

Decision Rife with Emotions: Understanding Police Decision Making

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Abstract

Police officers make high-stake decisions that evoke strong emotions. Understanding the emotions anticipated by varying decisions can help to identify the drivers of poor decision making. In this study, we examine anticipated emotions and decision options that may help prevent or mitigate negative emotion (e.g., regret and embarrassment) and enhance or produce positive emotions (e.g., pride and peace). We examine these emotions as outcomes from decision making, using a sample of 120 police officers. Participants were presented with a hypothetical scenario, reflective of police work, and asked to report the likelihood of making varying decisions. Participants also reported the likelihood of anticipated discrete emotions, based on each decision. Our results revealed differences in anticipated emotions based on decision, interactive effects of the type of decision being made, and distinctive emotional patterns. Rational, intuitive, and dependent decisions were associated with clear patterns of emotional responses, while avoidant and spontaneous decisions produced varying findings. We discuss these findings and highlight implications for practice.

Keywords Decision making · Police · Effect · Emotion

"One ought to hold on to one's heart; for if one lets it go, one soon loses control of the head too." – Friedrich Nietzsche

Police officers make high-stake decisions. Often, these decisions are poorly made with widespread evidence of this seen in news broadcast for decades. It is imperative to understand and positively influence the factors that impact decisions made by police officers. Of the many factors affecting police decision making, we focus on emotions. In police work, emotional distancing and depersonalization are common practices used to avoid confronting negative or distressing emotions (Lennie et al. 2020). Yet, decision making can both be influenced by emotions and produce strong emotional responses. For example, emotions prime or serve as informational cues, to inform courses of action or serve as integral outcomes (Forgas 1995; Västfjäll et al. 2016).

Broadly, two categories of emotions influence decision making: actual and anticipated (Ng and Wong 2008).

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² Department of Psychology, Southern Illinois University, Edwardsville, IL 62025, USA Decisions arousing anticipated emotions possibly influence decision choices based on one's desire either to prevent or enhance an emotion. Thus, emotions in decision making may act as a prohibitive force, particularly if negative emotion is anticipated, during action (Anderson 2003; Fredin 2008; Gross 1998). Trait and state affect as well as discrete emotions function to inform decision making (Brown and Stuhlmacher 2020). Still, research examining affect as a consequence of decision making is much less common than research examining affect as preceding or input to decision making (George and Dane 2016).

The purpose of the present study is to examine anticipated emotions and decision choices that may help prevent or mitigate negative emotion (e.g., regret and embarrassment) and enhance or produce positive emotions (e.g., pride and peace) among police officers. We examine emotions as outcomes from decision making, rather than input to the decision making process, adding to the overall nomological network of workplace affect and decision making in police work.

Overview of Decision Making Processes and Styles

Decision making involves making a choice regarding action. Prescriptive decision making tends to be more rationality-based and geared toward accurate and efficient decision making, than more emotion-based, less

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rational processes (Brown and Stuhlmacher 2020). The dual-process models, which include "reflective" and "intuitive" processes, signals deeper cognitive processes versus quicker, surface-level choices, respectively (Evans 2003). These two broad processes are contrasting cognitive styles—analytic or intuitive—and are somewhat consistent across decision making phases (Hunt et al. 1989).

Decision making style are "a habitual pattern individuals use in decision making" (Driver, 1979, as cited in Scott and Bruce 1995; p. 818). Driver later argued (1990) that although individuals can use aspects of any or all the styles, that over time, they develop a preferred primary style. Scott and Bruce (1995), based on a review of the extant decision making style literature, proposed, confirmed, and developed a measure for the most consistently recognized conceptualization of decision making styles. They initially proposed and later validated the following four, rational, intuitive, dependent, and avoidant, and supported the existence of a new style which was not captured specifically by prior work: the spontaneous style. Scott and Bruce (1995) confirmed the conceptual independence of the five styles but argued that they are not mutually exclusive.

Further supporting the supposition of individual preferences for styles, Thunholm (2004) found that decision making is related to habitual responding. Specifically, regarding personality relationships, rational, dependent, and avoidant but not intuitive and spontaneous, are predicted by self-esteem (Thunholm 2004) such that generally, rational styles are positively related and dependent, and avoidance is negatively related to self-esteem. In addition to a focus on decision making styles, an extensive body of literature exists related to the interplay between decision making and affect (e.g., Anderson 2007; George and Dane 2016; Forgas 1995; Forgas and George 2001; Lerner et al. 2015; Västfjäll et al. 2016).

While research examining affect as a consequence of decision making is scarcer than affect as preceding or input to decision making (George and Dane 2016), van Dijk and Van der Pligt (1997) found that disappointment and elation result from complex cognitions. Positive emotions (e.g., elation) signify a positive state of affairs and no need for adjustments, whereas negative emotions signify a problem and need to intervene (George and Dane 2016).

Emotions and Decision Making

Emotions are often examined as predictors of using a certain decision making style (see Lerner et al. 2015), and less frequently, emotion, particularly discrete emotions, have been studied as an outcome of different decision making styles. We develop arguments that choosing a decision based on rationality or intuition should lead to positive feelings, and dependence and avoidance should lead to negative outcomes. We chose the four anticipated discrete emotion outcomes also based on a nuanced examination and understanding of the context within which the decision making was occurring: police work.

Police work is inherently emotional (Au et al. 2019; Daus and Brown 2012; Rafaeli and Sutton 1987). Yet often the emotion work of police is discussed in the context of management of emotion (i.e., emotion regulation and/ or emotional labor; Daus and Brown 2012; Martin 1999; Schaible and Gecas 2010; Van Gelderen et al. 2017), and if a discrete emotion is studied, it is very often anger (Brown and Daus 2015, 2016; Daus and Brown 2012). Research regarding emotional outcomes from police decisions and decision making is nearly non-existent, with the notable exceptions of anticipated regret and anger.

We paralleled other research (e.g., Bagozzi et al. 2017; Schneider et al. 2017) and examine two self-conscious emotions, one positive (pride), and one negative (embarrassment).

Pride is a "self-conscious" emotion (Lazarus 2000), which involves a sense of self combined with an understanding of societal norms and standards (Lewis 2008) and has a rich empirical history, with some examination within the police context (Gooty et al. 2014; Zipay et al. 2021). The other self-conscious emotion-embarrassment-is a social emotion that people wish to avoid (Dong et al. 2013), including police. Embarrassment is experienced when an individual project discordant impression of themselves or makes a mistake, when in the presence of others (Basch and Fisher 1998; Goffman 1963). It has been observed that officers had a desire to avoid feelings of embarrassment when recording, classifying, and investigating reported crimes (Bottomley and Coleman 1981). In addition to selfconscious emotions, we also examine two emotional outcomes that were not considered self-conscious emotions (regret and at peace).

