CONTEXTUAL DETERMINANTS OF OBSERVED NEGATIVE EMOTIONAL STATES IN POLICE–COMMUNITY INTERACTIONS

DAVID A. MAKIN
DALE W. WILLITS
Washington State University
WENDY KOSLICKI
Ball State University
RACHAEL BROOKS
Washington State University
BRYCE J. DIETRICH
The University of Iowa
RACHEL L. BAILEY
Florida State University

Researchers universally agree that interactions between police and community members have the propensity to be emotionally charged. However, to date, there is limited research investigating situational and dynamic factors that make an interaction between a police officer and citizen more or less emotionally charged. Analyzing unedited police body-worn camera footage, associated with 287 criminal code violations, this research explores the individual, behavioral, and environmental factors that affect police officers' and citizens' emotional states during a police–citizen interaction. Results show clear variations at the situational, organizational, and environmental levels influencing the observed emotional state of the suspect and police officer.

Keywords: observed negative emotional states; body-worn cameras; quantitative content analysis; event modeling; police–community interactions

Policing is as an emotionally demanding and stressful profession (Terry, 1981; Toch, 2002). When this emotionality spills over into individual police–citizen interactions, it can also be stressful for community members. Some research suggests that citizens often feel apprehensive when they encounter a police officer, particularly officer-initiated contact (Brunson & Weitzer, 2011). Research examining these interactions from the police officer's point of view suggests that many acts of police use of force are directly related to the elevated levels of emotionality associated with a given interaction (Collins, 2009; Holmes &

AUTHORS' NOTE: *Correspondence concerning this article should be addressed to David A. Makin, Department of Criminal Justice and Criminology, Washington State University, Johnson Tower 719, P.O. Box 644872, Pullman, WA 99164-4872; e-mail: Dmakin@wsu.edu.*

CRIMINAL JUSTICE AND BEHAVIOR, 2019, Vol. 46, No. 2, February 2019, 301–318.
DOI: 10.1177/0093854818796059
Article reuse guidelines: sagepub.com/journals-permissions

Smith, 2008). Furthermore, other research argues that promoting police–citizen encounters with lower levels of negative emotionality is central to improving public compliance (Barkworth & Murphy, 2015; Murphy & Tyler, 2008).

The importance of managing negative emotions for police–civilian encounters follows from a body of research indicating that emotions can affect decisions (Baumeister, Vohs, & Dice, 2006). In policing, this can be exacerbated by situational characteristics such as shift work and overtime (Dembe, Erickson, Delbos, & Banks, 2005) and individual differences such as prior trauma (Sugimoto & Oltjenbruns, 2001). Although negative emotions are often implicated in poor police–citizen interactions, research has yet to identify the factors that make an interaction more or less negative emotionally charged. Instead, the work on emotions largely explores the consequences of emotionally demanding work on outcomes such as burnout (Kop, Euwema, & Schaufeli, 1999), attitudes or actions toward others (Kop et al., 1999), and performance (Schaufeli, Maslach, & Marek, 2017). In addition, this research primarily relies on surveys asking officers to rate their experiences and sources of stress. Although this research shows negative correlates of emotionally demanding work, little is known about the determinants of negative emotionality within police–civilian interactions.

The current study addresses this gap in the literature by directly examining the determinants of observed negative emotionality in police–civilian interactions. Using body-worn camera (BWC) footage as recorded observational data and a rigorous coding scheme, the current study examines the observed emotional states of police officers and suspects, with a specific focus on identifying key contextual correlates. Specifically, this study analyzes 287-recorded police–civilian interactions between June and October 2016 to determine the influence of individual, behavioral, and environmental factors on suspects' and officers' observed negative emotional states.

LITERATURE REVIEW

Several theories emphasize the importance of emotional states on interactions and decision making (Barkworth & Murphy, 2015; Holmes & Smith, 2008). In particular, general strain theory (GST) argues that strain leads to negative emotions, which make deviant criminal behavior more likely (Agnew, 2006), as does situational action theory (Wikström, Oberwittler, Treiber, & Hardie, 2012). Negative emotions not only predict behavioral outcomes but also are at the core of our understanding of criminal behavior. Recent work shows that negative emotions influence more "everyday" police–civilian encounters. For example, Barkworth and Murphy (2015) found that citizens were most likely to report negative emotions and, subsequently, were less likely to comply when interacting with police when these civilians felt they received unjust treatment. Similarly, Murphy and Tyler (2008) demonstrated that emotional responses have the potential to mediate the relationship between perceptions of procedural justice and legal compliance. Furthermore, nonpolicing research finds similar results: Individuals who feel they are treated poorly are more likely to report negative emotions (De Cremer & den Ouden, 2009). That negative emotions are linked to compliance is important for a police–civilian interaction, as noncompliance can escalate the level of aggression in such encounters (Klinger, 1995). Indeed, noncompliance can be viewed as resistance or disrespect, both of which have been linked to use of force (Terrill, 2003).

Although emotions may not be the primary cause of negative police–citizen interactions, research is needed to better understand their importance. For example, if negative emotions increase perceived misuse of force, it is likely that police–community relations are negatively affected by the emotional states of civilians and the officers involved (Littlejohn, Smitherman, & Quick, 1984). Many prominent scholars have linked police violence with intense emotional responses by officers (Collins, 2009; Holmes & Smith, 2008). This phenomenon may be partially explained by emotional contagion (Hatfield, Cacioppo, & Rapson, 1994). The interplay between the emotional states of the officer and the civilian, especially when the states are negative, could escalate the interaction into one of noncooperation or even potentially coercive force.

Emotional contagion is the phenomenon of others taking on the emotions of those around them, or in certain circumstances, responding appropriately to the emotions of those around them (e.g., shrinking back when another individual screams angrily; Hatfield et al., 1994). Thus, emotional contagion can create similar or complementary emotions in interacting others. In the case of police–civilian interactions, negative emotions exhibited by either the civilian or the officer could perpetuate similar or complementary emotions in the other actor. Although officers are expected to regulate specific emotions (van Gelderen, Heuven, Van Veldhoven, Zeelenberg, & Croon, 2007), this suppression is stressful (Schaible & Six, 2015) and may exacerbate the consequences of emotional states in these interactions leading to noncooperation and coercion.

PREDICTORS OF EMOTIONALITY IN POLICE–CITIZEN INTERACTIONS

Fortunately, a wide body of literature offers guidance on the factors likely to generate negative emotions in police–citizen encounters. Here, we draw on the psychological, sociological, and criminological literatures to identify key factors that might predict the level of observed negative emotionality for police officers and suspects in an encounter. Our approach is grounded in the strain framework (Agnew, 2006), suggesting negative emotions are more likely when people are treated in a way they dislike, especially when they feel they have been treated unjustly.

