



The International Conferences on Law Enforcement and Public Health, a focus for community safety and well-being: Global potential unleashed as LEPH goes annual to North America and Europe

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This article is related directly to the recent Law Enforcement Public Health (LEPH) Conference in Toronto, Canada, October 2018

Organized public health is concerned with prevention and effective responses to health threats at the population, as opposed to the individual, level. It has a long and successful history of countering health threats globally, mobilizing multiple professions and sectors—but not, until recently, including the law enforcement sector. This began to change with the recognition of violence, previously solely the province of criminal justice, as a public health issue. The Report of the U.S. Surgeon General in 1979, *Healthy People*, highlighted control of violent behaviour as a major threat to the health of the American people (US Public Health Service, 1979). A Surgeon General's *Workshop on Violence and Public Health* in 1985 focused attention on the public health importance of violence and in 1996 the World Health Assembly resolved that “violence is a leading worldwide public health problem,” (World Health Assembly, 49, 1996), and the World Health Organization first declared violence to be an urgent matter of the global public health, including violence and victimization associated with crime (Krug, Mercy, Dahlberg & Zai, 2002). This led to the first solid steps to synergize efforts and interests between public health and law enforcement, steps which were increasingly mirrored in relation to other critical public health issues.

This growing awareness and the whole Law Enforcement Public Health (LEPH) movement gained greater momentum in 2012 with the hosting by the Centre for Law Enforcement and Public Health (CLEPH) of the first international LEPH conference in Melbourne, Australia, in 2012. This was followed by the second conference in 2014 in Amsterdam, The Netherlands, and a return to the Netherlands again in 2016 (see LEPH Conference Links below in the Reference List).

During this period, North American policy makers and practitioners in health, policing, and number of other related

fields, grew more and more aware of these imperatives and developments and, by extension, became increasingly interested in the many collaborative practices and supporting evidence these events were helping to generate, study, and publicize. In parallel, similar collaborations were gaining momentum in Canada, after the wide and rapid proliferation of community safety and well-being (CSWB) and collaborative intervention models began there early in the current decade. There was, as a result, some degree of inevitability to the announcement last year that the fourth conference, LEPH2018, would occur in North America, specifically in Toronto, Canada.

As planning for this event moved forward, the Global Law Enforcement and Public Health Association (GLEPHA, <https://gleapha.wildapricot.org/>) was further consolidated, now positioned to carry forth with future conferences and other global activities. Canada's Community Safety Knowledge Alliance (CSKA, <http://cskacanada.ca>) became an active and supportive partner in the Toronto event, with a view to the future as well. It was also decided by the organizers shortly afterward that this multi-sector periodical, CSKA's *Journal of CSWB*, would become the official peer-reviewed, open-access publication of LEPH for the 2018 event and beyond. This partnership was announced in conjunction with a stepped-up call for related papers in the lead-up to the conference.

Implications Arising from a Toronto Success

By all accounts, the recent October event in Toronto met and exceeded the expectations of its delegates, whether veterans of the European and Australia experience, or relative newcomers to the global conversation. The growing Canadian commitment to CSWB collaborations was clearly punctuated from the opening by mutually reinforcing, welcoming

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remarks from an Indigenous elder, deputy ministers responsible for policing from two provinces, the executive in charge of Toronto's public health unit, and the Chief of Police of Canada's largest city.

During the three days that followed, many examples of public health, mental health, child protection, housing, corrections, justice, and policing collaborative initiatives were presented and discussed in depth, with each fluidly criss-crossing the social determinants of health and the well-established factors of criminality, victimization and violence, drawing on diverse medical and social science and solid practical evidence, some proven and some merely promising, to date.

Highlights included the plenary sessions, with a range of keynote speakers providing state-of-the-art insight into their own particular fields. The audience for the Plenary session on the second day, for instance, heard about current knowledge in police trauma and wellness from a police officer who has been through the mill and emerged stronger; about the impact of alcohol on Indigenous peoples and exciting, innovative approaches to managing the issue, from a remarkable member of the community; and the importance and impact of local government in bringing partners together and brokering and sustaining partnerships from a representative of the largest local government network in the world. This session was immediately followed by the LEPH Oration, delivered by Sir Michael Marmot, about social justice and health inequity—an utterly engrossing session summarized by its chair as being “for head and for heart”.

