

Police Officers: Stress and Decision-Making

Research Capstone Project - Final Research Paper

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Bachelor of Law Enforcement Studies

LAWS-4003 Research Project

Justice Institute of British Columbia

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April 8, 2022

Abstract

The purpose of this critical appraisal is to analyze existing research and apply it to the law enforcement field to answer the following research question: How does stress play a role in decision-making for police officers? 15 articles were analyzed for the purpose of this study in accordance with specific inclusion and exclusion criteria. Their findings were then assessed in terms of validity, trustworthiness, and relevance and value. After the assessment, the conclusions made by the sources which were deemed to be credible and reliable were taken into account to answer the research question. The key findings of the study found that stress has both a positive and negative effect on decision-making for police officers. It was concluded that stress causes issues in emotional regulation and tactical motor skills which causes officers to under or over react. However, it was also noted that an exposure to stress over-time allows officers to adapt to the stressful situations presented to them while on duty. This repeated exposure to stress aids in adaptation and better management of stress to mitigate its negative effects.

Keywords: police officers, law enforcement, stress, decision-making, effect

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Police Officers: Stress and Decision-Making

The purpose of this critical appraisal is to analyze the effect of stress on decision-making and apply that research to better understand a police officer's actions. This is an area of significance requiring further research as stress is an inevitable aspect of policing and can have a large impact on police officers' decision-making processes (Verhage, et al., 2018). Through further research on the role of stress in decision-making, the public can be made aware of the psychological stressors and external variables that play a role when police officers are compelled to make these rapid decisions under stress. As the "mass media plays an important role in citizen attitudes towards law enforcement agents," it is an influential platform which reinforces negative perceptions about police officers (Dowler, 2002, p.227). This problem regarding the misconception of police officers requires further research to provide the public with factual knowledge before they form their opinions. The media often emphasizes a "focus on the negative criticism rather than positive or successful crime prevention efforts" (Dowler, 2002, p.228). In doing so, the media is able to criticize officer actions and present this story to the public. This critical appraisal presents information without a link to a media organization, which will ensure that there is no bias in the information being shared. This study will provide the public with objective findings, as opposed to biased negativity portrayed by the media to answer the research question: How does stress play a role in decision-making for police officers?

Following a constructivist worldview, this critical appraisal was conducted within the realm and lens pertaining to this worldview and its beliefs. As such, this critical appraisal followed the idea that reality is a mutual understanding between people who have co-constructed knowledge. This research topic emphasized that stress and its effects are a reality that we have constructed and recognized and should be considered during decision-making in critical

situations. This worldview highlights the importance of context and understanding the variables contributing to certain outcomes or ideas (Creswell & Creswell, 2017, p.46). Following this belief, this critical appraisal acknowledged that all variables and factors in each situation vary, as context is key to understanding and explaining human dimensions and the outcomes of their beliefs. Moreover, this research was used to explore the variable of stress which can be applied by the public to the unique context of each critical situation.

As all knowledge is co-constructed, we have formed an understanding of the human body and physiological reactions to stress. Therefore, to further expand this knowledge we must understand the reality of variables such as stress and its implications on the individual experiencing it. As theory is co-constructed through mutual experiences, incorporating studies which conduct experiments or mock scenarios were used to help provide further insight into the research question. Essentially, this paper incorporated constructivism as the worldview to further knowledge on this topic.

Methodology

As there is plenty of research available on the effect of stress on decision-making, this study employed the design of a critical appraisal. There is an abundance of research regarding the effects of stress, however there is a lack of research focused on stress and police officers. Therefore, a critical appraisal allowed for the available data and research to be repurposed and reapplied to that of police officers and decision-making. In doing so, new conclusions were made using previous studies and applied to the relevant topic area. To conduct this critical appraisal, the applicable research was gathered and then assessed in terms of validity, trustworthiness, and relevance and value. The conclusions made by the research were then weighed accordingly and applied to the topic of police officers to answer the research question.

Although the sources went through the outlined data analysis process, the ultimate inclusion or exclusion of the articles was decided at the research's discretion, therefore it was crucial to address and mitigate any ethical issues or researcher bias. As this study was conducted by a student of the criminal justice and law enforcement field, there may have been a positive bias towards police officers and attempting to provide rationale for their actions, instead of scrutinizing them. On the contrary, being exposed to the media reports regarding cases of police brutality, could have resulted in preconceived negative biases about certain police-civilian interactions. Being aware of these incidents, alongside extensive research regarding movements such as Black Lives Matter (BLM), may have created a bias to agree with these anti-policing groups or form opinions like those emphasized by these groups. In recognition of these potential biases, the research was conducted in an objective manner pertaining to the literature search and review plan.