Regret is generally experienced as negative and arises from cognitive processes which suggest that our outcome might have been better had we made another choice (Zeelenger 1999). People wish to avoid regret, and thus, choices are made to help facilitate this avoidance (Dijk and Harreveld 2008). For being at peace, certain decision choices based on particular decision styles might lead one to experience contentment and/or satisfaction with their decision. Specifically, regarding contentment for police, it often arises from successfully completing primary work tasks which includes upholding the law (van Gelderen et al. 2014). Thus, we assume that officers would choose the behavior to act in a scenario that would lead them to feel content with their decision. This contentment or being at peace is the emotional concomitant of "satisfaction with a decision" which has been studied extensively, particularly with consumer/customer/client samples (e.g.,

Sainfort and Booske 2000; Wang and Shukla 2013). We predict that these four discrete emotional outcomes will vary depending upon which decision making style is reflected in the option an officer chose.

Emotions by Decision Making Situation

Emotional response will vary by situation because context matters (Johns, 2006). Although police work is largely high stakes, there are some situations that will more greatly impact officers, resulting in more intense or varied emotional responses. In fact, the factors at play in the context of police work present multiple contextual factors that call for contingent approaches to decision making. The severity of decision reinforces the importance of considering resultant emotions and has been examined within risky accounting contexts (e.g., Moreno et al. 2002; Rahman and De Feis 2009). Time and complexity matter and shift what decision making model is most or least appropriate for a given situation. In low time pressure and low complexity situations, a rational decision making model might be most appropriate (Grossman et al. 2014). However, in high time pressure situations, a more intuitive decision making might be most suitable (Brown and Daus 2015). Outcomes from research in high-risk/high-stake situations such as anesthesiology, where errors are often due to faulty decision making, have shown that a switch from spontaneous and/or use of heuristics to rational decision making is critical to prevent errors (Stiegler and Ruskin 2012). One example of this is cognitive forcing strategies which encourage critical self-evaluation and monitoring during the decision making process. These are designed to prevent errors by reducing automated, heuristic thinking and instead forcing deliberate, conscious consideration of alternatives (CrosKerry 2003).

Thus, we expect that the severity of the situation will have an impact on the likelihood of selecting each decision option such that officers will be more likely to agree with using more rational, deliberative options for the less risky, ticket scenario and the more spontaneous, less deliberative option for the riskier and more time-sensitive, domestic violence scenario. Additionally, the emotional response patterns will vary, based on decision options.

As well, we expect officers to anticipate feeling stronger emotions from a decision outcome when the situation is more extreme. Much akin to Locke's range-of-affect proposition, we propose a greater potential range of emotion for more extreme situations. Locke proposed and found (1969, 1976; Mobley and Locke 1970) that people had much wider attitudinal responses (i.e., satisfaction) when evaluating something that held high value for them versus something they valued less. Although Locke's work examined attitudes (and not affect) and values (and not decisions), the logic is parallel. **Hypothesis 1** There will be a significant difference between decision making approach and decision type such that the (a) rational option will be more associated with the less time-sensitive decision than the more time-sensitive decision and the (b) spontaneous option more associated with the more time-sensitive decision than the less time-sensitive decision.

Hypothesis 2 There will be an interaction between decision type and decision approach in influencing emotional responses such that there will be differences in the emotional profiles for the (a) rational, (b) intuitive, (c) dependent, (d) avoidant, and (e) spontaneous decision options by decision type.

Emotions and Decision Making Options

Rational

We reason that when people feel as if they have made decisions rationally, they are likely to feel good about the decision. In fact, of the five styles, only rational was positively predictive of both peer and self-reports of decision quality, which included satisfaction with choice (Wood and Highhouse 2014). Reflective style, which is slow, effortful, conscious, analytical, and rule-based (Phillips et al. 2016), corresponds with the rational decision making style. Across many types of tasks, reflective thinking styles positively predicted both performance and experience, which includes satisfaction with the decision (Phillips et al. 2016). As mentioned, we expect our "at peace" emotional outcome to parallel these satisfaction findings related to rationality.

Using a decision making style that one feels is rational then should at least produce the perception that the decision will be successful and will not result in errors or negative outcomes. Again, one should feel "at peace" or satisfied with the decision made, regardless of the severity of the decision. As an early example, in a study of family budgetary decision making, family members were satisfied with decisions when an economic reasoning model was used, which is similar to rational decision making (Kourilsky and Murray 1981).

We also expect more pride from rationality. In the work context, pride is often felt because of feeling positive about recognition received, one's positive reputation, and goal progress (Basch and Fisher 1998), as well as when one feels they can take credit for benevolent behavior (Zipay et al. 2021). The relationship between pride and rational decision making is poignantly illustrated with the following assertions derived from a study of CEO's ethical decision making: "Practicing the virtue of pride means striving to be rational – to adhere to facts...and striving to have integrity-acting on rational principles" (Woiceshyn 2011, p. 317). As well, Woiceshyn (2011) employed rational egoism to

describe the interplay between healthy pride and rational, ethical decision making.

In addition, we predict that embarrassment should be low if one perceives they decided rationally. Research shows that anticipating or experiencing embarrassment is related to discontinuing a course of action that is perceived to be failing (Brundin and Gustafsson 2013). In our scenarios, we provide situations where participants made a judgement about what they *would* do; thus, they would not perceive that their choice was a failure, particularly if they used what they perceived to be a rational decision making process. Similarly, we expect lower anticipated regret when police officers perceive they decided rationally.

Hypothesis 3 Rational decision making will be associated with high reports of (a) being at peace and (b) pride and low reports of (c) embarrassment and (d) regret.

Intuitive

Most conceptualizations of intuition consider it as an experience-based phenomenon or as one that has strong sensory and affective components (Sinclair and Ashkanasy 2005). Sadler-Smith and Shefy (2004) similarly discuss that intuition develops both from experiences over time (as sensing—feeling) as well as from knowing—which is rooted in expertise, and they report on a study where executives describe that their intuition is primarily developed from experience. Continuing the two-dimensional nature of intuition, Dunn and colleagues defined it as "automatic, emotional judgments about whether the contemplated response is a good or a bad option" (Dunn et al. 2010, p. 1838—summarizing Kahneman, 2003). Intuition is positively associated with the experience of the decision making process, including feeling satisfied (Burke and Miller 1999; Phillips et al. 2016).