LEPH Conferences endeavour to provide a mixture of theory and practice to an audience in which policy makers, academics, and practitioners, and people with lived experience from all sectors mix and network. Indeed, the opportunity to move outside your professional bubble and form alliances with—and be inspired by—people from other sectors facing the same issues is one of the best parts of this conference. The Marketplace of Ideas has become an integral part of the LEPH conferences, offering longer sessions with smaller audiences in which innovative programs are showcased and shared with others facing similar issues.

GLEPHA convened a networking meeting prior to the LEPH2018 conference, a show-and-tell meeting of agencies and networks working in this intersectoral space between law enforcement and public health. This pre-conference networking meeting involved 15 agencies and networks from around the globe, an indication of how broad the LEPH movement is becoming.

Our Call to Action

We are pleased to note that five of the eight features in this current issue of the *Journal* derive from this nascent LEPH-CSWB partnership. With several more excellent features already in the queue, ranging from Original Research to Social Innovation Narratives and Commentaries, we anticipate continuing this pattern across several more issues throughout 2019. We also recognize there are many other presenters, panelists, participants, and observers for whom the timing may have been too tight to commit to publishing in conjunction with the event itself.

We encourage those authors to help us keep up the momentum and the dialogue, and our Section Editors look

forward to receiving and reviewing more features in the weeks and months ahead. The Toronto event drew a whole new audience from across North America and beyond. Through this *Journal* and others, a new global space for collaboration and knowledge exchange is opening for us all to share in our learning and our diverse applications of LEPH and CSWB innovation and much-needed solutions.

Looking Ahead to Edinburgh

Planning is already underway for the LEPH2019 Conference, scheduled for October 20-23 in Edinburgh, Scotland. It may be somewhat poetic for Canadian CSWB practitioners who are able to join this return to Scotland, since the well-documented genesis of CSWB here in Canada arose from a 2010 field study there, led out of Prince Albert, SK (McFee & Taylor 2014).

For all delegates world-wide, Edinburgh promises another opportunity to learn about, share, and expand upon LEPH and CSWB practices, as well as to further strengthen the research and evidence base in support of collaborative solutions. Scotland is an acknowledged world leader in innovative and collaborative approaches to complex issues, especially in the Glasgow approach to gangs and gang violence which has inspired much of the rest of the world, as well as for its move to become the first “ACE-aware nation” (Adverse Childhood Experience). LEPH2019 will focus on ‘Collaborative Leadership’, and feature the same key themes as previous LEPH conferences, including domestic and gender-based violence, mental health crises, police and other first responder well-being, alcohol and other drugs, trauma and catastrophes. The 2019 conference will also build on the experience of previous conferences, and the growing LEPH movement to examine other complex public health and safety issues.

The Global LEPH Association is developing a range of Special Interest Groups, each looking to hold its own pre-conference satellite, as has been done in previous conferences. For Edinburgh, those foreshadowed include law enforcement and mental health; police, drugs, and harm reduction (organized by the LE and HIV Network); education in LEPH; and police well-being. These pre-conference meetings provide an opportunity to dig deeper into particular subjects and to produce concrete outcomes, before joining the main conference.

The now annual LEPH conferences will continue to provide these multiple opportunities for networking, information and experience sharing, and alliance building—in strong recognition that there is currently too much in the way of division in society and in our responses to social issues, and that future success in tackling complex and divisive issues lies in these alliances. The Edinburgh LEPH conference will carry on and build on this new tradition, bringing us all together. We look forward to seeing you there!

CONFLICT OF INTEREST DISCLOSURES

The authors declare there are no conflicts of interest connected to the submission of this article.

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Development of the Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LESD): An epidemiological criminology framework

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ABSTRACT

The stressors associated with the law enforcement profession have become a focal point of discussion as the reporting of police misconduct has been increasing. Simultaneously researchers are exploring the relationship between police stress, as manifested through physical behavior, and health outcomes. While the current definitions and theories shed some light on the pathways of police stress leading to police misconduct, the emergence of more critical, interdisciplinary theories is essential and needed so as to better understand its underlying causes scientifically and practically. Relevant studies conducted from year 2008 to present were searched and collected, through a number of databases, to investigate the relationship between stress and police misconduct. The results of the final sample of ten studies were utilized to refine a conceptual model that serves as a guiding framework to more accurately provide a conceptual picture of police stress-exposure and the role of the bio-psycho-social and environmental contributors that impact the police work environment, thereby influencing the stress experienced by police officers that lead to police misconduct. We use the Epidemiological Criminology framework to understand the biobehavioural impact of stressful exposure on health and wellness of law enforcement officers. This framework intends to help the law enforcement, research, policy, and practice community to understand more effectively the bio-psycho-social and environmental health effects within the context of the behavioural and biomedical disparities of police officers, who are likely to experience high levels of stress while on duty—leading to the development of stress-reduction interventions for police officers.