Scope

English full-text scholarly peer-reviewed academic journals were used for this study. Articles were acquired through JIBC Library's EBSCOHost database. The following keywords were used in the initial search: influence OR impact of stress AND decision making AND police officers. This search elicited 273 hits, therefore the search was revised to decrease the number of hits. In order to revise the initial search and narrow it down, additional synonymous keywords were added to the search terms to elicit a more focused search result. Moreover, the default option of "apply equivalent subjects" was removed as this provided search results on similar topics, but not the exact topic of this research study. Additionally, an extra string of keywords was added to ensure that the articles focused more on the impact, effect, or influence of stress on decision-making. In taking these two steps to revise the initial search, the number of hits was

decreased by 86 hits. The following keywords were used in the revised search: stress OR emotion OR pressure AND decision making OR decision-making OR decision making process OR decision-making process AND police officer OR law enforcement OR cops OR police AND impact OR effect OR influence.

Inclusion criteria included English full-text articles, published from 2014 to the present day, focused on the effects of stress on one's ability to think and make decisions. The date range for publication has been created in accordance with the case of Michael Brown who lost his life in 2014 because of a police altercation. After this case, the Black Lives Matter (BLM) movement was born and there was a greater emphasis on the negative public perception of police officers (Poon & Patino, 2020). This date range included research that provided further context into these situations alongside the external and internal factors that may have influenced the outcome of this tragic incident, and many others following it. The secondary data being analyzed as a part of this critical appraisal was not geographically restricted. As the human body experiences stress as a physiological reaction towards a change, threat, or pressure, the response to this variable will be the same regardless of geographic area (Selye, 1956). Consequently, focusing on certain geographic areas will not affect the human body's reaction to stress, nor results of this study. The subject of the chosen articles focused on the effect of stress on decision-making. Exclusion criteria included any articles where full-text was not readily available, that dated outside of the range of 2014-2022, and did not focus on the effect of stress on decision-making.

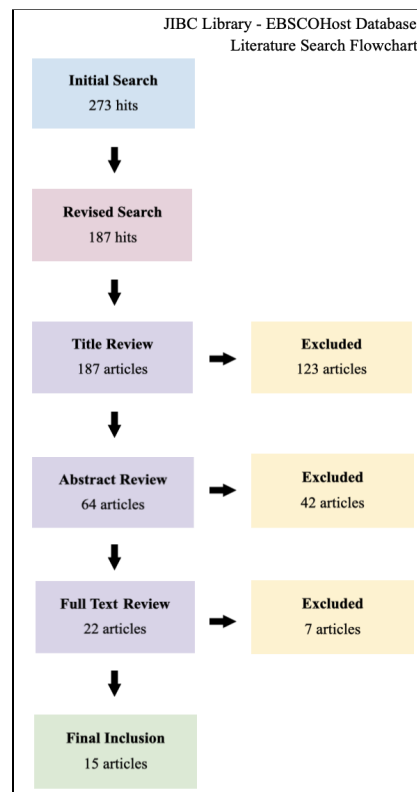
Article Selection and Assessment

To select the 15 articles which were used for this critical appraisal, the 187 search results of the revised search underwent a review based on the titles of the articles along with the keywords listed under the titles. If the titles of the articles and the keywords appeared to be

relevant to the research question and the purpose of the study, this called for a review of the article's abstract. If the abstract review showed the article to be a good fit for the inclusion and exclusion criteria, then the full text of the article was reviewed. The full text review substantiated the final inclusion or exclusion of this article as a source to be used for this study. Although mostly primary research was chosen as a source for this study, two systematic reviews and a critical appraisal were also included as the research directly pertained to the research question and provided important considerations within this topic. This outlined process to select the 15 articles was formatted as so to reduce the possibility of bias within the selection process.

Figure 1

Literature Search Flowchart



Note. This flowchart displays the literature search process and the levels of the review that the search results underwent. The search began with 273 hits and was eventually narrowed down to the selection of 15 articles pertaining to the inclusion and exclusion criteria.

The 15 articles in this critical appraisal were assessed in terms of validity, trustworthiness, relevance and value. Validity was assessed on the following factors: whether the research addressed a clear question/problem, whether the topic or participants of the study were police officers, and whether there were likely confounding variables that were unaccounted for during the original study. Trustworthiness was assessed on the following factors: if there were any clear ethical violations within the study, whether the findings clearly contradict other findings in other studies, and if the conclusions are justified based on the findings. Relevance and value were assessed on the following factors: whether the findings could have been attributed to the real world compared to the controlled research, whether the findings were significant, and if they were generalizable. Upon examination of the three factors, the articles were weighed and assessed in the final analysis.

Reflection

Overall, the methodology was found to work well for this research design. The inclusion and exclusion criteria effectively reduced the number of hits and allowed for a manageable research process. The literature search and review plan allowed for the results of the search to be assessed quite easily as there was a concrete plan in place. Conducting a title review, abstract review, and full-text review ensured that minimal time would be spent on studies which were not relevant to the research question. Perhaps, conducting a single review on EBSCOHost was not encompassing of all available research on the topic, therefore other databases could have been used to conduct further research. This may have allowed for the inclusion of more focused articles which better fit the exclusion and inclusion criteria. Another area of improvement was in the date ranges selected for the search. As there was restriction on the date range for when a study would have been published to be included within this research, there is a possibility that

valuable research would have been omitted from this study. Although it is rational to include more relevant research, the effect of stress on the human body is relatively linear regardless of progression within society. Ultimately, conducting searches on different platforms and allowing a wider date range of publication would have elicited the inclusion of more focused and relevant research articles, therefore such methods could be applied if conducting a similar study in the future.