Yet even if the outcome is unknown (as in our paradigm), since intuitive decision making largely derives from experience (Sadler-Smith and Shefy 2004; Sinclair and Ashkanasy 2005), people using intuition should feel good about their decisions. Indeed, Wood and Highhouse found that the intuitive style was the only other style (along with rational) that predicted self-reports of satisfaction with decision outcomes, and we predict similarly (e.g., more at peace). We also predict pride from utilizing their intuitive expertise to decide. Concomitantly, officers should anticipate feeling less embarrassment and regret because they chose the option that they felt best for the situation and perceived that they relied on their expertise to do so.

Hypothesis 4 Intuitive decision making will be associated with high reports of (a) being at peace and (b) pride and low reports of (c) embarrassment and (d) regret.

Dependent, Avoidant, and Spontaneous

Use of dependent decision making style is often associated with feeling regret (Parker et al. 2007), and we expect officers' reporting of dependence to be positively associated with both anticipated regret and embarrassment. Some research (Galotti et al. 2006) shows dissatisfaction with one's decision when having used a dependent style: for example, in terms of choosing a college major, those who reported using more reliance or dependence on others felt less positively about their decision (which included satisfaction with the decision). Thus, we predict that a more dependent choice will be related to feeling less at peace and proud. This prediction is also inherently underscored by Woiceshyn (2011, p. 317) who states that "Practicing the virtue of pride means...striving to be independent-focusing primarily on reality, not on other people.")

Hypothesis 5 Dependent decision making will be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret.

Like for the dependent style, we predict negative emotional outcomes for an avoidant decision choice. Generally, avoidant decision making as a style is associated with negative stress, lower self-esteem, less regulatory ability, and challenges with following through on intentions with action (Bavol'ar and Orosove 2015; Salo and Allwood 2011; Thunholm 2008), and avoiding or procrastinating deciding is associated with depressive symptomatology (Leykin and DeRubeis 2010). Furthermore, avoidant decision making style was inversely predictive of decision making competence (Bavol'ar and Orosove 2015).

Regarding avoidant style of police, avoidant decision making *style* of police officers is positively predictive of officers anticipating that they would feel regret from their decision (Brown and Daus, 2016). Parker and colleagues (2007) also found avoidant style to be positively related with regret. We thus predict similarly that an avoidant decision *choice* option will positively predict regret.

Although as noted in the opening that emotions as outcomes from decision choices are much less frequently studied than as input, we did find empirical support regarding avoidance and negative outcomes. In an ethnographic study of British orchestras, the authors (Maitlis and Ozcelik 2004) describe the recursive processes of how avoidance and toxic emotions (anxiety, fear, shame, anger, and embarrassment) expand upon and reinforce each other creating a vicious cycle. In other words, if a group avoids tackling a problem, negative emotions ensue (because the problem remains unaddressed and may worsen), and then those negative emotions serve to further prevent engagement with the issue. We expect an avoidant choice to result in negative emotions and fewer positive emotions.

Hypothesis 6 Avoidant decision making will be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret.

Finally, spontaneous decisions are perhaps the least clear of the five decision making options as the emotional responses to spontaneity, we argue, will be heavily dependent on outcome, as discussed above. On the one hand, it could be argued that in one of our scenarios, the domestic violence one, police, by default must make somewhat of a spontaneous decision, but in the other scenario of deciding whether to give a ticket, they would perceive that they have more time to think carefully about the decision choice. Nevertheless, for consistency, we include hypotheses for the spontaneous option as guided by extant evidence. For example, people who often use a spontaneous decision style tend to feel more regret (Parker et al. 2007) and have lower decision making competence (Bavol'ar and Orosove 2015). However, we expect that spontaneity, especially under the high-risk conditions of police work, may result in higher perceived stress from deciding too quickly. Consequently, this may interfere with a feeling of being at peace, less feelings of pride, and more embarrassment and regret, especially if the outcome is negative.

Hypothesis 7 Spontaneous decision making will be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret.

As the present study was part of a larger study which hypothesized country/cultural differences, we had access to police from two different countries, the USA and Jamaica. The only significant difference found in that prior work (Brown and Daus 2015) was that Jamaican officers reported more use of an avoidant style of decision making. Regarding cultural differences between the USA and Jamaica, based on Hofstede's early (1984) work on cultural dimensions, he found Jamaica and the USA to differ significantly on uncertainty avoidance (the preference for things to be clear and not ambiguous) with Jamaica being notably lower and individualism/collectivism with the USA being notably higher on individualism and Jamaica on the opposite end of the dimension, as more collectivistic. However, more recent research (Gooden and Preziosi 2004; Nicely 2019) has shown that perhaps the gap between the two countries has closed with them being more similar on these dimensions than prior. Due to little prior research (which is currently somewhat conflicting) between the cultures generally of the USA and Jamaica and limited empirical evidence regarding either decision making, anticipated emotions, and/ or policing, we chose to examine culture differences as an open research question.

Research question Will anticipated emotion outcomes differ by home country of participants and/or the interaction of scenario type by home country?

Method

Participants

Participants included 120 law enforcement officers, with 71 officers from the USA and 49 from Jamaica. Contact was made with responsible parties from several police departments in a Midwestern city in the USA and another from Kingston, Jamaica. Participation was requested, and officers were asked to volunteer with guarantee given of anonymity and confidentiality. Officers were also assured that the responses would in no way affect their jobs. Of the sample, 84% was male and 16% female. Regarding race, 60% of the sample included Caucasians, 39% were Black/African American, and 1% Hispanic. Participants had an average of 11 years of experience, and the average age (M) was 36 (SD=8.21). The average number of hours worked per week was 43 (SD=11.38).

Procedure

Data were collected using realistic decision making scenarios and questionnaires, which assessed demographic information, decision making styles, and discrete emotions. First, the officers completed the measure of decision making style, using the General Decision Making Style Inventory (GDMS; Scott and Bruce 1995). This measures five decision making styles including rational, dependent, avoidant, intuition, and spontaneous. Officers also completed the demographic measure. Second, officers read the decision making scenarios describing either a domestic violence situation or traffic ticket situation. After reading each scenario, officers were asked to indicate the likelihood they would respond in accordance with five discrete choices, created based on the five decision making styles per Scott and Bruce (1995). Third, officers then indicated the likelihood of experiencing several discrete emotions (i.e., pride, being at peace, embarrassment, and regret). Prior to asking about the anticipated emotional responses to the decision options, participants were primed to shift to questions about the effect by questions about the extent to which each decision option would change their mood.