Terrill and Mastrofski (2002) argue that components of a given police–citizen interaction can be broken down into psychological and sociological components. The psychological components deal with individual experiences, characteristics, thoughts, and beliefs that influence officer and citizen behavior, and the sociological components deal directly with who the citizen is and what the citizen is doing. The present study considers these latter sociological components, though we acknowledge the importance of the former.

Perceptions of injustice play an important role in what people do in these encounters. The small literature on emotions and police–citizen encounters argues that procedurally just interactions result in fewer negative emotions for those involved in the interaction (Barkworth & Murphy, 2015; Murphy & Tyler, 2008). When encounters are less procedurally just, negative emotional states are more likely to result. Although the procedural justice literature focuses on how officers treat and interact with citizens (Sunshine & Tyler, 2003), it is reasonable to infer that officers *also* are more likely to exhibit negative emotional states when they feel they are treated unjustly. Therefore, how the officer and citizen treat each other likely matters. For example, when an officer initiates a stop, does the officer explain the reason for the stop and how does the person respond. The issuance of the statement, how

it is received, and how the person responds become important components within the dialogic model of Bottoms and Tankebe (2012).

Still, there is a gap in research exploring how the experience of injustice matters on the officer's side. Research shows the experience of injustice can lead to negative emotional responses (Agnew, 2006; Murphy & Tyler, 2008) for people, in general, and this can matter for both the officer and civilian. For example, Murphy and Tyler (2008) find indirect evidence suggesting that officer behaviors are affected by how they are treated by citizens. In addition, research shows that when officers' view suspects as being disrespectful, they are more likely to use heightened forms of coercion (e.g., Garner, Maxwell, & Heraux, 2002). These studies build on early research showing the importance of the citizen's role in establishing a "civil" outcome (Reisig, McCluskey, Mastrofski, & Terrill, 2004) with Reisig and colleagues (2004) offering that suspects behave disrespectfully to achieve "specific desired ends" (p. 1).

As predicted by an emotional contagion argument, aggressive and disrespectful civilian behaviors can yield complementary actions by officers (i.e., they respond to disrespect in kind). Consequently, we argue that behaviors associated with procedural injustice are risk factors for negative emotions in officer–civilian encounters. These types of injustices and the responses may depend on whether one is examining officer or citizen emotions and behavior (Hatfield et al., 1994). For example, civilians may be less likely to experience negative emotions if the officer explains the reason for the stop and allows the citizen a chance to respond. Conversely, a citizen adopting an adversarial tone may increase the likelihood the officer shows signs of frustration. We would expect the use of an adversarial tone to be reciprocal, in much the same way interruptions can be viewed as a violation of interactional justice norms (LaFrance, 1992) and could produce negative emotional states for both parties. In addition, research on public health and safety shows the complexity of interacting with, and managing, those under the influence of intoxicants, inducing frustration in those attempting to offer assistance (Dolan & Holt, 2013).

Officers' and citizens' identities may also influence the emotionality of a situation. Holmes and Smith (2008) argue that police typically view minorities as more threatening and may respond more negatively to certain demographic groups. In these instances, the police and suspects use heuristics to interpret the actions of the other, which may lead police and suspects to view each other's actions more negatively. Indeed, there is evidence that police are more likely to use force against minorities than Whites (Gau, Mosher, & Pratt, 2010) and typically resort to force more quickly against minorities (Kahn, Goff, Lee, & Motamed, 2016; D. W. Willits & Makin, 2018). Moreover, police are faster to use force against males (Terrill, 2005; D. W. Willits & Makin, 2018), though the reason for this remains unclear.

Finally, there is also evidence that the environment also affects emotional responses. According to Zajonc's (1965) drive theory of social facilitation, the presence of other individuals in the environment increases arousal, and research suggests that onlookers can exacerbate a given conflict (Collins, 2009; D. Willits, 2015). In addition, factors such as time of day and shift might matter, as well as organizational policies regarding the use of officer BWCs may affect both officer and civilian interactions. Indeed, some research suggests that BWCs have a "civilizing effect" when both parties are aware that their actions are being monitored and recorded (Ariel et al., 2017).

To date, few studies have examined the role of emotions in police–citizen interactions (Barkworth & Murphy, 2015; Murphy & Tyler, 2008). Unlike these earlier studies, we analyze suspect- and officer-observed emotional responses using recorded observational data capturing what the officer and suspect are actually doing, as well as characteristics of the suspect and the environment.

METHOD

We code unredacted BWC video footage from 287 recorded police–citizen interactions from June to October 2016, including misdemeanor and felony crimes and traffic violations, acquired from a police agency with fewer than 100 officers serving a smaller community (less than 100,000 residents). The sample includes 101 incidents in which the police officer initiated contact and 186 in which an officer was dispatched to the scene. The memorandum of understanding (MOU) and data use agreement provide access to BWC footage, though currently we are unable to connect videos to individual officers and their specific demographics or control for the specific criminal complaint. However, the officers in this agency are primarily White and male.

Despite the wide proliferation of BWCs across American police agencies (Makin, 2016, 2017; Nowacki & Willits, 2016), little research has made use of BWC footage as a data source (D. W. Willits & Makin, 2018). BWC footage, although it provides video and audio data for an interaction, is complicated by a myriad of different viewing angles, camera settings, and other technical and environmental factors (Babin et al., 2018; Stoughton, 2018), as well as instances where not all the interaction was recorded. Overcoming these issues requires developing a new coding scheme, which we base on event modeling and media content analysis principles (Macnamara, 2005).

We use a three-tiered annotation structure capturing the complexity of these interactions. Tier 1 marks the time when an event (such as an interruption or use of force) occurs, Tier 2 identifies the duration and characteristics of Tier 1 events, and Tier 3 identifies information associated with the end of those events. Collectively, our coding scheme returns a sequence of events, allowing us to account for when and how police–citizen interactions change over time.

Given the sensitive nature of these data and the intensive annotating system implemented, coders are required to maintain high ethical standards and to complete intensive training prior to accessing data. Before annotating, coders must (a) pass background checks, (b) complete Collaborative Institutional Training Initiative (CITI) human participants training, and (c) sign confidentiality agreements. From there, annotators are required to complete onboarding and independent training sessions where they are taught how to annotate BWC data. This training presents video examples of each coded event and practice sessions, which gives annotators the ability to compare their annotations with existing data.

