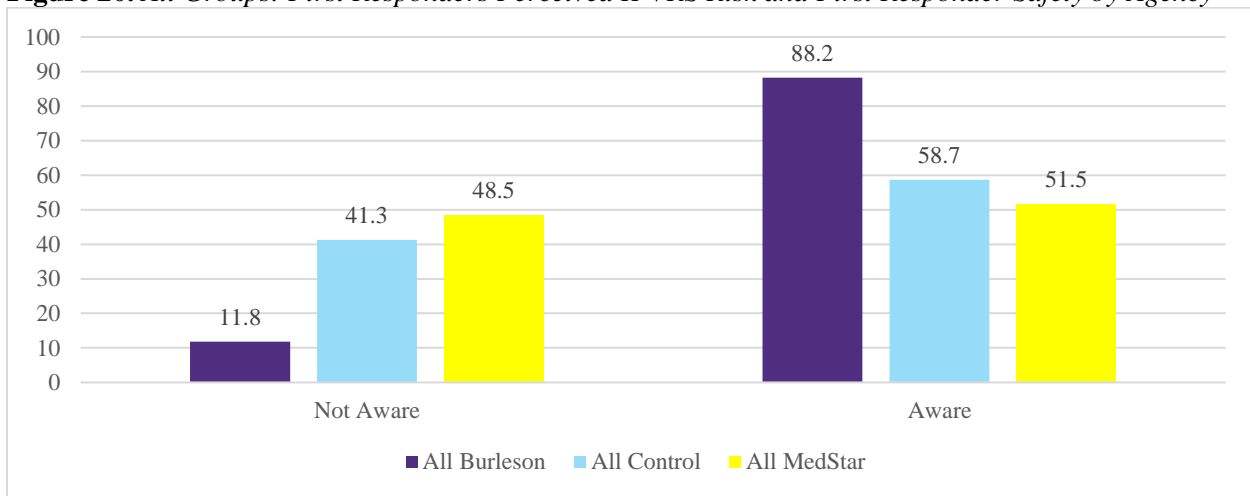
Note. N = 163, Burleson (n = 51), Control (n = 46), Medstar (n = 66)

All Groups: First Responder Self-Assessed Expertise. First responders were asked *"How would you rate your level of expertise in IPVRS?"* They could respond across four items from high to none. As shown in Figure 21, of the 73 Burleson first responders, most self-assessed high and moderate levels of strangulation expertise while the Control Site and MedStar first responders generally reported lower levels of strangulation expertise. These differences were statistically significant for Burleson versus the Control Site [$\chi^2_{(3)}$ = 25.04, p = 0.000; Fisher's Exact Test = .000] and for Burleson versus MedStar comparison [$\chi^2_{(3)}$ = 47.82, p = 0.000; Fisher's Exact Test = .000].

Figure 21. *All Groups: First Responder Strangulation Expertise Rating by Agency*
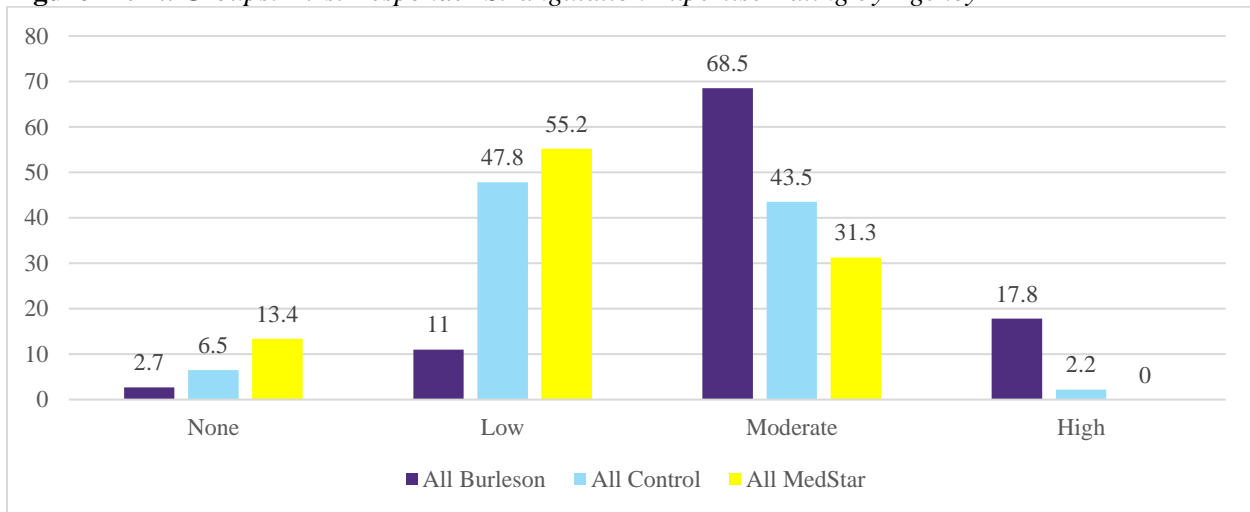
Note. $N = 120$, Burleson ($n = 73$), Control ($n = 46$), Medstar ($n = 67$)

Next, the sample was further disaggregated on this same item to investigate differences between member agencies of each research group (*BPD versus Control PD*, *BFD versus Control FD*, and *Burleson FD versus MedStar*). Compared to the Control Site PD, Burleson PD rated their strangulation expertise consistently higher, and this difference was statistically significant [$\chi^2_{(2)} = 8.08$, $p = 0.018$; Fisher's Exact Test $p = 0.024$]. Burleson FD also rated their strangulation expertise significantly higher than the Control Site FD [$\chi^2_{(3)} = 24.76$, $p = .000$; Fisher's Exact Test $= .000$] and MedStar [$\chi^2_{(3)} = 28.78$, $p = .000$; Fisher's Exact Test $= .000$].

All Groups: Self-Assessed Knowledge Scale. To assess first responder self-assessed knowledge, responses to three survey questions were combined into a scale. These items included:

1. *"How much do you know about the signs and symptoms of IPVRS?"*
2. *"How much do you know about the health risks associated with IPVRS?"*
3. *"How much do you know about the increased homicide risk for victims of non-fatal IPVRS?"*

Each of these survey items were assessed on a five item Likert scale: no knowledge (0), some knowledge (1), average knowledge (2), above-average knowledge (3), and expert knowledge (4). The Cronbach's alpha for third scale was 0.896.

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Figure 22 displays results for first responders self-assessed knowledge about strangulation across the three comparison groups (Burleson, Control, MedStar). The possible range for this item was 0 - 12, the observed range was 0 - 10. Burleson averaged a self-assessed score of 7.16 (SD = 1.91) compared to Control Site's average self-assessed score of 4.35 (SD = 2.4) and MedStar's self-assessed score of 3.95 (SD = 2.5).

Figure 22. *All Groups: First Responder Self-Assessed Strangulation Knowledge by Agency*
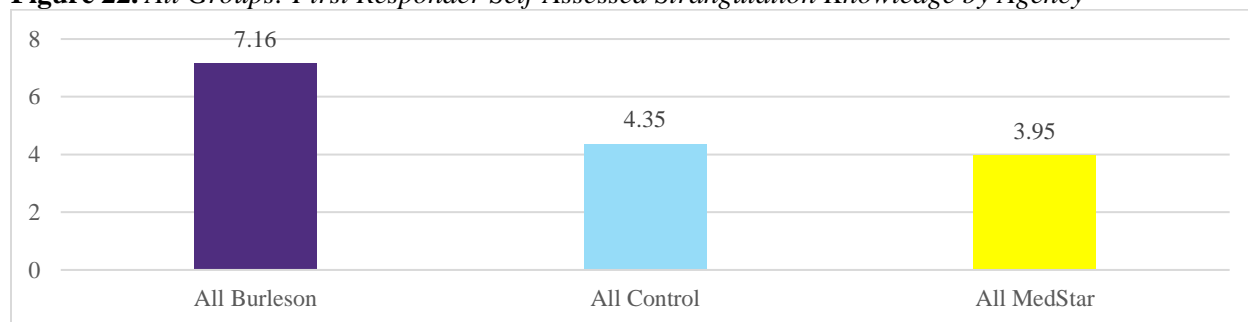
Note. N = 185, Burleson (n = 73), Control (n = 46), Medstar (n = 66)

Next, an ANOVA was conducted, and results revealed a statistically significant difference across the groups [$F_{(2,182)}$ =40.54, p = 0.000, η^2 = 0.308]. Results from the post-hoc Bonferroni test further indicate that all Burleson participants outperformed all control participants and MedStar (p = .000).

All Groups: First Responder Technical Strangulation Knowledge. To objectively assess first responders' technical knowledge about strangulation, participants were given an assessment within the survey that examined technical knowledge about strangulation. The assessment consisted of 31 items (see Appendix E) that were graded and scored by two members of the research team for accuracy. The Cronbach's alpha for the technical strangulation knowledge scale was 1.00.

Figure 23 displays the results for first responders' technical strangulation knowledge. The possible range for this scale was 0 - 31 and the observed range was also 1 - 31. Burleson respondents averaged a score of 26 (SD = 5.48), the average score for the Control Site was 21.65

($SD = 5.85$) and the average score for MedStar was 21.01 ($SD = 6.07$). Next, an ANOVA was

conducted, and results revealed a statistically significant difference across the groups [$F_{(2, 175)}$

$=12.67$, $p = 0.000$, $\eta^2 = 0.126$]. Results from the post-hoc Bonferroni test indicate that all

Burleson participants outperformed all control participants ($p =.000$) and MedStar.

Figure 23. *All Groups: First Responder Technical Strangulation Knowledge by Agency*
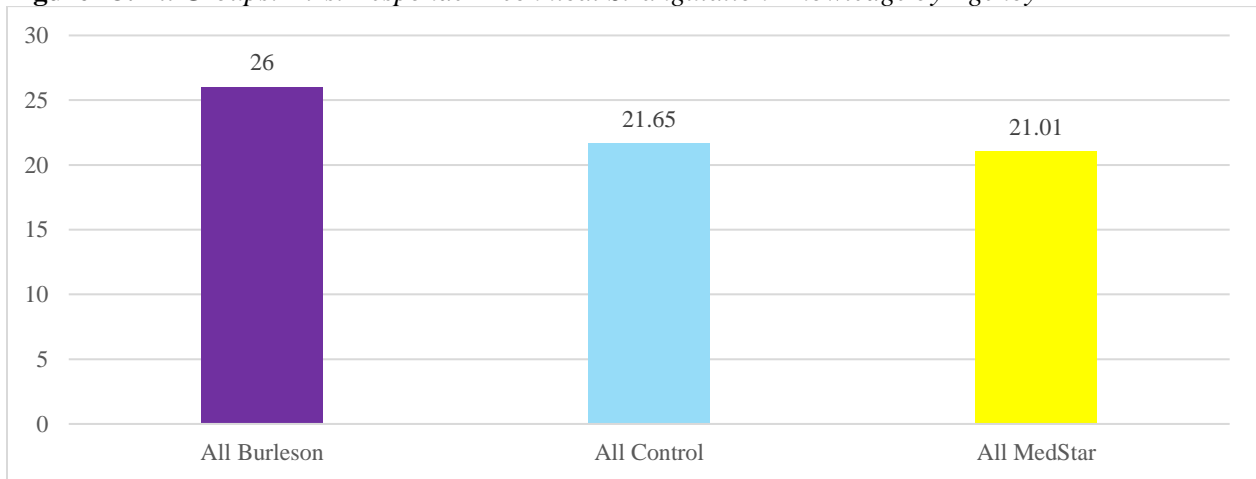
Note. $N = 179$, Burleson ($n = 71$), Control ($n = 46$), Medstar ($n = 62$)

The sample was further disaggregated on this same item to investigate differences

between member agencies of each research group (*BPD versus Control PD*, *BFD versus Control

FD, versus MedStar*). Because EMT and paramedics have more medical training than the

average police officer, researchers examined technical knowledge about strangulation across

these specific groups. As indicated in Figure 24, BFD's average score was 23.89 ($SD = 6.57$), the

Control Site's average score was 20.44 ($SD = 3.62$), and MedStar's average score was 21.01 (SD

$= 6.07$). Next, an ANOVA was conducted on just the MedStar and the two Fire groups, and

results revealed there were no statistically significant differences [$F_{(2,111)} = 2.17$, $p = 0.1196$, $\eta^2 =$

0.0375].