Measures

Decision Making Style

The General Decision Making Style Inventory (GDMS; Scott and Bruce 1995) is a 24-item questionnaire that measures individual decision making styles using a 5-point rating scale (1 = strongly disagree to 5 = strongly agree). The GDMS identifies the rational, intuitive, avoidant, dependent, and spontaneous styles with an internal consistency ranging from .70 to .84 (Gambetti et al. 2008). The subscale alphas for the GDMS in the current study are .86 (rational), .67 (intuition), .81 (avoidant), .68 (dependent), and .80 (spontaneous). Sample items (Scott and Bruce 1995, pg. 825–826) include "I make decisions in a logical and systematic way" (rational); "I avoid making important decisions until the pressure is on" (avoidant); "I rarely make important decisions without consulting other people" (dependent); "When I make decisions, I tend to rely on my intuition" (intuitive); and "I generally make snap decisions" (spontaneous).

Decision Approach

To operationalize decision approach, two vignettes were created requiring decisions representative of law enforcement officers' responsibilities, with input from a subject matter expert (i.e., Police Chief from Midwestern town). Experimental vignette methodology has been used extensively in psychology research and can enhance experimental realism while manipulating independent variables, which enhances both internal validity and external validity (Aguinis and Bradley 2014; Atzmuller and Steiner 2010). Experimental vignette methodology can be used to study explicit (i.e., paper people studies) processes and outcomes related to decision making and is useful when variables are known to correlate and/or when it is difficult to manipulate independent variables (Aguinis and Bradley 2014). For this study, the use of vignettes was appropriate, given the nature of the research questions and the possible challenge with collecting data on actual decisions about issuing tickets and discharging a weapon in a high-stake situation.

The vignettes varied based on the nature of the decision, with one being more high risk. That is, one situation required deciding about the use of force in a domestic violence situation, while the other required a decision about issuing a speeding ticket. We developed specific decision approaches which mapped onto the five decision styles for each of the two scenarios. The five decision approaches were created, after consultation with subject matter experts (SMEs) and based on definitions of established decision making styles (i.e., rational, intuitive, avoidant, dependent, and spontaneous; Scott and Bruce 1995), and participants were asked to indicate the likelihood they would respond based on each statement of action. For example, "How likely would it be for you to: think about what other officers have done in the past?" was used to represent a dependent decision making style. There was one Likert-scale question for each of the five decision making styles.

Discrete Emotions

Participants were also asked to rate the extent to which they anticipated feelings of additional emotions such as pride, being at peace, embarrassment, and regret and a general question about the impact the decision would have on their mood. These questions were asked for each of the five decision choices by decision style.

Demographic Measure

Demographic information collected included age, race, gender, job role, hours worked per week, and years of experience within law enforcement.

Results

The means, standard deviations, and intercorrelations are reported in Table 1. As seen in Table 1, several decision making styles correlated with the anticipated discrete emotions. For example, intuitive decision making style negatively correlated with regret (r=-.28) and embarrassment (r=-.32). Additionally, the actual decisions made, in response to the scenario, also negatively correlated with certain discrete emotions including pride (r=-.20), regret (r=-.25), and embarrassment (r=-.39).

Table 2 includes means and standard deviations for each emotion by decision option and scenario. We present detailed results, based on our hypotheses in the section below.

Hypothesis 1 predicted that there would be a significant difference between decision making option and scenario such that the (a) rational option would be more associated with the ticket scenario than the domestic violence scenario and the (b) spontaneous option more associated with the domestic violence scenario than the ticket scenario. Results indicated that, for the rational option, there was a significant effect for decision type (t(114) = -4.26, p < .001), with participations being more likely to select using a rational approach for the ticket (M = 3.35, SD = 1.16) than the domestic violence scenario (M = 2.37, SD = 1.31). Additionally, for the spontaneous option, there was a significant effect for decision type (t(115) = -3.31, p < .001), with participants being more likely to use a spontaneous approach for the ticket (M=4.10, SD=.95) than the domestic violence scenario (M = 3.36, SD = 1.44), which is opposite from our predictions. Thus, Hypothesis 1 was partially supported.

To test our remaining hypotheses, we conducted our statistical analyses using the general linear model of repeated measurements. This analysis allowed us to conduct profile analyses. Profile analysis is a special application of multivariate analysis of variance (MANOVA) in situations where there are several dependent variables (DVs),

Table 1 Intercorrelations between decision making styles, decision, and discrete emotions

		1	2	3	4	5	6	7	8	9 10	11	12	13	14	15
1	Rational DMS	(.86)													
2	Intuition DMS	.04	(.67)												
3	Avoid DMS	23^{*}	.05	(.81)											
4	Dependence DMS	.23*	05	.28**	(.68)										
5	Spontaneous DMS	.04	.36**	.29**	.12	(.80)									
6	Rational Approach	.05	.08	06	.04	16	-								
7	Intuitive Approach	.06	.03	.00	$.18^{*}$.03	12	-							
8	Avoidant Approach	.10	05	07	.07	10	$.20^{*}$	06	-						
9	Dependent Approach	.06	.00	.07	.28**	06	.05	.28**	$.20^{*}$	-					
10	Spontaneous Approach	23*	02	05	16	04	.09	33**	.05	10 -					
11	Mood	.13	23*	.14	.21*	12	01	.29**	.21*	.33**36*	*	-			
12	Pride	.11	03	.13	.25**	09	01	.24*	.24**	.37**04	.55**		-		
13	Regret	.06	28**	.25**	.13	.00	20^{*}	.13	01	.33**36*	* .66**	.49**		_	
14	Embarrassment	.09	32**	.21*	.22*	06	22^{*}	.21*	09	.35**35*	* .59**	.44**	$.80^{**}$	-	
15	Peace	.12	.11	04	.05	10	.29**	01	.31**	.29**04	.34**	.52**	.15	.06	_

Cronbach's alpha included on the diagonal

 $N = 120; \ ^{*}p < .05; \ ^{**}p < .01$

which offers a multivariate alternative to the univariate F test for the within-subject effect and its interactions (Bulut and Desjardins 2020). Decision response measured

by Likert-type scale was predicted in a repeated measure general linear model that included decision approach as a 5-level within-subject factor, scenario type as a 2-level

Table 2Means and standarddeviations for discrete emotionsby scenario and decisionapproach