The annotation and verification process begins with the lab manager screening videos to ensure they meet the agency's MOU and institutional review board (IRB) protocol requirements. These videos are then divided and assigned to pairs of annotators who then independently annotate the video, which begins by watching the video. Then, the annotators review the video again and identify what specific events occurred and mark the time point of each event associated in Tier 1. Once Tier 1 annotations are completed for all assigned videos, the event logs are compared for interrater reliability. In Tier 2, a new annotator is assigned

to each video and they review the previous annotator's labels. If a change needs to be made, then he or she can do so, creating a two-step validation process. For example, if in Tier 1, two annotators marked a bystander being present at time stamp 5:03, an annotator at Tier 2 would verify if that is correct and make changes if necessary. If changes are made, this initiates the verification process again by a new annotator. In addition to verifying event information in Tier 1, an annotator's role in Tier 2 is also to indicate the end point associated with the event and provide additional contextual information. For example, if a Tier 1 annotator marked a bystander present at 5:03, the Tier 2 annotator can determine whether there was an interaction with a bystander, whether the bystander left the incident, and when this event ended. After this, Tier 3 coding identifies changes occurring at the end of the identified event. For example, if Tier 1 indicated there was an observed emotional state in the suspect and Tier 2 subsequently captures the intensity and notes the end point, then Tier 3 would label the intensity of the observed emotional state at the end of that specific event. If there are no changes in the intensity of the suspect's observed emotional state at the end point provided from Tier 2, then the Tier 3 annotator would not label that specific event as intense. However, if there is a change in the intensity of the suspect's observed emotional state at the end point provided from Tier 2, annotators will continue to identify changes in intensity until no additional changes are identified or the interaction ends.

In addition to this three-tiered and multistage verification process, we also account for situations that involve multiple officer perspectives associated with a specific incident. The videos are flagged as ancillary to the primary officer's perspective associated with that incident and are annotated using the same process previously described. After the videos are fully annotated, they are compared to determine whether unidentified events are captured from new angles. If new events are identified, they are flagged and incorporated into the data. As a result, all data collected are validated across multiple stages to ensure reliability. The interrater reliability is extremely high ($>$99%) for our objective coding structure. Disagreements for subjective items occurring at Tier 2 and Tier 3 are resolved by having the coders meet to come to a consensus and by providing notes to the lab manager describing this issue, which are then reviewed and verified to ensure reliability. In total, 4,339 hr of BWC footage are annotated for use in this project.

MEASURES

Dependent Variables

The outcome variables for this study are the observed level of negative emotionality for the officer and suspect in a given encounter. Recognizing that emotional states may be pleiotropic (Vigil, 2009) and the sample size of the present study, we focus on negative emotionality, though we acknowledge that future work should also examine positive emotional states. Negative emotionality is coded on a 4-point scale where 0 indicated *no negative emotionality*, 1 indicated *low negative emotionality*, 2 indicated *medium negative emotionality*, and 3 indicated *high negative emotionality*, and was coded separately for officers and suspects. Given the relatively low frequency of high emotional states (there were three incidents where the suspect's emotional state was rated high and no incidents where the officer's emotional state was rated high), the medium and high emotional states are merged for this analysis. The final emotional states were as follows: 0 = *no visible*

emotional response, 1 = *low emotional response*, and 2 = *medium and high emotional response*.

As situational emotionality is central to our analysis, we focus heavily on generating reliable measures of observed negative emotional states. Coders were given reference videos showing examples of each negative emotional state and detailed instructions on the emotional cues and behaviors to search for, when determining how to code a given incident. An individual coded as displaying no negative emotionality is associated with a benign interaction. For example, individuals in these interactions do not increase their vocal tone beyond what would be necessary to ensure they were heard. Similarly, interactions coded as 0 do not display agitation or other signs of negative emotion. For example, in one interaction, an officer initiates a stop involving two minors carrying what appears to be alcohol. Despite being an interaction that could escalate, the minors admit to the possession, and the interaction resolves itself with a warning. Surprisingly, the interaction is very sterile, the minors admit fault, take responsibility, and the officer completes the interaction. Ultimately, these individuals receive a "0" on our scale.

A "1" is coded for individuals displaying a low negative emotional state. These interactions are relatively calm with no signs of agitation, yelling, or screaming. Individuals coded as having a low emotional state show signs of low levels of emotionality in both their tone and visual behavior, but are more likely to draw the attention of onlookers than a "0." Still, at this level the emotional states are infrequent and do not escalate. One example of an interaction reflecting this state involves an officer-initiated stop, where the civilian wanted to end the contact, and the officer continued to maintain the contact. An observer likely would not be drawn to the interaction because of the displays of negative emotionality. Rather, although the civilian is polite in his or her responses to the officer, he or she is frustrated, and that frustration manifests in responses to the officer concerning the legitimacy of the initiated contact.

A medium or high emotional state (coded as a "2") includes signs of agitation or distress and irritability that is maintained for a portion of the interaction and almost certainly draws the attention of onlookers. These interactions could include rage, terror, panic, or fear. For example, in one interaction, officers are dispatched to a call with an individual with a known mental health issue who is believed to have a firearm. When arriving at the scene, the interaction emotionally escalates for the suspect and officers. The suspect has a hand behind his back and is posturing toward the officers, making shoulder movements. Officers are clearly primed as indicated by their vocal tone. The moment the suspect moves his arm toward the officers, the primary officer moves to a firing position, and in a split second, you see there is no gun. Rather, the suspect has his fingers in a gun position. The officers immediately holster their firearms and quickly approach the suspect to restrain him. The interaction is emotionally intense with strong language from all parties, and the incident ends with the suspect in handcuffs and placed under arrest.

Regardless of category, annotators were instructed to consider a variety of other emotional cues such as facial expressions, hand gestures, and body posture when determining the appropriate emotional state for the suspect and officer. For nonverbal cues, we draw video examples reflecting predominate nonverbal behavior associated with agitated states (see DePaulo, 1992).