Figure 24. *All Groups: First Responder Technical Strangulation Knowledge by Fire Department & MedStar*
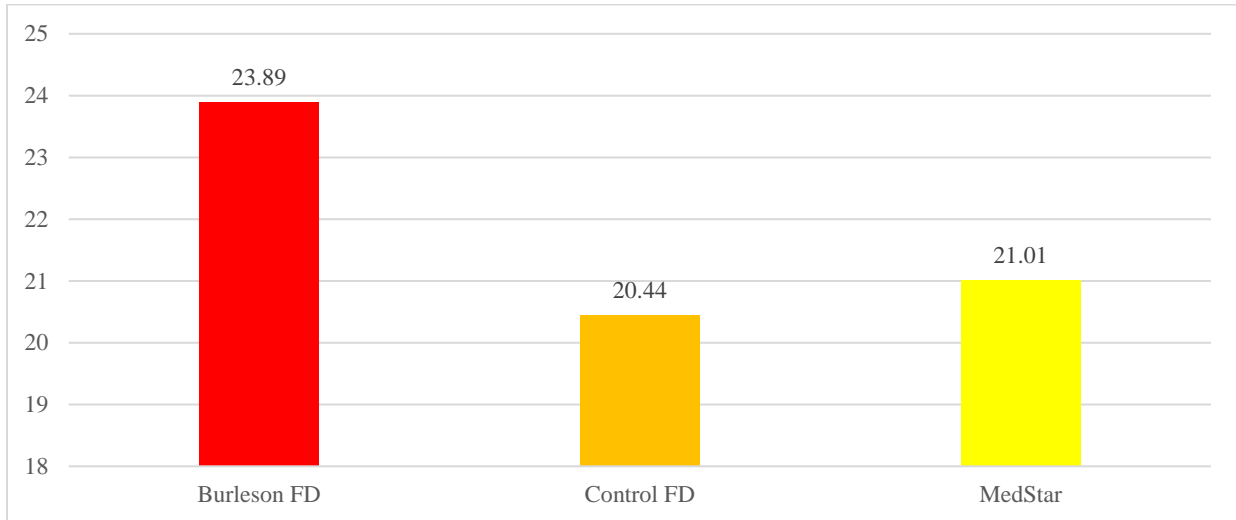
Note. N = 115, Burleson FD (*n* = 35), Control FD (*n* = 18), MedStar (*n* = 62)

Continuing with these comparisons, the sample was further disaggregated on this same item to investigate differences between the member police agencies of each research group (*BPD versus Control PD*). Figure 25 below displays the comparison of BPD versus the Control Site PD. As shown, Burleson PD significantly outperformed the Control Site PD with an average technical knowledge score of 28.14 (*SD* = 3.02) versus the Control Site score of 22.43 (*SD* = 6.80), [$t_{(62)}$ = 4.47, *p* = 0.000].

Figure 25. *All Groups: First Responder Technical Strangulation Knowledge by Police Department*
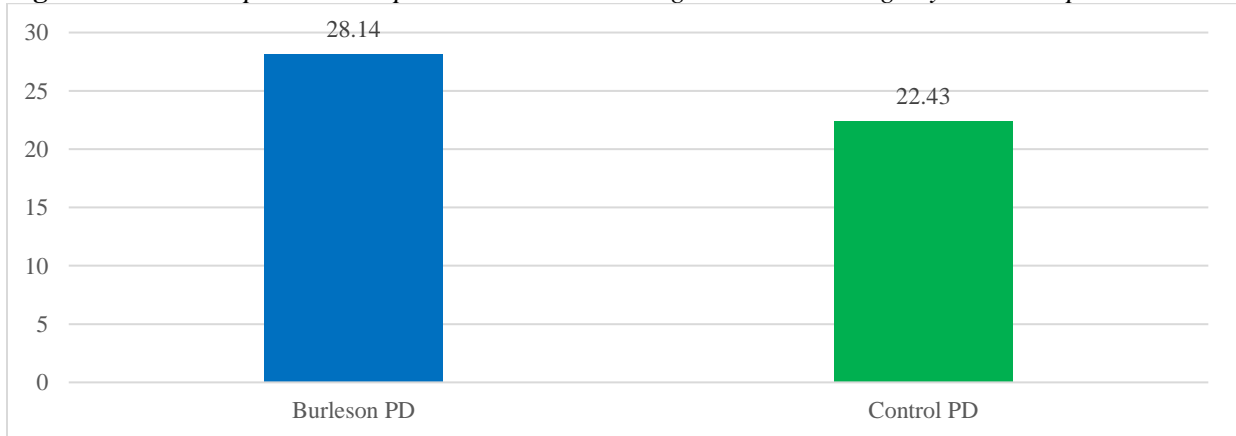
Note. n = 64, Burleson (*n* = 36), Control (*n* = 28)

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OLS regression was conducted to examine the association between several predictor variables on technical strangulation knowledge for the all-agency sample. To increase confidence about confidentiality and survey participation, only limited socio-demographic variables were collected about each first responder restricting what can be included in the regression analyses. Independent variables included: Burleson first responder (No = 0, Yes = 1); years employed by agency, frontline first responder (No = 0, Yes = 1), ever responded to IPVRS incident (No = 0, Yes = 1), and self-assessed knowledge scale (Cronbach's alpha = 0.899). A variable on training was also included in the model to account for exposure to any type of strangulation training first responders may have had at all agencies (No = 0, Yes = 1). Prior to estimating the regression models, multicollinearity diagnostics were evaluated; and tolerances ranged from .59 to .82 and VIFs (variance inflation factor) ranged from 1.21 to 1.70 indicating multicollinearity was not a problem (Belsley et al., 1980).

Table 58 shows the findings of the regression analysis. Of the six variables examined, being a Burleson first responder was positively associated with IPVRS technical knowledge and this was statistically significant ($p = .005$) as well as the self-assessed knowledge scale ($p = .042$). In contrast, years in agency, frontline first responder status, ever responding to IPVRS, and training were unimportant for determining technical strangulation knowledge among first responders in this study. The lack of statistically significant findings for training may appear surprising but it is worth noting that this result represents the *entire sample* of first responders and any generic training they may/may not have had (Burleson, Control, MedStar). Some of the non-Burleson first responders reported no training exposure and some of the Control Site police participants ($n = 33$) reported receiving *some* training most of which was from the Texas Commission on Law Enforcement (TCOLE), a training that Burleson officers also received.

Because this training does not contain any of the specialized content of the Burleson training it likely did not directly translate into the specialized knowledge being assessed here. In short, for those reporting training exposure, it does not appear to hold any influence over technical knowledge in this sample of first responders.

Table 58. *All Groups: OLS Regression Results for Determinants of Technical Strangulation Knowledge*

	Technical Knowledge Model	
	B *(SE)*	*p*
Burleson	3.51 (1.24)	0.005
Years in Agency	0.02 (0.07)	0.785
Frontline First Responder	1.48 (1.19)	0.213
Ever Responded to IPVRS Incident	-1.37 (11.7)	0.244
Self-Assessed Knowledge Scale	0.46 (0.22)	0.042
Training	0.73 (1.12)	0.515
Constant	18.93 (1.83)	0.000
N	152	
F	5.27	0.000
Adj. R²	0.145	

Content Analysis of Signs and Symptoms: Burleson Pre and Post Comparisons

Table 59 below presents descriptive statistics for the signs and symptoms documented and coded in the Burleson pre/post comparison sample among 143 current IPVRS cases deemed "police-identified" as described earlier in the methods chapter. Of these 143 cases, 42 were pre-ordinance and $n = 101$ were post-ordinance.

Table 59. *Signs and Symptoms Documented in Current and Police-Identified IPVRS Burleson Incidents*

	Pre-Ordinance n = 42		Post-Ordinance n = 101	
	n	**% Yes**	**n**	**% Yes**
1. Bleeding Mouth/Lip/Tongue	--	--	4	4.0%
2. Difficulty Breathing	5	11.9%	34	33.7%
3. Inability to Breathe	19	45.2%	37	36.6%
4. Almost Lost Consciousness	6	14.3%	5	5.0%
5. Lost Consciousness	2	4.8%	7	6.9%
6. Coughing	--	--	10	9.9%
7. Dizziness	1	2.4%	19	18.8%
8. Headache	--	--	15	14.9%
9. Tinnitus	1	2.4%	2	2.0%
10. Hyperventilation	--	--	9	8.9%
11. Defecation	--	--	--	--
12. Urination	2	4.8%	--	--
13. Loss of Feeling/Extremities	2	4.8%	3	3.0%
14. Memory Loss	1	2.4%	2	2.0%
15. Nausea or Vomiting	--	--	9	8.9%
16. Neck – Abrasion(s)	2	4.8%	3	3.0%
17. Neck – Bruising	4	9.5%	11	10.9%
18. Neck – Finger Impressions	4	9.5%	8	7.9%
19. Neck – Ligature Marks	1	2.4%	1	1.0%
20. Neck – Redness	11	26.2%	40	39.6%
21. Neck – Scratches	5	11.9%	20	19.8%
22. Neck – Pain and Tenderness	14	33.3%	51	50.5%
23. Red Eyes/Petechiae	1	2.4%	8	7.9%
24. Sore Throat	--	--	7	6.9%
25. Spasms	--	--	2	2.0%
26. Swelling of Throat/Tongue	1	2.4%	2	2.0%
27. Vision Problems	4	9.5%	8	7.9%
28. Voice Changes	--	--	14	13.9%

	Pre-Ordinance Cronbach's alpha = .526				Post-Ordinance Cronbach's alpha = .706			
	Min	**Max**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**
Signs and Symptoms Scale	0	6	2.05	1.807	0	14	3.28	2.768

During the pre-ordinance period (*n* = 42), police officials documented 19 distinct signs or symptoms most of which did not occur with great frequency, but three items were documented more frequently ranging from 26.2% (*n* = 11) to 45.2% (*n* = 19) as evidenced by Table 59 above. Across the 42 current and police-identified strangulations, the most common sign/symptom observed was the inability to breath (45%, *n* = 19) followed by neck pain and tenderness (33%, *n*

= 14). In this subsample, the sign and symptom scale had a possible range of 0 - 27 but during the baseline period the observed range was 0 – 6.

During the post-ordinance period (n =101), police officials documented 26 distinct signs or symptoms (an increase from 19 in the baseline period) and the frequency of their documentation for each item also generally increased (see Table 60 below). Across the 101 current and police-identified strangulations during the post-ordinance timeframe, the most common sign/symptom observed was neck pain and tenderness (50.5%, n = 51) followed by redness (39.6%, n = 40). In this subsample, the sign and symptom scale has a possible range of 0 - 27 and during the post-ordinance period, the observed range was 0 - 14.

An independent samples t-test revealed a statistically significant difference in the mean number of police documented signs and symptoms from the pre-ordinance period (M = 2.05, SD = 1.807) to the post-ordinance period [(M = 3.28, SD = 2.77), $t_{(115.106)}$ = -3.137, p = .002].

Signs and Symptoms: Burleson and Control Site Comparisons. Table 60 presents descriptive statistics for the signs and symptoms tracked in the Burleson post-ordinance sample (n = 89) and the post-ordinance timeframe for the Control Site (n = 46) among current IPVRS cases characterized as police-identified (described earlier in the methods chapter). It should be emphasized that the results for this Burleson-post-ordinance sample (n = 89) are NOT directly comparable to the post-ordinance results reported earlier in Table 60 (n = 101) due to the exclusion of Tarrant County incidents and the narrower police-identified current IPVRS filter indictor that was used to facilitate comparisons to the Control Site.