Key Words Epidemiological criminology; police stress; police health; police deviance; police misconduct.

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INTRODUCTION

The law enforcement profession is considered one of the most stressful occupations in the United States (US), with 77% to 83% of police officers reporting that they experienced occupational stressors in the past month (Violanti et al., 2016). Even more, stress as an occupational hazard in policing has an effect throughout the life course of police officers (Reingle-Gonzalez, Bishopp, & Jetelina, 2016; Ramey, Downing, Franke, Perkhounkova, & Alasagheirin, 2012; Kaufmann, Rutkow, Spira, & Mojtabei, 2013). Police officers (46.9%) are more prone to work a non-day shift when compared to other workers (9%) in the US (Hartley, Burchfiel, Fekedulegn, Andrew, & Violanti, 2011a). These shift differences have been associated with exposure to more stressful events (Ma et al., 2015). In

regard to specific occupational stress exposures, Violanti et al. (2016) examined the occupational stressors among police officers using the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) Study (2004–2009) and found that the most frequent identified police stressor was ‘responding to family disputes’ (83%), and the most highly rated stressor was ‘exposure to battered children’ (27%). With respect to gender, male police officers reported a higher prevalence of stress associated with interruption in their time off duty and working second jobs compared to female police officers. On the other hand, female police officers reported experiencing a higher prevalence of stress related to poor supervisory management relative to male police officers.

The stressors associated with the law enforcement profession have become a focal point of discussion as the

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reporting of police misconduct has been increasing. Using the general strain theory, Arter (2007) found that police officers who reported experiencing higher levels of stress also reported engaging in more deviant or aberrant behaviours, such as verbal assaults toward citizens, excessive force, and acts of nonfeasance, malfeasance, or misfeasance (i.e., behavioural disparities), in contrast to other occupations. When police officers were reassigned from duties that were identified as highly stressful, the reported deviant behaviours were decreased. This is important because the 2010 National Police Misconduct Statistics and Reporting Project (NPMSRP) indicated that approximately 6,613 law enforcement officers met the criteria for NPMSRP's police misconduct. Excessive use of force was the most prominent type of reported allegation, involving 1,575 complaints (23.8%). Incidents of sexual misconduct (9.3%) ranked as the second most reported complaint, followed by theft/fraud allegations (7.2%) (Packman, 2011). Also, since the formation of the Civil Rights Division (the Division) of the U.S. Department of Justice's (DOJ) pattern-or-practice cases, which investigates police misconduct based on the macro level (e.g., policies, systemic practices) rather than on the micro level (e.g., individual police misconduct), the Division has opened 69 formal investigations and entered into 40 total reform agreements to foster change to police departments (United States Department of Justice, 2017).

Simultaneously, researchers are exploring the relationship between police stress, as manifested through physical behaviour, and health. These police stressors are being explored due to reports of such factors as: increased absenteeism (Violanti et al., 2014), presenteeism (Leineweber et al., 2011), and short-term and long-term disability (Violanti et al., 2013a) contributing to higher estimated costs due to at-work productivity loss (Fox et al., 2012). Most recently, police operational stress injuries, defined as "any persistent psychological difficulty resulting from operational duties performed while serving" (Oliphant, 2016, p. 15) has become an important focus of screening among police officers (Carleton et al., 2017). One such operational stress injury is post-traumatic stress disorder (PTSD), which is a trauma and stress-related disorder that is experienced by many police officers (American Psychiatric Association, 2013; Foley & Massey, 2018). For instance, it has been reported that, for every six months of service, a police officer can experience an average of three traumatic events that translate into symptoms of PTSD (Patterson, 2001), which impacts their ability to carry out effectively their duties based on PTSD symptomatology (e.g., heightened reactions, aggressive behaviours) (Foley & Massey, 2018). The fact that police officers are exposed to traumatic events does not necessarily mean that they will experience PTSD-related symptoms. Many police officers are resilient and, despite the trauma-related exposure, they have the capacity to recover/adapt. In addition, some officers may experience PTSD-related or trauma-related symptoms; however, they have the capacity to recover. Bonanno (2004) uses the term "potential traumatic event", and contends that it is not the event that traumatizes a person but rather the person's perception of the event that determines their trauma-response. In fact, a person exposed to a traumatic event could find meaning in the event, view it as a learning experience, and move on. Of course, there appears to be a percentage of officers who get affected by trauma exposure

over time. A police officer diagnosed with PTSD may also have higher comorbid psychological symptoms of anxiety and depression (i.e., biomedical disparities), as well as higher cardiovascular disease risk factors such as obesity, metabolic syndrome, and high cholesterol, relative to working adults in their occupations in the US (Hartley et al., 2011b; Javidi & Yadollahie, 2012).