Results

Anderson et al. (2019) aimed to understand the impact of acute stress on the skilled motor performance of individuals. To apply the findings to the unique stressful situations of police officers a systematic review was employed, therefore this study did not have any participants. Instead, Anderson et al. (2019) examined scientific evidence for the physiological responses to acutely stressful situations, and applied that evidence to the occupationally relevant stress for police officers in regard to their motor performance. Mainly, this study concluded that skill decay is inevitable under high levels of acute stress, therefore police officers may act outside the bounds of their training as their skills begin to decay as a result of the acutely stressful situation. It was also noted that the nature of an officer's training affected the degree to which an officer would be affected by stress as officers who trained with live opponents under high threat stress-inducing conditions tended to perform better and show less of skill decay, whereas officers who trained with static targets under low threat situations did not do as well. Ultimately, this study concluded that acute stress elicits stress responses which result in errors in both cognitive decision-making strategies, and tactical motor skills.

Arble, et al. (2019) conducted a quantitative experimental study to examine the effects of physiological arousal in response to the acute stress on police officer performance and

decision-making. The participants for this study were 18 Swedish male police cadets who participated in a critical incident simulation which was a reenactment of a real-life incident that had resulted in a police officer's death. The physiological arousal was measured with continuous heart rate monitoring and measures of circulating cortisol and antithrombin taken before and after the incident situation. The results of this study found that the simulation increased police officer arousal as reflected by the heart rates, however the heart rates alone did not predict differences in decision-making and general performance. Greater increase in antithrombin was associated with better general performance, but a specific deficit in verbal communication as compared to tactical performance and nonverbal communication. Also, the change in cortisol was concluded to be unrelated to the skill assessments.

Brown and Daus (2016) aimed to assess the effect of stress on decision-making, but also measured the variable of anticipated regret for the decision to determine if it also plays a role in decision-making. This study employed a quantitative approach as it administered a questionnaire to its participants. The participants of this study were 71 police officers from departments in the US and 49 police officers from a department in Jamaica. The participants were provided a questionnaire and then presented with two different decision-making scenarios varying greatly in severity. The results from the questionnaires and the responses from the scenarios were then analyzed and it was concluded that stress created both cognitive and behavioral implications for police officers. Those with an avoidant style of decision-making were reported to avoid making any decisions at all until the point where it was absolutely required. It was also found that anticipated regret was reported more strongly among officers with an already avoidant decision-making style.

Brown and Daus (2015) examined the interactive effects of decision-making style and anger control of decision-making to determine the level of influence of these factors for police officers. To collect the data, this quantitative study utilized questionnaires which were completed by a sample of 71 police officers from departments in the US and 49 police officers from a department in Jamaica. The questionnaire included demographic questions and scenario questions which presented the officers with options as to what decision they would make in certain situations. The findings of this study suggested that when a stressful situation elicited an emotional response of anger from the officer, this was detrimental to the decision-making process. The study found that the control of anger was related to rational decision-making styles as the control of anger involves conscious emotional regulation. Therefore, where an officer is able to regulate their emotions, they are able to make better decisions under stressful situations. This finding was seen to be especially true within the scenarios where officers had to make decisions regarding discharging a weapon as these were highly stressful and high-stakes decisions.

Fridman, et al. (2019) applied the theory of constructed emotion to understand the process of decision-making for police officers under evocative or stressful situations. Simply, this theory suggests that the primary purpose of the human brain is to manage physiological responses and coordinate the body's motor actively to achieve long term growth, survival, and reproduction. Fridman, et al. (2019) did not conduct any primary research, but instead conducted a systematic review which analyzed existing research through this lens to generate an improved understanding of decision-making under stress and related that to the occupational situations of police officers. This study stated that errors made in decision-making during stressful situations cannot be attributed to one single feature of this complex situation. Instead, there are

neurobiological and energetic mechanisms that support decision-making when making high-stakes decisions. Fridman, et al. (2019) further suggested that those who are put in these situations on a regular basis, develop internal means to regulate their emotions and improve cognitive performance during such situations - both of which were identified as issues during stressful decision-making. This article concluded that with time, the brain is able to adapt to these stressful situations and regulate cognition in order to make sound decisions.

