Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

Title of Study:
Improving Officer and Civilian Health through Macro-level Changes in North Texas: Phase 2: Intervention Pilot Testing

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VERSION NUMBER/DATE: 3/6/26 Version 1

VERSION HISTORY

Version #	Date Created	Summary of Changes	Consent Change?
1	11/24/25	N/A- initial submission	N/A

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1.0 Study Summary

Study Title	Improving Officer and Civilian Health through Macro-level Changes in North Texas: Phase 2: Intervention Pilot Testing
Study Sponsor and/or Funding agency	National Institutes of Health
Research Activities, Interventions, or Products being tested (list)	Focus groups, qualitative semi-structured interviews, surveys
IND/IDE # (see section 5 for descriptions or list NA if not applicable)	N/A
Study Specific Abbreviations/ Definitions	HTCC: Healthy Tarrant County Collaboration Latinx/Latine: gender neutral terms to refer to Latino/Latina. Latinx is more commonly used in Florida; Latine is more commonly used in the Dallas/Fort Worth region. The terms are used interchangeably and often together here. POC: Person of Color. This term is used as an inclusive way to refer to Black, Latinx, and other minoritized non-white individuals. Law Enforcement Officers (LEOs)

2.0 Background

2.1 **Background Knowledge:** Building off our preliminary study (IRB #6088) that examined needed changes and priority areas for changing law enforcement officers' interactions with civilians, we propose a pilot study that addresses key findings from our preliminary work. We analyzed arrest records from 2019 and 2022 to examine the implementation of Tarrant County's cite-and-release (C&R) ordinance. Overall, arrests for citation-eligible offenses dropped by 57%—from nearly 5,000 in 2019 to just over 2,000 in 2022. Additionally, citation-eligible arrests dropped from 14.2% to 6.5% of all arrests across agencies, with one large agency seeing a 12 percentage-point reduction. However, we found persistent disparities: Black individuals represented 47% of these arrests in both years, despite being only 18% of the population. Their Relative Rate Index actually increased from 3.3 to 3.7, meaning the disparity grew after policy implementation. We also conducted semi-structured interviews with elected officials, law enforcement officers, and community members. Data from phase 1 interviews show disparities among minoritized populations concerning arrests, profiling and police violence. The interviews indicate that both law enforcement officers and community members want better relationships and described the areas for change and possible solutions. These findings reveal that there is a need for improved relationships between the community and law enforcement officers and that police violence was a main concern for the community. Possible solutions discussed among all groups include formal community engagement and neighborhood policing. Further, community members explained that there is a need for alternative services and resource allocation within the police department.

Based on these findings, we propose a pilot intervention to address 1) use of force; 2) limited use of cite and release options, and 3) needs for social and behavioral health services.

2.2 **Relevant Research Experience:** During study Phase I, we completed an epidemiological assessment of arrest data across law enforcement agencies in Tarrant County. We also completed semi-structured interviews with elected officials (n=13), community members who have experienced contact with law enforcement (n=21), and law enforcement agency leaders and patrol officers (n=18). Lastly, we completed surveys with community members (n=31) who

have directly experienced arrests personally or in their neighborhoods.

Our epidemiological assessment included a review of publicly available arrest data from law enforcement agencies in Tarrant County, Texas. Our assessment revealed disproportionately high rates of arrests among certain populations that would be eligible for citation instead of arrest—otherwise known as cite and release eligible offenses. These arrests were concentrated largely at retail outlets (Walmart) for low-level thefts (<$750).

Interview data were analyzed thematically using MaxQDA qualitative data analysis software. We used a combination of inductive and deductive coding techniques. Deductive codes were guided by the PRECEDE-PROCEED model, with particular attention to law enforcement and community relationship changes that were perceived as 1) most important and 2) most feasible. Inductive codes were developed upon reading interview transcripts and detecting patterns in respondent's interview question answers. As preliminary analysis of these data was underway, we conducted forums with community members and LEOs separately to identify the validity of the emerging themes. These forums also generated potential intervention activity ideas, as well as collected possible implementation strategies. Themes from Phase 1 data analysis and forums included desire for change around three key areas:

Trainings. Community members support training as a way to mitigate implicit biases while also questioning the ability to train to address all issues. Community members also described a limited understanding of what types of training officers complete. Officers expressed training as expansive but frequently repetitive, and in some ways, insulting (e.g. feeling as if being called racist).

Expanding discretion by citing instead of arresting. Both community members and LEOs expressed an opportunity for officers to use C&R rather than arrest. There was a difference, however, in types of arrests and individuals thought to deserve a citation over an arrest. For example, some officers said theft of any kind, including at a store, deserved arrest, which conflicts with community perspectives. Additionally, some officers cited the paperwork burden of C&R as a deterrent. Specifically, C&R requires completing hard copy forms that then must be duplicated electronically, and filed manually, making this a burdensome option. Notably, Tarrant County invested in

digitizing all work processes approximately 20 years ago to promote efficiency, which makes the continued use of hard-copy forms for C&R appear to be an administrative oversight.

Moral Injury. Officers and elected officials explained that when officers engage in activities that conflict with their overall sense of morality, such as using force, they often experience moral injury. Moral injury is measured as both an exposure and set of symptoms. As an exposure, moral injury is measured through shame; guilt; loss of trust in self, others, and institutions; existential conflict; depression; anxiety; and social withdrawal.

Guided by the PRECEDE-PROCEED model of intervention development, we created a prioritization of change matrix, a visual tool for organizing proposed changes to ensure focus remains on the most impactful. Changes were organized in the matrix by urgency and importance. Based on these findings, the Phase 2 intervention was designed with strategic goals intended to 1) reduce use of force risk via coaching as instantaneous training, 2) increase officer choosing C&R instead of arrest, and 3) reduce moral-injury related symptoms and resulting health outcomes (specifically, depression and anxiety) for police officers. These goals correspond to law enforcement as a hazardous occupation for officers and civilians.

By addressing these strategic areas, we expect the proposed intervention will see reduced injuries from use of force (See Methods, Aim 2a), increased use of C&R instead of arrest (see Methods, Aim 2b), increased referrals to social, behavioral, and public health services (See Methods, Aim 2a), and reduced reports of depression and anxiety among officers (See Methods, Aim 2c). Additionally, if these efforts are successful as expected, we anticipate secondary outcomes to include cost-savings and improved response time.

2.3 **Stakeholder Advisory Group Input:** We will organize a Stakeholder Advisory Group (SAG). The SAG includes law enforcement representation and representation from previously incarcerated individuals. This group will: provide input on final drafts of data collection instruments, being a sounding board for any potential problems and propose alterative approaches.

3.0 Objectives

3.1 **Purpose/Objective:**

The purpose of this study is to complete a pilot intervention study focused on feasibility, acceptability, and appropriateness of three separate law enforcement intervention activities. We propose the following aims:

Aim 1a: Determine the acceptability and feasibility of using AI to reinforce officers' de-escalation training, avoid using force, increase cite and release when eligible, and refer civilians to behavioral health, public health, and social service organizations.

Aim 1b: Assess the acceptability and feasibility of digitizing C&R paperwork to reduce arrests for low-level offenses where arrests are not statutorily required.

Aim 1c: Determine the acceptability and feasibility of an Alternative Response Unit ((ARU) specialized team—often comprising mental health clinicians, social workers, and non-uniformed officers—designed to address non-violent, behavioral health, and substance abuse crises) for behavioral health 911 calls, emphasizing stakeholder inquiry to assess appropriateness and potential impact.

Aim 2a: Pilot AI software and evaluate outcomes related to use of force, citations instead of arrests, and referrals to social, behavioral, and public health services, assessing how implementation processes influence effectiveness.

Aim 2b: Pilot digitized cite & release paperwork, evaluating arrest and citation outcomes, with a focus on workflow adoption and officer behavior change.

Aim 2c: Reduce officers' moral injury by empowering citation over arrest for eligible civilians, examining how the intervention and support processes affect individual well-being (job satisfaction, depression, and anxiety).

3.2 **Hypotheses or Research Questions:**

1) Do law enforcement officers find an AI-powered tool compatible with current work and easy to use and an acceptable element of their work?

2) Can the AI-powered tool reduce use of force and unnecessary arrest?

3) Can the AI-powered tool be used for guiding law enforcement behaviors?

4) Does digitizing cite and release processes increase use of the option?

5) Is digitization of cite and release paperwork feasible and is it accepted among officers?

4.0 What is Being Measured or Evaluated?

4.1 **Description**:

• **TRULEO (a conversational AI software that uses participants' mobile device or computer):** Implemented in the Tarrant County Sheriff's Office to (1) reduce use of force, (2) increase citations instead of arrests for eligible offenses, and (3) encourage officers to refer civilians to social, behavioral, and health services.

Associated measures: use of force, moral injury, stress, arrests, job satisfaction, and referrals.

• **Digitized cite and release paperwork:** Simplifies administrative work (e.g., moving paperwork from paper to electronic) and engages agency leadership to emphasize the benefits of citations for eligible offenses, including theft.

Associated measures: use of force, moral injury, stress, arrests, and job satisfaction.

• **Empowering officers to use discretion in arrests:** Encourages officers to cite rather than arrest when eligible.

Associated measures: self-reported anxiety and depression.

• **Alternative Response Unit (ARU):** The ARU represents a novel, community-centered approach to handling 911 calls for behavioral health concerns. Because the ARU represents a departure from traditional law enforcement interventions, further inquiry within the community is needed to understand its relevance, appropriateness, and potential impact. As such, this study will focus only on testing the acceptability and feasibility of the ARU.

4.2 **Is this a clinical trial/clinical investigation?** No

5.0 Drugs and Devices (If not a drug or device study, check N/A ☒ and skip to the Endpoints section)

5.1 **To determine if your device is a significant risk or non-significant risk device, check all that apply*:**

☐ The device is intended as an implant and presents a potential for serious risk to the health, safety, or welfare of a subject.

☐ The device is purported or represented to be for use in supporting or sustaining human life and presents a potential for serious risk to the health, safety or welfare of a subject.

☐ The device is intended as an implant and presents a potential for serious risk to the health, safety, or welfare of a subject

☐ The device otherwise presents a potential for serious risk to the health, safety, or welfare of a subject.

*If any of the above are checked the device is a significant risk device.

☐ Check if none of the above criteria in 5.1 apply

5.2 **Drug/Device Handling**: *N/A*

5.3 **Investigational products:** *N/A*

5.4 **For IDE and abbreviated IDE studies, check all that apply. If not an IDE or abbreviated IDE study, check N/A ☒:**

☐ As required by FDA regulation 21 CFR 812.2.b.1.i: The device will be labeled as an investigational device as described in section 5.2

☐ As required by FDA regulation 21 CFR 812.2.b.1.ii: The device will only be transported/used after appropriate IRB approval is attained.

☐ As required by FDA regulation 21 CFR 812.2.b.1.iii: In order to participate, all subjects will sign an informed consent document to be maintained by the investigator in the process described in the protocol section 11.0.

☐ As required by FDA regulation 21 CFR 812.2.b.1.iv: The study will be monitored for unanticipated adverse device effects and relevant sections of the study will be terminated if a determination of unreasonable risk to subjects is made.

☐ As required by FDA regulation 21 CFR 812.2.b.1.v: Records of the device and its intended use, the objectives of the investigation, an explanation of the device's status as not a significant risk device, the name/address of the investigator, the name/address of the IRB, a statement of the extent to which the good manufacturing practice regulation in part 820 were followed in device manufacture, and any

reported adverse device effects will be consolidated and available for FDA inspection.

☐ Timely reporting of unanticipated adverse device effects (10 days), withdrawal of IRB or FDA approval (5 days), progress reporting (yearly), recall and device disposition (30 days), study termination/completion (30 days), final reporting (6 months), and significant risk determinations (5 days) to the appropriate entities will be done.

☐ As required by FDA regulation 21 CFR 812.2.b.1.vi: The investigator will keep records of each subject including documentation of informed consent, unanticipated adverse device effects (which will be reported to the reviewing IRB within 10 days of the incident). If applicable, the process for reporting between the investigator and the manufacturer is described in the protocol section 23.1.

☐ As required by FDA regulation 21 CFR 812.2.b.1.vii: The restrictions on promotion and other practices delineated in regulation 21 CFR 812.7 will be followed. This study will not advertise or promote the investigational device or conduct test marketing of the device.

6.0 Endpoints (clinical trials only - if not a clinical trial, check N/A ☒ and skip to the Number of Subjects section)

6.1 **Study Endpoints:** *N/A*
6.2 **Safety Endpoints:** *N/A*

7.0 Number of Subjects

7.1 **LOCAL**: 76
7.2 **ALL SITES:** *N/A*
7.3 76

8.0 Inclusion/Exclusion Criteria

8.1 **Screening:**

Aim 1b and Aim 1c interview participants will be screened for eligibility using a short eligibility screener survey that will take approximately 5 minutes to complete. The screening survey will be administered orally by the individual collecting interview data. Interview participants will include law enforcement officers from the Tarrant County Sheriff's Department.

Aim 1a survey participants' eligibility will be determined based the on the Tarrant County Sheriff's Department, where agency

leadership has agreed to assist with recruitment. Officers will be recruited via their commanding officers (COs).

Respondents to surveys will be excluded if they are considered to be automated bots attempting to take the survey and not real, living participants. In recent years, bots infiltrating surveys has become a growing concern in human subjects research. To prevent bots from taking the survey, we will enable features in Qualtrics that will allow us to determine if bots are present.

Aim 2a will include 10 Tarrant County Sheriff's Department patrol officers to participate in the pilot and use the AI software in an uncontrolled trial with no control group for comparison. Officers will be recruited via their commanding officers.

Aim 2b will include an additional 10 officers (separate from those recruited for Aim 2a) to participate in the pilot intervention assessment activities using the digital cite and release process. Officers will be recruited via their commanding officers.

Aim 2c All patrol officers from the department (n=60) will be invited to participate in this aim. This cross-sectional survey will stratify participants into groups comparing intervention users and non-users to ensure accurate outcome attribution. Surveys will be distributed to all patrol officers in the department using the methods outlined in Aim 1a.

8.2 **Eligibility:**

Inclusion Criteria:

1. All Aims: Individuals who speak English.
2. All Aims: Individuals who are at least 18 years or older.
3. Aim 1a, Aim 2a, Aim 2b, Aim 2c: Law enforcement officers from the Tarrant County Sheriff's Department who have been in their role for six months or longer.
4. Aim 1b: Staff members in the Tarrant County District Attorneys in office who have been in their role for one year or longer.
5. Aim 1c: Hospital emergency department staff who have been in their position for at least one year.
6. Aim 1c: Elected officials who have been in their position for at least one year.
7. Aim 1c: 911 Dispatchers who have been in their position for at least one year.
8. Aim 1c: Employees with the Tarrant County mental health authority

Exclusion Criteria:

1. All Aims: Individuals who do not speak English.
2. All Aims: Individuals under the age of 18.

3. Aim 1a, Aim 2a, Aim 2b, Aim 2c: Individuals not currently employed by the Tarrant County Sheriff's Department or have not been employed for at least six months in the department.
4. Aim 1b: District Attorneys outside of Tarrant County or have not been in their position for at least 6 months.
5. Aim 1c: Elected officials who have not been in their position for one year or work outside of Tarrant County.
6. Aim 1c: Hospital emergency department staff who have not been in their position for at least one year.
7. Aim 1c: 911 Dispatchers who have been in their position for at least one year.
8. Aim 1c: Employees with the Tarrant County mental health authority who have not been in their position for at least one year.