Independent Variables

The independent variables include measures of suspect characteristics, officer and suspect behaviors, and general contextual factors. Specifically, we include measures of gender, race, and whether the suspect appears to be under the influence of an intoxicant. Regarding behaviors, we include measures of verbal interruptions reflecting specific moments when either the officer or suspect interjects to talk over the other person. We include this to determine the extent to which interruptions are associated with negative emotionality as the former have been linked to poor interactions (Chant, Jenkinson, Randle, & Russell, 2002). In addition, we include measures of whether the suspect agreed with the stop or was adversarial (being combative or argumentative with the officer throughout the duration of the interaction). We also include variables noting whether the officer indicated that the BWC was recording or provided a reason for the stop. We also control for whether the interaction was officer initiated or dispatch driven. Finally, we control for various environmental factors, including the presence and behavior of bystanders, whether the interaction occurs during a shift overlap, and whether the interaction occurs during an academic year. This latter variable is especially important for the present study because school being in session leads to a higher population in the community and higher likelihood of certain criminal code violations, such as disputes and substance use violations. Table 1 provides a description of each variable with each hypothesized influence on the observed emotional states, as well as information on whether each independent variable had a significant bivariate relationship with the outcome variable.

GENERALIZED ORDERED LOGIT MODELS

Our dependent variables are measured on an ordinal scale, though Brant tests indicated that our data did not meet the proportional odds assumption. Therefore, we make use of the generalized ordered logit model allowing for some variables to violate the proportional odds assumption. These models are estimated using the gologit2 STATA command originally written by Williams (2006, 2016). Unlike nonordinal alternatives (e.g., multinomial logit), these models are relatively easy to interpret. In the present study, the coefficients represent a comparison between no emotional state versus low and medium/high and no and low emotional states versus medium/high.

Because some variables may meet the parallel lines assumption whereas others may not, a generalized ordered logistic regression allows researchers not only considerable flexibility but also considerable discretion. One approach to determining which variables are estimated with different coefficients across cutoffs is a stepwise approach (Williams, 2006). However, this approach (called autofit) has limitations and can produce results that are by chance (Williams, 2016). Here, given our relatively small sample and within cell sample size, we used a stepwise approach with a more stringent statistical cutoff. Thus, similar to Williams (2006), we reduced the level of significance to .025 for the model test assumptions for parallel lines. By setting the level of significance, at this more stringent cutoff, we reduce the likelihood that trivial violations of the parallel lines will influence the final models. As a robustness check, we also dichotomized the dependent variables and used simple logistic regression yielding similar substantive results.

TABLE 1: Descriptive Statistics ($N = 287$)

Variable	*M* (*SD*)	Description
Dependent variables		
Officer emotional state	0.79 (0.40)[a]	0 = no observed negative emotion, 1 = low, 2 = medium/high
Suspect emotional state	1.09 (0.53)[b]	0 = no observed negative emotion, 1 = low, 2 = medium/high
Suspect characteristics		
Male	0.68 (0.47)[a]	0 = female, 1 = male
Non-White	0.23 (0.42)	0 = White, 1 = non-White
Drug/alcohol	0.35 (0.48)	0 = no evidence of intoxication, 1 = suspect appears intoxicated
General behaviors		
Suspect interrupts	0.31 (.63)[a]	0 = No interruptions, 1 = 1-2 interruptions, 2 = 3+ interruptions
Officer interrupts	0.34 (0.67)[a]	0 = no interruptions, 1 = 1-2 interruptions, 2 = 3+ interruptions
Unique suspect behaviors		
Disagreed with reason	0.18 (0.38)	0 = did not disagree, 1 = disagreed with reason for stop
Adversarial tone	0.18 (0.38)[a, b]	0 = regular conversation, 1 = combative tone
Unique officer behaviors		
Statement of recording	0.09 (0.28)	0 = no statement, 1 = officer stated the BWC was active
Procedural justice	0.67 (0.47)	0 = reason not given, 1 = gave suspect reason for stop
Proactive	0.35 (0.47)	0 = dispatch initiated stop, 1 = officer initiated stop
Environmental factors		
Bystanders present	0.53 (0.49)[b]	0 = no bystanders present, 1 = 1+ bystanders present
Bystander interaction	0.41 (0.49)[b]	0 = bystanders passive, 1 = bystanders interacted
University	0.59 (0.49)[b]	0 = not university session, 1 = university in session
Shift overlap	0.35 (0.47)	0 = no shift overlap, 1 = occurred during shift overlap

Note. BWC = body-worn camera.
[a]A statistically significant ($p < .05$) bivariate relationship (using Spearman's rho) between independent variable and suspect emotional states. [b]A statistically significant ($p < .05$) bivariate relationship (using Spearman's rho) between independent variable and officer emotional states.

RESULTS

We develop separate models for the observed emotional states of the officer and suspect. For each model, we test the effects of demographic, behavioral, and environmental factors on the observed negative emotional state of the officer and suspect. Outside of a few necessary differences, these models include the same variables. The most notable difference is with procedural justice. These measures are based on the dialogic model of Bottoms and Tankebe (2012) and include whether the officer states the reason for the interaction and how the suspect responds, either through disagreement or ignoring the statement.

Observed Negative Emotional State of the Suspect

To help interpret the results, we use a dash (—) when coefficients are identical across categories. As described in the "Method" section, we were unable to test the influence of officer demographics on the observed emotional state of the suspect. The officers in our sample were predominately male, with very few incidents involving a female officer, and all our officers were White. Therefore, we were only able to examine the influence of suspect characteristics.

TABLE 2: Generalized Ordered Logistic Regression Models on Suspect and Officer Negative Emotional States

	Suspect negative emotional state (odds ratios)		Officer negative emotional state (odds ratios)	
Variable	No emotions vs. low	Low vs. medium/high	No emotions vs. low	Low vs. medium/high
Negative emotional states				
Officer low	10.20**	1.50		
Officer medium/high	11.09***	—		
Suspect low			12.11***	—
Suspect medium/high			13.88***	—
Suspect characteristics				
Male	0.43***	—	1.83	—
Non-White	0.54	—	0.64	—
Drug/alcohol	1.40	—	1.30	—
Interruptions				
Officer 1-2 interruptions	2.90**			
Officer 3+ interruptions	5.30***			
Suspect 1-2 interruptions			0.34*	5.72*
Suspect 3+ interruptions			0.28*	5.07
Unique suspect behaviors				
Disagreed with reason			1.08	—
Adversarial tone			3.39*	—
Unique officer behaviors				
Statement of recording	2.22	—		
Procedural justice	1.27	—		
Proactive	0.69	—		
Environmental factors				
Bystanders present	0.76	—	0.47	—
Bystander interaction	1.29	—	10.19***	1.07
School	0.92	—	3.28***	—
Shift overlap			0.44*	—
Constant	3.54**	0.24***	0.17**	0.0004***
Model fit				
Pseudo-R^2	.18		.26	

Note. Generalized ordered logistic regression models produce different coefficients per ordinal comparison. "—" indicates the parallel lines assumption is met and the coefficients are identical.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2 reports the results from a series of generalized logistic regressions. Interactions with male suspects are associated with lower odds of escalating to an elevated negative emotional state. There was no relationship between suspect race and influence of drugs/alcohol on the suspect's observed emotional state. As expected, officer interruptions were about 3 to 5 times more likely to result in negative suspect emotions than interactions without interruptions, depending on the number of interruptions made by the officer. Also, a negative emotional state for the officer is positively related to the suspect's observed negative emotional state. The positive coefficients for low and medium/high negative emotional states for officers indicate an increase in the likelihood of higher negative emotional states for suspects ($p < .001$ and $p = .005$).