Geisler and Allwood (2018) recognized a lack of research on the effect of social orientation and time style on perceived stress during decision-making and therefore examined it further. This quantitative study examined the difference of these factors within two different sample groups. The first sample group was made up of 118 Swedish university students and the second sample group was made up of randomly selected 185 police investigators. Both groups of participants completed an online questionnaire which asked questions to measure decision-making competence, social orientation, and time-style to contribute to an explanation of perceived stress. The study found that individual decision-making competence had no effect on the perceived stress of decision-making. However, the study did find that social orientation influences police officers more than students regarding the amount of perceived stress. To examine this, it was discussed that social orientation has a greater effect for decision-making in regular occupational settings such as policing, rather than academic settings for students. Regarding time-style, it was concluded that for both students and police officers, time approach is associated with the perceived stress of decision-making.

Harman, et al. (2019) reviewed the basic findings from other experimental studies regarding judgement and decision-making to examine the data and provide recommendations for policies and training for police decision-making. This critical appraisal found that the critical

decisions made under stress such as the decision to shoot or not to shoot, are not influenced by a single variable but instead the evidence in favour of that decision. Specifically, this article suggested that a certain level of evidence is needed to make decisions whether that may be evidence in favour of or against a certain decision. Moreover, it was concluded that reactions to risk and possible outcomes are strongly influenced by previous similar decisions. This article discussed that an officer will assess a situation under stress and make similar decisions to those they have made in the past. Moreover, Harman, et al. (2019) found that officers can make similar decisions to situations they have imagined themselves in. For example, if an officer imagined a certain stressful scenario and thought about what decisions they might make in that situation, they are inclined to actually act in that manner when the situation presents itself in real life.

Nix, et al. (2019) aimed to determine whether varied civilian demeanor had an effect on the socio-psychological processes for police officers involved in these bilateral interactions. This quantitative study included the use of a survey-based experiment on a sample of 546 police officers working in a large city in the southwestern the United States. The varying levels of stressful situations as presented by civilian demeanor were used to measure officer's cognition and emotions in relation to decision-making. The survey-based experiment was used to gather information on hypothetical scenarios and how officers think they would feel in those situations. Three hypothetical scenarios were used to elicit responses from police officers as to the emotions they were feeling in the scenarios varying in levels of stress. It was found that civilian demeanor has a large causal effect on how officers perceive a situation. Within the experiments, civilian hostility and disrespect increased suspicion, perceived danger, anger, frustration, annoyance, and even fear for police officers. Therefore, the more stressful the event became, it elicited more antagonistic emotions from officers.

Ta, et al. (2021) conducted a quantitative study that aimed to examine the emotional reactivity of a police officer's use-of-force decision-making under stress between expert officers and novice officers. The participants for this study were 78 police officers from two urban police departments in the U.S. which were separated into samples of experienced and novice officers. To collect this data, the two sample groups watched body-worn camera footage and described the course of action and decisions they would make in that situation. The sample groups were also asked to report what kinds of information they paid attention to and their general assessment of the situation displayed by the footage. Measures of emotionality were then detected from the responses of the participants to detect valence, arousal, and dominance. The results indicated that the responses from expert police officers were more positively valenced, more dominant, and less arousing compared to the responses from novice police officers. Specifically, it was concluded that expert police officers have the ability to react and assess situations calmly, with a greater sense of control, and less negativity. Consequently, expert officers were linked with accurate, effective and efficient police behaviors and decision-making even in situations with high stress.

Verhage, et al. (2018) aimed to examine police officer's attitudes towards, and experience with use-of-force while also looking at the influence of stress and emotions on officer's decision-making. The attitudes and beliefs towards use-of-force were measured quantitatively with the use of a survey. The influence of stress and emotion on decision-making were measured qualitatively by semi-structured interviews. For the quantitative study, the participants were 137 Belgian police officers who had been attending training sessions on the control of force. For the qualitative study, the participants were 13 Belgian police inspectors. The results of the two studies found that stress and fear are often present in Belgian police practice and associated with

the stress of decision-making. The studies also found that stress and fear are often present during dangerous situations which can improve awareness and increase energy to a degree. However, past a certain point, this stress can lead to a distortion of the senses and motor skills alongside emotional, psychological, and behavioral reactions which can affect officers' performance.

Cantelon, et al. (2019) examined the interactive effects of physical and emotional stress on one's motor response inhibition to determine how cognitive control processes are affected. To do so, the researchers administered questionnaires and conducted an experiment on 32 participants who were civilians that exercised regularly and engaged in at least 30 minutes of exercise for 5 days of the week. This study did not include police officers as the participants however the results were applied to police officers. This study utilized a sample of students or community members of Tufts University who were generally active and healthy to measure their response to stimuli. Within the experiment, mild shocks were delivered to the index and middle fingers of the participants hand while they completed a cycling task in which they completed a 50-minute bout of continuous cycling. The shocks were delivered intermittently to sustain the emotional stress associated with anticipated a potential shock while completing the task. The participants completed the cycling task two times, one in which they were shocked intermittently and another in which they were explicitly told that they would not be shocked to measure the differences in emotional stress. Within the questionnaires, self-reported mood and anxiety were measured along with perceived exertion. The study found that physical and emotional stressors interact to influence cognitive control. Due to the shocks being administered in one session and not the other, it was found that there were increased false alarms even under safe conditions. In relation to police officers, this study found that fatigue-induced shifts for police officers could have severe consequences as this would affect their direct attention and response to their

environment. However, it was found that acute emotional stress can prevent performance from deterioration as the stakes are higher and an officer would be theoretically more responsive to their environment.