8.3 **Vulnerable/Special populations:** *N/A*

☐ Children or Young Adults Under the age of 18
☐ Adults over 65
☐ Pregnant Women: (*Indicate if you are **targeting** pregnant women in your recruitment, if they will be allowed to enroll even if they are not the target population, or if they will be excluded. If they are excluded, state why.)*
☐ Prisoners
☐ Adults to Unable to Consent
☐ Additional Vulnerable Population (specify):
☐ Other (specify):

8.4 **Additional safeguards:** *N/A*

9.0 Recruitment Methods

9.1 Choose the recruitment method below. Do not delete this subsection:

☐ Flyer
☒ Email
☐ SONA
☐ Social Media Post
☐ Other (specify):

9.2

Recruitment for all Aims will be completed through snowball and convenience sampling through various methods (i.e., advisory board members and community champions).

<u>Aim 1a (Surveys) and 2c (Surveys)</u>

Consistent with survey recruitment best practices, officers will receive a preliminary email from their commanding officer that is written on behalf of the research team. That email will inform them to expect a survey in the coming days. Within 72 hours, officers will then receive the formal survey email that contains a unique survey link to track participants over time for Aim 2c. If officers do not complete the survey within four days, they will receive a reminder email. A second and final reminder email will then be sent another four days following the first reminder. Officers who are interested in responding to the survey will be able to directly click on the unique survey invitation link.

Aim 1a (Focus Groups),

We will recruit participants from the Tarrant County Sheriff's Office, where agency leadership has agreed to assist with recruitment. Officers will be recruited via their commanding officers (COs). COs will use agency email to notify all officers about an upcoming focus group. One week after the notice email, COs will send a follow up email with focus group days and times for officers to select a specific focus group time. These procedures are consistent with best practices for focus group recruiting, and typical for law enforcement agencies accustomed to outside speakers coming in for continuing education purposes.

Aim 1b (Interviews)

We will recruit participants through the Tarrant County Criminal Defense Lawyers Association and through local elected officials who have participated in our NIH-funded needs assessment study (n=13). Additional participants will be recruited via snowball sampling strategy.

Aim 1c (Interviews)

We will recruit participants from the Tarrant County mental health authority (MHMR of Tarrant County), participating municipalities and their 9-1-1 dispatchers, and HTCC's hospital members' emergency departments. Other participants will be recruited via snowball sampling.

9.3 *N/A*

9.4 *N/A*

10.0 Consent Process

10.1 **If there is a consent process, describe:**

Consent will be obtained for interviews and survey participants.

Aim 1a and Aim 2c

Upon recruitment, potential participants will receive an email with links to a Qualtrics electronic consent document. Once the consent is complete, participants will then be sent the unique survey link. The consent process will occur at a location of the participants' choice and they will have unlimited time to review the consent information. Upon completing the consent document, the participant will be notified within approximately 2 days with their interview link or will be sent the unique survey link. Participants can end participation at any time.

Focus group participants will be shown a QR code that will take them to the informed consent. It will be completed before the focus group begins.

Participants will have as much time as they like to complete the consent document. The consent document will be provided via email link, and participants will have the opportunity to ask questions before agreeing to participate. Specifically, they will be given the contact information for the HTCC staff member collecting data.

Aim 1b and Aim 1c

For interviews, consent will be confirmed by the HTCC data collection staff member prior to the interview being conducted. Upon recruitment, potential participants will receive an email with links to a Qualtrics electronic consent document. The consent process will occur at a location of the participants' choice, and they will have unlimited time to review the consent information.

Participants will have as much time as they like to complete the consent document. The consent document will be provided via email link, and participants will have the opportunity to ask questions before agreeing to participate.

For participants who are recruited verbally and unable to receive a consent document link via email, a paper version of the consent form will be provided. They will be given as much time as they like to review the consent document and ask questions. The completed consent document will then be scanned and uploaded into OneDrive; the paper copy will be

securely destroyed. Participants will be provided with a copy of the consent form for their records.

Aim 2a and Aim 2b

Upon recruitment, potential participants will receive an email with links to a Qualtrics electronic consent document. The consent process will occur at a location of the participants' choice and they will have unlimited time to review the consent information.

Participants will have as much time as they like to complete the consent document. The consent document will be provided via email link, and participants will have the opportunity to ask questions before agreeing to participate. Specifically, they will be given the contact information for the HTCC staff member collecting data.

10.2 **Electronic consent information (Check if N/A ☐ and skip to the Documentation of Consent section):**

☒ Electronic consent document includes all required elements of consent.

☐ The date of the electronic signature will be captured

If waiver of documentation of consent is requested and justified, check N/A ☒

☒ Questions or methods to gauge subject comprehension of key study elements are clearly defined in the informed consent procedures.

☒ Explain how you will handle an electronic consent not completed correctly: If participants do not complete the consent form they will not be contacted again for the study.

☒ Electronic consent process includes age appropriate materials to facilitate comprehension.

☒ Electronic consent process is suitable to the study population or procedures are outlined to accommodate subject's needs.

☒ Electronic consent document/process allows subjects to proceed forward or backward or pause for review later.

☒ Measures are present to ensure that subjects have access to all of the consent-related materials, including hyperlinks or other external documents.

Check if N/A ☐

☒ Plans are adequate to maintain external hyperlinks or documents and subject access to these documents throughout the lifespan of the study until completion are detailed in the informed consent procedures.

Check if N/A ☐

☒ The informed consent process outlines in detail how any included documents will be utilized.

Check if N/A ☐

☒ Measures are present to ensure that the identity of the signer and the integrity of the data can be verified when consent is not witnessed by the study team.

☐ For FDA-Regulated Clinical Trials including children as research subjects, if the parent or guardian initially documents the child's assent, procedures are in place to verify the child's identity and assent when the child initially presents to the investigator.

If the research is not an FDA-Regulated Clinical Trial, check N/A ☒

☒ Please select one of the following templates:

☒ HRP-502/a/b Template Consent Document

☐ HRP-502/a/b Template Consent Document - RedCap

☐ HRP-502/a/b Template Consent Document – Qualtrics

10.3 **Documentation of Consent**

- Copy of signed consent will be provided to subjects (Required for full documentation)
  ☐Yes ☒No

Waiver of documentation of consent: Rather than asking participants to sign an electronic consent form, we request a simple checkbox to agree to participate or not, followed by participants clicking "continue" to move forward. These two click actions would signify multiple steps to continue and facilitate participants' ease of completing the study survey if they do not have access to digital signature software. We are also requesting an alteration of consent documentation for the interviews to protect participant information.

- Copy of unsigned consent will be provided to subjects
  ☒Yes ☐No
- Copy of consent will only be provided on request
  ☐Yes ☒No (if no, provide justification):
- Copy of the consent form is necessary for subjects
  ☐ Yes ☒No (if no, provide justification):

10.4 Include if you are requesting Waiver or Alteration of Consent Process

- A request for waiver of consent – *N/A*
- A request for alteration of consent documentation: N/A

10.5 ***For Psychology SONA studies*** *– N/A*

10.6 Additional consent process considerations **REQUIRED**

- Indicate what language(s) other than English are understood by prospective subjects or representatives.

☒ English only

☐ Other language (list):

- If non-English speaking participants are excluded, what is the justification? Select all that apply:

☒ Pilot study

☐ Small, unfunded study

☐ Numerous questionnaires

☐ Validated instruments not available in other languages

☐ Non-therapeutic study that does not offer a direct benefit

☐ Other, describe:

11.0 HIPAA (From medical records *only*. If data is not coming from medical records, check N/A ☒ and skip to the FERPA section)

11.1 PHI HIPAA IDENTIFIERS:

☐ Name

☐ Address or location smaller than a state

☐ Dates, including birthdate, dates of service or exact age if 89 years or older

☐ Telephone number

☐ Fax number

☐ Email address

☐ Social Security number

☐ Medical record number

☐ Health plan beneficiary number

☐ Account number

☐ Vehicle identification number, serial number, license plate number

☐ Device identifiers and serial numbers

☐ Web URL

☐ Internet Protocol (IP) Address

☐ Finger or voice print

☐ Identifiable photographic image
☐ Any other characteristic (tattoo, birthmark, scar, etc.) that could uniquely identify the individual (describe):

Remember that NONE of these are PHI unless you are gathering them from a medical record or covered entity record.

11.2 *N/A*
11.3 *N/A*

12.0 FERPA (From educational records *only*. If data is not coming from educational records, check N/A ☒ and skip to the Study Procedures section)

12.1 FERPA DIRECTORY INFORMATION (including, but not limited to):
☐ Name
☐ Current mailing address
☐ Telephone number
☐ Date of birth
☐ Major
☐ Dates of attendance
☐ Enrollment status
☐ Degrees/awards received
☐ Participation in officially recognized activities and sports
☐ Athlete's height/weight
☐ Other (describe):

OTHER FERPA INFORMATION (including, but not limited to):
☐ Social Security Number
☐ Student ID/SONA ID/NID
☐ ISO Number
☐ Residency status
☐ Gender
☐ Religious preference
☐ Race/ethnicity
☐ Email address
☐ Grades/GPA
☐ Class schedule
☐ Test scores
☐ Academic standing

☐ Academic transcripts

☐Other (describe):

12.2 *N/A*

12.3 *N/A*

13.0 Study Procedures (after the consent process)

Aim 1a: Surveys & Focus groups with Tarrant County Sheriff's Office patrol officers

Aim 1b: Interviews with key prosecutors and other key informants at the Tarrant County District Attorney's office

Aim 1c: Interviews with key elected officials (n=12), employees with the Tarrant County mental health authority (n=12), 9-1-1 dispatchers (n=12), and hospital emergency department staff (n=12)

Aim 2a: Pilot of AI software with Tarrant County Sheriff's Office patrol staff

Aim 2b: Pilot of digitized cite with officers

Aim 2c: Surveys with Tarrant County Sheriff's Office patrol officers and among all officer intervention participants

13.1 Aim 1a:

Surveys (Aim 1 TRULEO Survey) will be administered via Qualtrics and sent to officers' emails via their commanding officers. Consistent with survey recruitment best practices, officers will receive an email from their commanding officer that is written on behalf of the research team. That email will inform them to expect a survey in the coming days. Within 72 hours, officers will then receive the formal survey email. If officers do not complete the survey within four days, they will receive a reminder email. Participants will watch a video that explains the TRULEO AI software before completing the survey. The link for the video will stay active for 5 years.

Focus groups will be organized as a lunch and learn format that officers are accustomed to and has worked well for us in the past. Focus groups will take approximately 90 minutes, with 30 minutes allotted for lunch and check-in and 60 minutes for the focus group discussion(Aim 1 Focus Group Interview Guide). During the focus group discussions, we will introduce the proposed intervention via PowerPoint slide (Focus Group Presentation, Aim 1a 2 pager to show to focus groups) (approximately 10 minutes) and then begin asking officers about their perceived acceptability and feasibility of the intervention.

Aim 1b

We will conduct qualitative interviews with key prosecutors and other key informants at the Tarrant County District

Attorney's office (n=10) (DA Interview Guide). Participants will receive an email from the PI (Fulmer) explaining the research and inviting them to participate in a one-hour interview. If participants do not respond within four days, they will receive a reminder email. Interviews will last approximately 60 minutes and be audio recorded and professionally transcribed.

Aim 1c

We will complete interviews with key elected officials (n=12) (EO Interview Guide), employees with the Tarrant County mental health authority (n=12) (Healthcare Workers Interview Guide), 9-1-1 dispatchers (n=12) (Dispatchers Interview Guide), and hospital emergency department staff (n=12) (ER Department Staff Interview Guide). We will recruit participants from the Tarrant County mental health authority (MHMR of Tarrant County), participating municipalities and their 9-1-1 dispatchers, and HTCC's hospital members' emergency departments. Other participants will be recruited via snowball sampling. Participants will receive an email from the PI (Fulmer) explaining the research and inviting them to participate in a one-hour interview. If participants do not respond within four days, they will receive a reminder email. Interviews will last approximately 60 minutes and be audio recorded and professionally transcribed.

Aim 2a

10 Tarrant County Sheriff's Office patrol staff will be selected to participate in the pilot and use the AI software in an uncontrolled trial. Participants' body cameras, communication devices, and computers will be outfitted with the TRULEO AI software to receive prompts. At this time, we do not have all the information for Aim 2 because it is dependent on Aim 1. A modification will be submitted for approval once Aim 1 is complete and all the finalized information will be provided prior to recruitment, consent, and collection.

Aim 2b

An additional 5 officers will be selected to participate in the pilot intervention using the digitized cite and release paperwork. Another 5 will be randomly chosen as standard practice (control) participants. Intervention participants will be informed of the digitized cite and release paperwork and receive regular reminders during the study period.

Aim 2c

This study will include a total of 3 surveys (in addition to the 1a survey) for aim 2c. We will conduct a brief inventory of depression, anxiety, moral injury, and stress among a representative sample of the Tarrant County Sheriff's Office patrol officers and among all officer intervention participants, including those who participated in Aim 2a and 2b. This inventory is separate from the 1a survey and will be administered a total of 3 times. The first time the Aim 2c survey is administered will be to collect baseline data at the beginning of the pilot study period. The second time the Aim 2c survey will be administered will be midway through the pilot intervention. The final, third time the Aim 2c survey will be administered will be as a post-intervention survey within two weeks of the pilot testing ending (Aim 2c Survey). Participants will receive a unique survey link to track the surveys preintervention, during the intervention, and after the intervention. All officers in the department will be invited to participate in Aim 2c surveys.

13.2 *Describe:*

- *N/A*
- We will conduct 4 surveys. The first survey will focus on feasibility and acceptability. The other 3 surveys will assess mental health of LEOs. We will determine the acceptability and feasibility of officers using a novel, conversation-based Artificial Intelligence (AI) software called TRULEO to 1) deescalate encounters that can lead to violence or injury, 2) issue citations when eligible instead of arrest, and 3) refer individuals to social, behavioral, and mental health services when needed.
- We will also conduct focus groups that follow a focus group guide. During the focus group discussions, we will introduce the proposed intervention via PowerPoint slide (approximately 10 minutes) and then begin asking LEOs about their perceived acceptability and feasibility of the intervention.
- Interviews will be designed using three implementation measures: Acceptability, Appropriateness, and Feasibility All interviews for Aim 1b and Aim 2c will be conducted using a semi-structured interview guide.

13.3 **Long term follow up:** *N/A*

13.4 **Recontacting participants:** *N/A*

14.0 Setting

14.1 **Sites or locations:** Describe the sites or locations where the UCF research team will conduct the research.

☒ UCF Owned or Operated Locations(s): UCF College of Medicine, Burnett School of Biomedical Sciences

☒ Online:

- ☐ Amazon M-Turk
- ☒ Qualtrics
- ☐ PsychoPy/Pavlovia
- ☐ Other (specify):

If online, check all that apply:

- ☒ participants within the United States
- ☐ participants outside the United States

☐ International (specify all applicable locations):

- *Describe the facility.*
- *For research conducted outside of the organization and its affiliates describe:*
  - *a. Site-specific regulations or customs affecting the research for research outside the organization.*
  - *b. Local scientific and ethical review structure outside the organization.*

☐ Multi-site (please complete the Mult-Site Research section in this protocol)

☐ Other (specify all applicable locations):

- *Describe the facility.*
- *For research conducted outside of the organization and its affiliates describe:*
  - *a. Site-specific regulations or customs affecting the research for research outside the organization.*
  - *b. Local scientific and ethical review structure outside the organization.*

15.0 Study Timelines

15.1 Describe:

- **Each subject:** Focus group participants will complete a one-time focus group and will not be contacted for follow-up participation. Focus groups will take approximately 90 minutes, with 30 minutes allotted for lunch and check-in and 60 minutes for the focus group discussion. During the focus group discussions, we will introduce the proposed intervention via PowerPoint slide (approximately 10 minutes)

and then begin asking LEOs about their perceived acceptability and feasibility of the intervention.