	DV		Т		Total		
	М	SD	M	SD	М	SD	
Rational							
Pride	1.38	3.46	2.46	1.22	2.97	1.39	
Regret	1.85	1.26	1.86	1.03	1.85	1.15	
Embarrassment	1.69	1.05	1.64	0.94	1.67	1.00	
Peace	4.07	1.17	3.36	1.34	3.72	1.30	
Intuitive							
Pride	2.64	1.00	2.64	1.31	2.64	1.16	
Regret	2.03	0.92	2.05	0.98	2.04	0.95	
Embarrassment	1.95	0.94	1.66	0.91	1.80	0.93	
Peace	3.60	1.26	3.43	1.19	3.52	1.22	
Dependent							
Pride	2.39	1.05	2.50	1.06	2.44	1.05	
Regret	2.27	1.00	2.13	1.01	2.20	1.00	
Embarrassment	2.07	1.00	1.85	0.83	1.96	0.93	
Peace	3.03	1.20	3.13	1.18	3.08	1.19	
Avoidant							
Pride	2.23	1.21	2.60	1.18	2.42	1.21	
Regret	2.84	1.41	1.95	0.87	2.39	1.25	
Embarrassment	2.35	1.29	1.78	0.92	2.06	1.15	
Peace	2.61	1.24	3.38	1.25	3.00	1.30	
Spontaneous							
Pride	2.22	1.35	2.60	1.26	2.41	1.31	
Regret	3.41	1.31	2.22	1.17	2.82	1.37	
Embarrassment	3.33	1.36	1.81	1.03	2.57	1.42	
Peace	2.36	1.19	3.29	1.20	2.83	1.28	

DV domestic violence, T ticket

Table 3 Test of between-subject effects

Source	Type III sum of squares	df	F	Sig	
	squares				
Rational					
Intercept	2985.96	1	1509.78	<.001	
Scenario	21.91	1	11.08	.001	
Error	223.49	113			
Intuitive					
Intercept	2900.00	1	1472.32	<.001	
Scenario	1.46	1	.74	.39	
Error	224.54	114			
Dependent					
Intercept	2645.68	1	1 1134.40		
Scenario .16		1	.07	.79	
Error	258.88	111			
Avoidant					
Intercept 2801.09		1	1153.14	<.001	
Scenario .77		1	.32	.57	
Error	274.49	113			
Spontaneous	5				
Intercept	ntercept 3276.49		1246.62	<.001	
Scenario	14.14	1	5.38	.02	
Error 299.63		114			

between-subject factor, and the interaction term to test differences in decision response profiles by scenario type.

In profile analysis, the between-subject test allowed us to test if there was a significant difference in the emotions profiles of the groups studied. Table 3 shows the between-subject results. Significant effects were observed for the rational (F(1,113)=11.08, p=.001) and spontaneous (F(1,114)=5.38, p=.02) decision options. Figures 1, 2, 3, 4 and 5 show the emotions profiles for all decision approach by scenario.

Fig. 1 Estimated marginal means for emotional responses for rational decision making. *Note.* This figure illustrates the pattern of anticipated discrete emotions in response to rational decisions about two different scenarios

Table 4 shows the analysis of the within-subject test. In profile analysis, these results indicate the extent to which they are parallel between the groups (i.e., parallelism test) and nature of the profiles (i.e., flatness test). The parallelism test determines the extent to which each segment of a profile is identical and is assessed using a one-way MANOVA. If the null hypothesis of parallelism is rejected, this indicates that there is a significant interaction between scenario type and the decision options. The flatness test determines the extent to which the profiles are flat within any group (i.e., there are no differences in the average values of the variables across multiple measurement points; Bulut and Desjardins 2020). We discuss results for the parallelism tests first, followed by flatness.

For Hypothesis 2, we predicted that there would be an interaction between scenario type and decision approach in influencing emotional responses such that there will be significant differences in the emotional profiles for the (a) rational, (b) intuitive, (c) dependent, (d) avoidant, and (e) spontaneous decision approaches. From the results presented in Table 4, we observed that there was a significant difference between the profiles for rational choice by scenario type (F(2, 224) = 5.78, p = .003). For the intuition approach, there was no significant difference between the profiles by scenario type (F(4, 436) = .72, p = .498). For dependent, there was no significant difference between the profiles by scenario type (F(2, 247) = 1.12, p = .331). For avoidant, there is a significant difference between the profiles by scenario type (F(2,264) = 16.59, p < .001). Finally, for spontaneous, there is a significant difference between the profiles by scenario type (F(2,200 = 35.08, p < .001). Therefore, the profiles for the rational, avoidant, and spontaneous options were not parallel, indicating interactions between those choices and scenario thus partially supporting Hypothesis 2 (for these three options).

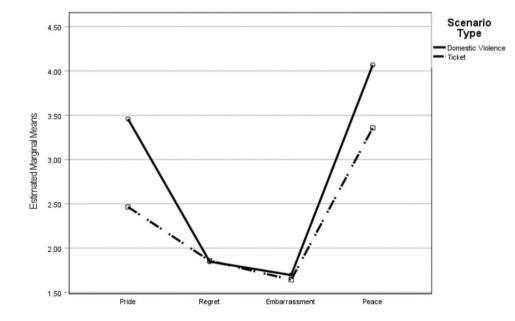
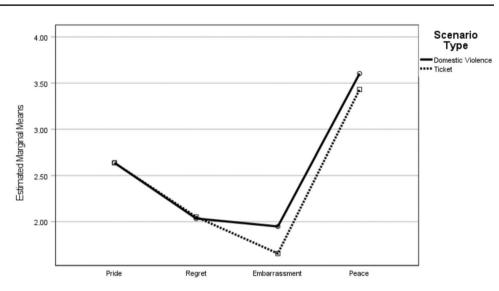


Fig. 2 Estimated marginal means for emotional responses for intuitive decision making. *Note.* This figure illustrates the pattern of anticipated discrete emotions in response to intuitive decisions about two different scenarios

Fig. 3 Estimated marginal means for emotional responses for dependent decision making. *Note.* This figure illustrates the pattern of anticipated discrete emotions in response to dependent decisions about two different scenarios



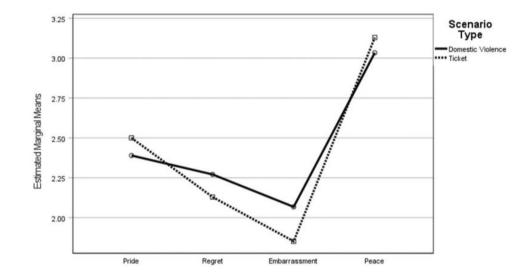


Fig. 4 Estimated marginal means for emotional responses for avoidant decision making. *Note.* This figure illustrates the pattern of anticipated discrete emotions in response to avoidant decisions about two different scenarios