Landman, et al. (2016) aimed to test the effect of high pressure, self-control, and anxiety on shooting behavior and shooting performance. The participants for this study were 46 Dutch police officers who had varied levels of experience. This study conducted an experiment in which participants performed a shooting test under high and low pressure conditions to analyze the effect of the pressure on shooting behavior and performance. This study found that in high pressure situations, officers reported higher levels of anxiety, had higher heart rates, and shot faster but less accurately than the low pressure situations. In terms of decision-making, the decision to shoot was made quicker, however the actual shot fired was not nearly as accurate. Decisions under stress were made rapidly, however the motor performance of the police officers suffered.

Mercadillo, et al. (2015) considered the police force to be a cultural model and used that idea to measure the effect of police culture and gender on an officer's compassion while on the job. From a sample of Mexican police officers who work in violent environments, Mercadillo, et al. (2015) integrated ethnographic data which categorized elements in an officer's activities. Additionally, psychometric measures evaluating empathic attitudes were used along with Medical Resonance Imaging (MRI) scans to identify brain activity related to compassion. This study found that police culture influenced officers of all genders equally, however there were differences in the compassion within the genders. Women in the force were found to have a more empathic experience of compassion than men. In terms of police culture, each gender had an accurate process to infer another person's suffering and a reward system motivated by service of

cooperation, both of which are the prominent cultural traits of the police force. It was concluded that this process is used to make more social and compassionate decisions, therefore the level of compassion an officer feels towards their subject will affect the decisions they make when dealing with them.

Renden, et al. (2017) investigated the effects of threat and anxiety on police officer actions during an arrest. To do so, an experiment was conducted within this study on a sample group of 88 police officers. During the experiment, the officers entered two different simulation situations in which they were told to arrest a subject. Both scenarios varied in levels of threat in which officers made decisions and initiated their actions in such a way where they were to arrest the non-cooperative subject. During the scenario, the researchers measured decision-making by the appropriate actions chosen by the officer and measured performance by the officer's quality of communication and execution of skills. It was found that trait anxiety affected the level of state anxiety, but it did not affect the decision-making or performance of the officer. This study also found that decision-making depended on the threat level presented by the subject whereas state anxiety negatively affected performance including communication and the application of appropriate force.

Saunders, et al. (2019) aimed to study stress in law enforcement officers under the changing socio-political climate using qualitative methods. To gather insight into this issue, 110 representatives from law enforcement agencies were interviewed to uncover their opinions regarding how occupational stressors have changed recently. It was found that the majority of participants answered that it was the day-to-day encounters for officers which caused the most stress as they were put into potentially dangerous situations causing them to make rapid high-stake decisions. The other most common themes in terms of stressors were the

administrative burden, challenges in relationships, negative portrayal of the police by the media, and the stress and fear associated with civilians recording police actions and sharing them on the media. The constant scrutiny was found to increase stress within the job of policing as well.

Discussion

Validity

Validity of the selected articles was assessed in terms of whether the study had a clear question or purpose, whether it was conducted on police officers, and whether it had any confounding variables. Harman, et al.'s (2019) study was determined to meet the validity criteria as it aimed to answer a clear question by its review of the basic findings from other experimental studies regarding judgement and decision-making to examine the data and provide recommendations for policies and training for police decision-making. The topic for this study was also police officers in accordance with the validity criteria. As Harman, et al.'s (2019) study was a critical appraisal, it analyzed other research so the study itself would be unlikely to have confounding variables. Similarly, Anderson, et al.'s (2019) study was also a systematic review which analyzed previous literature and was unlikely to have confounding variables. Anderson, et al.'s (2019) study also had a clear research question as it aimed to understand the impact of acute stress on the skilled motor performance of individuals, and applied those findings to the unique stressful situations of police officers. Therefore, this study met the validity requirements as well as it focused on police officers as a topic of the study. Another systematic review which was written by Fridman, et al. (2019) was also determined to have met the validity criteria as it addressed a clear research question while applying the theory of constructed emotion to understand the process of decision-making for police officers under evocative or stressful

situations. This study focused on police officers, and as it followed a similar design to Anderson, et al.'s (2019) study, it was also determined to be unlikely to have confounding variables.