The survey will take approximately 30 minutes for participants to complete and they will not be contacted for follow-up surveys.

Interviews will last approximately 60 minutes and be audio recorded and professionally transcribed.

- **Enrollment**: Enrollment will begin after IRB approval and will take no longer than 3 months to recruit all participants for each aim. Enrollment for this study will take approximately 10 minutes. The survey will take approximately 30 minutes, with the total time taking approximately 40 minutes.
- **Completion**: December 2026

16.0 Resources Available

16.1 Work for this study will occur largely using Dr. Kline's UCF-issued computer. The computer will be equipped with necessary data analysis, word pressing, and teleconferencing software. Dr. Kline and HTCC received an NIH award for this research, and approximately 30% of Dr. Kline's overall professional time will be allocated to activities related to this study. For any staff added to the study, Dr. Kline and HTCC staff will train them by providing a study overview, introduction to the project mechanisms, and assigning key readings related to the topic. Dr. Kline will also conduct period refresher trainings to occur approximately once per quarter.

For HTCC, work for this study will occur largely using HTCC staff's work-issued computers. The computers are equipped with necessary data analysis, word pressing, and teleconferencing software. HTCC received an NIH award for this research covering staff effort and resources.

As noted above, HTCC also established a Stakeholder Advisory Group (SAG) on these issues. The advisory group was specifically established for this project and is not one that existed before the funding was formally awarded. For the study, the SAG will guide the research team in understanding who to best talk to for interviews, etc., and serve as a general sounding board for the team. They will not be involved in data collection or analysis. In anticipation that the SAG leader, however, may want to sit in on

meetings with the research team, we are taking the precaution of having that person complete IRB training so they are aware of the need to keep data knowledge restricted to IRB-approved personnel.

Based on the PI's prior research experience, the recruitment required for this study is feasible based on the proposed sampling methods described above. The SAG will assist in recruitment of medical or psychological resources that subjects might need as a result of any anticipated consequences of the research.

16.2 **Ancillary reviews required:** If none apply, check N/A ☒ and move to the next section.

☐Departmental – Required for all Psychology Department Studies
☐HIPAA Privacy – Required if the Human Research protocol involves access to Protected Health Information.
☐FERPA – Applies if directory student records will be used and signed consent is not obtained.
☐Institutional Animal Care and Use Committee -- Required if the Human Research protocol requires the use of live, vertebrate animals
☐Institutional Biosafety Committee – Required if the Human Research protocol requires the use of biohazardous agents in UCF facilities. See the UCF Biological Safety Manual for a list of applicable biohazardous agents.
☐Radiation Safety Committee – Required if Radiation is being used for reasons other than clinical care, include this review if the Human Research protocol requires the use of approved or unapproved diagnostic or therapeutic radioactive materials or radiation-producing devices outside routine clinical practice.
☐Community Advisory Board – Describe the community advisory board composition and involvement in the research, if applicable:

17.0 Potential Benefits to Subjects

17.1 **Benefits to subjects:** This study seeks to address structural issues in policing by decreasing the number of discretionary arrests conducted by the Fort Worth Police Department. Discretionary arrests are conducted at a police officer's discretion and the designated offense has the possibility of being a cite-and-release offense. By reducing the number of discretionary arrests, overcrowding in the Tarrant County Jail can be minimized, fewer individuals will experience being jailed and the deleterious consequences of incarceration, and the court system may see a positive impact as well due to

fewer individuals needing to go in front of a judge as a result of their arrest. Further, law enforcement interactions are an issue of significant public interest and this study therefore responds to a pressing contemporary social issue that is underexamined. As there is minimal risk for individuals involved in the study, the potential benefits of improving policing in Tarrant County by reducing discretionary arrests, reducing community members interactions with Tarrant County Jail, and reducing the flow of individuals through the court systems poses significant benefits in comparison to the minimal risks posed by the study. Further, participants may have increased knowledge and gratification of participating in research about artificial intelligence technology.

18.0 Risks to Subjects

18.1 **Risks:** For survey data collected during the social assessment, there is little potential risk as we will not be recording any potentially identifying information of the survey participants. However, there is always a small risk of breach of confidentiality but the research team will have significant measures in place to minimize this potential risk including storing all data on a secured server using UCF OneDrive (data will be stored for five years after study closure). Only members of the research team will have access to this survey data. For interviews conducted during this assessment, there is potential risk for breach of confidentiality and minor emotional risks as some questions may cause minimal discomfort, such as describing interactions with police officers. All interview data will be de-identified when transcribed and all recordings of the data will be deleted shortly after the data is transcribed. This will minimize risk for breach of confidentiality. For minimizing emotional risks, participants are always allowed to not answer uncomfortable questions and may exit the interview at any time that they choose, this information will be relayed to the participant during the informed consent process.

There is little potential risk for the participants in the focus group as they will be asked about TRULEO and current police methods and potential reforms. The only potential risk will be breach of confidentiality. As with the other interview data, all of the data recorded from these interviews will be de-identified and all recordings will be stored separately from the deidentified data after transcription. This data will be stored on a secure server that can only be accessed by the research team.

18.2 **Unforeseeable risks:** Check if N/A ☒

18.3 **Pregnancy risks:** Check if N/A ☒
18.4 **Risks to others:** Check if N/A ☒
18.5 **Risk mitigation:** Check if N/A ☒

19.0 Compensation for Research-Related Injury (for more than minimal risk studies only - if this is a minimal risk study, check N/A ☒ and skip to the Withdrawal of Subjects section)

19.1 **Compensation:** *N/A*
19.2 **Contract verification:** *N/A*

20.0 Withdrawal of Subjects

20.1 **Researcher withdraws subject:** Participants will be withdrawn from the study if they do not complete surveys or interviews. If a participant does not complete the interview or survey, the interviewer will thank participants for their time. Any data collected before withdrawing will not be analyzed. It will be removed from the dataset and kept in a separate file stored in the UCF OneDrive for five years after study closure.

20.2 **Subject withdraws voluntarily:** Participants can withdraw from the study at any time by emailing or calling the study team.

20.3 **Orderly termination:** If a participant does not want to continue with the study, their data and any information will be removed from the dataset and kept in a separate file stored in the UCF OneDrive for five years after study closure.

20.4 **After withdrawal:** Any data collected before withdrawing will not be analyzed. It will be removed from the dataset and kept in a separate file stored in the UCF OneDrive for five years after study closure.

21.0 Economic Burden to Subjects (If there are no economic burdens to subjects, check N/A ☒ and skip to the Compensation section)

21.1 **Costs:** *N/A*

22.0 Compensation (Do not delete this section. Answer all applicable questions)

22.1 Are you providing compensation to participants?

☒ No

☐ Yes

If Yes, specify the form of compensation (check all that apply):

☐ Course Credit (students) **(if offering course credit, "Alternate Assignment" below must also be selected)**

☐ Alternate Assignment (students). Describe the nature of the course credit and type of alternate assignment:

☐ Monetary (cash/check/gift card)

Monetary compensation type:

☐Cash (amount):

☐Check (amount):

☐Gift card (amount and type):

Describe the process to distribute compensation, including timing and how it will be received:

☐ Other (specify):

☐ Lottery *(Note: In general, due to Florida's strict state laws regarding lotteries and the appearance of coercion in research studies, the IRB does not allow lotteries unless the study is investigating the lottery process or psychological effects of lotteries as the purpose of the study.*

22.2 Describe conditions that would prevent a participant from receiving full compensation (check if N/A ☒):

23.0 Data Validity

23.1 Indicate safeguards to prevent a participant from completing the study more than once, limit Bot/AI/fraudulent responses, and/or ensure response validity.

☒ CAPTCHA (specify): Enabling reCAPTCHA. We have enabled reCAPTCHA to ensure that those completing the survey are not fraudulent actors. The survey has been embedded with a reCAPTCHA score (min:1 and max: 1) to assess when the respondent is a human. A score of less than 0.5 means the respondent is likely a bot. If a respondent has a score of less than 0.5, then the research team will review the responses to determine if other factors in place indicate fraudulent behavior.

☒ Validity Check Questions (specify): Validation questions have been added to assess whether the respondent is human. These questions require the respondent to answer “correctly” but do not require prior knowledge, just to follow the requested action from the prompt.

- These questions will be added before the following sections:

- Consent

- Demographics

- Community Needs

☒ Other (specify):

A) Enabling the “Prevent resubmissions” feature. When Qualtrics detects a resubmission, the survey will end and display the following message: “Thank you for your interest in the survey. However, our records show that you have already completed your survey.”

B) Enabling the security scan monitor prevents email scanning software from inadvertently starting a survey session when a survey link is included in an email. In other words, it adds a “roadblock” of sorts for this type scanning technology.

C) Enabling the preventing indexing feature blocks search engines from including the survey in search results.

D) Enabling Straight lining (data quality detector). Straight lining can be an indicator for fraudulent activity. There is a feature in Qualtrics that can help researchers flag fraudulent behavioral this can be used in conjunction with other measures in place (i.e., time duration threshold, reCAPTCHA, RelevantID). Qualtrics considers straight lining as a respondent must have both: 1) Straight-lined through at least 3 likert matrix tables (not statements, but the entire questions) and 2) Straight-lined 80% of the matrix tables in the survey

E) Considering the time to completion. To identify potential fraudulent actors, specifically respondents who quickly complete the survey, researchers have created an embedded field in the survey to measure the time (in seconds) it takes to complete the survey.

- Any survey that was completed in less than 15 minutes (900 seconds) will be flagged and require researchers to manually review the response for other fraudulent behavior indicators.

F) Using RelevantID features. When using an anonymous link, enabling RelevantID will not instantly delete duplicates, but it will strengthen data quality by allowing the researchers to identify duplicates after data collection ends. RelevantID does not prevent bots from completing the survey. Instead, it attaches a score (Q_RelevantIDFraudScore) between 0 and 130 to each survey response. Qualtrics interprets a score ≥30 as fraudulent and likely a bot. Receiving a Relevant ID Fraud score of 30 or greater will require researchers to manually review the response for other fraudulent behavior indicators. In addition to bot detection, RelevantID identifies duplicate responses through digital fingerprinting and proprietary detection algorithms. Qualtrics then attaches another score

(Q_RelevantIDDuplicateScore) between 0 and 100 to the survey response. The suggested score threshold where any score ≥75 is considered a duplicate. Receiving a Relevant ID Duplicate score of 75 or greater will require researchers to manually review the response for other fraudulent behavior indicators.

The only parameters that will prevent someone from continuing/completing the survey are:

- Eligibility questions
- Resubmitting a survey (option A – Prevent resubmissions)

Fraudulent behavior will be assessed at post-survey based on measures that were outlined in the protocol (i.e., reCAPTCHA, survey time duration, RelevantID, validation questions, etc.).

If determined fraudulent respondent, a research team member will email the respondent with the following script:

- "Thank you for your interest in the study. However, based on your response, you are not eligible for the study."

24.0 Sharing Results with Subjects

24.1 Results will not be shared with participants.

25.0 Data Management and Confidentiality

25.1 Identifiable Data Access or Collection: Check all that apply

☐ None
☒ Name
☒ Contact Information (email, phone number, address, etc.)
☐ IDs (NID, IP Address, etc.)
☐ Video Recording-- Face or another identifying personal attribute
☒ Voice Recording
☐ Protected Health Information (PHI) (includes any of the 18 HIPAA identifiers associated with medical records, biological specimens, biometrics, data sets)
☐ Biospecimens (describe):
☐ Other (specify):

25.2 **Data security:** The only identifiable data that will be collected are names, emails, phone numbers, and audio recordings for the purpose of scheduling surveys and interviews and for interviews. Interview recordings will be transcribed as close to verbatim as possible. We will utilize Rev software to transcribe the interviews and then review the interviews for accuracy. All participants will be given pseudonyms. All study data will be

stored in the password protected UCF OneDrive for 5 years after study closure, per Florida law.

25.3 **Quality control:** *N/A*

25.4 **Certificate of Confidentiality:** *N/A*

25.5 **Data Sharing:**

Information (or samples) that are collected as part of this research will not be used or distributed for future research studies, even if all identifiers are removed

26.0 Long-Term Data and/or Specimen Banking (If there are no plans for long-term data and/or specimen banking, check N/A ☒ and skip to the Data Analysis Plan section)

26.1 **Long term storage:** *N/A*

26.2 **Data and/or specimens storage:** *N/A*

26.3 **Releasing data and/or biospecimens:** *N/A*

27.0 Data Analysis Plan

27.1 Qualitative data will be analyzed using MaxQDA software to code a priori and emerging themes. A priori codes will be based on acceptability and feasibility constructs. Quantitative data will be analyzed using Weiner et al.'s (2017) scale of acceptability, appropriateness, and feasibility for interventions. Median scores will be calculated to summarize overall perceptions of acceptability, appropriateness, and feasibility. Median use of force per officer, number of referrals, and arrest/citation outcomes for cite and release eligible interactions will be tabulated. Paired t-tests will compare arrests, citations, and mental health outcomes (DASS-21, MIDS, PCL-5) between intervention and control participants, with median MIDS and PCL-5 scores reported to summarize moral injury and stress, respectively.

28.0 Provisions to Monitor the Data to Ensure the Safety of Subjects (for more than minimal risk studies only - if this is a minimal risk study, check N/A ☒ and skip to the Provisions to Protect the Privacy Interests of Subjects section)

28.1 *N/A*

29.0 Provisions to Protect the Privacy Interests of Subjects

29.1 Identifying information will be collected for the purpose of scheduling interviews and focus groups by a trained study team member. Voice recordings will be used during the interviews and focus groups and then transcribed by a professional transcription service. Upon completion of the interviews and focus groups, all contact information will be removed, and voice recordings will be stored separately from the deidentified information. No participants' identifying information will be provided to the UCF researcher. Data

from the study will be reported in scholarly outputs in the aggregate, not by individual. Pseudonyms will be used in academic publications, and participants have a choice to participate and withdraw at any time.

29.2 If a participant feels that they are not at ease, they will be reminded that participation is voluntary and that they do not have to complete the study.

29.3 Information about subjects will be shared in research team meetings and via Microsoft OneDrive, which will house participants' interview transcripts, survey results, and informed consent documents.

30.0 Multi-Site Research (If not a multi-site research study, check N/A ☒)

30.1 *N/A*

Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

UNIVERSITY OF CENTRAL FLORIDA

Title of Study[1]: Improving Officer and Civilian Health through Macro-level Changes in North Texas: Phase 2: Intervention Pilot Testing

Principal Investigator(s): Linda Fulmer, Executive Director at Healthy Tarrant County Collaboration (HTCC)
Nolan Kline, Associate Professor at University of Central Florida

Key Information: The following is a short summary of this study to help you decide whether or not to be a part of this study. More detailed information is listed later on in this form.

Why am I being invited to take part in a research study?
We invite you to take part in a research study because you are 18 years or older, speak English, and have experience with our emergency room department in a place that has changed police practices.

Why is this research being done?
The purpose of this study is to complete a pilot intervention study focused on feasibility, acceptability, and appropriateness of three separate law enforcement intervention activities. The objective is to determine the acceptability and feasibility of an Alternate Response Unit for behavioral health 911 calls, emphasizing stakeholder inquiry to assess appropriateness and potential impact in Tarrant County, Texas. There may be benefits from this research, including improving the relationship between law enforcement officers and members of the community.

How long will the research last and what will I need to do?
We expect that you will be in this research study for one hour during the interview.
You will be asked to share your experiences as ER staff in your current department.