[Table on next page]

Table 60. *Signs and Symptoms Documented in Current Police-Identified IPVRS Incidents: Control Site vs. Burleson*

		Control Post-Ordinance *n = 46*		Burleson Post-Ordinance *n = 89*	
		n	***% Yes***	***n***	***% Yes***
1.	Bleeding Mouth/Lip/Tongue	--	--	3	3.4%
2.	Difficulty Breathing	7	15.2%	29	32.6%
3.	Inability to Breathe	26	56.5%	34	38.2%
4.	Almost Lost Consciousness	7	15.2%	5	5.6%
5.	Lost Consciousness	1	2.2%	7	7.9%
6.	Coughing	--	--	10	11.2%
7.	Dizziness	1	2.2%	18	20.2%
8.	Headache	--	--	14	15.7%
9.	Tinnitus	--	--	2	2.2%
10.	Hyperventilation	--	--	8	9.0%
11.	Defecation	--	--	--	--
12.	Urination	--	--	--	--
13.	Loss of Feeling/Extremities	--	--	3	3.4%
14.	Memory Loss	1	2.2%	2	2.2%
15.	Nausea or Vomiting	2	4.3%	8	9.0%
16.	Neck – Abrasion(s)	1	2.2%	3	3.4%
17.	Neck – Bruising	5	10.9%	9	10.1%
18.	Neck – Finger Impressions	3	6.5%	6	6.7%
19.	Neck – Ligature Marks	--	--	1	1.1%
20.	Neck – Redness	11	23.9%	34	38.2%
21.	Neck – Scratches	3	6.5%	19	21.3%
22.	Neck – Pain and Tenderness	12	26.1%	46	51.7%
23.	Red Eyes/Petechiae	--	--	7	7.9%
24.	Sore Throat	--	--	6	6.7%
25.	Spasms	--	--	2	2.2%
26.	Swelling of Throat/Tongue	--	--	2	2.2%
27.	Vision Problems	1	2.2%	6	6.7%
28.	Voice Changes	2	4.3%	12	13.5%

	Post-Ordinance Cronbach's alpha = .151				Post-Ordinance Cronbach's alpha = .696			
	Min	***Max***	***Mean***	***S.D.***	***Min***	***Max***	***Mean***	***S.D.***
Signs and Symptoms Scale	0	5	1.80	1.240	0	14	3.33	2.746

During the post-ordinance period, police officials from the Control Site collectively documented 15 distinct signs or symptoms and three of these items had frequencies between 23.9% and 56.5% as evidenced by Table 60. Across the 46 current and police-identified IPVRS incidents at the Control Site, the most common sign/symptom observed was the inability to breath (56.5%, *n* = 26) followed by pain and tenderness to the neck (26.1%, *n* = 12). The

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possible range for the sign and symptom scale is 0 - 27 but during the post-ordinance period for the Control Site, the observed range was 0 – 5.

In contrast, during the post-ordinance period, police officials from Burleson collectively documented 26 distinct signs or symptoms and six of these items had frequencies between 20.2% and 51.7% as evidenced by Table 61. Across the 89 current and police-identified IPVRS incidents in Burleson, the most common sign/symptom observed was pain and tenderness to the neck (51.7%, $n = 46$) followed by inability to breath (38.2% $n = 34$) and redness on the neck was also somewhat common (38.2% $n = 34$). The sign and symptom scale has a possible range of 0 - 27 but during the post period with this Burleson subsample, the observed range was 0 - 14 symptoms.

An independent samples t-test was run to assess the number of documented signs and symptoms for current and police-identified IPVRS incidents during the post-ordinance period across the Burleson ($n = 89$) and the Control Site ($n = 46$). The results revealed statistically significant differences in the mean number of police documented signs and symptoms from the Control Site ($n = 46$) period ($M = 1.80$, $SD = 1.240$) to Burleson ($n = 89$, $M = 3.33$, SD 2.746), $[t_{(131.20)} = -4.426$, $p < .001]$.

Research Question 7: Do Officers Experience Assaults and Injuries When Responding to IPV Strangulation Crimes?

Research question seven[63] examines officer assaults and injuries during IPVRS incidents. To assess these topics, the research team used several strategies including the collection and

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[63] This question was phrased in the grant proposal as *"Do officers experience injuries when responding to IPV strangulation crimes."* Other parts of the proposal represent assaults and officer safety. For this reason, this section will assess assaults to officers and injuries they may have experienced as a result.

analysis of IPVRS incident and case file data at BPD and the Control Site PD as well as self-reports from first responders on the surveys.

First Responder Survey and First Responder Assaults

The administration of the online self-report surveys was discussed in detail in the methodology chapter. Surveys were administered to Burleson first responders and then compared to first responders from the Control Site and MedStar. Because anecdotal evidence suggests that individuals who strangle their intimate partners may be more likely to assault or kill law enforcement (Gwinn, 2014; Harning, 2015; Johnson, 2011), and this topic was covered in the training curriculum, all first responders were asked "*Have you ever been assaulted by a suspect while responding to an IPVRS incident?*" If participants answered "*yes*" to this question, they were then asked: "*If yes, please specify how many times___?*"

The most frequent response to the initial question was "no" with 94% ($n = 117$) of first responders indicating they had *never* been assaulted during an IPVRS incident. Given this initial finding, there were not enough first responders who indicated that they were assaulted during an IPVRS incident to be able to perform any additional analyses other than the descriptive information discussed below in Figure 26 and Table 61. Figure 26 demonstrates among the small number of first responders reporting an IPVRS assault (5.65%, $n = 7$), four were from MedStar, two were from BPD, and one was from the Control Site PD.

Figure 26. *All Groups: Self-Reported First Responder Assaults in IPVRS Incidents by Agency*
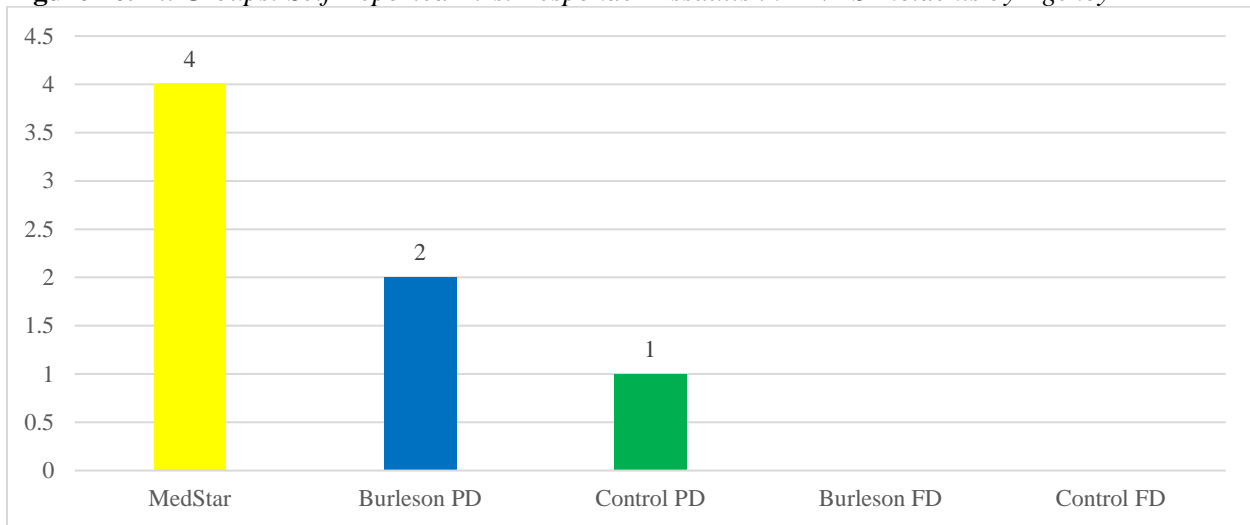
Note. n = 7, Medstar (*n* = 1), Burleson PD (*n* = 1), Control PD (*n* = 4). Significance testing cannot be done because there are not enough cases.

Among those reporting an assault, the frequency of that occurrence was examined in Table 61. Results indicates that a single Control site officer reported a total of 4 assaults while most of the other first responders experiencing an assault reported one single assault and just two reported two assault incidents. Assaulting first responders does not appear to be associated with IPVRS incidents among first responders in this study.

Table 61. *All Groups: Self-Reported First Responder Assaults in IPVRS Incidents*

Assaulted First Responders *N* = 7	Agency	Times Assaulted
4	3 Medstar 1 BPD	1
2	1 Medstar 1 BPD	2
1	1 Control PD	4

Case Files and First Responder Assaults

Next, to further examine Research Question seven, all IPVRS incidents and case file narratives were examined from 2016-2020 at both BPD and the Control Site to identify strangulation incidents involving an assault against a public servant or any description of an assault against a first responder (regardless of any formal charge) to determine if there was any

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evidence of IPVRS-related first responder assaults. In this analysis, there were few instances of a first responder assault that occurred during a *current* IPVRS incident – two incidents in the Control Site and none in the Burleson site that were classified as *current* strangulations. There was one Burleson IPVRS incident with *unknown timing* that involved a suspect spitting blood at the officer that resulted in a harassment against a public servant charge.

One of the two Control Site incidents involved a suspect who kidnapped and strangled his girlfriend and then attempted to run down an officer with his vehicle while the officer was approaching the dwelling to investigate a disturbance in progress call. This incident eventually escalated into a vehicle pursuit through the city. The suspect was eventually intercepted and continued to physically resist several officers during the arrest. The second first responder assault involved a male IPVRS *victim* who interfered and resisted Control Site officers and eventually got into a scuffle until officers were able to make the arrest. There was no mention in any of these incidents of *injuries* to officers in the report narratives.

In sum, results from the case file incidents and the first responder surveys *do not* support the anecdotal evidence that individuals who strangle intimate partners also assault first responders, particularly police officers. This is a matter worthy of further exploration in future research but across the several data sources utilized in this study, there was no evidence to support assertions about the association between first responder assaults and IPVRS incidents.

CHAPTER VI: DISCUSSION

Study Limitations

This study adopted a methodology that sought to reduce limitations that are common in social science research. First, we used a matched comparison pre-posttest quasi-experimental design to examine the effectiveness of the Ordinance on an array of expected outcomes. The

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specific research questions informing the outcome evaluation were tested across the pre- and post-ordinance groups in Burleson versus a control group. However, in non-randomized study designs, there is measured and unmeasured error that may have an impact on the outcome beyond the effect of the treatment because cases are selected into treatment and control groups for reasons other than random selection (D'Augustino, 1988; Rubin, 1974). To mitigate this, the research team drew from propensity score analytic strategies to address concerns associated with selection bias in quasi-experimental designs when randomized control tests are not possible (Rosenbaum & Rubin, 1983). Second, the study approach actively incorporated triangulation utilizing a wide array of data, from multiple sources, and in multiple formats to allow for both quantitative and qualitative analysis to increase confidence about the validity of research results and study conclusions (Cohen, Manion, Morrison, 2000).

Even with these strategies in place the study has limitations. First, despite casting a wide net and exhaustively screening over 1,715 IPV family violence incidents for IPVRS ($n = 882$ in Burleson and $n = 833$ at the Control Site), the number of IPV strangulation incidents meeting eligibility criteria for study inclusion was moderate to small confining analytic options. Other sources of study data also produced small samples (e.g., OSP, victim survey). Small samples reduce the ability to generalize, the use of some analytic techniques, and limit statistical power. Depending on the sample size, statistical power can be problematic because larger samples generally provide more stable estimates (Aitken et al., 2018; Braga et al., 2018; Weisburd & Britt, 2007) and small samples can impair statistical power, or the ability to discover a significant effect, although this does not mean these results are not meaningful (Aitken et al., 2018). While small samples are problematic due to statistical power, there are analytic techniques available to help overcome their limitations. For example, given the small sample of IPVRS incidents,

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propensity score *weighting* (PSW) estimation methods were employed in place of propensity score *matching* methods, which generally require a larger number of available cases from which to select appropriate matches.[64]

There were also challenges with the timing of survey administration and resultant survey response rates (some of which occurred in the wake of the Covid-19 pandemic). While the Burleson survey response rates were moderate to strong (65% - 83%), the research could have been improved with a higher level of participation from MedStar (19.7%) and Control Site (41%) first responders. While a stronger response rate from these partners could have enhanced our understanding of survey topics and improved generalizability, we are satisfied with what could reasonably be accomplished during a difficult time for first responders.