Observed Negative Emotional State of the Officer

Next, we examine the predictors of officer emotional states. Table 2 presents the generalized ordered outcome models testing the influence of suspect demographics, behavior, and contextual factors on the observed emotional state of the officer. Unlike prior research suggesting race (Holmes & Smith, 2008) and gender (Martin, 1999) are related to emotional state of the officer, these variables are not significant in our model. This is consistent with research suggesting who a person is has less of an influence than the person's behaviors (Klinger, 1995). Interacting with individuals under the influence of drugs or alcohol is also not associated with changes in the observed emotional state of the officer. Rather, suspect adversarial tone increased the odds the observed emotional state of the officer changed by over 3 times. Interestingly, suspect interruptions occurring when the officer is not emotionally charged decreases the odds that it escalates (odds ratio [OR] = 0.34). Even at higher levels of interruptions, when the officer was not experiencing a negative emotional state, the odds of escalating remained lower ($p = .05$). However, if the officer is already emotionally primed, the odds increase by nearly 6 times ($p = .04$). Bystander interactions are significantly related to increased observed negative emotional state of the officer (OR = 10.19) when the officer is not emotionally charged. In addition, when compared with interactions occurring when the university is not in session, the odds of increasing the observed emotional state are more than 3 times greater when school was in session. Incidents occurring during a shift overlap reduce the odds the observed emotional state of the officer increases (OR = 0.44).

When introducing the emotional state of the suspect into the model, we observe a profound influence, which supports prior findings that escalating emotional states produce a reciprocal effect (Collins, 2009). The coefficients suggest that low and medium observed emotional states are associated with an increase in the likelihood the emotional state of the officer changes. Increases to a low or medium emotional state are 12 and 13 times more likely ($p < .001$).

Mediation and Decomposition Analysis

Given that the observed emotional state of both the suspect and officer were strongly related, we perform a decomposition and mediation analysis using the method developed by Breen, Karlson, and Holm (2013). This method (KHB hereafter) estimates all effects, while rescaling the coefficients to isolate the direct and indirect effects of selected variables. This allows researchers to explore the influence of mediators and quantify their contribution to the overall total effect. Unfortunately, the KHB method cannot be applied to generalized ordered outcome models, so ordered logistic regressions were used for this analysis. Because the results of the ordered and generalized ordered logistic regressions were similar in terms of sign, direction, and significance, this decomposition and mediation analysis offers a reasonable estimate of these effects.

Here, we present the results of both associated procedures using the observed emotional state of the officer to predict the observed emotional state of the suspect (controlling for suspect demographics, officer behavior, and environmental factors). The reduced model (total effect) does not include the controls in the model and shows that the officer's emotional state influences the observed emotional state of the suspect with a coefficient of 1.80

(OR = 6.0). However, when the controls are introduced, the full model (direct effect) shows that the effect of the officers observed emotional state decreases to 1.57 (OR = 4.82). The difference in the size of effect between the reduced and full model (0.23) shows the mediating influence of the controls. However, the mediating effects were not statistically significant. This suggests that although suspect demographics, officer behavior, and environmental factors influence the observed emotional state of the suspect, the observed emotional state of the officer is more important.

Examining the influence of the observed emotional state of the suspect on the observed emotional state of the officer (controlling for suspect demographics, suspect behavior, and environmental factors) reveals the influence of the suspect's emotional state on the officer's emotional state is more profound with the reduced model producing a coefficient of 1.71 (OR = 5.57). Including the controls in the model shows that the effect of the suspect's observed emotional state on the emotional state of the officer decreases to 1.36 (OR = 3.90). As with the prior model, the difference in the size of the effect between the reduced and full models (0.35) is not statistically significant. Again, this suggests that although social context and incident characteristics matter, the observed emotional state of the suspect is more influential.

DISCUSSION

The results show that some situational and environmental factors influence officer and suspect emotional states. These factors vary in size of influence, though they come to influence the creation of a heightened observed negative emotional state and, for some factors, decrease the odds of escalating significantly. Concerning officer emotional states, as van Gelderen and colleagues (2007) offer, police officers are expected to regulate their emotions and the lack of highly observed negative emotional states may be a result of this expectation compounded by potential emotional dissonance, which we discuss below. It is encouraging to see that the observed emotional states of officers in our study do not change based on the gender, race, or ethnicity of the suspect. Rather, for both the suspect and officer, we see changes in the observed emotional state based on behaviors and environmental factors, as would be expected from states of emotional contagion.

Officer Emotional State

Concerning the observed emotional state for officers, we want to be clear that police work is emotionally demanding. The variations we see are important, as we would not expect officers to display no negative emotions or to be unaffected by situational and environment factors. As prior research shows, there are greater demands placed on officers to regulate their emotional states (Toch, 2002) with limitations on what is appropriate for display depending on the context (van Gelderen et al., 2007).

Concerning our results, unsurprisingly, suspects using an adversarial tone, contributing to a negative emotional contagion, display higher odds of increasing the probability the observed emotional state of the officer increases. This is again consistent with prior research suggesting that suspect behavior is one of the primary factors influencing officer behavior (Klinger, 1995; Terrill & Mastrofski, 2002). In addition, although we expected that interruptions would be associated with an increase in the observed negative emotional state of the officer, we do not anticipate a negative OR. The psychological strain and emotional regulation research suggests

that officers have a surplus of psychological energy for emotional regulation and interruptions occurring at this stage and these interruptions are attributed to a normal interaction. That is, officers expect some level of interruption in performing their duties. At this emotional level, these interruptions may not be perceived as interruptions but as a normal part of police interactions. We observe an example of this in a trespassing incident at a local bar; an officer is interrupted by the suspect several times, in quick succession, though it does not appear to have any influence on the officer. In many ways, it seems the officer anticipated the behavior because of the location and dealing with an intoxicated person.