Geiser and Allwood's (2018) had a clear purpose as it recognized a lack of research on the effect of social orientation and time style on perceived stress during decision-making and therefore examined it further. Due to the nature of the study and focus on social orientation and time style, it is likely that other variables such as an officer's past experiences, were left unaccounted for. Although, Geiser and Allwood (2018) had clearly articulated that the focus of their study would be on the two mentioned factors. This study met some of validity criteria as it studied a student population along with police investigators, instead of being focused solely on officers. On the contrary, Cantelon, et al. (2019) conducted their study on a group of active civilians and then the results of the study were applied to police officers. Therefore, this study has low validity as the topic of the study was policing, however the participants were not police officers. Moreover, as the questionnaires were administered to this sample group, there may have been confounding variables which would have presented themselves if this study had been conducted on police officers. Cantelon, et al. (2019) met one of the validity criteria as they had a clear purpose to their study which was to examine the interactive effects of physical and emotional stress on one's motor response inhibition to determine how cognitive control processes are affected.

Brown and Daus (2016) had fairly good validity as it had a clear purpose of the study which was to assess the effect of stress on decision-making, but also measure the variable of anticipated regret for the decision to determine if it also plays a role in decision-making. This study was conducted on police officers which satisfies the second criteria, however it has the issue of potentially missing some confounding variables. This study administered a questionnaire

to its participants, however it provided the participants with options on what they would do in certain scenarios. This provides the participants with limited options to choose from instead of being able to provide an answer outside of the options. Allowing open answers would have uncovered the confounding variables of this study which are likely to be present. Brown and Daus (2015) conducted another analysis while using the results from the same study. This study aimed to examine the interactive effects of decision-making style and anger control of decision-making to determine the level of influence of these factors for police officers. Although it had a clear question and purpose, and focused on police officers, the methodology was the same as the previous study therefore it would have harboured the same errors in confounding variables.

On the other hand, Arble, et al. (2019) had very good validity and would have been unlikely to have confounding variables. This study had a clear purpose as it conducted a quantitative study to examine the effects of physiological arousal in response to the acute stress on police officer performance and decision-making. The participants within this study were police officers who were provided with an incident simulation which was a reenactment of a real-life incident that had resulted in a police officer's death. This methodology used a realistic life-threatening scenario and monitored physiological arousal with continuous heart rate monitoring and measures of circulating cortisol and antithrombin taken before and after the incident situation. This thorough assessment methodology ensured that it would be highly unlikely for any confounding variables to be left unaccounted for.

Trustworthiness

Trustworthiness was assessed in terms of whether the study had any ethical violations, whether the findings contradict findings of other studies, and whether the conclusions of the

study are justified. Regarding ethical violations, many of the studies conducted experiments in which officers were placed into simulated high pressure situations in order to gauge responses. Nix, et al. (2019) and Landman, et al. (2016) conducted experiments in which they measured police officers' reactions to different scenarios. Landman, et al. (2016) conducted an experiment in which they simulated an environment of high pressure to measure accuracy in shooting which was seen to be an ethical experiment as it measured shooting accuracy instead of the officer's physiological response. Therefore, this experiment did not attempt to push an officer's limits under stress. Nix, et al. (2019) used different hypothetical scenarios with varying degrees of civilian demeanor to measure an officer's emotions and cognition during decision-making. This was deemed to be an ethical experiment as the scenarios did not focus on placing officers under high amounts of stress, whereas Renden, et al. (2017) conducted an experiment which was deemed to have ethical violations.

Renden, et al. (2017) placed officers into two different simulations in which they were to arrest a subject displaying various levels of aggression. In some of the more aggressive scenarios, officers used physical force against the subject to arrest them which can be seen as an ethical violation. Moreover, in some cases officers were placed under high amounts of stress which resulted in them using more force than appropriate to control the subject. This was an ethical violation against the participants within the scenario. Arble, et al. (2019) also conducted an experiment which was deemed to be an ethical violation. Within this experiment, officers were shown body camera footage of a scenario which resulted in an officer's death to measure the viewer's response to this stress. This is an ethical violation as the angle of the footage would have made it easier for the viewer to situate themselves within the scenario which could have elicited a traumatic response. Also, the realistic scenario could have retraumatized officers who

had been in previous stressful situations similar to the scenario. Therefore, despite the mental health support which would have been provided after the experiment, this experiment is still an ethical violation which could have potentially harmed the participants.

Of the 15 selected articles, Cantelon, et al. (2019) conducted an experiment which was deemed to be the greatest ethical violation within the studies. Within this experiment, the participants received shocks while completing a given task to measure their emotional responses. In this experiment which aimed to research cognitive control processes, the methods used did not justify the means of this study. Cognitive control processes could have been measured using alternative measures, therefore the delivery of shocks was determined to be an ethical violation.