One of the more serious limitations of the study involved the survey of IPV victims in Burleson. The survey was designed to examine victim experiences with first responders pre and post-ordinance, repeat victimization, and victim engagement across multiple indictors. All of these were important outcomes of interest for the evaluation. Even though some survivors graciously responded to the project's online survey, the sample size was not sufficient to allow for anything beyond descriptive analysis (pre-ordinance 11% or $n = 8$; post-ordinance 9% n = 11). While we utilized other data to examine these topics, the dearth of responses from the victim surveys impaired our ability to fully investigate these outcomes from the vantage point of a strangulation survivor.

While this was disappointing, it was not completely unexpected, as documented in existing literature. First, individuals who have experienced gender violence are a notoriously difficult population to survey and this is particularly the case among victims of family and

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[64] In some cases, the outcome was constant or had very little variation. In these instances, propensity score weighting was not appropriate and instead, bivariate statistics are reported.

intimate partner violence (IPV). To be sure, empirical research employing shelter samples has routinely reported low response. The reasons for this have been multifaceted. First, there is significant trauma associated with gender violence and survivors may not want to discuss their experiences, in general. There is considerable secrecy surrounding IPV—this has been the result of embarrassment, fear of retaliation, or significant shame (see e.g., Anderson, 1991). Research has documented the ways that survivors of IPV have reported self-blame for their experiences (Cascardi & O'Leary, 1992; Clements et al., 2004), which has increased these deeply seated feelings of shame, failure, and powerlessness. Second, some victims of gender violence may not identify their experiences as IPV or family violence. So, while they may have called police for intervention because their safety was at risk, they may not perceive themselves as "victims" of IPV or as involved in an intimate relationship characterized by "family violence" or "domestic violence," and this may decrease the likelihood that they would be willing to participate in a survey of this type. A proportion of IPV victims remain in abusive relationships following an acute episode of violence. As a result, contact by police or victim assistance and/or participation in a survey may inflame the perpetrator and increase safety risk for victims.

Summary and Discussion of Findings

This section provides a brief review of study findings from each of the three phases of the program evaluation and concludes with police recommendations.

Key Findings - Process Evaluation

The results of the process evaluation are available in a standalone report. In brief, the Ordinance and strangulation protocol were adequately designed for implementing a coordinated response to IPVRS, training and educating first responders, and developing processes to enable

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emergency medical screenings for victims. Surveys of Burleson first responders and qualitative findings taken from interviews of strangulation task force members confirmed strong support for the initiative and disclosure of implementation problems were rare. Key components for implementation were achieved (e.g., development of specialized forms, training, inter-agency cooperation) and implementation processes were positively evaluated by Burleson first responders in surveys and stakeholder interviews.

Program fidelity was systematically assessed across five predetermined indicators that were taken directly from the Ordinance and examined using a diverse array of data. Results indicated general adherence to the goals and objectives of the Ordinance and strangulation protocol with room for improvement across several indicators. For example, while Burleson medical first responders were almost always on-scene when requested, but they were only requested to be on-scene in 62% of protocol eligible cases. There were also additional fidelity problems related to the documentation of the presence of medical first responders in police reports and making/documenting referrals to appropriate support agencies (see process evaluation report for further discussion).

Key Findings - Outcome Evaluation[65]

RQ1. A critical component of the Ordinance's strangulation protocol is for police officers to first recognize that strangulation has occurred to trigger other facets of the protocol. Failure to recognize the signs and symptoms of strangulation, or to ignore allegations of its occurrence, are problematic given the documented evidence of lethality associated with it. The study assessed if the Ordinance increased the number of victims identified by law enforcement as high-risk for

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[65] Due to small samples in some of the analyses, extreme caution is necessary when drawing conclusions drawn from bivariate and multivariate results.

IPVRS victimization. Bivariate results and findings from propensity score weighting analyses revealed significant increases in police identification of strangulation across the pre and post-ordinance timeframe and Burleson also identified more IPVRS than the Control Site.

RQ2. A key overarching question for the study, and specifically for the outcome evaluation, explored *how* the Ordinance and strangulation protocol affected high-risk victims. All strangulation victims are "high-risk" given the documented harms associated with strangulation and the potential of lethality (Block, 2004; Campbell et al., 2003; De Boos, 2019; Glass et al., 2008; Gwinn et al., 2014; Harning, 2015; Strack, Gwinn, Fineman, et al., 2014; Wilbur et al., 2001). As articulated previously, this was assessed using quantitative data on EPOs *requested* and *granted* as well as a series of items related to police responses that were contained on a survey of a limited sample of strangulation survivors. Results were mixed with little impactful changes observed for Burleson in the pre/post comparisons. Alternatively, in comparison to the Control Site, bivariate results revealed more EPO requests were made in Burleson though the PSW estimates for the effect of the Ordinance was modest. Both bivariate results and findings from the propensity score weighting analysis showed significantly more EPOs were granted in Burleson than the Control Site.

Survey results from strangulation survivors in Burleson were qualitatively assessed and collectively responses were also mixed with some participants reporting meaningful experiences with Ordinance provisions implemented by first responder while many could not recollect experiencing specific aspects of the strangulation protocol. Due to low response rates and an exceedingly small sample, conclusions cannot be drawn or generalized to a larger population of IPVRS survivors.

RQ3. The central purpose of the Ordinance is to offer a medical response to victims of IPVRS; however, a medical response is only possible when medical first responders are requested to be on-scene by the police. Among police-identified IPVRS, bivariate results and findings from propensity score weighting analyses revealed statistically significant increases in on-scene responses from BFD and MedStar across the pre and post-ordinance timeframe. Bivariate results and findings from propensity score weighting analysis further revealed that Burleson had significantly more on-scene medical responses than the Control Site.

Among those cases where emergency medical providers were called on-scene, several additional response outcomes were explored namely assessment, treatment, AMA. and transport of the IPRVS victim. The discussion of these items is limited to bivariate findings because propensity score weighting analyses were inappropriate for these four remaining medical outcomes because the outcome was either constant or had insufficient variation.

It was noteworthy that while BFD assessment and treatment of IPVRS victims increased significantly pre to post-ordinance these same indicators declined for MedStar. At first glimpse this may appear problematic; however, given that Ordinance does not apply to MedStar, and the specialized role BFD began to play in assessing IPVRS victim as part of their Ordinance response (e.g., administration of strangulation worksheet), it is entirely feasible that MedStar transitioned into a supporting role while BFD became more proactive in the post-ordinance period.

Contrary to expectations, AMA's increased for both BFD and MedStar. While this change was only statistically significant for BFD, it is important to consider why the increase in AMA's occurred for both providers. First, it must be acknowledged that an array of circumstances often beyond the control of medical first responders can produce an AMA (e.g.,

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lack of medical insurance, concerns about costs, childcare concerns if transported, etc.). Still, AMAs may provide important contextual information about the Ordinance. Results indicate that there were significantly more on-scene responses and assessments conducted pre and post-ordinance. So, while Ordinance was designed to widen the net of victims/patients seen (and assessed) it may also have simultaneously widened the net for the possibility for AMAs to occur based on the preference of victim who in the pre-ordinance period may not have been provided the opportunity to refuse services after an IPVRS incident. This is beyond the scope of the current study but a topic worthy of additional study in the future.

Another initially unexpected finding concerned medical transport of IPVRS victims whereby the percentage of Burleson IPVRS incidents involving transport to the hospital was significantly lower than the Control Site. Because it was rare for the Control Site to invoke an on-scene response to begin with, it is possible that the Control Site Fire Department was called on-scene only in extreme cases that lead to higher percentage of transports relative to Burleson who increased their on-scene response and assessment regardless of severity. It is important to note that there were only 9 on-scene responses from the Control Site and over half resulted in transport. Regardless of why this occurred, caution must be exercised with the interpretation of these results given the small samples involved (particularly in the Control Site) and the transport outcome in of itself occurring less frequently at both sites (Howell, 2013).

RQ4. The study examined if the Ordinance improved arrest outcomes generally and impede breath arrests more specifically. There was a notable treatment effect in the number of police-identified strangulation arrests between the pre-and post-ordinance periods and while impede breath arrests increased, the treatment effect was not sustained. Comparisons to the Control Site demonstrated significant differences across both categories of arrest at the bivariate

level but this was not sustained in the findings from the PSW analyses. Taken together these findings suggest that police may informally classify an incident as strangulation and execute an arrest but for some unrecorded reason, elected not to charge the offense as impede breath (e.g., downstream orientation of justice or other unobserved police-related decision-making processes).

RQ5. The effect of the Ordinance on victim engagement was also considered as a potential outcome. Four indicators of victim engagement were examined—victim activation of the criminal justice system, providing a written statement, signing an ANP, and recantation of the assault/strangulation. The Ordinance had negligible impact on nearly all comparisons, with the exception of victim activation of the criminal justice system which was significantly higher in Burleson versus the Control Site. Further, a descriptive review of data provided by a small sample of OSP clients revealed that most victims seeking their services *did not* involve law enforcement in their strangulation incidents. Among the small groups of clients that did report that Burleson police were involved in their strangulation incident, most had some type of medical outcome. However, given the small sample this is not a generalizable finding.

RQ6. Improvement of first responder knowledge about strangulation generally, and signs and symptoms more specifically, was critical to the success of the Ordinance. Burleson officers received enhanced training and were surveyed prior to and after completion of the training initiative. First responders from the Control Site and MedStar, who did not have the specialized training, were also surveyed for comparison purposes. Results indicated significant improvement across multiple indicators. Most notably, Burleson first responders showed marked improvement in their technical knowledge significantly increasing their baseline technical knowledge scores across 31 items and outperforming their counterparts at the Control Site and MedStar. OLS regression results indicated technical knowledge improved significantly for "frontline" first

responders. In addition to demonstrated increases in technical knowledge, BPD officers were more likely to recognize and document signs and symptoms of strangulation in their incident narratives when compared to their baseline in the pre-ordinance timeframe, and again when compared to Control Site police officers.

RQ7. While not supported by our review of 407 IPVRS incidents, some anecdotal evidence suggests that strangulation could be a predictor of harm to law enforcement (Gwinn et al. 2014; Johnson 2011; Stone 2015), and potentially other first responders. Because literature is still relatively scarce in this area, additional research is needed to fully explore this topic.

Summary. Evidence of a treatment effect for the Ordinance was observed across most but not all outcomes. In general, bivariate and multivariate findings show statistically significant differences across the pre/post ordinance timeframe and between Burleson and the Control Site on outcomes specific to police-identified strangulation, arrests, on-scene medical response, the granting of EPOs, and improved strangulation knowledge among first responders. Outcomes related to victim engagement, how victims experienced or were affected by the Protocol, and assaults/injuries to first responders were generally not influenced by the Ordinance.

Policy Recommendations

Strangulation is an indicator of the escalation of violence, and one of the most lethal forms of IPV for victims (Block 2004; Campbell et al. 2003; Glass et al. 2008; Strack, Gwinn, Fineman, Green, Smock, and Riviello 2014). While the research is well established on the lethality of strangulation and its signs/symptoms there is less information of how best to respond to it for the development of evidence-based policy. Without this understanding, policymakers, law enforcement, other first responders, public servants, and programs cannot calibrate effective responses, services, and interventions.

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This study attempted to fill part of this gap as part of study goals one and two (see Chapter IV). While limited to the examination of the implementation of an Ordinance in one mid-sized community in the Dallas/Fort Worth metroplex, the Ordinance provides a simple, accessible, and affordable approach to improve police response to IPVRS. Utilizing the training and tools generated to implement the Ordinance and strangulation protocol, Burleson police officers increased their recognition of strangulation signs and symptom and then successfully translated that knowledge into initiating medical responses by EMS first responders. Gains were also observed in arrests and one indicator of victim engagement (CJS activation in Burleson vs. Control Site comparison).

Informed by study results, we make the following policy recommendations.