However, when the officers are in heightened observed emotional states, interruptions are associated with higher odds of increasing the observed emotional state of the officer. Prior research suggests that, as the nature of the interaction becomes more psychologically demanding, there is not as much energy to regulate the emotional state (van Gelderen et al., 2007). Subsequently, interruptions occurring in a heightened emotional state need more energy to maintain, resulting in increased odds of the observed emotional state changes. One of the best examples of this in our observations is a domestic disturbance with two responding officers. The primary officer on scene is interacting with the victim while an additional officer manages the person of interest. From the first point of contact, both officers are inundated with information from multiple parties on scene, with disagreements concerning what transpired, who is at fault, what should be done, and continuous arguing between all parties. The primary officer on scene is visibly frustrated with the situation and is being interrupted by multiple persons on scene. This scene epitomizes an interaction that would be psychologically demanding and as our findings demonstrate, both on scene officers experience an increase in their negative emotional state.

The resultant increase in negative emotionality in the aforementioned interaction also demonstrates the difference between the presence of bystanders and the importance of managing their interactions. The mere presence of bystanders does not appear to increase the negative emotionality of the officer. Rather, when present and interacting with the officer, the odds that the officers' observed emotional state changes increase. This is consistent with a large body of research suggesting interaction initiates a stress-induced threat appraisal response (see Anderson & Bushman, 2002), placing more psychological demand on the officer's emotional regulation. As the emotional regulation literature would suggest, this added psychological strain reduces the capacity for emotional regulation, influencing the odds the officers' negative emotional state changes (van Gelderen et al., 2007).

Concerning environmental factors, both shift overlap and population shifts reflect interesting policy-oriented findings. Specific to shift overlap, as Aspinwall and Taylor (1997) suggest, when people experience exhaustion, they are less able to regulate their emotions. When a shift overlap occurs, there are more organizational resources available to manage the call volume, more officers able to be called to a scene, and there may be less pressure to speed up clearing a call. Our results seem to suggest that officers may be better able to regulate their emotional states because of this excess of resources—be they tangible or merely a perception of available resources.

Although our inclusion of population shift is a unique variable, which may not be applicable to other agencies, our results do demonstrate to what extent dramatic shifts in call volumes due to seasonal population fluctuations influence officers. As our results show, incidents taking place during the period of time the university is in session are associated with greater odds of increasing the emotional state of the officer. However, we do not see

this effect for the observed emotional state of the suspects. This suggests that this period is more emotionally demanding on the part of the officer, and these interactions make it more difficult to regulate their emotional states. A start of the fall semester may be associated with higher levels of personal and organizational stress. Specifically, as the frequency of calls and number of disputes increase, greater expectations are placed on the agency and officers to "maintain order," and the marked increase in calls for services relating to drugs and alcohol. Alternatively, officers may be primed for heightened emotional states because past experiences have encoded negative emotional states (Berkowitz, 1989) for this period of time, increasing the odds incidents in this period are associated with higher observed emotional states.

Suspect Emotional State

Results show that female suspects are significantly more likely to exhibit higher levels of negative emotional states than male suspects. Although we might intuitively expect confrontations between officers and male suspects to be more aggressive, a wide body of research suggests that women experience as much, if not more, anger in response to stress than men (Broidy & Agnew, 1997) and that women are less likely to suppress emotions than men (Flynn, Hollenstein, & Mackey, 2010). Interestingly, the gender of the suspect did not predict officer emotional states in these interactions, indicating that officer's emotional states are driven more by the context of the interaction than by suspect characteristics.

Officer behavior, like suspect behavior, appears to have a greater influence on the suspect's observed emotional state, which supports an emotional contagion process. This is most observed within failures to apply effective interpersonal communication (e.g., officers interrupting the suspect increases the odds of the observed negative emotional state of the suspect escalating). For this project, we do not analyze the nature of the conversation, though we believe this is a critical area of future research. Specifically, scholars should explore what is said during these interactions to better understand the effect of procedural justice, verbal de-escalation, and other similar trainings on reducing the likelihood of the emotional state of the suspect increasing.

LIMITATIONS AND FUTURE RESEARCH

Although the results presented introduce an important and alternative way to study individual, situational, and environmental factors shaping police interactions, this study is not without its limitations. Centrally, our dependent variables are observed negative emotional states. This study does not measure the experienced emotions felt by either party; also, we do not claim these observed states reflect those experienced states. Rather, our coding procedure looks to the presence of displays of negative emotionality. Future research should attempt to validate and understand when observed emotional states and individual experienced emotional states align or diverge.

In addition to this, our study is limited by the fact that we cannot control for individual factors or other situational constructs. For example, individuals with higher levels of hostile attribution bias, perhaps due to prior negative police experiences, may view police behaviors as more hostile and be more likely to respond negatively to them (de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). This, in turn, might make it more likely that the police officer responds negatively as well, creating a feedback loop, which promotes further

negative emotionality. Indeed, this same process could occur from the police officer's perspective, as the police officer's attributional style might also lend itself to viewing civilian behaviors as more aggressive and less compliant. Although we are unable to measure levels of hostile attributional bias or other important individual and social–psychological constructs, we acknowledge that further work in these areas might help elucidate the link between officer and suspect emotions.

Another limitation of this study concerns the coding of observed emotional states and the data available. As Vigil (2009) discusses, expressed emotions exist on a continuum and are dynamic. People experience a range of emotions, with some easier and others more difficult to detect through displays of body language, facial cues, and voice (Aviezer, Trope, & Todorov, 2012). The BWC data coded are from the officer's perspective, making it difficult to assess the point of view of the civilian. As Aviezer et al. (2012) show, body cues are a primary way we interpret intense negative emotions; it is possible one of the reasons we do not detect high observed emotional states from officers is that we are limited by the point of view of the camera, which may be compounded by individual and organizational factors promoting emotional suppression. Future work should examine alternative data sources to further investigate this possibility.

Although it was necessary for sample size reasons for us to aggregate negative emotional states, future work should examine specific emotional dispositions. A larger sample size will allow for the disaggregation of negative emotional states into discrete emotional types (e.g., anger, rage, disgust). In addition, we believe it is important to model influences on positive emotional states. Police interactions are most often studied through a lens of negative emotion, though we readily observe in our data interactions with positive observed emotional states.