More detailed information about the study procedures can be found under ***"What happens if I say yes, I want to be in this research?"***

Is there any way being in this study could be bad for me?
The risks to participation are minimal and do not exceed the risks associated with activities found in daily life. You may be asked some questions that make you uncomfortable. You may choose not to answer some questions or stop participating at any time.

Will being in this study help me in any way?
There are no benefits to you from your taking part in this research. We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits

[1] This template satisfies AAHRPP elements I.1.G, I.4.A, I-9, II.3.C-II.3.C.1, II.3.E, II.3.F, II.4.B, III.1.F, III.1.G

include helping the scientific communities gain a greater understanding about law enforcement relationships in this community.

What happens if I do not want to be in this research?
Participation in research is completely voluntary. You can decide to participate or not to participate.

Detailed Information: The following is more detailed information about this study in addition to the information listed above.

What should I know about a research study?
- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

Who can I talk to?
If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team: at 817-451-8740 or lindafulmer@sbcglobal.net or nolan.kline@ucf.edu.

This research has been reviewed and approved by an Institutional Review Board ("IRB"). You may talk to them at 407-823-2901, irb@ucf.edu, or use the QR code below to complete a feedback form if:
- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your child's rights as a research subject.
- You want to get information or provide input about this research.

I have read the above section, ***Who can I talk to?,*** and have been provided with the researcher's contact information.
☐ Yes
☐ No

How many people will be studied?
We expect 110 people will be in this research study.

What happens if I say yes, I want to be in this research?
If you decide to participate in this study, you will be asked to answer a few questions to determine if you're eligible to participate in the study. That will take no more than 5 minutes to complete. The screening questions will be completed online via your phone, computer, or other device.

Then, if you are eligible to participate, you will be asked to complete an interview that will last no longer than one hour. The interview will take place at a location of your choosing. The interview will cover questions about your encounters with law enforcement, professional practice, and the implementation of alternate response units.

With your permission, we would like to audio record the conversation. If you do not want to be recorded, you will still be able to be in the study. Discuss this with the researcher or a research team member. If you are audio recorded as part of this study, the recording will be kept in a locked, secure place. We will not record any personally identifying information other than your voice, and you can choose for us to turn off the recorder at anytime. Recordings will be sent to a professional transcription company for verbatim transcription. The transcriptions and the audio will be shared with researchers for analysis, but no information identifying you will be shared. The recording will be erased or destroyed 5 years after the completion of this study per University of Central Florida policy.

What happens if I say yes, but I change my mind later?
You can leave the research at any time it will not be held against you. If you decide to leave the research, contact the investigator. To withdraw from this study, you will need to notify a member of the research team. Your data that has already been collected will be stored separately from the final data analysis.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study records to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of this organization.

Your information collected as part of this research will not be used or distributed for future research studies, even if all of your identifiers are removed.

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. This means that the researchers cannot release or use information, documents, or samples that may identify you in any action or suit unless you say it is okay. They also cannot provide them as evidence unless you have agreed. This protection includes federal, state, or local civil, criminal, administrative, legislative, or other proceedings. An example would be a court subpoena.

There are some important things that you need to know. The Certificate DOES NOT stop reporting that federal, state or local laws require. Some examples are laws that require reporting of child or elder abuse, some communicable diseases, and threats to harm yourself or others. The Certificate CANNOT BE USED to stop a sponsoring United States federal or state government agency from checking records or evaluating programs. The Certificate DOES NOT stop disclosures required by the federal Food and Drug Administration (FDA). The Certificate also DOES NOT prevent your information from being used for other research if allowed by federal regulations.

Researchers may release information about you when you say it is okay. For example, you may give them permission to release information to insurers, medical providers or any other persons not connected with the research. The Certificate of Confidentiality does not stop you

from willingly releasing information about your involvement in this research. It also does not prevent you from having access to your own information.

I have read the above section, ***What happens to the information collected for the research?***, and have been provided information about how my data will be managed and who will have access to the data.

☐ Yes

☐ No

What else do I need to know?

This research is being funded by the National Institutes of Health.

Signature Block for Capable Adult

Your signature documents your permission to take part in this research.

Signature of subject	Date
Printed name of subject	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	

Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

Statistical Analysis Plan (SAP)

1. Administrative Information

Working Title:	Improving Officer and Civilian Health through Macro-level Changes in North Texas: Phase 2: Intervention Pilot Testing
Principal Investigator:	Linda Fulmer Healthy Tarrant County Collaboration Phone number: Lindafulmer@sbcglobal.net Nolan Kline, PhD, MPH, CPH Population Health Sciences Phone number: 407-266-1258 Nolan.kline@ucf.edu
Data Analyst:	Grace Maynard Yates
SAP Authors	Whitney Margaritis, M.A. & Grace Yates

List of Abbreviations

ARU	Alternate Response Unit
C/R	Cite and Release
CAD	Computer Aided Dispatch
EO	Elected Official
HTCC	Healthy Tarrant County Collaboration
LEO	Law Enforcement Officer
TCSO	Tarrant County Sheriff's Office

2. Introduction

2.1. Background and Rationale

This pilot study is informed by our preliminary (Phase 1) study.

During study Phase I, we completed an epidemiological assessment of arrest data across law enforcement agencies in Tarrant County. We also completed semi-structured interviews with EO (n=13), residents who have experienced contact with law enforcement (n=21), and law enforcement agency leaders and patrol officers (n=18). Lastly, we completed surveys with residents (n=31) who have directly experienced arrests personally or in their neighborhoods.

Our epidemiological assessment included a review of publicly available arrest data from law enforcement agencies in Tarrant County, Texas. Our

assessment revealed disproportionately high rates of arrests among certain populations that would be eligible for citation instead of arrest—otherwise known as cite and release eligible offenses. These arrests were concentrated largely at retail outlets (Walmart) for low-level thefts (<$750).

Interview data were analyzed thematically using MaxQDA qualitative data analysis software. We used a combination of inductive and deductive coding techniques. Deductive codes were guided by the PRECEDE-PROCEED model, with particular attention to law enforcement and civilian relationship changes that were perceived as 1) most important and 2) most feasible. Inductive codes were developed upon reading interview transcripts and detecting patterns in respondents' interview question answers. As preliminary analysis of these data was underway, we conducted forums with residents and LEOs separately to identify the validity of the emerging themes. These forums also generated potential intervention activity ideas, as well as collected possible implementation strategies. Themes from Phase 1 data analysis and forums included desire for change around three key areas:

1. **Trainings**. Residents support training as a way to mitigate unconscious judgements while also questioning the ability of training to address all issues. Residents also described a limited understanding of what types of training officers complete. Officers expressed training as expansive but frequently repetitive, and in some ways, insulting (e.g., feeling as if being called racist).

2. **Expanding Discretion by Citing Instead of Arresting**. Both residents and LEOs expressed an opportunity for officers to use C/R rather than arrest. There was a difference, however, in types of arrests and individuals thought to deserve a citation over an arrest. For example, some officers said theft of any kind, including at a store, deserved arrest, which conflicts with resident perspectives. Additionally, some officers cited the paperwork burden of C/R as a deterrent. Specifically, C/R requires completing hard copy forms that then must be duplicated electronically and filed manually, making this a burdensome option. Notably, Tarrant County invested in digitizing all work processes approximately 20 years ago to promote efficiency, which makes the continued use of hard-copy forms for C/R appear to be an administrative oversight.

3. **Moral Injury.** Officers and EO explained that when officers engage in activities that conflict with their overall sense of morality, such as using force, they often experience moral injury. Moral injury is measured as both an exposure and set of symptoms. As an exposure, moral injury is measured through shame; guilt; loss of trust in self, others, and institutions; existential conflict; depression; anxiety; and social withdrawal.

Guided by the PRECEDE-PROCEED model of intervention development, we created a prioritization of change matrix, a visual tool for organizing proposed changes to ensure focus remains on the most impactful. Changes were organized in the matrix by urgency and importance. Based on these findings, the Phase 2 pilot intervention was designed with strategic goals intended to 1) reduce use of force risk via an early alert system to support supervisor check-ins of flagged officers, 2) increase officer choosing C/R instead of arrest, and 3) reduce moral-injury related symptoms and improve health outcomes (specifically, depression and anxiety) for police officers. These goals correspond to law enforcement as a hazardous occupation for officers and civilians.

By addressing these strategic areas, we expect the proposed intervention will see reduced injuries from use of force, increased use of C/R instead of arrest, increased distribution of citation resource materials, and reduced reports of depression and anxiety among officers. Additionally, if these efforts are successful as expected, we anticipate secondary outcomes to include cost-savings and improved response time.

2.2. Stakeholder Advisory Group Input:

We will organize a Stakeholder Advisory Group (SAG). The SAG includes law enforcement representation and representation by previously incarcerated individuals. This group will provide input on final drafts of data collection instruments, be a sounding board for any potential problems, and propose alternative approaches.

2.3. Benchmark Analytics

We will partner with law enforcement analytics service, Benchmark Analytics, to retrieve existing data about officer work and wellbeing. Benchmark Analytics is an officer management system that works toward organizational health through evidence-based analytics. Benchmark Analytics uses data science techniques to gather aggregate data on

individual officers to predict potential outcomes, such as use of force, and potential mental health needs.

2.4. Aims and Hypotheses

This study advances the following aims:

Aim 1a: Determine the acceptability and feasibility of using a data analytics system to reinforce officers' de-escalation training, avoid using force, increase cite and release when eligible, and increase dissemination of citation resource materials to residents.

Aim 1b: Assess the acceptability and feasibility of digitizing cite and release paperwork to reduce arrests for low-level offenses where arrests are not statutorily required.

Aim 1c: Determine the acceptability and feasibility of an ARU for behavioral health 911 calls, emphasizing stakeholder inquiry to assess appropriateness and potential impact.

Aim 2a: Pilot the data analytics system and evaluate outcomes related to **use of force**, **citations** instead of arrests, and **citation resource materials**, assessing how implementation processes influence effectiveness.

Aim 2b: Pilot digitized cite & release paperwork, evaluating **arrest and citation** outcomes, with a focus on workflow adoption and officer behavior change.

Aim 2c: Reduce officers' **moral injury** by empowering citation over arrest for eligible civilians, examining how the intervention and support processes affect individual well-being (**job stress**, **depression, and anxiety**).

A condensed version of Aims 1 and 2 and their corresponding hypotheses are provided in Table 1.

Table 1: Aims 1 and 2 and Corresponding Hypotheses.

Aims	**Hypotheses**
Aim 1 Acceptability/feasibility of use of data analytics system (a), digitizing cite and release (C/R) paperwork (b), and an Alternate Response Unit (ARU) (c).	**Hypothesis 1** The implementation of data analytics system, digitization of C/R paperwork, and implementation of an ARU are acceptable and feasible to participants.
Aim 2	**Hypothesis 2**

Pilot data analytics system (a) and digitized C/R paperwork (b) and evaluate outcomes. Evaluate outcomes on officer well-being (c).	The intervention will result in increased consultation of at-risk officers for early intervention, reduced use of force, increased citation, decreased arrest, and increased dissemination of citation resource materials.

3. Study Methods

3.1. Study Design

This pilot study assesses acceptability, feasibility, and appropriateness of implementing 1) a data analytics system in law enforcement agencies, 2) digitizing cite and release paperwork, and 3) an alternate response unit for social and behavioral health calls. This study will evaluate four primary pathways for change.

- **Data analytics system: Benchmark Analytics** will be utilized in collaboration with the Tarrant County Sheriff's Office (TCSO) to customize responses to officers exhibiting patterns of behavior that have been associated with increased use of force, poor officer mental health, or behavior inconsistent with agency policy.

Outcome measures: use of force, workplace stressors, civilian complaints, citations, and arrests (information provided by third party source); implementation outcomes will be captured as well.

- **Digitized cite and release paperwork:** Simplifies administrative work (e.g., moving paperwork from paper to electronic) and engages agency leadership to emphasize the benefits of citations for eligible offenses, including theft.

Outcome measures: citation-eligible arrests; officers' cite-and-release knowledge, use, readiness, and confidence; workflow efficiency; and perceived workflow fit and organizational support.

- **Empowering officers to use discretion in arrests:** Encourages officers to cite rather than arrest when eligible.

Outcome measures: self-reported anxiety, depression, occupational stress, and moral injury.

- **Alternative Response Unit (ARU):** The ARU represents a novel, community-centered approach to handling 911 calls for behavioral health concerns. Because the ARU represents a departure from traditional law enforcement interventions, further inquiry within the residents is needed to understand its relevance, appropriateness, and potential impact. As such, this study will focus only on testing the acceptability and feasibility of the ARU.

Outcome measures: This item will not be piloted.

3.2. Study Population

The population includes EO, LEO, District Attorneys, 9-1-1 dispatchers, emergency department staff, behavioral health care workers, and residents.

3.3. Inclusion and Exclusion Criteria

3.3.1. Screening

Interview participants will be screened for eligibility using a short eligibility screener survey that will take approximately 5 minutes to complete. The screening survey will be administered orally by the individual collecting interview data. Interview participants will include (Aim 1 a/b/c): residents (n=20), elected officials (n=12), and district attorneys (n=12) and (Aim 1c only): emergency department staff (n=12), 9-1-1 dispatchers (n=12), behavioral health care workers (n=12).

Focus group participants for Aim 1 a/b/c will include TCSO patrol officers (n=60). Eligibility will be determined based on the Tarrant County Sheriff's Office, where agency leadership has agreed to assist with recruitment. Officers will be recruited via their commanding officers.

Aim 1a/b LEO survey participants' (n=60) eligibility will be determined based on the Tarrant County Sheriff's Office, where agency leadership has agreed to assist with recruitment. Officers will be recruited via their commanding officers. Aim 1a survey will assess feasibility and acceptability of Benchmark Analytics and Aim

1b survey will assess the current cite and release process (non-digitized) and officers' citation beliefs and practices.

Aim 2a survey will include TCSO patrol officers (n=60) in the pilot using Benchmark Analytic; this is an uncontrolled trial with no control group for comparison. Officers will be recruited via their commanding officers.

Aim 2b survey will be distributed to all TCSO patrol officers (n=60) to assess the pilot intervention (digitization of the cite and release process) and its impact on citation practices. Officers will be recruited via their commanding officers.

Aim 2c survey will be distributed to all TCSO patrol officers (n=60). This survey will assess officers prior to and during implementation. Officers will be recruited via their commanding officers.

Respondents to surveys will be excluded if they are considered to be automated bots attempting to take the survey and not real, living participants. In recent years, bots infiltrating surveys has become a growing concern in human subjects research. To prevent bots from taking the survey, we will enable features in Qualtrics that will allow us to determine if bots are present.

3.3.2. Eligibility

Inclusion criteria:

1. All Aims: Individuals who speak English.
2. All Aims: Individuals who are at least 18 years or older.
3. Aim 1a, Aim 1b, Aim 2a, Aim 2b, Aim 2c: LEO from the Tarrant County Sheriff's Department.
4. Aim 1b: Staff members in the Tarrant County District Attorneys in office who have been in their role for one year or longer.
5. Aim 1c: Hospital emergency department staff who have been in their position for at least one year.
6. Aim 1c: EO who have been in their position for at least one year.
7. Aim 1c: 911 Dispatchers who have been in their position for at least one year.
8. Aim 1c: Tarrant County behavioral health care workers in their position for at least one year.