(1) **Replication and Further Evaluation.** The Ordinance and/or the articulated strangulation protocol within it should be replicated in other jurisdictions and evaluated further. The Protocol is effective, straightforward, and inexpensive to implement making it feasible for police chiefs, fire chiefs, and other community leaders to implement. When possible, replication initiatives should include a diverse task force of first responder agencies, victim service organizations, hospital representatives, Sexual Assault Nurse Examiner (SANE) nurses, and community representatives to further bolster and enhance responses.

(2) **Strangulation Training.** The Ordinance and strangulation training for first responders in Burleson improved their responses to IPVRS. For this reason, we recommend systematic training of multiple professionals as part of replication or a broader educational initiative.

a. ***First Responders.*** Training of police, dispatch personnel, EMTs, paramedics, and other fire personnel is a critical tool to educate our frontline first responders about the lethality of strangulation, the signs and symptoms of it, and the importance of encouraging a medical assessment for IPVRS victims. Training should be enhanced to include recognition that chokeholds, headlocks, or any pressure to the neck, constitute strangulation. It should also be recognized and reinforced in training initiatives that impeding the breath and/or *circulation of blood* is an equally important feature of strangulation (Smock, 2018, 2019; Strack, Gwinn, Hawley, et al., 2014). While state law may vary in how strangulation is defined for criminal prosecution this does not preclude a strangulation response protocol from adopting a more encompassing definition.

b. ***Training of ER Personnel and Other Medical Professionals.*** The educational process related to strangulation cannot stop with frontline first responders. It does little good for officers and EMS personnel to recognize strangulation, encourage a victim to be transported to the hospital, and then upon arrival to the ER, to discover that medical professions are not fully informed on best practices in response to strangulation.

c. ***Training of Prosecutors, Judges, and Magistrates.*** The training of prosecutors, judges and magistrates is equally important. Often overlooked, these criminals justice professionals also play an important role in recognizing and responding to strangulation. While not a specific focus of this study, review of case files revealed clear differences across prosecutors in their

response to IPVRS. For this reason, strangulation training could prove beneficial. For example, prosecutors may be less likely to reject cases involving strangulation when better informed about the range of signs and symptoms (and understanding other indicators when injuries are not obvious) as well as the probability of future lethality for strangulation victims. Moreover, if officers are aware that prosecutors are also informed of the significance of strangulation it could discourage downstream justice decision-making.

(3) **Bolster Strangulation Evidence Collection.** While the Ordinance and strangulation protocol vastly improved officer documentation of signs, symptoms, and injuries in their incident paperwork and case file narratives. More can and should be done because most strangulation victims do not always show visible injuries, but there are other means of evidence collection.

    a. *Forensic camera*. A forensic camera can better detect and document injuries to the neck not visible to the human eye for use in cases with alleged or suspected strangulation. In addition alternative light source (narrow band light source) photography, reflective ultraviolet (UV) photography, and infrared (IR) photography are critical in strangulation injury documentation (Strack & McClane, 1998a).

    b. *CTA scan*. Per the recommendation of the Institute on Strangulation prevention, a Computed Tomography Angiography (CTA) scan is the correct scan to use in an alleged or actual strangulation, and many hospitals remain unaware of this (Training Institute on Strangulation Prevention, 2019). First

responders, particularly EMS can advocate on behalf of IPVRS victims at

local hospitals to receive the correct scan. This can improve evidence and

possibly improve health outcomes for the strangulation victim.

(4) **Improve Medical Transport Options.** While it was encouraged, transport of IPVRS

victims by ambulance to the local hospital was rare. The reasons varied but concerns

about cost were not uncommon. If possible, jurisdictions considering implementation

of an Ordinance or strangulation protocol initiative should consider offering

ambulance transportation of strangulation victims for reduced cost or free of charge.

Systematic change can be a difficult and slow process; and the response to intimate

partner violence strangulation has been hindered by lack of consensus on best practices for how

to effectively respond at the local level. This evaluation demonstrated that the Ordinance and

Strangulation Protocol provides an intervention that significantly improved how first responders

responded to intimate partner violence-related strangulation across multiple outcomes.

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APPENDIX A – IACP Resolution

INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE

RESOLUTION

Adopted at the 121st Annual Conference Orlando,
Florida
October 21, 2014

Increasing the Awareness of the Lethality of Intimate Partner Strangulation
Submitted by: Victim Services Committee
VIC.004.T14

WHEREAS, strangulation is an indicator of the escalation of violence and associated with increased risk of serious injury and/or death in cases of intimate partner violence;[1,2,3] and

WHEREAS, strangulation has been identified as one of the most lethal forms of domestic violence and sexual assault;[4] and is used to exert power over a victim by taking from them control of their own body;[5] and

WHEREAS, when strangled, unconsciousness and anoxic brain injury may occur within seconds and death within minutes; and

WHEREAS, oftentimes, even in fatal cases, there is no external evidence of injury from strangulation, yet because of underlying brain damage due to the lack of oxygen during the strangulation assault, victims may have serious internal injuries or die days or even weeks, later; and

WHEREAS, many first responders lack specialized training to identify the signs and symptoms of strangulation and often focus on visible, obvious injuries like stab wounds or contusions. This lack of training has led to the minimization of this type of violence, exposing victims to potential serious short- and long-term health consequences, permanent brain damage, and increased likelihood of death; and

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[1] Allison Turkel. "And Then He Choked Me: Understanding and Investigating Strangulation." National Center for Prosecution of Child Abuse. Update. Volume 20, Number 8, 2007.
[2] Gael B. Strack and Casey Gwinn. "On the Edge of Homicide: Strangulation as a Prelude." Criminal Justice. Volume 26, number 3, Fall 2011.
[3] Training Institute on Strangulation Prevention and the California District Attorneys Association. The Investigation and Prosecution of Strangulation Cases. 2013.
[4] Allison Turkel. "And Then He Choked Me: Understanding and Investigating Strangulation." National Center for Prosecution of Child Abuse. Update. Volume 20, Number 8, 2007.
[5] Training Institute on Strangulation Prevention and the California District Attorneys Association. The Investigation and Prosecution of Strangulation Cases. 2013.

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WHEREAS, there is a need to develop more experts in the field of strangulation and to use those experts in court proceedings to educate juries and judges so that they understand the signs and symptoms associated with this crime, and the severity of this crime;[6] and

WHEREAS, some jurisdictions nationwide have taken legislative measures to address the brutality and lethality of strangulation assaults, many states, to date, still do not adequately address strangulation in their law enforcement training and/or criminal statutes, underestimating the significance of the act of strangulation and potential lethality;[7,8] and

WHEREAS, lacking specific legislation and specialized training, many near-fatal strangulation cases are prosecuted as misdemeanors crimes. However, given the lethality of strangulation, offenders should be held accountable with a penalty that is commensurate with the nature of their crimes which is the equivalent of attempted homicide or serious felonious assault;[9,10] now, therefore be it

RESOLVED, that the International Association of Chiefs of Police assembled at its 121st Annual Conference in Orlando, Florida, supports statutes and legislation that hold perpetrators accountable for the potentially lethal strangulation assaults, and, be it

FURTHER RESOLVED, that the International Association of Chiefs of Police supports training efforts, documentation forms and processes, and multidisciplinary partnerships for law enforcement that specifically address the occurrence, signs, symptoms, effective investigation, and the increased lethality of the power and control dynamics of strangulation assaults in cases of domestic and sexual violence.

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[6] Training Institute on Strangulation Prevention and the California District Attorneys Association. The Investigation and Prosecution of Strangulation Cases. 2013.

[7] Training Institute on Strangulation Prevention and the California District Attorneys Association. The Investigation and Prosecution of Strangulation Cases. 2013.
[8] Strangulation in Domestic Violence Cases: Overcoming Evidentiary Challenges to Reduce Lethality, Melissa Paluch, Development in Ney York State Family Law, Spring 2013
[9] Training Institute on Strangulation Prevention and the California District Attorneys Association. The Investigation and Prosecution of Strangulation Cases. 2013.
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APPENDIX B – Burleson Strangulation Ordinance

ORDINANCE NO.

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BURLESON, TEXAS, CREATING ARTICLE XI, "EFFECTIVE RESPONSE TO STRANGULATION", OF CHAPTER 54, "MISCELLANEOUS OFFENSES"; PROVIDING A CUMULATIVE CLAUSE; PROVIDING A SEVERABILITY CLAUSE; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR PUBLICATION; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Burleson, Texas is a home rule city acting under its charter adopted by the electorate pursuant to Article XI, Section 5 of the Texas Constitution and Chapter 9 of the Local Government Code; and

WHEREAS, strangulation is an indicator of the escalation of violence and associated with increased risk of serious injury and/or death in cases of intimate partner violence; and

WHEREAS, strangulation has been identified as one of the most lethal forms of domestic violence and sexual assault; and used to exert power over a victim by taking from them control of their own body; and

WHEREAS, intimate partners who have a history of strangulation pose a greater risk to their victim and society at-large; and

WHEREAS, when strangled, unconsciousness and anoxic brain injury may occur within seconds and death within minutes; and

WHEREAS, oftentimes, even in fatal cases, there is no external evidence of injury from strangulation, yet because of underlying brain damage due to the lack of oxygen during strangulation assault, victims may have serious internal injuries or die days, or even weeks, later; and

WHEREAS, many first responders lack the specialized training to identify the signs and symptoms of strangulation and often focus on visible, obvious injuries like stab wounds, or contusions; and

WHEREAS, this lack of training has led to the minimization of this type of violence, exposing victims to potential serious short-term and long-term health consequences, permanent brain damage, and increased likelihood of death; and

WHEREAS, there is a need to develop more experts in the field of strangulation and to use those experts in court proceedings to educate juries and judges so they understand the signs and symptoms associated with this crime, and the severity of this crime; and

WHEREAS, some jurisdictions and nationwide have taken legislative measures to address the brutality and lethality of strangulation assaults, many states, to date, still do not adequately

address strangulation in their law enforcement training and/or criminal statutes, underestimating the significance of the act of strangulation and potential lethality; and

WHEREAS, lacking specific legislation and specialized training, many near-fatal strangulation cases are only prosecuted as misdemeanor crimes; and

WHEREAS, given the lethality of strangulation, offenders should be held accountable with a penalty that is commensurate with the nature of their crimes which is equivalent of attempted homicide or serious felony assault; and

WHEREAS, the International Association of Chiefs of Police assembled at its 1215[1] Annual Conference in Orlando, Florida, supports statutes and legislation that hold perpetrators accountable for the potentially lethal strangulation assaults; and

WHEREAS, the City Council hereby finds and determines that the regulations set forth herein are in the best interest of the public and are adopted in furtherance of the public health, safety, morals, and general welfare.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BURLESON, TEXAS:

SECTION 1.
ADOPTION

That Article XI, "Effective Response to Strangulation", of Chapter 54 of the Code of Ordinances of the City of Burleson is hereby adopted to read as follows:

ARTICLE XI. EFFECTIVE RESPONSE TO STRANGULATION Section 54-180.

GENERAL PURPOSE OF ORDINANCE.

It is the purpose of this Ordinance to protect victims whose health, safety, and welfare may be jeopardized through exposure to violence by means of strangulation.

Section 54-181. DEFINITIONS.

For the purposes of this Article, the following words and phrases shall have the meanings respectively ascribed to them by this section:

(I) Chief of Police. Chief of Police means the chief of police of the city.

(2) Family Violence. Family Violence means "Family Violence" as defined in Texas Family Code § 71.004.

(3) Fire Chief. Fire Chief means the fire chief of the city.

(4) Emergency Medical Personnel. Emergency Medical Personnel means a firefighter, emergency medical technician, or emergency care attendant that provides first response to requests for emergency medical services and provides immediate on- scene care to ill or injured persons, while acting in his or her official capacity, and is employed by or contracted by the city or a separate governmental entity that has entered into an inter-local agreement with the city to provide such services.

(5) Peace Officer. Peace Officer means a "Peace Officer" as defined in Texas Code of Criminal Procedure Article 2.12 that is employed by the city and acting in his or her official capacity.