From a modeling perspective, we treat emotional states as static, which is consistent with prior research studies, though emotional states are dynamic and may be expressed at various levels and as different emotions from moment to moment. For example, as we observed in several incidents, a suspect would transition from relatively calm and slight frustration with behavioral signs of agitation to rage with the presence of violence directed at the officer. Vigil (2009) explains that many emotive gestures are pleiotropic (simultaneous displays of multiple emotions) and should be modeled dynamically. The current modeling undertaken used a static dependent variable for the highest observed emotional state and did not account for a change in that state. Future research should annotate BWC footage for each specific observed emotional state in an interaction and the intensity and duration of that state.

In addition, our inclusion of interruptions in our modeling, although important as a behavioral indicator, potentially confounds interruptions with emotional states. As there is a relationship between interruptions and emotional states (i.e., interruptions may be viewed as disrespectful behavior yielding complementary actions and negative emotions), it could be that interruptions are more likely to occur during emotionally intense interactions and that interruptions increase the emotional intensity of the interaction. Future research should collect the time points associated with each interruption and any changes in the emotional state.

CONCLUSION

The present study finds both significant and substantively meaningful results. Certain individual, situational, and environmental factors are associated with changes in observed

negative emotional states, though the prominence of the reciprocal relationship of emotional contagion between the officers' and community members' emotional states reasserts the importance of emotional regulation on the part of officers. Police–citizen encounters in our sample rarely become unmanageable/uncontrollable because officers stay calm even when involved in tense situations. Rather than matching similar emotions of the suspects, officers appear to regulate their emotions and undertake "complementary" actions likely intending to keep the emotions of the suspect from escalating. This does not mean officers do not express emotion. Rather, the officers in our study do so in ways that were not immediately apparent to the outside observer.

From a policy perspective, treating BWC footage as empirical data offers important reference points that can inform the development and evaluation of police training and interventions. In addition, as Makin (2016) highlighted, some officers discussed the practice of reviewing their prior footage as a form of self-correcting behavior. Police administrators and individual officers should take advantage of this valuable data to understand how best to interact with the community. If officers learn best from highlighting best practices within the agency, this footage offers an important opportunity to transform institutional culture from a punitive use of the footage to a focus on best practices. As our research demonstrates, there are considerable opportunities to explore officer behavior in situations that by all accounts should have escalated and did not. Why they did not escalate becomes an opportunity for officers, supervisors, and trainers to explore.

Undoubtedly, as the analysis of BWC footage becomes more advanced, future scholars will yield important insights into these subtler forms of emotional expression and how they can be used to de-escalate a situation. Police agencies are at a pivotal moment, where they may embrace this technology to learn or they can continue to treat it merely as archived footage, as a source of insurance against potential lawsuits. We believe the methodology we propose here will help agencies improve training and performance evaluations, as well as reduce future litigations. In treating BWC footage as data, we believe policing may be on the precipice of reevaluating how we train, supervise, and evaluate police.

REFERENCES

Agnew, R. (2006). *Pressured into crime*. Los Angeles, CA: Roxbury.

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, *53*, 27-53.

Ariel, B., Sutherland, A., Henstock, D., Young, J., Drover, P., Sykes, J., . . . Henderson, R. (2017). "Contagious accountability": A global multisite randomized controlled trial on the effect of police body-worn cameras on citizens' complaints against the police. *Criminal Justice and Behavior*, *44*, 293-316.

Aspinwall, L. G., & Taylor, S. E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin*, *121*, 417-436.

Aviezer, H., Trope, Y., & Todorov, A. (2012). Body cues, not facial expressions, discriminate between intense positive and negative emotions. *Science*, *338*, 1225-1229.

Babin, S., Koslicki, W., Vogel, R., Contestabile, J., Kohri, K., & Makin, D. A. (2018). *Resilient communications project: Body worn camera perception study phase 1*. Laurel, MD: Applied Physics Laboratory, The John Hopkins University.

Barkworth, J. M., & Murphy, K. (2015). Procedural justice policing and citizen compliance behaviour: The importance of emotion. *Psychology, Crime & Law*, *21*, 254-273.

Baumeister, R. F., Vohs, K. D., & Dice, D. M. (2006). Emotional influences on decision making. In J. P. Forgas (Ed.), *Affect in social thinking and behavior* (pp. 144-159). Palo Alto, CA: Psychology Press.

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin*, *106*, 59-73.

Bottoms, A., & Tankebe, J. (2012). Beyond procedural justice: A dialogic approach to legitimacy in criminal justice. *The Journal of Criminal Law and Criminology*, *102*, 119-170.

Breen, R., Karlson, K. B., & Holm, A. (2013). Total, direct, and indirect effects in logit and probit models. *Sociological Methods & Research*, *42*, 164-191.

Broidy, L., & Agnew, R. (1997). Gender and crime: A general strain theory perspective. *Journal of Research in Crime and Delinquency*, *34*, 275-306.

Brunson, R. K., & Weitzer, R. (2011). Negotiating unwelcome police encounters: The intergenerational transmission of conduct norms. *Journal of Contemporary Ethnography*, *40*, 425-456.

Chant, S., Jenkinson, T. I. M., Randle, J., & Russell, G. (2002). Communication skills: Some problems in nursing education and practice. *Journal of Clinical Nursing*, *11*(1), 12-21.

Collins, R. (2009). *Violence: A micro-sociological theory*. Princeton, NJ: Princeton University Press.

de Castro, B. O., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child Development*, *73*, 916-934.

De Cremer, D., & den Ouden, N. (2009). "When passion breeds justice": Procedural fairness effects as a function of authority's passion. *European Journal of Social Psychology*, *39*, 384-400.

Dembe, A. E., Erickson, J. B., Delbos, R. G., & Banks, S. M. (2005). The impact of overtime and long work hours on occupational injuries and illnesses: New evidence from the United States. *Occupational and Environmental Medicine*, *62*, 588-597.

DePaulo, B. M. (1992). Nonverbal behavior and self-presentation. *Psychological Bulletin*, *111*, 203-243.

Dolan, B., & Holt, L. (Eds.). (2013). *Accident & emergency: Theory and practice*. Edinburgh, UK: Elsevier Health Sciences.

Flynn, J. J., Hollenstein, T., & Mackey, A. (2010). The effect of suppressing and not accepting emotions on depressive symptoms: Is suppression different for men and women? *Personality and Individual Differences*, *49*, 582-586.

Garner, J. H., Maxwell, C. D., & Heraux, C. G. (2002). Characteristics associated with the prevalence and severity of force used by the police. *Justice Quarterly*, *19*, 705-746.

Gau, J. M., Mosher, C., & Pratt, T. C. (2010). An inquiry into the impact of suspect race on police use of tasers. *Police Quarterly*, *13*(1), 27-48.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional contagion: Cambridge studies in emotion and social interaction*. Cambridge, UK: Cambridge University Press.