9. Aim 1a/b/c: Residents of Tarrant County.

Exclusion criteria:

1. All Aims: Individuals who do not speak English.
2. All Aims: Individuals under the age of 18.
3. Aim 1a, Aim 1b, Aim 2a, Aim 2b, Aim 2c: Individuals not currently employed by the Tarrant County Sheriff's Department
4. Aim 1b: District Attorneys outside of Tarrant County or who have not been in their position for at least one year.
5. Aim 1c: EO who have not been in their position for one year or work outside of Tarrant County.
6. Aim 1c: Hospital emergency department staff who have not been in their position for at least one year.
7. Aim 1c: 911 Dispatchers who have not been in their position for at least one year.
8. Aim 1c: Behavioral health care workers who do not work in Tarrant County or who have not been in their position for at least one year.
9. Aim 1a/b/c: Residents outside of Tarrant County.

3.4. Recruitment Methods

Recruitment for all Aims will be completed through snowball and convenience sampling through various methods (i.e., advisory board members and community champions via email and word of mouth).

4. Measures and Analysis

4.1. Primary Analysis

Aim 1: Acceptability/feasibility of use of AI, digitizing cite and release paperwork (C/R), and an Alternate Response Unit (ARU).

Qualitative Analysis. Transcriptions from interviews with key stake holders in Tarrant County (district attorneys [n=12]; behavioral health care workers [n=12]; emergency department staff [n=12]; 911 dispatchers [n=12]; EO [n=12]; residents who have encountered law enforcement [n=20]) and focus groups (LEO) will be analyzed through inductive reflexive thematic analysis (Braun & Clarke 2022) and deductive analysis according to the aims of phase 4 and 5 of the precede-proceed model. Deductive codes will include predisposing factors; enabling factors; reinforcing factors; feasibility, sub-categorized by facilitators and barriers; acceptability, sub-categorized by facilitators and barriers; and appropriateness, sub-categorized by

facilitators and barriers. Inductive analysis will establish broad themes in the data while deductive analysis will identify the key areas of focus, barriers, and levers for the implementation of each proposed intervention (Benchmark, C/R, ARU).

We will utilize NVivo 15 software for qualitative analysis and a dual coder approach to preserve rigor in the coding process. Results will be reviewed by the Stakeholder Advisory Group before dissemination.

Survey Measures. Primary implementation outcomes for **Aim 1a** include perceived feasibility, acceptability, appropriateness, implementation fit, trust in implementation, willingness to engage in supervisor check-in conversations, perceived organizational readiness for implementation, perceived compatibility with existing supervisory practices, and beliefs regarding Benchmark Analytics as a tool for officer development rather than punishment. **Aim 1b** will assess officers' current citation and cite and release practices, including awareness and knowledge of cite and release eligibility, utilization of cite and release processes, readiness and confidence to use cite and release, perceived workflow fit and organizational support, workflow efficiency, stage of adoption of alternatives to arrest, willingness to distribute citation resource materials, and overall perceptions of cite and release.

Survey Analysis. Surveys will be self-administered electronically using Qualtrics electronic data capture tools hosted at the University of Central Florida. Because several survey items use conditional branching, analyses for these measures will be restricted to respondents meeting the corresponding eligibility criteria.

Descriptive statistics (i.e., means, standard deviations, medians, ranges, frequencies, and percentages) will be calculated to summarize implementation outcomes from the **Aim 1a** and **Aim 1b** survey.

Secondary Analysis

Aim 2: Pilot AI software and digitized C/R paperwork and evaluate outcomes. Evaluate outcomes on officer well-being.

Table 1. Overview of Pilot Measures

Measures	Data Collection	Time Point	Data Elements
Perceptions of Benchmark Analytics	Survey (2a)	Cross-sectional survey	Measures will include acceptability, appropriateness, fidelity of supervisor check-in conversations, perceived value,

			perceived impact, adoption, trust in implementation, implementation barriers/facilitators, and sustainability.
Workflow /Digitization	Survey (1b: baseline and 2b: post)	Baseline/ Follow-up (after digitization)	Process outcomes will assess awareness and knowledge of cite and release eligibility, utilization of cite and release processes, readiness and confidence to use cite and release, workflow efficiency, perceived workflow fit and organizational fit, stage of adoption of alternatives to arrest, willingness to distribute citation resource materials, and overall perceptions of cite and release.
Benchmark Analytics Check-in Conversation Fidelity	Benchmark Analytics	Throughout intervention implementation	Audit trail to track Benchmark implementation of conversations between commanding officers and patrol officers.
Use of force incidents	Benchmark Analytics (2a)	Retrospective & throughout intervention implementation	Use of force data
Civilian Complaints	Benchmark Analytics (2a)	Retrospective & throughout intervention implementation	Internal affairs data
Citations	Benchmark Analytics (2a/b)	Retrospective & throughout intervention implementation	CAD data
Citation-eligible Arrests	Benchmark Analytics (2a/b)	Retrospective & throughout intervention implementation	Arrest data
Officer Well-being	Survey (2c)	Baseline/ Follow-up (estimated 6 month)	Anxiety (GAD-7), depression (PHQ-9), moral injury (MIES-LE), and occupational stress (PSQ-OP)

C/R: Cite and release, CAD: Computer aided dispatch

Aim 2a.

Intervention Measures. We will gather information related to check-in conversations fidelity, citations, citation-eligible arrests, civilian complaints, and use of force incidents.

Intervention Analysis. A third party (Benchmark Analytics) will provide retrospective and prospective administrative data, which will be summarized descriptively to assess implementation outcomes.

Survey Measures. Primary implementation outcomes include adoption, acceptability, fidelity of supervisor check-in conversations, appropriateness, perceived value of supervisor check-in conversations,

perceived value of Benchmark Analytics, perceived impact on supervision and officer performance, trust in implementation, and sustainability. In addition, the survey will identify organizational barriers and facilitators.

Survey Analysis. Surveys will be self-administered electronically using Qualtrics electronic data capture tools hosted at the University of Central Florida. Because several survey items use conditional branching, analyses for these measures will be restricted to respondents meeting the corresponding eligibility criteria.

Descriptive statistics (means, standard deviations, medians, ranges, frequencies, and percentages) will be used to summarize implementation outcomes. Because this is a pilot implementation study, analyses will focus on estimation of implementation outcomes rather than formal hypothesis testing.

Aim 2b.

Intervention Measures. We will gather information related to citations and citation-eligible arrests.

Intervention Analysis. A third party (Benchmark Analytics) will provide retrospective and prospective administrative data, which will be summarized descriptively to assess implementation outcomes.

Survey Measures. After the workflow changes have been implemented and utilized, we will re-assess outcomes related to awareness and knowledge of cite and release eligibility, utilization of cite and release processes, readiness and confidence to use cite and release, workflow efficiency, perceived workflow fit and organizational support, stage of adoption of alternatives to arrest, willingness to distribute community citation resource materials, and overall perceptions of cite and release.

Survey Analysis. Surveys will be self-administered electronically using Qualtrics electronic data capture tools hosted at the University of Central Florida. Because several survey items use conditional branching, analyses for these measures will be restricted to respondents meeting the corresponding eligibility criteria.

Descriptive statistics will be calculated for all measures. Changes in descriptive statistics between baseline (1b survey) and follow-up (2b survey) will be summarized for all implementation measures. Because this is a pilot feasibility study with a relatively small sample size, emphasis will be placed on estimation of change rather than formal hypothesis testing.

Aim 2c. Officer well-being

Survey Measures. Primary well-being outcomes include anxiety (GAD-7), depression (PHQ-9), moral injury (MIES-LE), and occupational stress (PSQ-OP).

Survey Analysis. Surveys will be self-administered electronically using Qualtrics electronic data capture tools hosted at the University of Central Florida. Scale scores will be calculated according to published scoring procedures when sufficient item responses are available.

The following outcome measures will be scored in accordance with their published guidelines and adapted from the corresponding validated instruments:

- **Generalized Anxiety Disorder-7 (GAD-7):** Total scores will be calculated by summing responses to the seven items scored from 0 (Not at all) to 3 (Nearly every day), yielding a total score ranging from 0 to 21. Higher scores indicate greater anxiety symptoms.
- **Patient Health Questionnaire-9 (PHQ-9):** Total scores will be calculated by summing responses to the nine items scored from 0 (Not at all) to 3 (Nearly every day), yielding a total score ranging from 0 to 27. Higher scores indicate greater depressive symptoms.
- **Moral Injury Events Scale for Law Enforcement (MIES-LE):** Total scores will be calculated by summing item responses scored from 1 (Strongly disagree) to 6 (Strongly agree), with higher scores indicating greater moral injury exposure and impact.
- **Operational Police Stress Questionnaire (PSQ-OP):** Total scores will be calculated by averaging or summing responses across items scored from 1 (No stress at all) to 7 (A lot of stress), consistent with published scoring procedures. Higher scores indicate greater occupational stress.

For each well-being outcome measure, change scores will be calculated as post-intervention score minus baseline score. Results will include baseline and post-intervention means and standard deviations, mean change scores, and 95% confidence intervals. Given the pilot nature of the study and anticipated sample size, analyses will emphasize estimation of change and implementation outcomes rather than formal hypothesis testing.

5. Registration and Study Reporting

5.1. Preregistration

The study protocol and statistical analysis plan will be registered on ClinicalTrials.gov.

5.2. Study Reporting

The study will be monitored by the University of Central Florida Internal Review Board (UCF IRB) as well as the National Institutes of Health (NIH) on a continual basis.

6. Revision History

Version	Date	Comments/rationale	Timing
1.0	This version was locked on August 21, 2026.	Original DAP	Prior to data access

Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

Police Practice and Research
An International Journal

ISSN: 1561-4263 (Print) 1477-271X (Online) Journal homepage: www.tandfonline.com/journals/gppr20

Development and initial psychometric evaluation of an adapted Moral Injury Events Scale for Law Enforcement (MIES-LE)

Gabrielle O'Keefe, Rachel Cusatis, Staci Young, Katinka Hooyer, Constance Kostelac & Matthew Dellinger

To cite this article: Gabrielle O'Keefe, Rachel Cusatis, Staci Young, Katinka Hooyer, Constance Kostelac & Matthew Dellinger (06 Apr 2026): Development and initial psychometric evaluation of an adapted Moral Injury Events Scale for Law Enforcement (MIES-LE), Police Practice and Research, DOI: 10.1080/15614263.2026.2652253

To link to this article: https://doi.org/10.1080/15614263.2026.2652253

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POLICE PRACTICE AND RESEARCH
https://doi.org/10.1080/15614263.2026.2652253

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RESEARCH ARTICLE

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Development and initial psychometric evaluation of an adapted Moral Injury Events Scale for Law Enforcement (MIES-LE)

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ABSTRACT

Moral injury (MI) occurs in a variety of serving occupations including among law enforcement professionals (LEP). MI was originally described among military veterans as distress arising from a violation of one's morals and values. Historically, MI measurement was not informed by the perspectives of those who experience it, and validation of measures was limited to military or veteran populations. Informed by a grounded theory of MI among LEP, we adapted a military MI measure for LEP. Using exploratory factor analysis (EFA), we examined the factor structure of the Moral Injury Events Scale for Law Enforcement (MIES-LE) and propose a 6-factor, 19-item MIES-LE: direct and indirect betrayals, transgressive acts, witnessed transgressions, weathering, and global perceptions of trust. The MIES-LE demonstrates construct validity, internal consistency (α = 0.84), and is a parsimonious measure to assess the exposure to potentially morally injurious experiences and MI distress among LEP in research and applied settings.

ARTICLE HISTORY
Received 15 November 2024
Accepted 24 March 2026

KEYWORDS
Moral injury; police; exploratory factor analysis; trauma

Introduction

Moral injury

The concept of moral injury has existed for millennia: a betrayal of what's right by someone who holds legitimate authority in a high-stakes situation, typically in a military context (Shay, 2014). However, the term moral injury was not coined until the early 1990s. In the intervening 30 years, our understanding of moral injury has evolved to include non-betrayals of values (e.g., 'transgressions') and moral injury in civilian populations. Litz et al. (2009, p. 700) propose a broader definition of moral injury than Shay, characterizing moral injury as distress arising from 'perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held beliefs and

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*RTI International: first author completed research at Medical College of Wisconsin and completed submission process while employed at RTI.

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expectations': a definition used in most of the extant moral injury research. Litz and colleagues (Litz & Walker, 2025, p. 259; Litz et al., 2022) have subsequently proposed an expanded definition of moral injury to define moral injury as a clinical problem – characterized by functional impairment – across six major domains, including (a) perceptions of self and others, (b) moral thinking, (c) social behavior, (d) moral emotions and moods, (e) self-harm and self-sabotage, and (f) changes in beliefs about meaning and purpose. Despite growing interest over the past decade in characterizing and treating moral injury, a consensus definition of moral injury does not currently exist. Challenges to generating a comprehensive understanding of moral injury include a lack of a 'gold-standard' measure of moral injury, the predominance of moral injury research in military contexts (versus nonmilitary/civilian populations), and a failure of researchers to include the perspectives of individuals exposed to potentially morally injurious experiences (PMIEs), who experience morally injurious feelings, vis-à-vis qualitative methods (Griffin et al., 2019; Litz & Kerig, 2019; Litz et al., 2022, p. 2). Outcomes of moral injury include feelings of guilt, shame, anger, and hostility (Bryan et al., 2018; Litz & Walker, 2025).

While substantial efforts have been made to distinguish PTSD and moral injury as unique outcomes (e.g., Litz et al., 2022), there is inherently some conceptual overlap between moral injury and PTSD symptomology, namely reexperiencing and avoidance of memories of the stressor (whether PMIE/moral stressor or DSM-5 Criterion A traumatic event; Litz & Walker, 2025). Consequently, moral injury exposures and symptoms, measured in a variety of ways, have been consistently associated with mental health morbidities within military populations, most notably PTSD and depression (Bryan et al., 2018; Griffin et al., 2019; Litz & Walker, 2025; Nash et al., 2013; Norman et al., 2024).

Deeply held beliefs of right and wrong – what is moral or immoral – is socially constructed with biological underpinnings (Haidt, 2012; Litz, 2025). These moral foundations are reinforced through kinship-type relationships and can be described as 'Us Group' (kin) and 'Other Group' (non-kin); individuals who fail to meet the moral expectations of the Group (e.g., a family, community, faith group, culture, etc.) are ostracized Other, which may result in moral injury (Litz, 2025). The adversity of rejection and resultant social pain may be other-facing (e.g., withdrawal due to broken trust in peers or humanity) or individualizing (e.g., engaging in self-stigmatizing behaviors out of shame) (Litz, 2025; O'Keefe, Young, et al., 2026). Suggestions to reduce social distress by engaging in activities that reinforce social bonds and connections with morals (e.g., Evans et al., 2023) is reminiscent of the construct of resilience. Like moral injury, no consensus definition of resilience exists (Southwick et al., 2014), though current scholarship suggests resilience is a multidimensional construct comprising the individual abilities, interpersonal skills, and social resources necessary to adapt to adversity (Liu et al., 2017). Thus, current interventions can be understood as leveraging interpersonal sources of resilience to reduce functional impairment and facilitate moral repair.

Moral injury in law enforcement

Numerous recent systematic and concept reviews of moral injury, occupational moral injury, and moral injury in civilian (nonmilitary) populations have concluded that law enforcement is a population for which there is a poor understanding of how moral injury

is experienced and manifests (Koenig & Al Zaben, 2021; Lentz et al., 2021; Williamson et al., 2018). Scholarship of moral injury in policing has been largely theoretical rather than empirical, though limited extant evidence suggests moral injury is a psychosocial burden on law enforcement professionals (LEP) warranting further exploration.