(6) Strangulation. Strangulation means impeding the normal breathing or circulation of the blood of the person by applying pressure to the person's throat or neck or by blocking the person's nose or mouth.

Section 54-182. PROTOCOL FOR RESPONDING TO AN ACCUSATION OF STRANGULATION.

(a) When the act of strangulation is alleged or suspected within the city, the peace officer will summon emergency medical personnel to the scene to evaluate and render aid to the victim.

(b) The peace officer will document emergency medical personnel's presence and role in the police report by including their name, identification number, employment agency and unit number.

(c) Peace officers shall provide the victim referral information to the appropriate support agency for assistance and document the referral in their police report.

(d) Peace officers will thoroughly document the suspect's behavior, actions, and any comments made during the act of strangulation.

(e) When the act of strangulation is alleged or suspected within the city, peace officers shall utilize a checklist approved by the Chief of Police to help evaluate the situation and provide aid to the victim.

(f) When the act of strangulation is alleged or suspected within the city, emergency medical personnel shall conduct a medical evaluation and assessment to help evaluate the situation and provide aid to the victim.

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Section 54-183. STRANGULATION TASK FORCE.

The Chief of Police shall designate a strangulation task force (STF) consisting of members from law enforcement, emergency medical personnel, medical community personnel, advocate representatives, and any other members deemed appropriate by the Chief of Police. The STF shall aid and advise the Chief of Police and Fire Chief in developing and implementing checklists, questionnaires, and an education training program for peace officers, emergency medical personnel, and other first responders encountering strangulation scenarios.

Section 54-184. PENALTY.

Any violator of this article may be punished by administrative means by the city manager or the city manager's designee in their discretion. A violation of this article is not subject to the penalties outlined in Section 1-14 of this code. The imposition of the penalty provided in this section is not a criminal conviction and may not be considered a conviction for any purpose. The penalty provided in this section shall be cumulative of other remedies provided by state law.

Sections 54-185 - 54-189. - RESERVED.

SECTION 2.
FINDINGS OF FACT

The above and foregoing recitals are hereby found to be true and correct and are incorporated herein as findings of fact.

SECTION 3.
CUMULATIVE CLAUSE

This ordinance shall be cumulative of all provisions of ordinances and of the Code of Ordinances of the City of Burleson, Texas, as amended, except where the provisions of this ordinance are in direct conflict with the provisions of such ordinances and such Code, in which event the conflicting provisions of such ordinances and such Code are hereby repealed.

SECTION 4.
SEVERABILITY CLAUSE

It is hereby declared to be the intention of the city council that the phrases, clauses, sentences, paragraphs and sections of this ordinance are severable and if any phrase, clause, sentence, paragraph or section of this ordinance shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this ordinance, since the same would have been enacted by the

city council without the incorporation in its ordinance of any such unconstitutional phrase, clause, sentence, paragraph or section.

SECTION 5.
SAVINGS CLAUSE

All rights and remedies of the City of Burleson are expressly saved as to any and all violations of the provisions of the Burleson City Code of Ordinances that have accrued at the time of the effective date of this ordinance; and, as to such accrued violations and all pending litigation, both

civil and criminal, whether pending in court or not, under such ordinances, same shall not be affected by this ordinance but may be prosecuted until final disposition by the courts.

SECTION 6.
PUBLICATION CLAUSE

The City Secretary of the City of Burleson is hereby directed to give notice of the passage of this ordinance by causing the caption or title and penalty clause of this ordinance to be published as required by Section 36 of the Chatter of the City of Burleson.

SECTION 7.
EFFECTIVE DATE

This Ordinance shall be in full force and effect sixty (60) days after its publication as provided by law.

AND IT IS SO ORDAINED.

PASSED AND APPROVED THIS ___19th___ DAY OF ___February___, 2018.

_____
MAYOR

ATTEST:

_____
CITY SECRETARY

APPENDIX C – BFD Strangulation Worksheet

Burleson Fire Dept. Strangulation Protocol Worksheet		
Patient Name		
Incident Location		
Date / Incident #		
Is the patient showing evidence of difficulty breathing, unable to breath, or hyperventilation?	Yes	No
Is the patient experiencing pain? (If so rate 1-10 with 10 being the most extreme) 0 - No Pain	1-10	
Does the patient have evidence of a raspy voice, hoarse voice, cough, or inability to speak?	Yes	No
Does the patient complain of neck pain?	Yes	No
Does the patient experience nausea or vomiting?	Yes	No
Does the patient have evidence of involuntary urination or defecation?	Yes	No
Is the patient experiencing dizziness or a fainting / light - headed feeling?	Yes	No
Is the patient experiencing headache, head "rush", or ears ringing?	Yes	No
Did the patient experience loss of consciousness?	Yes	No
How long was the patient unconscious?		
Is the patient experiencing a change in mental status (disoriented, combative, memory loss, "spaced out")?	Yes	No

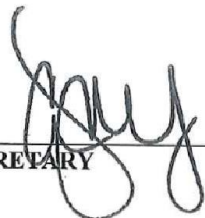| Does the patient have Petechiae (pinpoint red spots above the area of constriction)?	Yes	No
Is there any evidence of hemorrhaging or bruising?	Yes	No
Is there any evidence of scratch marks, scrapes, or abrasions?	Yes	No
Is there any evidence of a bloody nose or broken nose?	Yes	No
Is there any evidence of fingernail impressions?	Yes	No
Is there any swelling of the neck or face?	Yes	No
Is there any evidence of pulled / missing hair, or bumps on the head?	Yes	No
Is there any evidence of skull fracture or concussion?	Yes	No
Does the patient show evidence of swollen tongue or lips?	Yes	No
Does the patient have any existing / old injuries?	Yes	No

APPENDIX D – Burleson Pre-Post and Control Comparisons

Burleson Pre-Post Comparisons

Table D1. *Standardized Mean Difference Scores: Current Strangulation Population, Burleson Pre-Post*

Variables	Pre-Ordinance n= 71		Post-Ordinance n = 116		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	1.11	0.32	1.12	0.33	0.03
Children on Scene	0.44	0.50	0.44	0.50	0.00
IPV Relationship - Spouse	0.30	0.46	0.32	0.47	0.04
Male Suspect/Female Victim Dyad	0.92	0.28	0.90	0.31	-0.06
Police Noted Victim Inconsistencies	0.00	0.00	0.14	0.35	0.40
Suspect Race - White	0.94	0.23	0.84	0.37	-0.27
Victim Activated CJ System	0.51	0.50	0.59	0.49	0.16
Affidavit of Non-Prosecution	0.06	0.23	0.10	0.31	0.13
Victim Statement	0.76	0.43	0.72	0.45	-0.09
Victim Visible Injury	0.80	0.40	0.87	0.34	0.21
Witness Statement	0.34	0.48	0.30	0.46	-0.09
Suspect Statement	0.17	0.34	0.10	0.31	-0.23
Victim Race - White	0.93	0.26	0.86	0.35	-0.20
Victim Recanted	0.01	0.12	0.08	0.27	0.26

Note. Current Strangulation Population is a researcher assessment of any alleged and/or suspected strangulation reported to Burleson Police during entire study period.

Table D2. *Standardized Mean Difference Scores: Subsample of Police-Identified Strangulation, Burleson Pre-Post*

Variables	Pre-Ordinance n = 42		Post-Ordinance n = 101		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	1.10	0.30	1.11	0.31	0.03
Children on Scene	0.45	0.50	0.40	0.49	-0.10
IPV Relationship - Spouse	0.29	0.46	0.28	0.45	-0.02
Male Suspect/Female Victim Dyad	0.95	0.22	0.89	0.31	-0.19
Police Noted Victim Inconsistencies	0.00	0.00	0.16	0.37	0.43
Suspect Race - White	0.93	0.26	0.84	0.37	-0.24
Victim Activated CJ System	0.48	0.51	0.61	0.49	0.27
Affidavit of Non-Prosecution	0.07	0.26	0.12	0.33	0.15
Victim Statement	0.71	0.46	0.74	0.44	0.07
Victim Visible Injury	0.81	0.40	0.86	0.35	0.14
Witness Statement	0.36	0.48	0.31	0.46	-0.11
Suspect Statement	0.12	0.33	0.11	0.31	-0.03
Victim Race - White	0.93	0.26	0.85	0.36	-0.22
Victim Recanted	0.02	0.15	0.08	0.27	0.22

Note. Police-Identified Strangulation is calculated in the control comparison sample using four items: impede breath offense, impede breath charge, FVP Description of incident strangulation/choking, narrative.

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Table D3. *Standardized Mean Difference Scores: Subsample of BFD On Scene, Burleson Pre-Post*

Variables	Pre-Ordinance n = 10		Post-Ordinance n = 84		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	1.20	0.42	1.11	0.31	-0.29
Children on Scene	0.80	0.42	0.35	0.48	-0.94
IPV Relationship - Spouse	0.40	0.52	0.29	0.45	-0.24
Male Suspect/Female Victim Dyad	1.00	0.00	0.90	0.30	-0.33
Police Noted Victim Inconsistencies	0.00	0.00	0.17	0.37	0.46
Suspect Race - White	1.00	0.00	0.86	0.35	-0.40
Victim Activated CJ System	0.60	0.52	0.60	0.49	0.00
Affidavit of Non-Prosecution	0.20	0.42	0.14	0.35	-0.17
Victim Statement	0.70	0.48	0.74	0.44	0.09
Victim Visible Injury	1.00	0.00	0.89	0.31	-0.35
Witness Statement	0.30	0.48	0.32	0.47	0.04
Suspect Statement	0.00	0.00	0.11	0.31	0.35
Victim Race - White	1.00	0.00	0.86	0.35	-0.40
Victim Recanted	0.00	0.00	0.10	0.30	0.33

Note. Cases known to police and where BFD was on scene.

Table D4. *Standardized Mean Difference Scores: Subsample MedStar On Scene, Burleson Pre-Post*

Variables	Pre-Ordinance n = 10		Post-Ordinance n = 73		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	1.10	0.32	1.10	0.30	0.00
Children on Scene	0.70	0.48	0.32	0.47	-0.81
IPV Relationship - Spouse	0.30	0.48	0.27	0.45	-0.07
Male Suspect/Female Victim Dyad	1.00	0.00	0.89	0.31	-0.35
Police Noted Victim Inconsistencies	0.00	0.00	0.16	0.37	0.43
Suspect Race - White	1.00	0.00	0.85	0.36	-0.42
Victim Activated CJ System	0.40	0.52	0.59	0.50	0.38
Affidavit of Non-Prosecution	0.10	0.32	0.15	0.36	0.14
Victim Statement	0.70	0.48	0.71	0.46	0.02
Victim Visible Injury	1.00	0.00	0.92	0.28	-0.29
Witness Statement	0.40	0.52	0.30	0.46	-0.22
Suspect Statement	0.10	0.32	0.10	0.30	0.00
Victim Race - White	1.00	0.00	0.86	0.35	-0.40
Victim Recanted	0.10	0.32	0.11	0.31	0.03

Note. Cases known to police and where MedStar was on scene.