Some of the findings concluded by Renden, et al. (2017), Fridman, et al. (2019), and Verhage, et al. (2018) were determined to be contradictory according to the findings of the remainder of the studies therefore this also created concerns surrounding trustworthiness. Renden, et al. (2017) concluded that trait anxiety affects state anxiety, however trait anxiety does not affect performance. This is contradictory to another conclusion within the same study, as it was also concluded that state anxiety does affect performance. Therefore if trait anxiety affects state anxiety, then trait anxiety also inherently affects performance. Renden, et al. (2017) produced findings that contradict themselves, however Fridman, et al. (2019) and Verhage, et al. (2018) produced findings that contradict one another. Fridman, et al. (2019) concluded that over time, the brain can adapt to stress and begin to make sound decisions however Verhage, et al. (2018) concluded that stress helps decision-making only to a certain point, but too much stress distorts senses and motor skills. These findings would not align with one another as according to Verhage, et al. (2018), even a repeated exposure to high levels of stress would not result in sound decision-making, it would still produce distorted senses and motor skills. This creates issues of

trustworthiness for both of these studies, and the majority of the other selected studies concluded that stress has a solely negative impact on decision-making. In terms of the conclusions of the studies being justified, there were no issues found within the methodology, the findings, and the conclusions made based on those findings for any of the studies.

Relevance and Value

Relevance and value was assessed by whether the findings of the study can be attributed to the real world, whether the findings are significant, and whether they are generalizable to the entire policing population. All articles included within this study were determined to be significant as they provide research into a topic of significance which requires attention. Saunders, et al. (2019) satisfied all of the criteria for a relevant and valuable article. As this study aimed to study stress in law enforcement officers under the changing socio-political climate, and did so by interviewing law enforcement personnel to gain true and accurate insight, these findings were easily attributed to the real world and significant as this research was required to understand recent stressors. Also, as the participants and source for this study were law enforcement officers, this study was also generalization to the law enforcement population. Moreover, the critical appraisal and two systematic reviews which were written by Harman, et al. (2019), Anderson, et al. (2019), and Fridman, et al. (2019) all gathered a variety of data from other research to answer their policing related research questions. These studies gathered existing data to draw new conclusions regarding policing under stress therefore, these studies generated findings which were easily attributed to the real world, were significant, and were generalizable.

Arble (2019) had poor relevance and value as this study included only male participants. Consequently, the results of this study cannot be generalized or attributed to the real world as the findings applicable to male subjects, may not translate the same to females. Geisler (2018) had a

similar issue as their results were also not generalizable nor could they be attributed to the real world. This study included participants which were 85% women which is a misrepresentation of the law enforcement population. As this is a male dominated area, results from a study conducted on mostly female participants would not be relevant or of high value. In terms of the significance of results, Ta, et al. (2021) produced results in which parts of the methodology were unclear. For example, Ta, et al. (2021) did not mention any demographics pertaining to the participants of the study, therefore the readers would not be able to gather significant data on differing demographics. This is an issue as the reader would be unaware of the relevance, value, and significance of the results and would not be able to compare these results with those of other studies conducted on similar participants. Mercadillo, et al. (2015) also produced results which had issues with generalizability and attribution to the real world. This study was only conducted on police officers within Mexico which is a very unique geographic area with distinct crime related issues. Mercadillo, et al. (2015) described the policing environments within the location of this study to be violent and unsafe. Therefore, the results of this study would not be relevant to police officers in other areas.

Cantelon, et al. (2019) also had a similar issue regarding the relevance and value of their study as there was an issue with the participants. As the participants of this study were not police officers, the results of this study were not significant to police officers and could not be generalized to the law enforcement community. Although the participants within the study were assessed for their responses to stress, it would be unlikely that these participants possessed the same skills that an officer would have. A police officer would have relevant training on emotional regulation, cognitive control, and dealing with stress which a civilian may not have. Also, police officers would have a high exposure to stressful situations which would alter the

way they would react in such simulations. Therefore, the results produced by Cantelon, et al. (2019) could not be deemed as highly relevant or valuable to this critical appraisal.

Final Analysis

The 15 articles used for this study were assessed in terms of validity, trustworthiness, and relevance and value to weigh and highlight three prominent results. The articles found that decision-making in stressful situations can lead to errors in emotional regulation and errors in tactical motor skills. On the contrary, many of the studies also concluded that decision-making can be improved due to stress rather than a detrimental effect.

It was found that many of the emotions that an officer experiences during a stressful situation are a direct result of their subject's behavior. Civilian behavior directly affects the emotional responses resulting from stress (Nix, et al., 2019). When a civilian subject presents attitudes of hostility or disrespect towards an officer, this elicits emotions such as suspicious, perceived danger, frustration, fear, anger and many other negative emotions. The levels of stress in an encounter directly influence the agnostic emotions from officers. This influx of emotions can lead to errors in cognition and perception of the situation at hand which can lead to under or over reactive decisions from officers. Moreover, Mercadillo, et al. (2015) found that female police officers are able to better understand their civilian subjects through empathetic and compassionate skills. These skills were found to be suitable during stressful situations as they can be used to diffuse a situation which would also settle the officer's responsive emotions.