Much of the empirical literature on moral injury among LEP has focused on subspecialties that are repeatedly exposed to acute PMIEs, such as child abuse investigators, detectives investigating child sexual abuse material (CSAM) and those in Internet Crimes Against Children (ICAC) units (Conway et al., 2024; Doyle et al., 2021; Tapson et al., 2022). For example, Conway et al. (2024) found betrayal-related moral injury was associated with PTSD symptomology, depression, anxiety, and reduced wellbeing among UK-based police officers and staff exposed to CSAM, and greater CSAM exposure predicted moral injury. Less attention has been paid to understanding moral injury among a general population of LEP. Similarly, when Papazoglou et al. (2020) explored the relationship between moral injury and PTSD in a Finnish sample of police, they found increased moral injury predicted PTSD ($\beta = 0.20$, $p = 0.001$), specifically higher avoidance, hyperarousal, and re-experiencing symptom clusters. In an early qualitative example of LEP moral injury scholarship, McCormack and Riley (2016) found moral injury arose from a gradual erosion of trust in one's profession, institution, and society over a sustained period of time among Australian former police medically discharged from service due to PTSD. In the first, qualitative phase of the present study, we similarly identified a cumulative element to LEP moral injury: 'weathering' (O'Keefe, Young, et al., 2026). These findings juxtapose traditional conceptualizations of potentially morally injurious events (PMIE) as episodic (Griffin et al., 2019; Litz & Walker, 2025). Consequently, we reconceptualized potentially morally injurious *events* as *experiences* (O'Keefe, Young, et al., 2026). In this text, PMIEs refer to potentially morally injurious experiences to reflect how study participants characterized moral injury: inclusive of both specific events and accumulated experiences.

Characterizing moral injury in LEP

In the first phase of the present study, we sought to contribute to the understanding of moral injury in law enforcement using a qualitative, grounded theory approach to characterize moral injury in LEP. Participants described a process of sustaining and recovering from moral injury, the key points of which were developed to form the study's themes: (1) professional values (e.g., occupational culture, duties, laws, rules, and standards) formed the primary basis for the foundation of (im)moral behavior in a policing setting; (2) three types of PMIEs included transgressions of professional values, betrayals (interpersonal direct/indirect and institutional), and 'weathering' characterized by chronic exposure to moral stressors; (3) reported outcomes were callousness, cynicism, jadedness, distrust, and the moral emotions of guilt, shame, and anger; (4) coping strategies can be adaptive (e.g., seeking reconnection with values outside of work as a way of 'grounding' oneself in one's morals) or maladaptive (e.g., avoidance of moral feelings through drinking); and (5) moral repair involved forgiveness (of self or others), leveraging the resilience process to repair broken trust, and engaging in activities foster a stronger sense of alignment with one's professional (e.g., professional codes of conduct) and personal (e.g., religious, familial, personal) sources of morality (O'Keefe, Young,

et al., 2026). Based on the analysis, including input from LEP vis-à-vis synthesized member checking (Birt et al., 2016), we define moral injury in law enforcement as psychological, emotional, existential, spiritual, or social distress that arises from the acute or chronic violation, betrayal, or challenging of, or disconnection from, one's morals and values through action or inaction by oneself or others (O'Keefe, Young, et al., 2026).

Compared to historical (e.g., Shay, 2014) and contemporary (e.g., Litz & Walker, 2025) commonly cited conceptualizations of moral injury, this characterization proposes the concept of weathering: a cumulative or chronic component within the law enforcement context. This dimension should be investigated in other populations. Understood within the context of the moral injury continuum proposed by Litz and Kerig (2019) and Litz and Walker (2025), we propose that morally injurious feelings may result from chronic and intense moral challenges and stressors in addition to the established distress arising from concrete or acute potentially morally injurious events. Litz and Walker (2025) conceptualized a continuum where ubiquitous, nonepisodic moral challenges may result in low-grade moral frustrations, moral stressors are traditional, episodic PMIEs that are distinguished only from morally injurious events in severity and intensity, and morally injurious events which result in functional impairment as described in their revised definition. LEP in the qualitative arm of this study, however, understood their responsibility as responding to the moral stressors and morally injurious events of others, in addition to managing their own moral stressors and morally injurious events (O'Keefe, Young, et al., 2026). In other words, whereas Litz and Walker's (2025) framework proposes a continuum based on severity and functional impact, study participants reported that frequency of PMIE exposure also factored in morally injurious outcomes – including anger, disgust, and distrust. As a function of officers' job demands, moral stressors (PMIEs) were experienced as nonepisodic. Furthermore, these results suggest alignment with the extant literature on military moral injury in that moral injury does not result from '*de facto* Criterion A traumas' (Barnes et al., 2019; Bryan et al., 2018; Litz et al., 2022). The results of this first phase informed the modifications made to adapt the Moral Injury Events Scale (Nash et al., 2013) to a law enforcement context, as described in the present article.

Measures of moral injury

Several measures of moral injury exist, and most were developed using military and veteran populations. These measures examine various dimensions of moral injury and are typically divided into two categories: measuring exposure to PMIEs and measuring outcomes (i.e., symptoms) of moral injury (Koenig et al., 2019). Four measures of moral injury, the Moral Injury Events Scale (MIES, Nash et al., 2013), Moral Injury Questionnaire (MIQ, Currier et al., 2015), Deployment Risk & Resilience Inventory (King et al., 2006; Vogt et al., 2008), and Moral Injury Outcomes Scale (MIOS; Litz et al., 2022) measure both PMIE exposure and morally injurious outcomes in military professionals and veterans (Koenig et al., 2019), though exposures and expressions are often conflated (Houle et al., 2024). The MIOS (Litz et al., 2022) is currently considered the most robust measure of moral injury, developed using a mixed-methods approach among armed forces and veteran populations in predominantly Anglosphere countries

(the United Kingdom, the United States, Australia, Canada, and Israel – the exception, administered in Hebrew). However, the MIOS was not available at the time this study was conducted. The MIES, by contrast, was developed iteratively, using a literature review and 'team of experts' to generate an item pool, ultimately generating 11 items capturing perceived violations of morals and betrayals (9 items), and perceptions of trust (2 items) (Nash et al., 2013). The scale uses six Likert-type response options ranging from 1 (strongly disagree) to 6 (strongly agree) and is scored by summarizing across the items; higher scores indicate a greater intensity of events and higher distress, more likely moral injury. The preliminary validation of the MIES included an exploratory factor analysis (EFA) of a sample of Marines and suggested a two-factor structure: perceived transgressions (six items) and perceived betrayals (three items) (Nash et al., 2013). The two items gauging perceptions of trust did not load onto either of the two factors, nor its own factor, and were consequently dropped from the scale, resulting in a 9-item MIES validated in a military population. While the MIES demonstrated construct validity and temporal stability, discriminant validity was not established; future research would be necessary to 'establish the validity of the MIES in the context of the unique syndrome of distress and impairment' brought on by moral challenges (Nash et al., 2013, p. 650). The establishment of moral injury as a syndrome with distinct diagnostic cutoffs remains an open question (Farnsworth et al., 2019; Litz et al., 2022).

The MIES has been used in both military and police populations. Papazoglou et al. (2020), for example, used the MIES to examine moral injury in the Finnish National Police, and Conway et al. (2024) used the MIES in their study focused on CSAM exposure and moral injury. The original MIES, in the military context in which it was validated, had excellent internal consistency with a Cronbach's α of 0.90 (Nash et al., 2013). However, the internal consistency of the MIES in this population was lower compared to the military context, but still within acceptable parameters (i.e., $\alpha > 0.7$), with a Cronbach's α of 0.82 (Conway et al., 2024) and 0.75 (Papazoglou et al., 2020). These differences could potentially be explained by possible differences in how police and military experience moral injury or by cross-cultural differences between study populations (e.g., Americans, Finns, and Brits).

During the analysis phase of the project, a moral injury measure for 'public safety personnel' was published (Moral Injury Assessment for Public Safety Personnel – MIA-PSP, Roth et al., 2022). Using EFA ($N = 270$), the authors propose a three-factor (perpetrations, betrayals, and emotional sequelae), 19-item measure, with a focus on moral injury symptomology. Like most moral injury instruments, the item pool was generated through conversations with 'content experts,' a practice critiqued by moral injury researchers (Litz & Kerig, 2019; Yeterian et al., 2019). By generalizing public safety personnel as the population of focus, the experiences of first responders with vastly different occupational functions and challenges are conflated, limiting utility of the measure in applied settings. There were also several threats to face validity of the MIA-PSP. First, each item begins with 'I am bothered . . . ,' which we found in the first phase of our study to be a potentially stigmatizing phrase to use given the extant stigma of mental health in law enforcement (O'Keefe, Young, et al., 2026; Soomro & Yanos, 2019). Second, the MIA-PSP does not seek to measure the cumulative nature of moral injury in police (as described in McCormack & Riley, 2016; 'weathering'

(O'Keefe, Young, et al., 2026), public safety communicators, firefighters, and paramedics ('frustrating moral expectations,' Smith-MacDonald et al., 2021). Third, several of the items prime participants by giving them an example which may or may not apply to that occupational group and conflating exposures and outcomes ('I am bothered that I chose to protect myself rather than protecting another person (e.g., leaving a house fire)'). Furthermore, there is an item ascertaining fear-based feelings as it relates to moral injury. Current literature suggests moral injury is not a fear-based experience, as demonstrated by studies using numerous methodologies including fMRI studies (Barnes et al., 2019; Bryan et al., 2018). Nevertheless, the MIA-PSP has excellent internal consistency with a Cronbach's α of 0.93, suggesting success at measuring some underlying constructs (Roth et al., 2022).

Extant limitations when applying moral injury measures to law enforcement populations suggest the potential utility of an occupation-specific instrument to measure the moral injury construct. Consequently, we adapted the MIES (Nash et al., 2013) to reflect theory of moral injury as experienced by LEP. We hypothesized additional dimensions of moral injury would be identified in an occupation-specific adaptation, namely weathering as a chronic type of PMIE. Furthermore, with resilience understood as a multidimensional adaptation to adversity (e.g., a trauma or PMIE), we hypothesized individual and social dimensions of resilience would be inversely related to moral injury and lower social resilience scores and higher scores on relational subscales on the MIES-LE (i.e., those relating to betrayal and low trust) would be associated with greater psychological distress as measured by the PCL-5 short form. As described in the following sections, we hypothesized tailoring items to reflect the reported PMIEs and moral injury-related feelings of police (in other words, clarifying item phrasing) would improve the reliability of its measurement.

Project overview: a mixed methods study

This manuscript outlines the intermediate phase of a mixed-methods study to characterize moral injury among LEP and examine the relationships between moral injury and PTSD in which we provide a preliminary validation for an adapted Moral Injury Events Scale for Law Enforcement (MIES-LE). The first phase used in-depth interviews and a grounded theory analysis to characterize moral injury in law enforcement (Charmaz, 1996, 2006; Corbin & Strauss, 1990; Glaser & Strauss, 1967). Full results can be found in O'Keefe, Young, et al. (2026). The second phase used a survey to examine the relationships between moral injury, PTSD, and resilience. Constructs measured included moral injury, PTSD, resilience, critical incident exposure, and demographic and occupational characteristics. The results of this second phase can be found in O'Keefe, Cusatis, et al. (2026). As described there, we hypothesized a positive association between scores on the MIES-LE and posttraumatic stress symptomology. To adequately measure moral injury in LEP for the second phase, we used results from the first phase to adapt an existing measure of moral injury developed in military veteran populations (the MIES; Nash et al., 2013), to LEP.

Methods

Participants and procedure

All study procedures were reviewed and approved by the Medical College of Wisconsin Institutional Review Board. Participants were recruited from 21 law enforcement agencies across Wisconsin. The only inclusion criteria are being a current LEP in Wisconsin. Given the community-generated definition of law enforcement, this included both sworn staff as defined by Wis. Stat. §165.85(2)(c) (2005) and civilian professional (non-sworn) staff. The initial goal was to recruit 300 participants: 100 from urban agencies, 100 from small urban agencies, and 100 from rural agencies. Ultimately, 445 participants responded to the survey. Assigned points of contact (POCs) for each participating agency sent out an e-mail inviting all personnel to participate in the survey. The invitation e-mail included an informational letter for informed consent, a link to the survey, and the contact information of the primary researcher.

Participants completed a self-administered cross-sectional survey using REDCap (Harris et al., 2009), which was expected to take 10–15 min to complete. All survey data were securely stored on the Medical College of Wisconsin Epidemiological Data Research Center server. The survey measures included (1) the Resilience Scale for Adults (RSA-33 item, $\alpha = 0.90$ in this sample; Friborg et al., 2005, 2006), (2) the Moral Injury Events Scale for Law Enforcement (MIES-LE, 20 items) adaptation of the MIES described in this paper, (3) a four-item short form of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5, $\alpha = 0.79$ in this sample; Blevins et al., 2015; Zuromski et al., 2019), (4) the frequency section of the Critical Incident History Questionnaire (CIHQ) (36 items) (Chopko et al., 2015; Weiss et al., 2010), and (5) a brief demographic and occupational characteristics questionnaire (13 items).

Moral Injury Events Scale for Law Enforcement (MIES-LE)

The MIES-LE is, to our knowledge, the first law enforcement-specific scale of moral injury. Modifications to the MIES (Nash et al., 2013) to measure PMIE exposure and morally injurious affect among LEP were based primarily on the characteristics of moral injury identified during the qualitative grounded theory phase of the present study in which we interviewed a diverse sample of 25 LEP (O'Keefe, Young, et al., 2026). We also considered insights from the police moral injury literature available in 2021 and earlier (e.g., McCormack & Riley, 2016; Papazoglou et al., 2020). Like the original MIES, we used a six option Likert-type scale (1, 'Strongly Disagree,' 6 'Strongly Agree') for all but two reverse-keyed items, with higher scores presumably reflecting higher moral injury.

Table 1 illustrates a comparison of the MIES (Nash et al., 2013) and MIES-LE. The 11 items of Nash et al.'s (2013) MIES item pool were used as a baseline for the MIES-LE, including the two reverse-coded items that did not load in military samples: (10) 'I trust my leaders and fellow service members to always live up to their core values' and (11) 'I trust myself to always live up to my own moral code' (Nash et al., 2013). These items were rephrased as trusting 'other law enforcement professionals to always live up to their core values' and ' . . . myself to always live up to my own values.' Other item phrasing modifications reflected how LEP characterize moral injury (O'Keefe, Young, et al., 2026), such as breaking out item 2 (' . . . troubled by having witnessed others' immoral

Table 1. Moral Injury Events Scale (MIES) vs. Moral Injury Events Scale for Law Enforcement (MIES-LE).

Factor	MIES (Nash et al., 2013)	Factor	MIES-LE (current study)	Modifications*
Perceived transgressions	I saw things that were morally wrong	Witnessed transgressions	I have seen things that were morally wrong	W
	I am troubled by having witnessed others' immoral acts		I am troubled by having witnessed the immoral acts of citizens	W/N
			I am troubled by having witnessed the immoral acts of other law enforcement professionals	W/N
	I acted in ways that violated my own moral code or values	Transgressive acts	I acted in ways that violated my own moral code or values	O
	I am troubled by having acted in ways that violated my own morals or values		I am troubled by having acted in ways that violated my own morals or values	O
	I violated my own morals by failing to do something that I felt I should have done		I violated my own morals by failing to do something that I felt I should have done	O
	I am troubled because I violated my morals by failing to do something that I felt I should have done		It bothers me that I violated my own morals by failing to do something that I felt I should have done	W
Perceived betrayals	I feel betrayed by leaders who I once trusted	Direct betrayals	I have had my trust violated by police leaders	W
	I feel betrayed by fellow service members who I once trusted		I have had my trust violated by law enforcement peers	W
	I feel betrayed by others outside the U.S. military who I once trusted		I have had my trust violated by other criminal justice professionals	W
			I have had my trust violated by family or friends	N
		Indirect betrayals	I have seen the integrity of the criminal justice system be violated	N
			My confidence in the criminal justice system sometimes fails	N
			It bothers me when the integrity of the criminal justice system fails	N
		Weathering	Being in law enforcement has shifted my morals and values	N
			I sometimes feel disconnected from my morals and values	N
			I sometimes feel emotionally calloused by my job	N
Trust**	I trust my leaders and fellow service members to always live up to their core values	Global perceptions of trust	I trust other law enforcement professionals to always live up to their core values	W
	I trust myself to always live up to my own moral code		I trust myself to always live up to my own values	W
		**	I am troubled when I feel disconnected from my morals and values	N

*W = item wording; *N* = new item; O = original item wording. **Item(s) did not load in factor analysis.

acts') into two items, comprising peers (' . . . immoral acts of other law enforcement professionals') and the people they serve (' . . . immoral acts of citizens'). All perceived-betrayal-related items were rephrased to respond to participants' stigmatization of the word betrayal. Instead of using the word betrayal, these items described what happens when one is betrayed (i.e., having one's 'trust violated by . . . ').