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Table D5. *Standardized Mean Difference Scores: Subsample EPOs Requested Current Strangulation Population, Burleson Pre-Post*

Variables	Pre-Ordinance n = 40		Post-Ordinance n = 74		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	1.10	0.30	1.12	0.33	0.06
Children on Scene	0.45	0.50	0.45	0.50	0.00
IPV Relationship - Spouse	0.33	0.47	0.36	0.48	0.06
Male Suspect/Female Victim Dyad	0.95	0.22	0.91	0.29	-0.14
Police Noted Victim Inconsistencies	0.00	0.00	0.07	0.25	0.28
Suspect Race - White	0.95	0.22	0.85	0.36	-0.28
Victim Activated CJ System	0.48	0.51	0.57	0.50	0.18
Affidavit of Non-Prosecution	0.10	0.30	0.12	0.33	0.06
Victim Statement	0.75	0.44	0.78	0.41	0.07
Victim Visible Injury	0.90	0.30	0.92	0.27	0.07
Witness Statement	0.45	0.50	0.39	0.49	-0.12
Suspect Statement	0.08	0.27	0.11	0.31	0.10
Victim Race - White	0.93	0.27	0.88	0.33	-0.15
Victim Recanted	0.03	0.16	0.05	0.23	0.09

Control Comparisons

Table D6. *Standardized Mean Difference Scores: Current Strangulation Population, Burleson and Control Site*

Variables	Burleson n = 102		Control n = 72		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	---	---	---	---	---
Children on Scene	0.39	0.49	0.26	0.44	0.27
IPV Relationship - Spouse	0.28	0.45	0.35	0.48	-0.16
Male Suspect/Female Victim Dyad	0.91	0.29	0.94	0.23	-0.10
Police Noted Victim Inconsistencies	0.16	0.37	0.01	0.12	0.41
Suspect Race - White	0.82	0.38	0.86	0.35	-0.11
Victim Activated CJ System	0.60	0.49	0.54	0.50	0.12
Affidavit of Non-Prosecution	0.12	0.32	0.11	0.32	0.03
Victim Statement	0.71	0.46	0.46	0.50	0.54
Victim Visible Injury	0.85	0.36	0.74	0.44	0.31
Witness Statement	0.30	0.46	0.07	0.26	0.50
Suspect Statement	0.11	0.31	0.00	0.00	0.35
Victim Race - White	0.85	0.36	0.93	0.26	-0.22
Victim Recanted	0.08	0.27	0.01	0.12	0.26

Note. Current Strangulation Population is a researcher assessment of any alleged and/or suspected strangulation reported to police during the post-ordinance period, Johnson County.

Table D7. *Standardized Mean Difference Scores: Subsample of Police-Identified Strangulation, Burleson and Control Site*

Variables	Burleson n = 89 Mean	SD	Control n = 46 Mean	SD	Standardized Mean Difference
County	--	--	--	--	--
Children on Scene	0.35	0.48	0.28	0.46	0.15
IPV Relationship - Spouse	0.25	0.43	0.41	0.50	-0.37
Male Suspect/Female Victim Dyad	0.90	0.30	0.96	0.21	-0.20
Police Noted Victim Inconsistencies	0.18	0.39	0.00	0.00	0.46
Suspect Race - White	0.83	0.3	0.85	0.36	-0.07
Victim Activated CJ System	0.62	0.49	0.57	0.50	0.10
Affidavit of Non-Prosecution	0.13	0.34	0.15	0.36	-0.06
Victim Statement	0.09	0.29	0.02	0.15	0.24
Victim Visible Injury	0.72	0.45	0.59	0.50	0.29
Witness Statement	0.84	0.37	0.76	0.43	0.22
Suspect Statement	0.84	0.37	0.91	0.29	-0.19
Victim Race - White	0.30	0.46	0.04	0.21	0.57
Victim Recanted	0.11	0.32	0.00	0.00	0.34

Note. Police-Identified Strangulation is calculated in the control comparison sample using three items: impede breath offense, impede breath charge, narrative.

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Table D8. *Standardized Mean Difference Scores: Subsample of Medical On Scene, Burleson and Control Site*

Variables	Burleson n = 79 Mean	SD	Control n = 9 Mean	SD	Standardized Mean Difference
County	--	--	--	--	--
Children on Scene	0.31	0.47	0.00	0.00	0.66
IPV Relationship - Spouse	0.27	0.45	0.33	0.50	-0.13
Male Suspect/Female Victim Dyad	0.90	0.31	1.00	0.00	-0.33
Police Noted Victim Inconsistencies	0.18	0.39	0.00	0.00	0.47
Suspect Race - White	0.86	0.35	0.89	0.33	-0.09
Victim Activated CJ System	0.60	0.49	0.56	0.53	0.08
Affidavit of Non-Prosecution	0.15	0.36	0.22	0.44	-0.19
Victim Statement	0.10	0.31	0.00	0.00	0.33
Victim Visible Injury	0.71	0.46	0.56	0.53	0.33
Witness Statement	0.88	0.32	1.00	0.00	-0.38
Suspect Statement	0.86	0.35	0.89	0.33	-0.09
Victim Race - White	0.31	0.47	0.00	0.00	0.67
Victim Recanted	0.10	0.31	0.00	0.00	0.33

Note. Cases known to police and where any medical provider was on scene.

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Table D9. *Standardized Mean Difference Scores: Subsample of EPOs Requested, Burleson and Control Site*

Variables	Burleson n = 65		Control n = 21		Standardized Mean Difference
	Mean	*SD*	*Mean*	*SD*	
County	--	--	--	--	--
Children on Scene	.38	.49	.38	.49	0.00
IPV Relationship - Spouse	.32	.47	.42	.50	-0.21
Male Suspect/Female Victim Dyad	.90	.29	.95	.21	-0.17
Police Noted Victim Inconsistencies	.08	.26	.00	.00	0.31
Suspect Race - White	.83	.37	.85	.35	-0.05
Victim Activated CJ System	.56	.49	.52	.51	0.08
Affidavit of Non-Prosecution	.13	.34	.09	.30	0.12
Victim Statement	.06	.24	.04	.21	0.08
Victim Visible Injury	.77	.42	.71	.46	0.14
Witness Statement	.91	.29	.95	.218	-0.14
Suspect Statement	.86	.34	.90	.30	-0.12
Victim Race - White	.40	.49	.14	.36	0.53
Victim Recanted	.11	.31	.00	.00	0.35

APPENDIX E – Strangulation Technical Knowledge Grading Scale

Tarleton State University Department of Criminal Justice
The Institute on Violence Against Women & Human Trafficking Intimate Partner Violence
Related Strangulation Study (IPVRSS)
NIJ-2018-VA-CX-0005

PRE and POST Training Survey
Technical Knowledge Scale Answer Key

Yellow - Denotes correct items
Green - Variable Names Turquoise
– Variable Values

> **PRE TRAINING SURVEY**
> **Section 4: Strangulation Technical Knowledge**

Q28. The majority of strangulation cases have visible, external injuries on the neck area that can be photographed. (VICVISINJ)
- ○ True 1
- ○ False 0
- ○ Unknown -88
-99 Missing

Q29. The International Chiefs of Police Association recommends the following in the investigation of strangulation cases: (select all that apply)
- ○ More training (1=yes; 0=no) (IACPTR)
-99 Missing
- ○ Use of specialized documentation forms (1=yes; 0=no) (IACPDOC)
-99 Missing
- ○ Working in multi-disciplinary teams (1=yes; 0=no) (IACPMDT)
-99 Missing
- ○ Utilizing risk assessment tools (1=yes; 0=no) (IACPRSK)
-99 Missing
- ○ Charging strangulation cases as felonies when there is probable cause (1=yes; 0=no) (IACPFCHRG)
-99 Missing
- ○ Unknown (1=yes; 0=no) (IACPUNKN)
-99 Missing

201

Q30. Based upon research, how long does it take to render someone unconscious by strangulation? (UNCONSCIOUS)
- ○ 5-10 seconds 1
- ○ 15-30 seconds 2
- ○ at least 60 seconds 3
- ○ 2 minutes 4
- ○ Unknown -88

-99 Missing

Q31. Victims of intimate partner violence who experience non-fatal strangulation are about 7-7.5 times more likely to become victims of IPV homicide. (HOMICIDEVIC)
- ○ True 1
- ○ False 0
- ○ Unknown -88

-99 Missing

Q32. Name 3 common signs/symptoms of strangulation:
- ○ Sign/Symptom # 1   (SIGNSYM1)

-99 Missing
- ○ Sign/Symptom # 2   (SIGNSYM2)

-99 Missing
- ○ Sign/Symptom # 3   (SIGNSYM3)

-99 Missing

[SIGNSYMP_SCR] Additive Index of SIGNSYM1-3 Range 0 to 3, -99 Missing

Scratches, bruises/bruising, scrapes, bloody or broken nose, swollen tongue/lips/neck/face, pulled/missing hair, head injuries, lacerations, Petechiae, urination, defecation, vomit, torn/ripped shirt, signs of struggle, change/loss of hearing, ear sensations, change/loss of vision, weakness, limpness, breathing difficulties, throat pain, pain, voice changes, raspy/hoarse voice, difficulty swallowing, memory loss, death, hypoxia, fractured hyoid, Syncope, coughing, finger marks, throat marks, dizziness, loss of consciousness, shortness of breath, blood shot eyes, vocal disturbance, abrasions on neck, redness in neck, cognitive decline, becoming unresponsive, ligature, sore throat, difficulty speaking, fracture, Altered mental status (AMS), syncope/fainting, stridor, cyanosis, stridor, tachycardia, tracheal or laryngeal trauma,

Q33. Some internal injuries related to strangulation may not manifest until hours or days after the assault. (INTINJ)

- ○ True 1
- ○ False 0
- ○ Unknown -88

-99 Missing

202

Q34. The lack of oxygen to the brain: (select all that apply)
- ⭕ Is a form of asphyxia (1=yes; 0=no) (NOOXASPHY) -99 Missing
- ⭕ Can cause an altered mental state (1=yes; 0=no) (NOOXMENST) -99 Missing
- ⭕ Can cause a loss of consciousness (1=yes; 0=no) (NOOXUNCON) -99 Missing
- ⭕ Unknown (1=yes; 0=no) (NOOXUNKNWN) -99 Missing

Q35. The CTA (CT scan with angiography) is the best and most readily available test in most emergency departments to determine if the carotid and vertebral arteries were damaged during a strangulation assault. (CTASCAN)
- ⭕ True 1
- ⭕ False 0
- ⭕ Unknown -88
-99 Missing

Q36. Petechiae are caused by the obstruction of blood flow in the _____ veins when the _____ arteries are open and still pumping blood to the brain. (PETECH)
- ⭕ Capillary, Carotid 1
- ⭕ Jugular, Venue 2
- ⭕ Capillary, Vertebral 3
- ⭕ Jugular, Carotid 4
- ⭕ Unknown -88
-99 Missing

Q37. An indicator that a victim lost consciousness during a strangulation event would be: (select all that apply)
- ⭕ Loss of vision (1=yes; (UNCONVIS) -99 ing
- ⭕ Loss of memory 0=no) - Missing

- ⭕ Loss of control of bodily functions such as urination and/or defecation (1=yes; 0=no) (UNCONURDEF) -99 Missing
- ⭕ Inability to account for events, explain a change in location, or uncertainty regarding how injuries occurred (1=yes; 0=no) (UNCONUNCERT) -99 Missing
- ⭕ Unknown (1=yes; 0=no) (UNCONUNKWN) -99 Missing

Q38. Because of trauma, victims may not be able to remember the details of their assault and their statement may be jumbled. (TRAUMA)
- ⭕ True 1
- ⭕ False 0
- ⭕ Unknown -88
-99 Missing

203

Q39. Evidence of urination or defecation from strangulation means the victim sustained a prolonged anoxic insult to the brain and the case *could* be investigated as an attempted homicide. (URNDEFEV)

- ○ True 1
- ○ False 0
- ○ Unknown -88

-99 Missing

Q40. Identify possible symptoms of a traumatic brain injury. (select all that apply)

- ○ Anxiety (1=yes; 0=no) (TBIANX) -99 Missing
- ○ Depression (1=yes; 0=no) (TBIDEP) -99 Missing
- ○ Difficulty concentrating (1=yes; 0=no) (TBICONCT) -99 Missing
- ○ Difficulty remembering (1=yes; 0=no) (TBIMEM) -99 Missing
- ○ Difficulty sleeping (1=yes; 0=no) (TBISLEEP) -99 Missing
- ○ Difficulty reading, writing, calculating (1=yes; 0=no) (TBIRWC) -99 Missing
- ○ Recent difficulty performing at work or school (1=yes; 0=no) (TBIWRKSCH) -99 Missing
- ○ Personality changes in relationships with others (1=yes; 0=no) (TBIPERCHG) -99 Missing
- ○ Unknown (1=yes; 0=no) (TBIUNKNWN) -99 Missing

Q10. The majority of strangulation cases have visible, external injuries on the neck area that can be photographed. (PTVICVISINJ)
- ○ True 1
- ○ False 0
- ○ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