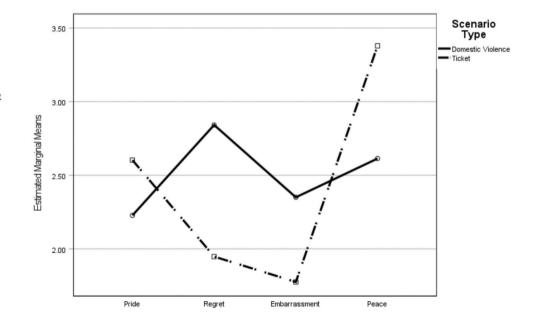
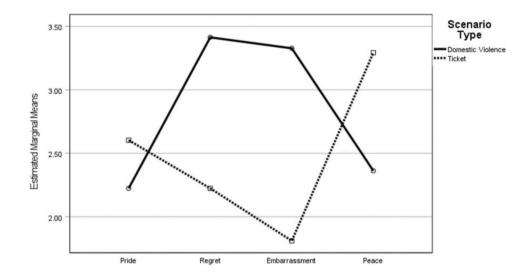


Fig. 5 Estimated marginal means for emotional responses for spontaneous decision making. *Note.* This figure illustrates the pattern of anticipated discrete emotions in response to spontaneous decisions about two different scenarios



For the *rational* decision approach, the effect of flatness of the within-subject test was found to be significant (F(2, 244) = 87.83, p < .001) (see Fig. 1). Therefore, it can be stated that there was a significant difference in the anticipated emotional responses, based on the rational decision option, indicating that the profile for rational was not flat. For Hypothesis 3, we predicted that for the rational decision making approach, participants would report high anticipation of (a) being at peace and (b) pride and low (c) embarrassment and (d) regret. Pairwise comparisons indicated significant differences between both peace (M=3.71; SD = 1.30) and pride (M=2.97; SD = 1.39), which had higher reported values, in comparison to embarrassment

 Table 4
 Test of within-subject effects: decision approach by scenario type

Source	Type III sum of square	df	F	Sig
Rational	319.87	2.16	87.83	<.001
Rational*scenario	21.03	2.16	5.78	.003
Error	411.52	244.33		
Intuitive	203.02	2.17	76.87	<.001
Intuitive*scenario	1.91	2.17	.72	.498
Error	301.08	247.18		
Dependent	78.80	2.23	38.19	<.001
Dependent*scenario	2.32	2.23	1.12	.331
Error	228.98	247.01		
Avoidant	51.89	2.34	16.38	<.001
Avoidant*scenario	52.59	2.34	16.59	<.001
Error	358.08	264.28		
Spontaneous	14.18	1.76	4.05	.023
Avoidant*scenario	122.97	1.76	35.08	<.001
Error	399.60	200.12		

Assumption of sphericity not met. Tests of within-subject effect were performed using Greenhouse–Geisser method

(M = 1.66; SD = 1.00) and regret (M = 1.85; SD = 1.15), which were lower. Therefore, Hypothesis 3 was supported.

For the *intuitive* approach, the effect of flatness of the within-subject tests was found to be significant (F(2, 447) = 76.87, p < .001) (see Fig. 2). Therefore, it can be stated that there was a significant difference in the anticipated emotional responses, based on the intuitive decision approach. For Hypothesis 4, we expected that the intuitive decision approach would be associated with high reports of (a) being at peace and (b) pride and low reports of (c) embarrassment and (d) regret. Pairwise comparisons indicated significant differences between both peace (M = 3.52; SD = 1.22) and pride (M = 2.64; SD = 1.22), which had higher reported values, in comparison to embarrassment (M = 1.80; SD = .93) and regret (M = 2.04; SD = .95), which were lower. Therefore, Hypothesis 4 was supported.

For the *dependent* decision approach, the effect of flatness of the within-subject test was found to be significant (F(2, 247) = 38.19, p < .001) (see Fig. 3). Therefore, it can be stated that there was a significant difference in the anticipated emotional responses, based on the dependent decision approach. Hypothesis 5 predicted that the dependent decision making option would be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret. Pairwise comparisons indicated significant differences between both peace (M=3.08; SD=1.19) and pride (M=2.44; SD=1.05), which had higher reported values, in comparison to embarrassment (M=1.96; SD=.92) and regret (M=2.20; SD=1.00), which were lower. These findings were in the opposite direction than predicted; thus, Hypothesis 5 was not supported.

For the *avoidant* approach, the effect of flatness of the within-subject test was again found to be significant (F(2, 264) = 16.38, p < .001) (see Fig. 4); therefore, it can be stated that there was a significant difference in the anticipated emotional responses, based on the avoidant decision approach.

27

Table 5 Anticipated emotion bydecision approach and country		Country	Mean	Std. error	F	p value
······	INTUITIVE_Regret	USA	1.82	0.11	8.74	0.00
		Jamaica	2.36	0.15		
	DEPENDENT_Regret	USA	1.94	0.12	8.88	0.00
		Jamaica	2.73	0.16		
	AVOIDANT_Regret	USA	2.13	0.14	10.47	0.00
		Jamaica	2.82	0.19		
	SPONTANEOUS_Regret	USA	2.52	0.14	16.57	<.001
		Jamaica	3.22	0.19		
	RATIONAL_Regret	USA	1.61	0.13	8.53	0.00
		Jamaica	2.34	0.18		
	INTUITIVE_Pride	USA	2.25	0.13	24.65	<.001
		Jamaica	3.29	0.17		
	DEPENDENT_Pride	USA	2.28	0.12	4.12	0.05
		Jamaica	2.70	0.17		
	AVOIDANT_Pride	USA	2.04	0.13	15.91	<.001
		Jamaica	2.93	0.18		
	SPONTANEOUS_Pride	USA	1.97	0.14	27.62	<.001
		Jamaica	3.18	0.19		
	RATIONAL_Pride	USA	2.75	0.15	5.28	0.02
		Jamaica	3.34	0.21		
	INTUITIVE_Embarrassed	USA	1.62	0.10	4.92	0.03
		Jamaica	1.99	0.14		
	DEPENDENT_Embarrassed	USA	1.68	0.10	16.81	<.001
		Jamaica	2.38	0.14		
	AVOIDANT_Embarrassed	USA	1.77	0.13	14.31	<.001
		Jamaica	2.57	0.17		
	SPONTANEOUS_Embarrassed	USA	2.20	0.13	18.26	<.001
		Jamaica	3.15	0.18		
	RATIONAL_Embarrassed	USA	1.50	0.12	3.77	0.06
		Jamaica	1.88	0.16		
	INTUITIVE_At peace	USA	3.40	0.14	0.07	0.79
	-	Jamaica	3.47	0.20		
	DEPENDENT_At peace	USA	3.01	0.15	0.75	0.39
		Jamaica	3.22	0.20		
	AVOIDANT_At peace	USA	2.82	0.15	2.79	0.10
	-	Jamaica	3.25	0.21		
	SPONTANEOUS_At peace	USA	2.71	0.14	1.11	0.30
	-	Jamaica	2.96	0.19		
	RATIONAL_At peace	USA	3.72	0.15	0.27	0.60
	*	Jamaica	3.85	0.21		

Hypothesis 6 predicted that the avoidant approach would be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret. Pairwise comparisons revealed significant differences between peace (M=3.00; SD=1.30) which had a higher reported value, in comparison to embarrassment (M=2.06; SD=1.15) and regret (M=2.39; SD=1.25), which were lower. There was no significant difference between pride (M=2.42; SD=1.21) and regret. Hypothesis 6 was not supported.