In the qualitative arm of the overarching study, participants described a sense of moral exhaustion, 'chipping away at [one's] soul,' resulting from repeated exposure to PMIEs (O'Keefe, Young, et al., 2026). This outcome was termed *weathering* to capture the perceived temporal component and wearing at one's sense of morality from the repeated friction of the PMIEs LEP encountered. Four items were added to capture this potential subconstruct, including 'I sometimes feel emotionally calloused by my job,' 'I sometimes feel disconnected from my morals and values,' 'I am troubled when I feel disconnected from my morals and values,' and 'being in law enforcement has shifted my morals and values.' Four betrayal items were added, including one capturing betrayals by family and friends, and institutional betrayals (e.g., 'My confidence in the criminal justice sometimes fails,' 'I have seen the integrity of the criminal justice system be violated,' 'It bothers me when the integrity of the criminal justice system fails'). The three items generated to capture institutional betrayals were hypothesized to load with the other betrayal-related items, and it was hypothesized that they would not all load. As described in the results section, all three items loaded onto their own factor.

Critical Incident History Questionnaire (CIHQ)

The CIHQ is in two parts, estimating frequency by asking about estimated number of exposures to 34 types of critical incidents, and severity by asking participants to rate how difficult it would be for a police officer to cope with each type of incident on a five-option scale ranging from 'not at all' to 'extremely' (Chopko et al., 2015; Weiss et al., 2010). The original CIHQ has 34 items (Chopko et al., 2015; Weiss et al., 2010). We added two additional items, 'being exposed to COVID-19' and 'responding to a riot or other violent civil unrest,' to reflect specific policing challenges faced by LEP in 2020 (Rineer et al., 2021; Stogner et al., 2020). To reduce respondent burden, only the frequency section was included on the survey. The internal consistency of the original 34 items on the CIHQ in this sample was 0.93, higher than the original Weiss et al. (2010) ($\alpha = 0.87$), though did not change with the addition of the items ($\alpha = 0.9310$ without additions versus $\alpha = 0.9314$ with added items).

Statistical analysis and hypothesized outcomes

All analyses were completed using StataSE/15. Exploratory factor analysis (EFA) was used to evaluate the MIES-LE and identify potential additional dimensions of moral injury. Before proceeding with the EFA, we assessed the sample to ensure it was adequate for EFA (e.g., KMO > 0.50, Bartlett's test of sphericity, $p < 0.05$; Bartlett, 1954; Kaiser & Rice, 1974). We explored the dimensionality of the MIES-LE because preliminary qualitative analysis of law enforcement moral injury indicated LEP experiences with moral injury differ in important, substantive ways from the moral injury experiences of military personnel and veterans (e.g.,

'weathering' – O'Keefe, Young, et al., 2026; and 'frustrating moral expectations' – Smith-MacDonald et al., 2021). Given the major occupational differences between LEP and military, we hypothesized *a priori* (before both qualitative and quantitative data collection) that we would identify additional factors related to LEP moral injury.

We also assessed the reliability of the MIES-LE and CIHQ. Because of the disparity in internal consistency of the original MIES applied to military personnel vs. when it was applied to police (i.e., Nash et al., 2013 vs. Papazoglou et al., 2020; $\alpha = 0.90$ vs. $\alpha = 0.75$), we hypothesized a MIES contextualized to the experiences of LEPs will improve the reliability of its measurement ($\alpha > 0.75$). To ensure the most reliable measure possible in terms of internal consistency, item-total correlations were also calculated. Items were retained in Nash et al. (2013) when the factor loading was a correlation greater than 0.35 and contained cross-loadings no greater than 0.30. We used a more conservative threshold of 0.40, following best practices (Costello & Osborne, 2005). Item 15, being troubled by feeling disconnected from morals and values, was consequently removed from the scoring of the measure because it cross-loaded with a low correlation (0.39) for both the indirect betrayals and weathering factors, suggesting it does not adequately measure the underlying construct of moral injury or is confusingly worded.

The MIES-LE has inherently some degree of content validity having been adapted from an existing measure of moral injury and informed by a grounded theory analysis. To preliminarily assess the construct and convergent validity, we examined the relationship between moral injury and several of the other related constructs. We used Spearman's correlations due to the nonparametric nature of the items.

Results

Demographic and occupational characteristics

Demographic characteristics include age (14.7% 18–29, 34.1% 30–39, 35.2% 40–49, 16.0% 50 years or older), race (93.0% white), sex (74.4% male, 25.6% female), relationship status (86.5% had a partner), and educational attainment (67.5% attained a bachelor's degree or higher). Occupational characteristics include the type of agency with which they are affiliated (63.8% Police Department, 21.1% Sheriff's Office, 15.1% other agency type), urbanicity/rurality of the agency with which they are affiliated (52.8% urban, 29.9% suburban, 17.3% rural; Wisconsin Office of Rural Health, 2019), years of service ($M = 15.68$, SD: 9.07), current rank (e.g., 38.7% officer/deputy/trooper, 24.7% mid-level supervisor), current assignment (e.g., 44.7% patrol, 17.8% investigations), other units to which they've been assigned, and a checklist of extant wellness resources offered by their agency to characterize external resilience at the organizational level (Liu et al., 2017).

Internal consistency and psychometric properties

The internal consistency of the overall MIES-LE was adequate, $\alpha = 0.84$. Item-total correlations were calculated. Item-test correlations (the correlation of items relative to

the overall scale) were all acceptable to very good, ranging from 0.32 to 0.64. Similar to the original MIES (Nash et al., 2013) and other scales using Likert-type response options, some of the items were both skewed and peaked. Skewness ranged from −0.01 to −1.73. Thirteen of the items were negatively skewed, five were positively skewed. With the exception of the two reverse-keyed items about perceptions of trust (items 16 and 17) that corresponded to items 10 and 11 dropped from the MIES (Nash et al., 2013) and item 11.3 (being bothered when the integrity of the criminal justice system fails), kurtosis ranged from 1.61 to 3.87. The remaining three items were highly peaked; item 16 was the highest at 6.70. While this would normally be an argument for dropping the items, due to the theoretical importance of trust in the moral injury construct which these items explore (global self-trust, trust of others), and correlations to other items, we retained the items for further analysis.

Exploratory factor analysis

We used exploratory factor analysis (EFA) to examine the factor structure of the MIES-LE. Because this is an adaptation of an existing measure, we replicated the stages of the factor analysis conducted by Nash et al. (2013) on their Moral Injury Events Scale (i.e., using the same cutoff scores and rotations). The Kaiser–Meyer–Olin Measure of Sampling Adequacy (KMO value = 0.803) and Bartlett's test of sphericity ($\chi^2 = 2486.26$, $p < 0.000$) scores indicated it would be appropriate to proceed with factor analysis (Bartlett, 1954; Fayers & Machin, 2016; Kaiser & Rice, 1974; Watkins, 2021). We initially retained six factors, all of which had an eigenvalue greater than one and explained 65.93% of the common variance. We applied an oblique (promax) rotation to improve the interpretability of the results (Costello & Osborne, 2005); assuming uncorrelated factors in health and quality-of-life-related research is unrealistic and thus an orthogonal rotation would be inappropriate (Fayers & Machin, 2016).

Table 2 describes the factor structure of the MIES-LE. Factor 1, direct betrayals, included items 8, 9, 10, and 12, and corresponded to the perceived betrayals factor in the original MIES. Factor 2, transgressive acts, was comprised of items 7, 5, 6, and 4 and corresponded to part of the perceived transgressions factor in the original MIES. The other items that were intended to correspond to perceived transgressions loaded onto their own factor are discussed below (Factor 4: witnessed transgressions). Factor 3, indirect betrayals, included items 11.3, 11.1, and 11.2. The '11' items were initially generated as a small pool to correspond to the institutional betrayals as identified in the qualitative phase of the project. We hypothesized at least one of these additions would load with the other betrayal-related items, improving measurement of the betrayal subconstruct. Instead, they comprise their own factor.

Factor 4, witnessed transgressions, included items 1, 2, and 3. Factor 5 describes the concept of Weathering, comprised of items 18, 13, and 14. Factor 6, global perceptions of trust, included items 16 and 17. These two items correspond to the two items omitted from the original MIES, examining trust of self and trust of others to abide by their values. Internal consistency varied widely between the factors and could be explained, at least partially, by the fewer number of items that loaded onto each factor. The α ranged from inadequate (Factor 4, witnessed transgressions, $\alpha = 0.47$) to good (Factor 2,

Table 2. Initial factor loadings, Moral Injury Events Scale for Law Enforcement (MIES-LE) – 19-item version.

Item	Factor	Direct Betrayals	Transgressive Acts	Indirect Betrayals	Witnessed Transgressions	Weathering	Global Perceptions of Trust
	Eigenvalue	5.08	2.36	1.59	1.35	1.15	1.01
	Cronbach's α	0.80	0.87	0.66	0.47	0.51	0.53
I have had my trust violated by police leaders		0.88					
I have had my trust violated by law enforcement peers		0.84					
I have had my trust violated by other criminal justice professionals		0.78					
I have had my trust violated by family or friends		0.57					
It bothers me that I violated my own morals by failing to do something that I felt I should have done			0.91				
I am troubled by having acted in ways that violated my own morals or values			0.85				
I violated my own morals by failing to do something that I felt I should have done			0.84				
I acted in ways that violated my own moral code or values			0.61				
It bothers me when the integrity of the criminal justice system fails				0.74			
My confidence in the criminal justice system sometimes fails				0.74			
I have seen the integrity of the criminal justice system be violated				0.70			
I have seen things that were morally wrong					0.77		
I am troubled by having witnessed the immoral acts of citizens					0.68		
I am troubled by having witnessed the immoral acts of other law enforcement professionals					0.53		
Being in law enforcement has shifted my morals and values						0.78	
I sometimes feel disconnected from my morals and values						0.62	
I sometimes feel emotionally calloused by my job						0.48	
I trust other law enforcement professionals to always live up to their core values							0.84
I trust myself to always live up to my own values							0.75

transgressive acts, $\alpha = 0.87$). The implications of this and possible areas of improvement are proposed in the discussion.

Construct validity

Summed moral injury scores were positively correlated with PTSD symptomology ($r = 0.39$) and trauma exposure as defined by the Critical Incident History Questionnaire ($r = 0.23$) and negatively correlated with resilience ($r = -0.30$). When examining subscales, the bivariate relationships between each factor and PTSD symptomology are significant as described in Table 3. Of the factors, weathering had the greatest predictive value: independently explaining 17.72% of the variance in PCL-5 scores. Critical incident exposure was associated with higher scores on the MIES-LE. We also found evidence for the hypothesized inverse relationship between moral injury and individual ($r = -0.25$; perception of self, perception of future, structured-style subscales) and social resilience ($r = 0.27$; social competence, family cohesion, social resource subscales), as measured by the RSA-33 item version (Friborg et al., 2005, 2006). Individual and social resilience collectively explained 9.06% of the variance in MIES-LE scores ($r^2 = 0.0906$) when examining moral injury as a potential outcome. Furthermore, we assessed the relationships between PTSD, moral injury, and resilience using a stepwise linear regression model and found moral injury and resilience were respectively associated with higher and lower scores on the PCL-5 short form. The results of this regression study are described in detail in O'Keefe, Cusatis, et al. (2026) and provide additional support for the construct validity of the MIES-LE. Namely, we found lower resilience and higher moral injury were associated with greater PTSD symptomology. Given the relationships between PTSD and moral injury, and potentially traumatic experiences and PMIEs in other populations, these correlations provide preliminary support for the construct validity of the MIES-LE.

Table 3. Independent relationships between MIES-LE subscales and PTSD symptomology.

	Adjusted r^2	Estimate	95% CI		p
			LL	UL	
Direct betrayals***	0.075	0.17	0.12	0.23	0.000
Transgressive acts***	0.025	0.10	0.04	0.16	0.001
Indirect betrayals***	0.024	0.18	0.07	0.28	0.001
Witnessed transgressions***	0.067	0.26	0.17	0.35	0.000
Weathering***	0.177	0.45	0.36	0.54	0.000
Global perceptions of trust***	0.156	0.85	0.67	1.04	0.000

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; CI = confidence interval; UL/LL = upper limit/lower limit.

Discussion

The Moral Injury Events Scale for Law Enforcement (MIES-LE) addresses three of the main critiques of extant moral injury measures. First, with the exception of the MIOS (Litz et al., 2022), the content validity of extant measures has been limited by not 'directly inquir[ing] about the experience of individuals who have been exposed to PMIEs' (Yeterian et al., 2019) and 'rely[ing] on putative experts with unspecified experience or expertise' (Litz & Kerig, 2019). By rooting the adaptation in a grounded theory analysis,

modifications were informed by the experiences of LEP exposed to PMIEs and captured the nuances of LEP moral injury including weathering as a cumulative PMIE. Furthermore, using qualitative methods to inform item wording enabled researchers to use a vernacular more familiar to the population of focus, and avoid item wording issues including using stigmatizing terms or confusing terminology. Second, when applied in the context of law enforcement, moral injury measures have been less consistent (vs. military applications) as evidenced by lower Cronbach's α. Third, the MIES-LE is among the first measures of moral injury to be developed within a nonmilitary occupational context. Including the lived experiences of LEP who have experienced moral injury allows for a more comprehensive capturing of exposure to PMIEs and the subsequent psychological, social, emotional, behavioral, and spiritual outcomes (e.g., guilt, shame, emotional callusing/callousing, difficulty forgiving, anger, etc.). However, because this was an adaptation, we did not capture specific moral emotions that may have also improved capturing the underlying moral injury construct.

Moral injury is associated with PTSD, suicidality, and other mental health issues in military populations (Bryan et al., 2018). The MIES-LE is a relatively brief measure that can be used to examine these and other questions on the burden of LEP moral injury and its associated outcomes. Table 4 shows the full MIES-LE for this purpose.