As a result of the prevalence of police misconduct and stress-related health issues among police officers, the stress associated with police work has been explored to determine its relationship with health and wellness and the manifestation of deviant predisposition that leads to police misconduct (Juarez, 2004; Agnew, 2001; Manzoni, 2009; Gershon, Lin, & Li, 2002; Kop & Euwena, 2001; Arter, 2007). The main crust of this study is the pathways of stressful exposures (i.e., personal, organizational/operational, and psychological/physical) on the biological, psychological, sociological, and environmental well-being of police officers. Focusing on system and structure and organizational and operational stressors are important for prevention. Importantly, the complexity of this level of analysis further requires the analysis of three critical theoretical factors related to law enforcement and public health: micro (individual), meso (organizational/operational), and macro (structural). Each level of analysis must be considered in order to adequately determine how the bio-psycho-social and environmental conditions affect the health and deviant behaviours of police officers, thereby leading to misconduct.

Law Enforcement and Stress Process

The stress process, as conceptualized by Pearlin, Menaghan, Lieberman, & Mullan (1981), identified three core components: stressors, moderators (social and psychological resources), and outcomes (psychological distress), with each serving as its own weaving of gossamer thread of emotions. According to Pearlin (2005), stressors refer to:

"problems, hardships, or threats that challenge the capacities of people; moderators refer to the social and personal resources that people can mobilize to contain, regulate, or ameliorate the effects of the stressors; and outcomes refer to the effects of the stressors that are observed after the moderating resources are taken into account" (p. 3).

When considering the stress process of law enforcement personnel, stress can be operationalized as the combined relationship of stressors and the police officer's response to the stressors. Stressors, which are the sources of stress, are the events and/or the triggers that present a threat or a challenge to police officers. Police officers may experience acute stress, resulting from an unexpected emergency such as mass shooting. They may also experience chronic stress, which is the stress that results from the day-to-day occupational expectations. It has been found that both the acute stress and chronic stress experienced by police officers increase the risk for psychological and physical health problems (Hartley et al., 2011b; Hartley, Sarkisian, Violanti, Andrew, & Burchfiel, 2013).

Even more, stress responses are the ways that a police officer reacts to the stressors; psychologically (e.g., PTSD symptoms), physiologically (e.g., flattened cortisol levels),

and behaviourally (e.g., police misconduct). Keep in mind that not all psychological symptoms are PTSD symptoms-related; they might be due to other mental health concerns or heightened overall stress (not a clinical disorder), burn-out, compassion fatigue, moral injury, and limited distress tolerance, for example. Also, we don't wish to imply that all police misconduct is related to psychopathology or PTSD symptoms. In addition, many officers are capable of making right decisions despite exposure to stressors. At least they are substantially better able to make right decisions (e.g., shoot/no shoot) compared to civilians; for example, although higher than suggested by official data, police officers accounted for about 8% of all homicides with adult male victims between 2012 and 2018 (Edwards, Esposito, & Lee, 2018). Nonetheless, when police officers are confronted with a stressor (i.e., personal, organizational/operational, and psychological/physical), they resort to a wide range of coping strategies to help alleviate the stress such as: religion, denial, substance use, emotional support, venting, humor, acceptance, and self-blame. (Acquadro Maran, Varetto, Zedda, & Ieraci, 2015; Lazarus & Folkman, 1984).