Q11. The International Chiefs of Police Association recommends the following in the investigation of strangulation cases: (select all that apply)
- ○ More training (1=yes; 0=no) (PTIACPTR)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Use of specialized documentation forms (1=yes; 0=no) (PTIACPDOC)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Working in multi-disciplinary teams (1=yes; 0=no) (PTIACPMDT)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Utilizing risk assessment tools (1=yes; 0=no) (PTIACPRSK)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Charging strangulation cases as felonies when there is probable cause (1=yes; 0=no) (PTIACPFCHRG)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Unknown (1=yes; 0=no) (PTIACPUNKN)

-77 N/A – Control Site/MedStar
-99 Missing

Q12. Based upon research, how long does it take to render someone unconscious by strangulation? (PTUNCONSCIOUS)

- ○ 5-10 seconds 1
- ○ 15-30 seconds 2
- ○ at least 60 seconds 3
- ○ 2 minutes 4
- ○ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

205

Q13. Victims of intimate partner violence who experience non-fatal strangulation are about 7-7.5 times more likely to become victims of IPV homicide. (PTHOMICIDEVIC)
- ○ True 1
- ○ False 0
- ○ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

Q14. Name 3 common signs/symptoms of strangulation:
- ○ Sign/Symptom # 1 _____ (PTSIGNSYM1)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Sign/Symptom # 2 _____ (PTSIGNSYM2)

-77 N/A – Control Site/MedStar
-99 Missing
- ○ Sign/Symptom # 3 _____ (PTSIGNSYM3)

-77 N/A – Control Site/MedStar
-99 Missing

[PTSIGNSYMP_SCR] Additive Index of PTSIGNSYM1-3 Range 0 to 3, -99 Missing

Scratches, bruises/bruising, scrapes, bloody or broken nose, swollen tongue/lips/neck/face, pulled/missing hair, head injuries, lacerations, Petechiae, urination, defecation, vomit, torn/ripped shirt, signs of struggle, change/loss of hearing, ear sensations, change/loss of vision, weakness, limpness, breathing difficulties, throat pain, pain, voice changes, raspy/hoarse voice, difficulty swallowing, memory loss, death, hypoxia, fractured hyoid, Syncope, coughing, finger marks, throat marks, dizziness, loss of consciousness, shortness of breath, blood shot eyes, vocal disturbance, abrasions on neck, redness in neck, cognitive decline, becoming unresponsive, ligature, sore throat, difficulty speaking, fracture, Altered mental status (AMS), syncope/fainting, stridor, cyanosis, stridor, tachycardia, tracheal or laryngeal trauma,

Q15. Some internal injuries related to strangulation may not manifest until hours or days after the assault. (PTINTINJ)
- ○ True 1
- ○ False 0
- ○ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

Q16. The lack of oxygen to the brain: (select all that apply)
- ○ Is a form of asphyxia (1=yes; 0=no) (PTNOOXASPHY)
-77 N/A – Control Site/MedStar
-99 Missing
- ○ Can cause an altered mental state (1=yes; 0=no) (PTNOOXMENST)
-77 N/A – Control Site/MedStar
-99 Missing
- ○ Can cause a loss of consciousness (1=yes; 0=no) (PTNOOXUNCON)
-77 N/A – Control Site/MedStar
-99 Missing
- ○ Unknown (1=yes; 0=no) (PTNOOXUNKNWN)
-77 N/A – Control Site/MedStar
-99 Missing

Q17. The CTA (CT scan with angiography) is the best and most readily available test in most emergency departments to determine if the carotid and vertebral arteries were damaged during a strangulation assault. (PTCTASCAN)
- ○ True 1
- ○ False 0
- ○ Unknown -88
-77 N/A – Control Site/MedStar
-99 Missing

Q18. Petechiae are caused by the obstruction of blood flow in the _____ veins when the _____ arteries are open and still pumping blood to the brain. (PTPETECH)
- ○ Capillary, Carotid 1
- ○ Jugular, Venue 2
- ○ Capillary, Vertebral 3
- ○ Jugular, Carotid 4
- ○ Unknown -88
-77 N/A – Control Site/MedStar
-99 Missing

Q19. An indicator that a victim lost consciousness during a strangulation event would be: (select all that apply)

- ❍ Loss of vision (1=yes; 0=no) (PTUNCONVIS)

-77 N/A – Control Site/MedStar
-99 Missing

- ❍ Loss of memory (1=yes; 0=no) (PTUNCONMEM)

-77 N/A – Control Site/MedStar
-99 Missing

- ❍ Loss of control of bodily functions such as urination and/or defecation (1=yes; 0=no) (PTUNCONURDEF)

-77 N/A – Control Site/MedStar
-99 Missing

- ❍ Inability to account for events, explain a change in location, or uncertainty regarding how injuries occurred (1=yes; 0=no) (PTUNCONUNCERT)

-77 N/A – Control Site/MedStar
-99 Missing

- ❍ Unknown (1=yes; 0=no) (PTUNCONUNKWN)

-77 N/A – Control Site/MedStar
-99 Missing

Q20. Because of trauma, victims may not be able to remember the details of their assault and their statement may be jumbled. (PTTRAUMA)

- ❍ True 1
- ❍ False 0
- ❍ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

Q21. Evidence of urination or defecation from strangulation means the victim sustained a prolonged anoxic insult to the brain and the case *could* be investigated as an attempted homicide. (PTURNDEFEV)

- ❍ True 1
- ❍ False 0
- ❍ Unknown -88

-77 N/A – Control Site/MedStar
-99 Missing

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Q22. Identify possible symptoms of a traumatic brain injury. (select all that apply)
- ○ Anxiety (1=yes; 0=no) (PTTBIANX)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Depression (1=yes; 0=no) (PTTBIDEP)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Difficulty concentrating (1=yes; 0=no) (PTTBICONCT)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Difficulty remembering (1=yes; 0=no) (PTTBIMEM)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Difficulty sleeping (1=yes; 0=no) (PTTBISLEEP)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Difficulty reading, writing, calculating (1=yes; 0=no) (PTTBIRWC)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Recent difficulty performing at work or school (1=yes; 0=no) (PTTBIWRKSCH)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Personality changes in relationships with others (1=yes; 0=no) (PTTBIPERCHG)

-77 N/A – Control Site/MedStar

-99 Missing
- ○ Unknown (1=yes; 0=no) (PTTBIUNKNWN)

-77 N/A – Control Site/MedStar

-99 Missing

APPENDIX F – Logic Model for the Burleson Strangulation Ordinance

Logic Model for the Burleson Strangulation Ordinance				

Problem: Strangulation

Subproblems:
1. Strangulation leads to: (a) progressive violence leading up to and including IPV homicide, and (b) police assaults
2. Lack of awareness about strangulation for victims and first responders
3. Missed indications of strangulation by first responders
4. Lack of victim and first responder awareness of current resources available
5. First responder fidelity to Ordinance
6. Lack of medical assessment and/or treatment for strangulation victims
7. Victim unwillingness to adhere to medical advice related to IPV strangulation incidents (AMA)
8. Repeat strangulation victimization

Goals:
1. Raise awareness about strangulation with first responders
2. Improve first responder knowledge about strangulation and ordinance
3. Improve first responder detection of strangulation
4. Standardize first responder responses to strangulation
5. Improve outcomes and enhance victim safety for strangulation victims by: (a) preventing future strangulation victimization; (b) providing medical assessment and treatment; (c) providing and documenting referrals for assistance; and (d) expanding victim assistance (VA) capacity and services
6. Improve first responder safety
7. Obtain ordinance fidelity

OBJECTIVES	ACTIVITIES	OUTPUTS	OUTCOMES	
			Short Term	**Long Term**
1. Change and/or create policies and standardize procedures to support the ordinance (G4, G5, G7)	1. Develop/change: general orders, strangulation evaluation checklist, FVP, BFD worksheet, and program ImageTrend with new worksheet	1. # or presence of changed policies/procedures & new forms/worksheets developed for ordinance		A. Increased victim engagement in the criminal justice system (participation with investigation and prosecution) B. Decrease in IPVRS homicides C. Decrease in repeat strangulation victimization
2. Improve quality and content of strangulation training (G1-G2)	2. Design/redesign/implement strangulation training	2. Presence of initial and revised strangulation training curricula		
3. Train/re-train first responders on medical consequences and lethality/danger of strangulation and ordinance requirements (G1-G3)	3. First responders complete training/education regarding immediate and future medical consequences, lethality/danger of strangulation, and ordinance requirements	3. 100% of first responders trained	A. Increased first responder knowledge/awareness of medical consequences, strangulation dangers, and ordinance requirements as measured by pre/post surveys	

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			OUTCOMES	
OBJECTIVES	**ACTIVITIES**	**OUTPUTS**	**Short Term**	**Long Term**
4. First responder utilization of checklists/assessments in all eligible cases (G3-G4)	4. First responders administer strangulation evaluation checklists/worksheets in all eligible cases 5. BPD summons BFD to all strangulation incidents and documents their presence	4. 100% of BPD officers complete strangulation evaluation checklists in eligible cases 5. 100% of eligible strangulation incidents result in BFD dispatched to scene	B. Increased detection of strangulation incidents pre/post ordinance	
5. Provide medical assessment/treatment to eligible strangulation victims (G5b)	6. BFD provides medical assessment, response, and patient care for all strangulation victims	6. 100% of BFD personnel complete strangulation worksheets in eligible cases 7. 100% of strangulation victims assessed/treated by BFD	C. Increased medical services/aid delivered to strangulation victims pre/post ordinance	
6. Provide and document referrals for strangulation victims to appropriate support agencies (G5c)	7. BPD provides and documents victim referral information	8. 100% of BPD personnel provide and document referrals to VA/appropriate support agencies	D. Increase in communication with and use of victim services pre/post ordinance	A. Increased victim engagement in the criminal justice system (participation with investigation and prosecution)
7. Provide strangulation victims with follow up services (G5d)	8. Seek external funding to enhance VA 9. Hire and train new VA employees/volunteers 10. VA follows up with all victims by phone, email, or in person	9. # of grants written and received for VA to expand service capacity 10. VA FTEs utilized to increase service capacity 11. # of victims receiving follow-up from VA	E. Increased capacity of BPD victim services pre/post ordinance (staffing, time, resources, and activities)	B. Decrease in IPVRS homicides C. Decrease in repeat strangulation victimization

Logic Model for the Burleson Strangulation Ordinance (Continued)

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Logic Model for the Burleson Strangulation Ordinance (Continued)				
OBJECTIVES	**ACTIVITIES**	**OUTPUTS**	**OUTCOMES**	
			Short Term	**Long Term**
8. Track repeat strangulation related victimization (G5a, d)	11.Develop a system to track victim services, victim engagement, and repeat strangulation victimization (VA & Crime Analyst)	12. Presence of repeat strangulation victimization tracked in VA spreadsheet and/or by crime analyst		A. Increased victim engagement in the criminal justice system (participation with investigation and prosecution)
9. Improve first responder safety through strangulation training and education, tracking of assaults against public servants, and dispatch notification flags (G6)	12. Track first responder assaults by suspects with strangulation history (Crime Analyst)	13. # of repeat strangulation victimizations detected 14. Presence of a mechanism to track assaults on first responders by suspects with strangulation history		C. Decrease in repeat strangulation victimization
10. Monitor fidelity and correct non-compliance (G7)	13. Dispatch will create a flag for a residence previously involved in strangulation 14. Develop fidelity monitoring process using layered review for fidelity detection and correction/ documentation of non-compliance	15. # of assaults on first responders by suspects with strangulation history identified 16. # of strangulation flags noting prior strangulation created by dispatch 17. Presence of fidelity tracking in VA spreadsheets and supplemental files 18. Presence of mechanism that tracks correction of fidelity non-compliance 19. 100% first responder compliance with ordinance	F. Increase in officer notification of residence/suspect with prior strangulation history when responding to incidents pre/post ordinance Short Term Outcomes A-F	E. Decrease in assaults on first responders involving suspects with a strangulation history Long Term Outcomes A-D