Future attempts to further this line of inquiry and improve the measurement of moral injury might consider novel methodologies, such as semantic differential-based response formats over Likert-type response options, to minimize systematic errors related to acquiescence and improve skewness and kurtosis, especially when measuring moral injury in populations that stigmatize mental health such as LEP and military. Friborg et al. in their (2006) revision of the Resilience Scale for Adults (RSA-33 item) provide an excellent example of how a Likert-based scale can be converted to a semantic differential-based format. Furthermore, the duplet structure of measures like the MIES (e.g., I have experienced . . . I felt . . .) has been critiqued in recent scholarship as confounding exposures and outcomes making interpretability difficult (Litz, 2025). Therefore, employing a method such as a semantic differential format and increased specificity in measuring moral emotions, coupled with more substantial cognitive interviewing, may improve measurement. In our sample, items capturing morally injured affect had a greater percentage of missing data compared to the first half of the corresponding duplet capturing PMIE exposure (e.g., 'I acted in ways that violated my own moral code or values' had less missing data than 'I am troubled by having acted in ways that violated my own morals or values'). We hypothesize that respondents did not answer the second half of the duplet when a specific PMIE exposure did not apply to them. The two items with the greatest amount of missing data (items 5 and 7) represented feeling troubled by self-perpetrated acts of commission and omission, which were reported as less relevant to LEP compared to betrayals, weathering, and witnessed acts of commission (O'Keefe, Young, et al., 2026). Insofar as participants experienced distress at self-perpetrated acts of commission, the transgressions reported were not as major as those they had reported witnessing, and most participants did not report experiencing acts of omission. However, as some participants reported feeling troubled by self-perpetrated acts of commission and omission, we elected to include these items in the analysis rather than excluding them due to missingness. Failure to respond to the morally injured affect items in the duplet

Table 4. The Moral Injury Events Scale for Law Enforcement (MIES-LE).
Please indicate how much you agree or disagree with each of the following statements regarding your experiences as a law enforcement professional. Consider all experiences, including on and off-duty experiences, interactions with members of the public, interactions with other law enforcement professionals, among others.

		Strongly Agree	Moderately Agree	Slightly Agree	Slightly Disagree	Moderately Disagree	Strongly Disagree
1	I have seen things that were morally wrong	6	5	4	3	2	1
2	I am troubled by having witnessed the immoral acts of citizens	6	5	4	3	2	1
3	I am troubled by having witnessed the immoral acts of other law enforcement professionals	6	5	4	3	2	1
4	I acted in ways that violated my own moral code or values	6	5	4	3	2	1
5	I am troubled by having acted in ways that violated my own morals or values	6	5	4	3	2	1
6	I violated my own morals by failing to do something that I felt I should have done	6	5	4	3	2	1
7	It bothers me that I violated my own morals by failing to do something that I felt I should have done	6	5	4	3	2	1
8	I have had my trust violated by law enforcement peers	6	5	4	3	2	1
9	I have had my trust violated by police leaders	6	5	4	3	2	1
10	I have had my trust violated by other criminal justice professionals	6	5	4	3	2	1
11.1	My confidence in the criminal justice system sometimes fails	6	5	4	3	2	1
11.2	I have seen the integrity of the criminal justice system be violated	6	5	4	3	2	1
11.3	It bothers me when the integrity of the criminal justice system fails	6	5	4	3	2	1
12	I have had my trust violated by family or friends	6	5	4	3	2	1
13	Being in law enforcement has shifted my morals and values	6	5	4	3	2	1
14	I sometimes feel disconnected from my morals and values	6	5	4	3	2	1
15	I am troubled when I feel disconnected from my morals and values	6	5	4	3	2	1
16	I trust other law enforcement professionals to always live up to their core values	1	2	3	4	5	6
17	I trust myself to always live up to my own values	1	2	3	4	5	6
18	I sometimes feel emotionally calloused by my job	6	5	4	3	2	1

structure (e.g., 'I am troubled . . . ') did not arise during the piloting of the survey, and no concerns arose during cognitive interviewing.

The MIES-LE was developed as part of a larger study using community-engaged research orientation (CEnR; Israel et al., 2013), prioritizing the applied research needs of LEP. The CEnR orientation led us to explore moral injury in the first place, and it allowed us to more deeply understand the mental health experiences of LEP. By focusing on LEP

rather than generating data from a broad group of public servants under the umbrella of 'public safety personnel' or 'first responders,' we avoid conflating the experiences of these populations with different occupational mandates, leading to more specific measurement of moral injury. Conflating the experiences of LEP with fire, EMS, and other emergency service providers has been cautioned against, as it can lead to underestimating mental health morbidities (Syed et al., 2020). The CEnR approach also led us to generate a relatively small item pool, which is both a strength and a weakness of this study. For a moral injury measure to have practical relevance to LEP and providers who serve them, the measure must be brief. The MIES-LE is therefore accessible to practitioners at 19 items. Due to the stigmatizing nature of mental health-related inquiry within the study population (Soomro & Yanos, 2019; Fox et al., 2012), we prioritized minimizing burdens to participants by keeping the overall survey as short as possible. Consequently, generating a wide pool of items similar to other measures of moral injury with 30+ items (e.g., as described in Koenig et al., 2019, p. 34 items assessed in; Moral Injury Outcome Scale Consortium, Litz et al.'s 2022 MIOS) was not feasible. Nevertheless, our pool of items was nearly double that of Nash et al.'s (2013) MIES (11 items vs. 20 items). Future efforts may consider a wider pool of items to improve the reliability (i.e., α in subscales) and validity of the measure. This reliability may also be strengthened by longitudinal designs (being unable to measure the test–retest reliability is a limitation of this cross-sectional study) and by directly comparing other measures of moral injury (e.g., MIES and MIES-LE; MIES-LE and the outcome-focused MIOS) by randomizing which participants receive each version. Measuring additional, related constructs (e.g., depression, anxiety, alcohol use, and suicidal ideation as measured in other efforts to measure moral injury, such as Litz et al., 2022; Nash et al., 2013; Roth et al., 2022) would further strengthen evidence to support the construct validity of the measure.

One limitation we were unable to address arises from the ongoing debates around discriminant validity in the broader moral injury scholarship. That said, the purpose of this study was not to determine whether moral injury should be considered a clinically significant experience and, if so, what those cutoff points should be. Farnsworth et al. (2019) express concern about medicalizing morally injurious feelings that, in their view, are normal, possibly even expectable, responses to moral challenges. Likewise, while Litz and Walker (2025) agree that moral challenges, subsequent frustration and, potentially, distress are ubiquitous and normal parts of the human condition that ought not be pathologized, they argue that moral injury ought to be understood as a potentially clinically significant outcome characterized by intensity and functional impairment. The job of police professionals is, effectively, to respond to the moral challenges and stressors of others, while enforcing societal moral codes (e.g., laws) and occupational codes of conduct (e.g., integrity, respect). At the same time, these moral challenges may overlap with DSM-5 criterion A traumas for PTSD (Litz & Walker, 2025), and LEP have a higher prevalence of PTSD than general populations (Syed et al., 2020). Thus, understanding and measuring moral injury is critical to inform and test interventions to address police officers' health disparities. Future research should engage with this question further, paying specific attention to the reported differences and similarities between the characteristics or moral injury in different occupational, social, and cultural groups, and testing the continuum of moral challenge, stress, and injury as proposed in Litz and Kerig (2019) and Litz and Walker (2025).

Conclusion

This article outlines our attempt to generate and validate an occupation-specific measure of moral injury for policing using a CEnR orientation and mixed methods. By informing our adaptation of a previously validated military measure using grounded theory, we observed both qualitatively (O'Keefe, Young, et al., 2026) and quantitatively the dimension of weathering, or cumulative moral injury. Weathering had not been previously observed as a factor in moral injury measures and could be useful when applied to other first responder populations (e.g., firefighters, EMS). Notably, like military populations, moral injury included transgressions and betrayals, though two distinct dimensions of both transgressions and betrayals emerged in the EFA: witnessed transgressions, transgressive acts, direct betrayals, and indirect betrayals. The MIES-LE can be used as a psychometrically sound tool for LEP, researchers, and clinicians to ascertain PMIE exposure and consequent distress and relationships to other psychological morbidities in police contexts. This is an exciting emerging area of inquiry, and we proposed numerous paths forward to improve the measurement of moral injury to further our understanding of moral injury among LEP.

Acknowledgments

The authors would like to thank the Wisconsin Law Enforcement Death Response (LEDR) Team for their support and partnership, the 21 participating agencies for their engagement, and the law enforcement professionals who took the time to share their experiences and feedback. Particular thanks to Det. Sgt. Jared Manthe and Sgt. Cassie Lindert for their feedback on the earliest versions of the MIES-LE.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The participants of this study did not give written consent for their data to be shared publicly so due to the sensitive nature of the research supporting data is not available.

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Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

Patient Health Questionnaire and General Anxiety Disorder (PHQ-9 and GAD-7)

Date_____ Patient Name:_____ Date of Birth: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
Please circle your answers.

PHQ-9	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things.	0	1	2	3
2. Feeling down, depressed, or hopeless.	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much.	0	1	2	3
4. Feeling tired or having little energy.	0	1	2	3
5. Poor appetite or overeating.	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down.	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way.	0	1	2	3
Add the score for each column				

Total Score (add your column scores): _____

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? (Circle one)

Not difficult at all **Somewhat difficult** **Very Difficult** **Extremely Difficult**

Over the last 2 weeks, how often have you been bothered by any of the following problems?
Please circle your answers.

GAD-7	**Not at all sure**	**Several days**	**Over half the days**	**Nearly every day**
1. Feeling nervous, anxious, or on edge.	0	1	2	3
2. Not being able to stop or control worrying.	0	1	2	3
3. Worrying too much about different things.	0	1	2	3
4. Trouble relaxing.	0	1	2	3
5. Being so restless that it's hard to sit still.	0	1	2	3
6. Becoming easily annoyed or irritable.	0	1	2	3
7. Feeling afraid as if something awful might happen.	0	1	2	3
Add the score for each column				

Total Score (add your column scores): _____

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people? (Circle one)

Not difficult at all **Somewhat difficult** **Very Difficult** **Extremely Difficult**

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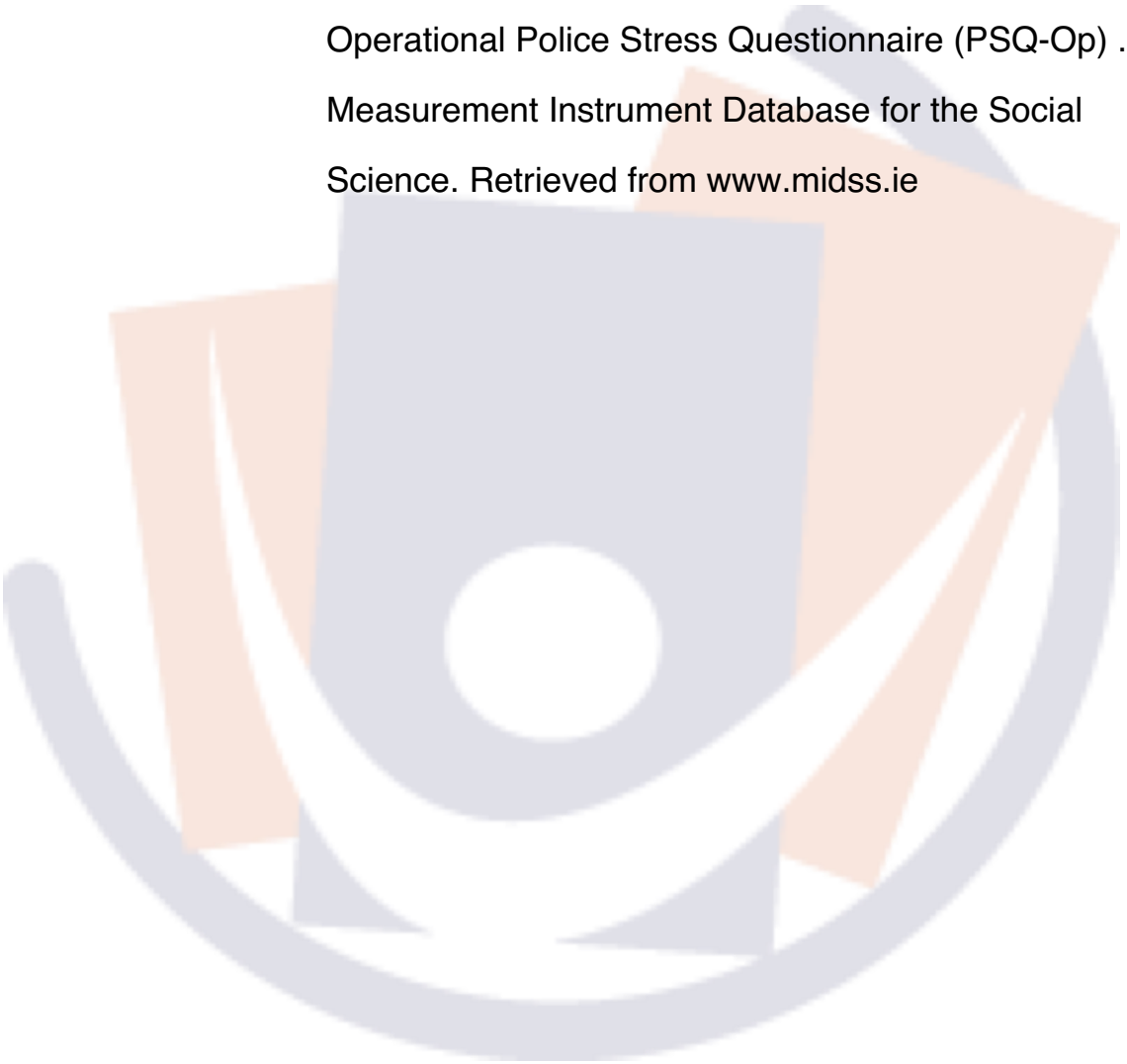
Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc.
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Study Title: Improving Officer and Civilian Health

NCT # Not Yet Assigned

Date of Document: 9-30-26

Instrument Title:	The Operational Police Stress Questionnaire (PSQ-Op)
Instrument Author:	McCreary, D. R., & Thompson, M. M.
Cite instrument as:	McCreary, D. R., & Thompson, M. M.. (2013) . The Operational Police Stress Questionnaire (PSQ-Op) . Measurement Instrument Database for the Social Science. Retrieved from www.midss.ie



Operational Police Stress Questionnaire

Below is a list of items that describe different aspects of being a police officer. After each item, please circle how much stress it has caused you over the past 6 months, using a 7-point scale (see below) that ranges from "No Stress At All" to "A Lot Of Stress":

No Stress At All			Moderate Stress			A Lot Of Stress
1	2	3	4	5	6	7

1. Shift work	1	2	3	4	5	6	7
2. Working alone at night	1	2	3	4	5	6	7
3. Over-time demands	1	2	3	4	5	6	7
4. Risk of being injured on the job	1	2	3	4	5	6	7
5. Work related activities on days off (e.g. court, community events)	1	2	3	4	5	6	7
6. Traumatic events (e.g. MVA, domestics, death, injury)	1	2	3	4	5	6	7
7. Managing your social life outside of work	1	2	3	4	5	6	7
8. Not enough time available to spend with friends and family	1	2	3	4	5	6	7
9. Paperwork	1	2	3	4	5	6	7
10. Eating healthy at work	1	2	3	4	5	6	7
11. Finding time to stay in good physical condition	1	2	3	4	5	6	7
12. Fatigue (e.g. shift work, over-time)	1	2	3	4	5	6	7
13. Occupation-related health issues (e.g. back pain)	1	2	3	4	5	6	7
14. Lack of understanding from family and friends about your work	1	2	3	4	5	6	7
15. Making friends outside the job	1	2	3	4	5	6	7
16. Upholding a "higher image" in public	1	2	3	4	5	6	7
17. Negative comments from the public	1	2	3	4	5	6	7
18. Limitations to your social life (e.g. who your friends are, where you socialize)	1	2	3	4	5	6	7
19. Feeling like you are always on the job	1	2	3	4	5	6	7
20. Friends / family feel the effects of the stigma associated with your job	1	2	3	4	5	6	7

The Operational Police Stress Questionnaire is provided free for non-commercial, educational, and research purposes.