Similarly, stressful situations also led to errors in tactical and motor skills in regard to decision-making. It was concluded that stressful situations can lead to officers making quicker and more impulsive decisions, however the choices made may not be in accordance with the officer's police training. Anderson, et al., 2019 found that a simulation of a stressful situation

resulted in officers using more force than needed due to their perception of the situation being more threatening than it truly was. As the stressful situation would cause a decay in motor skills, shooting accuracy and communication would be negatively impacted. Landman, et al. (2016) concluded that stressful situations caused officers to make the decision to shoot a lot quicker, however the accuracy of the shots fired was poor.

Although many of the articles found that stress has a negative effect on decision-making, various articles also found that over time, the brain can adapt to stress and begin to make sound decisions. Ta, et al. (2021) found that experienced officers who have dealt with more instances of stress and aggression, were better able to adapt to the situation and perform better than novice officers. This was concluded as it was found that over time, stress can improve cognitive performance which enables officers to adapt to the situations and perform better (Fridman, et al. 2019). Ultimately it was concluded that stress can cause errors in emotional regulation and tactical motor skills, however over time officers begin to adapt to this stress and this elicits an improvement in performance. It should also be noted that Verhage, et al. (2018) also concluded that an over-exposure to stress distorts senses and motor skills. Therefore, this should be taken into account when dispatching officers to repeatedly similar stressful encounters.

Conclusion

Ultimately, the findings of this critical appraisal suggest that stress undoubtedly has a large impact on decision-making for police officers. Further, the more substantial findings suggest that stress has a negative impact on emotional regulation and tactical motor skills. However, it was also found that for some experienced officers, stress became less of a hurdle with repeated exposure to such situations. It was found that repeated exposure to stress allowed for experienced officers to adapt and perform better over time.

The critical appraisal provided the public with the necessary information needed to assess incidents regarding police-civilian interactions. This research provided an additional resource to keep in mind when the media presents a police use of force incidents or incidents in which an officer has had to make critical decisions under stress, such as arrests or temporary detainments. This enhanced understanding of the effects of stress on decision-making will help the public better understand a police officer's actions and judge them according to this factual knowledge, rather than what is put forth by the media. As the police officers under scrutiny cannot directly address these assumptions, police spokespeople are usually "selected to represent their agencies at all levels of engagement on all public platforms" (Simpson & Wetherell, 2020, p.253). As a result, the officer is unable to provide rationale for their actions or the decisions made, instead the story is put forth by the media or whatever insight the police spokesperson may provide. Therefore, this research is essential in providing the public with the necessary information to completely understand the variables which affect decision-making under stress.

This research presented another viewpoint differing from what is typically presented by the media and will provide the public with a tool necessary to assess and understand police actions. This study did not include any biased rationale for police actions, but instead provided objective research to understand the implications of making decisions while experiencing high levels of stress. It analyzed secondary data on the psychological effect of stress, and provided the additional application to the topic of police officers which will then address the social issue of negative perception.

The limitations of this study were likely to be within the issues of data collection, time frame restrictions of the published studies, and the unique unknown context of police incidents creating a limit to applicability. First, as this paper was limited to secondary resources, it was

likely that there were confounding variables which remained unaccounted for. If primary research was also included, such as interviews of police officers who had been in critical situations, this research would have been able to provide concentrated information on the topic accounting for all the influencing factors they experience. Similarly, another issue within data collection was that there were other influencing factors outside of stress that influence an officer's decision-making, however due to the scope of this research, stress was the primary focus. Second, the time frame for the publication of the secondary data was created to align with the recent scrutiny of police officers, however there may have been crucial research outside of this frame which would not have been included. Third, it is important to note that although research can be used to address certain factors which affect decision-making, each police incident is unique and without context into the situation, it is difficult to form any conclusions on a specific incident using just this research. Therefore, It would be beneficial for further research to examine other factors that affect decision-making such as fear, bias, and other variables. As all these factors are influential in the decision-making process, well-rounded research would elicit a deeper analysis.

Recommendations

This study has produced three recommendations for further research, policy, and practical improvement within law enforcement. Further research should be conducted on the daily experiences of police officers which should be used to adapt training to prepare new recruits for those specific and potentially stressful situations. Ride-alongs with officers can be an excellent way to conduct this research as the researcher would be able to shadow an officer while on duty. It would also be beneficial for future research to examine the positive effects of stress on decision-making which were part of the main findings of this study. Further research in this area

would help shed light on how to manage stress and even how to use stress to an officer's advantage. In terms of a policy recommendation, police departments should emphasize mindfulness and self-monitoring to encourage police officers to recognize their emotional triggers. This can help mitigate some of the errors in emotional regulation which were found to be a significant result of decision-making under stress. Finally, a practical recommendation would be to implement Mercadillo, et al.'s (2015) findings by recruiting more women into law enforcement as research suggests that women are more empathetic and compassionate when dealing with civilians. Therefore, they are more likely to possess the skills which would help them perform well under high levels of stress. As it was concluded that an officer's emotions and perception of the situation at hand is dependent on the subject's actions, having officers who are able to diffuse a stressful situation and work collaboratively with their subjects would be an asset for any department.

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