For the *spontaneous* approach, the effect of flatness of the within-subject test was found to be significant (F(1, 200) = 4.05, p = .023) (see Fig. 5). Therefore, it can be stated that there was a significant difference in the anticipated emotional responses, based on the spontaneous decision approach. Hypothesis 7 predicted that the spontaneous decision approach would be associated with low reports of (a) being at peace and (b) pride and high reports of (c) embarrassment and (d) regret. Pairwise comparisons revealed a

significant difference between pride and regret, pride and peace, and regret and embarrassment. However, there was no clear pattern between peace (M = 2.82; SD = 1.28) and pride (M = 2.41; SD = 1.33) in comparison to embarrassment (M = 2.57; SD = 1.42) and regret (M = 2.82; SD = 1.37). Hypothesis 7 was partially supported.

Regarding the research question, although not hypothesized, we did find significant country differences in expected emotional responses: all emotions, except peace, were significantly higher for *all* types of decision style choices for officers in Jamaica compared to those in the USA (see Table 5).

Discussion

We examined anticipated emotions associated with varying decision choices about actions characteristic of two scenarios common in police work. We explored anticipated regret, embarrassment, pride, and peace as outcomes of decisions aligned with five decision making style choices (i.e., rational, intuitive, spontaneous, avoidant, and dependent). Overall, we emphasize three unique and important findings. First, differences in anticipated affective responses were present among all decision approaches, based on the five decision making style choices. Second, the decision scenario associated with greater potential severity of consequence (domestic violence) produced more varied anticipated emotional responses. Third, we also observed nuanced anticipated emotional patterns such that while rational, intuitive, and dependent approaches were associated with clear patterns of emotional responses, the avoidant and more so spontaneous options produced distinct findings across scenarios.

Differences in Emotional Responses by Decision Approaches

Emotions can be indirectly linked to the decision task (i.e., incidental mood states and discrete emotions), be the result of a decision task, and/or be a by-product of a decision (Anderson 2007; George and Dane 2016; Lerner et al. 2015). In this study, among all the decision making approaches, anticipated emotions vary significantly, suggesting that these emotions vary based on how decisions are made. Given the observed patterns, it is likely that the anticipated emotions are *integral* to the decision scenario. Integral emotions are the consequence of a judgment or decision made (Västfjäll et al. 2016), which aligns with the consequentialist theory of the role of emotions in decision making (Anderson 2007). Therefore, it is likely, as our results showed, that situations with the prospect of more severe consequences associate more strongly with more negative emotional responses for police officers, especially when feeling as if they had to decide quickly and without much deliberation. This aligns with and may help to explain the heighted stress response experienced in police work (e.g., Edwards et al 2021; Sweeney 2022; Terry 1981). Additionally, this calls attention to the experience or expected experience of negative emotions—their prevalence and impact on police decision making processes and outcomes.

People prefer to avoid negative emotions; as a result, choices are made to facilitate this avoidance (Dijk and Harreveld 2008): an observation we also see in police culture marked by emotional silencing (Lennie et al. 2020). To interpret observations appropriately made, it is important to consider the unique qualities of regret and embarrassment. Regret, a negative, cognitively based emotion is experienced when we suspect an outcome would have been better had one chosen differently (Zeelenger 1999). Thus, regret involves an element of personal responsibility (Dijk and Harreveld 2008). Embarrassment, however, lessens the appraisal of self-blame and has the presumption of innocence (Solomon and Stone 2002). Interestingly, in our study, regret and embarrassment were anticipated to be experienced differently across decision options. To be precise, anticipated regret and embarrassment were noticeably lowest for the rational approach, while being at peace was highest for the rational and intuitive approach.

Emotions by Severity of Context

Unsurprisingly, the results confirm that the decision scenario associated with the possibility of more severe outcome or greater perceived risk (i.e., domestic violence) was associated with more varied anticipated affective reactions across decision options. The different scenarios were particularly impactful when officers were more likely to endorse use of rational, avoidant, or spontaneous decision options, as noted in our results that these profiles were not parallel. For example, for both spontaneous and avoidant decision making approaches, we found significantly higher values for anticipated regret and embarrassment for the domestic violence scenario than the ticket scenario. This indicates that, when responding quickly, or avoiding a decision, anticipated negative affective responses are stronger when the situation presents the possibility of more severe consequences. These patterns were not observed for rational, intuitive, or dependent choices, where regret and embarrassment were low. There are several avenues to explain this pattern of effect.

One explanation could be offered by the classic notions of the impact of situational strength, whereby strong situations result in more uniformed motivated behaviors and reduced impact of individual differences (Meyer and Dalal 2009; Mischel 1977). Compared to the scenario involving a decision to issue a traffic ticket, the domestic violence scenario would be considered a stronger situation. The domestic violence situation included high discretion, the potential for substantial error, and stimulated psychological pressure for individuals to act given the urgency to respond—all features characteristic of a strong situation (Meyer et al. 2010). We reason that this strong situation lessened the opportunity for influence by decision making and other individual differences and may have resulted in greater cognitive dissonance, thereby increasing the anticipation of regret and embarrassment in response to the decision. In essence, decision making processes are more complex when decision context is more severe (e.g., Brown and Daus 2015; Rahman and Feis 2009)—this is echoed by early conceptualizations of the garbage can model and, more recently, the naturalistic decision making (NDM) model (Cohen et al. 1972; Lipshitz et al. 2001).

When decisions are made in situations marked by high time pressure and complexity, understanding, predicting, and advancing decision effectiveness require the unique consideration of situational demands. For example, the NDM framework was developed to understand decision making in conditions marked by ill-structured problems, uncertain and dynamic environments, shifting and ill-defined or competing goals, action/feedback loops, time constraints, high stakes, multiple players, and organizational goals and norms (Lipshitz et al. 2001; Orasanu and Connolly 1993), which often reflect the realistic nature of decision making within organizations. Police decision making is an excellent space to explore decision making using an NDM framework while uncovering the role of affect. Affective responses are believed to act as a spotlight-drawing attention to certain cuesand/or play an informational role for expert decision makers (Mosier and Fischer 2010). Future research exploring the potential spotlight effect or informational role of emotions such as anticipated regret and embarrassment is needed to examine the potential effects of these emotions, particularly on the quality of decisions made by police officers.