Holmes, M. D., & Smith, B. W. (2008). *Race and police brutality: Roots of an urban dilemma*. Albany: SUNY Press.

Kahn, K. B., Goff, P. A., Lee, J. K., & Motamed, D. (2016). Protecting whiteness: White phenotypic racial stereotypicality reduces police use of force. *Social Psychological and Personality Science*, *7*, 403-411.

Klinger, D. A. (1995). The micro-structure of nonlethal force: Baseline data from an observational study. *Criminal Justice Review*, *20*, 169-186.

Kop, N., Euwema, M., & Schaufeli, W. (1999). Burnout, job stress and violent behavior among Dutch police officers. *Work & Stress*, *13*, 326-340.

LaFrance, M. (1992). Gender and interruptions individual infraction or violation of the social order? *Psychology of Women Quarterly*, *16*, 497-512.

Littlejohn, E. J., Smitherman, G., & Quick, A. (1984). Deadly force and its effects on police-community relations. *Howard Law Journal*, *27*, 1131-1184.

Macnamara, J. R. (2005). Media content analysis: Its uses, benefits and best practice methodology. *Asia-Pacific Public Relations Journal*, *6*(1), 1-34.

Makin, D. A. (2016). When the watchers are watched: An interpretive phenomenological analysis of body-worn cameras. *Journal of Qualitative Criminal Justice & Criminology*, *4*, 113-151.

Makin, D. A. (2017). Avoiding the technological panacea: The case of the body-worn camera. In L. J. Moriarty (Ed.), *Criminal justice technology in the 21st century* (3rd ed., pp. 86-102). Springfield, IL: Charles C Thomas Publisher.

Martin, S. E. (1999). Police force or police service? Gender and emotional labor. *The Annals of the American Academy of Political and Social Science*, *561*, 111-126.

Murphy, K., & Tyler, T. (2008). Procedural justice and compliance behaviour: The mediating role of emotions. *European Journal of Social Psychology*, *38*, 652-668.

Nowacki, J. S., & Willits, D. (2016). Adoption of body cameras by United States police agencies: An organisational analysis. *Policing and Society*, *40*(1), 1-13.

Reisig, M. D., McCluskey, J. D., Mastrofski, S. D., & Terrill, W. (2004). Suspect disrespect toward the police. *Justice Quarterly*, *21*, 241-268.

Schaible, L. M., & Six, M. (2015). Emotional strategies of police and their varying consequences for burnout. *Police Quarterly*, *19*(1), 3-31.

Schaufeli, W. B., Maslach, C., & Marek, T. (Eds.). (2017). *Professional burnout: Recent developments in theory and research*. Washington, DC: Taylor & Francis.

Stoughton, S. W. (2018). Police body-worn cameras. *North Carolina Law Review*, *96*, 1363-1424.

Sugimoto, J. D., & Oltjenbruns, K. A. (2001). The environment of death and its influence on police officers in the United States. *Journal of Death and Dying*, *43*, 145-155.

Sunshine, J., & Tyler, T. R. (2003). The role of procedural justice and legitimacy in shaping public support for policing. *Law & Society Review*, *37*, 513-548.

Terrill, W. (2003). Police use of force and suspect resistance: The micro-process of the police-suspect encounter. *Police Quarterly*, *6*, 51-83.
Terrill, W. (2005). Police use of force: A transactional approach. *Justice Quarterly*, *22*, 107-138.
Terrill, W., & Mastrofski, S. D. (2002). Situational and officer-based determinants of police coercion. *Justice Quarterly*, *19*, 215-248.
Terry, W. C. (1981). Police stress: The empirical evidence. *Journal of Police Science and Administration*, *9*, 61-75.
Toch, H. (2002). *Stress in policing*. Washington, DC: American Psychological Association.
van Gelderen, B., Heuven, E., Van Veldhoven, M., Zeelenberg, M., & Croon, M. (2007). Psychological strain and emotional labor among police-officers: A diary study. *Journal of Vocational Behavior*, *71*, 446-459.
Vigil, J. M. (2009). A socio-relational framework of sex differences in the expression of emotion. *Behavioral and Brain Sciences*, *32*, 375-390.
Wikström, P. O. H., Oberwittler, D., Treiber, K., & Hardie, B. (2012). *Breaking rules: The social and situational dynamics of young people's urban crime*. Oxford, UK: Oxford University Press.
Williams, R. (2006). Generalized ordered logit/partial proportional odds models for ordinal dependent variables. *The Stata Journal*, *6*, 58-82.
Williams, R. (2016). Understanding and interpreting generalized ordered logit models. *The Journal of Mathematical Sociology*, *40*(1), 7-20.
Willits, D. (2015). Situational predictors of violent intentions: Results from a factorial survey. *The Social Science Journal*, *52*, 176-187.
Willits, D. W., & Makin, D. A. (2018). Show me what happened: Analyzing use of force through analysis of body-worn camera footage. *Journal of Research in Crime and Delinquency*, *55*, 51-77.
Zajonc, R. B. (1965). Social facilitation. *Science*, *149*, 269-274.

David A. Makin is the lab director of the Complex Social Interactions Lab and assistant professor in the Department of Criminal Justice and Criminology at Washington State University. His research explores the impact of technology and policy on public safety, sustainable technology integration, systemic social observation and event modeling, and refinement of, and evaluation of, public safety education and training.

Dale W. Willits is an assistant professor in the Department of Criminal Justice and Criminology at Washington State University. His research explores the situational dynamics of criminal justice interactions, with a focus on policing, race, and violence.

Wendy Koslicki, PhD, is an assistant professor at the Department of Criminal Justice and Criminology at Ball State University. Her research interests include U.S. police culture, police equipment and technology, and mixed methodology research designs.

Rachael Brooks is the lab manager of the Complex Social Interactions Lab and doctoral student in the Department of Criminal Justice and Criminology at Washington State University. Her research interests are primarily focused on police training and reform.

Bryce J. Dietrich is an assistant professor of social science informatics at the University of Iowa. His research uses novel quantitative, automated, and machine learning methods to analyze nontraditional data sources such as audio (or speech) data and video data. His work has appeared in a variety of peer-reviewed outlets and has been covered by FiveThirtyEight and *The Economist*.

Rachel L. Bailey is an assistant professor at Florida State University. Her research program seeks to explicate complex human interactions with and via media and is rooted in biological and evolutionary perspectives including embodied cognition, situated cognition, and motivated cognition.