Emotional Patterns Based on Decision Options

We also discovered several noteworthy patterns of affect by decision option. Here, we note and discuss a few of those. First, we observed a significant difference for pride between the decision choices that reflected avoidance and rational. To be precise, officers were prouder when indicating a greater likelihood of selecting the rational choice, as compared to the avoidant or spontaneous choices. This aligns with our earlier arguments of rationality being associated with pride as well as existing literature supporting that relationship (e.g., Woiceshyn 2011).

Next, officers reported more regret when indicating greater likelihood of being spontaneous in their decision option, as opposed to when being rational. This pattern was also observed for feelings of embarrassment. Because participants are proud of the rational choices, it makes sense that the rational options produced fewer negative anticipated emotions. As discussed above, anticipated regret and embarrassment were also greater for the more severe scenario, which was riskier. Importantly, risk behavior is predicted by negative affect. For example, those in a positive mood are likely to take less risk in a high-stake decision context (Mittal and Ross 1998). It is possible that negative affect was a precursor to the spontaneous and intuitive (riskier) choices which then led to the anticipation of more regret and embarrassment, particularly so in the domestic violence scenario. In other words, negative affect broadly leads to riskier behaviors which then predict negative discrete emotional outcomes. This mediational pathway should be examined in future research, preferably longitudinal to establish precedential causality.

Furthermore, for being at peace, we observed the inverse of the pattern we saw with the negative emotions: officers reported being most at peace with the rational choice and least at peace with the spontaneous choice. Not being at peace with the spontaneous option presents a conundrum given the nature of many decisions characteristic of police work. Future research on police decision making should explore strategies to normalize and automatize time-sensitive decisions using fast and frugal heuristics, while limiting the presence and impact of problematic biased thinking. For example, simulated tactical decision making training (Crichton et al. 2000) and training to enhance psychological control (Andersen and Gustafsberg 2016) are promising directions.

Country Differences

The current study found that, except for being at peace, Jamaican police officers expected higher anticipated emotional outcomes to all decision options. This consistent pattern of results calls for future research to replicate this pattern and explore the nature or impact of emotions in police decision making based on country-related differences such as national culture. While recent research suggests that the cultures of the USA and Jamaica are more similar now than in the past (Gooden and Preziosi 2004; Nicely 2019), it is worth exploring such cultural factors that could be influencing differences in emotionality among police officers, particularly as it impacts decision making.

Implications

Our study implies that there is value in more intentionally attending to the role of affect in police decision making. Police training that focuses on the regulation and management of emotions during decision making is one place to start. This training should utilize NDM framing to reflect the realities of police decision making more accurately. For example, decision making training should strive to support real decision making processes and accelerate expertise in decision making using managed or augmented experiences (Cannon-Bowers and Bell 1997). Like military training, providing interactive experiences that mimic real-world experiences using sophisticated technology (e.g., virtual reality) can support the development of expertise, while simulating emotional experiences. Such training designs would better equip officers with the competencies required by the job, departing from traditional views of decision making processes that lack the complexities inherent in police work.

Additionally, officers need to be equipped with emotional regulation skills. Rather than ignoring or discounting the role of emotions in police decision making, it is critical to recognize that decisions will not be devoid of emotional cues, either as input, part of, or outcomes from the decision and decision context. Consequently, interventions that prioritize attentional redeployment or reappraisal (strategies of emotional labor; Grandey 2000) could potentially reduce the likelihood of unrelated or incidental emotions serving as information to critical decisions. Recent work on emotional labor training shows that such strategies as attentional redeployment (focusing mind on other things), cognitive reappraisal (reframing an event), and even surface acting ("faking to make it") can be beneficial strategies for managing emotions within different contexts (Breedon 2015; Breedon and Daus 2016; Schaefer 2019).

Furthermore, it might be useful to train police officers on the most effectiveness use of and management of emotions when making decisions. Suggestions for designing, implementing, and evaluating emotional regulation training are available in the extant literature (e.g., Denny 2020) and can be adapted for use in police training. As well, training can include a focus on building emotional intelligence through focused skill-building sessions (Daus and Cage 2008) regarding how to recognize emotions in self and others through emotional awareness; understanding situational antecedents and consequences of different discrete emotions; understanding the interplay between cognition and affect; and further strategies building on principles underlying the constructs of both emotional labor and emotional intelligence.

Limitations

As with all research designs, this study is not without limitations. First, we acknowledge that the scope of our focus and findings could have been more extensive. For example, we report on hypothetical situations, using vignettes, and not actual decisions made by police officers. In an actual high-stake situation, officers may respond differently than they anticipated, or self-reported in this study. Since officers responded to hypothetical situations, in this study, the responses reported here may reflect demand characteristics, rather than actual emotional reactions to the decision prompts. While this limitation affects the confidence in our ability to generalize our findings, we argue that the approach we took of utilizing a subject matter expert (police chief) in developing and adjusting the scenarios mitigates much of this restricted external validity. Replicating this study, using a policy capturing approach to uncover implicit processes or with the use of archival data is recommended for future investigation.

Furthermore, our study did not examine the full range of emotions, or even other basic emotions, such as disgust or surprise (c.f., Ekman 1992). An examination of these along with some secondary (or "non-basic") emotions such disappointment, shame, and grief would have allowed us to paint a more comprehensive picture of the anticipation of discrete emotions related to the situations presented, as well as have given a deeper insight into officers' complex emotional landscapes when making decisions. As well, less common emotions which may be particularly relevant to a police context such as schadenfreude (or the pleasure derived from another's misfortune) might have unique roles within a police context.

Additionally, our study strategy is limited in that we utilized a cross-sectional design with a relatively small sample size. Both the cross-sectional design and small sample size restricts more rigorous statistical and theoretical insights. For example, a larger sample would have facilitated latent profile analysis, rather than simple profile analysis. Latent profile analysis is superior in that it would allow the identification of underlying typologies or subgroups (e.g., profile of negative or positive affect) of responses within our sample and predictors of these subgroups (Spurk et al. 2020).

Conclusion

This study demonstrated that police officers are likely to anticipate different emotions based on the decision they expect to make and what they expect to make decisions about. These findings highlight the vital perceived presence of emotions in the decision making processes inherent to police work. Recognizing the involvement of emotions is only the first step. Future research and practice regarding the influence of emotions will benefit police decision making by allowing for more targeted interventions regarding the management and regulation of emotions to support police in the service of their role.

Data Availability Data can be made available upon request.

Declarations

Ethics Approval and Consent to Participate All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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