Law Enforcement, Stress, and Biomedical/Behavioural Health Disparities

Epidemiological research indicates that police officers have elevated mortality risk factors relative to the general population (Hartley et al., 2011a; Hartley et al., 2012; Joseph et al., 2009). For example, Violanti et al. (2013b) reported that the years of potential life lost for police officers was 21 times greater than the general population, mainly due to occupational stress, environmental work hazards, shift work, and obesity. Compared to other employed populations, police officers experienced higher rates of depression (12.0% vs. 6.8%), obesity (40.5% vs. 32.1%), metabolic syndrome (26.7% vs. 18.7%), and higher mean serum total cholesterol levels (200.8 mg/dL vs. 193.2 mg/dL) (Hartley et al., 2011a). Reduction in sleep quality and duration and physical activity has also been shown to be associated with perceived occupational stress among police officers (Charles et al., 2011; Ramey et al., 2012). In a 24-hour period, police officers (33%) are approximately four times more likely to sleep less than six hours when compared to the general employed population (8%) (Hartley et al., 2011a), which is associated with a four-fold greater number of metabolic syndrome health issues, thereby contributing to their risk for bio-psycho-social and environmental effects (Violanti et al., 2009a; Fekedulegn et al., 2013; Ramey et al., 2012).

Even further, acute exposure to a stressor can produce elevated cortisol levels lasting for approximately one hour after the initial response to the stressor (Khalifa, Bella, Roy, Peretz, & Lupien, 2003). During chronic stress exposure, the body's ability to self-regulate the secretion of cortisol becomes compromised, causing an allostatic overload, which is the body's inability to appropriately regulate the stress response (McEwen, 2008; Lippi, et al., 2009; Violanti, 2009b; Meyer, Novak, Hamel, & Rosenberg, 2014). Violanti et al., (2017a) found that as police officers' stress index increased, there was a flattening of their cortisol slopes over time. This is an important finding since Adam et al. (2017) conducted a systematic review and meta-analysis of cortisol and physical and mental health outcomes, and their results indicated a

significant association between flattened cortisol slopes and poorer physical and mental health across all studies.

Most recently, the biological basis of personality has been scientifically investigated using personality neuroscience to examine the individual differences in behaviour, motivation, emotion, and cognition. Personality neuroscience employs methods of personality psychology to link biological variables to trait through assessment of brain structures. It has been found that the Big Five personality traits (Extroversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience) have some effect on various brain systems that influence health (Young, 2010). This is important because personality types have also been identified to be important factors in determining how stress is regulated differentially (Cooper, 2005). Those personality types that are associated with healthier traits seem to mediate the deleterious effects of stressors (Afshar et al., 2015). In regard to law enforcement personnel, police officers with personality types, such as egocentricity and stimulation-seeking tendencies, were significantly associated with insubordination, neglect of duty, and excessive citizen complaints (Weiss, Rostow, Davis, & DeCoster-Martin, 2004; Weiss, Zehner, Davis, Rostow, & DeCoster-Martin, 2005). Researchers have found that police officers with traits of narcissistic personality disorder, or who had personality traits such as neuroticism, psychoticism, and extroversion, were significantly associated with psychological stress, thereby placing them at high risk for the development of a psychological disorder leading to misconduct (Kaur, Chodagiri, & Reddi; 2013; Weiss, Vivian, Weiss, Davis, & Rostow; 2013). Hence, the daily stressors that police officers experience during the course of their long working hours put them at significantly higher risk than the general population for physiological, psychological, and physical health effects (Fekedulegn et al., 2013; Zimmerman, 2012; Violanti et al., 2013b), which has also led to police misconduct (Weiss et al., 2013; Bishopp, Worrall, & Piquero, 2016).

Law Enforcement, Stress, and Police Misconduct

Police misconduct has been defined in many ways and the term has been used to describe many different behaviours and actions. However, the U.S. Supreme Court defined police misconduct as the "misuse of power, possessed by virtue of state law and made possible only because the wrongdoer is clothed with the authority of the state" (United States v. Classic et al., 1941). With the reported increase in this "misuse of power", there has been some recent interest in the relationship between stress and police misconduct. For example, researchers are currently working with a sample of members of the Buffalo Police Department on a three-year, \$814,000 study being funded by the U.S. Department of Justice's National Institute of Justice to examine the effects of mild-to-severe PTSD on attention and cognitive control in police. It is the researcher's contention that police officers who experience high levels of PTSD symptoms have more difficulty in selectively attending to on-the-job police situations and in making the right decision—which may lead to police misconduct (Hill, 2018).

Also, the stress associated with the unpredictability of police work causes police officers to perceive most, if not all, citizens as "symbolic assailants"—defined by Skolnic (1994) as the intuitive techniques developed by police officers to identify potential perpetrators of the law using indicators

such as a person's appearance, language, gestures, attitude clothing, hairstyle, body language, or tattoos. Johnson, Todd, and Subramanian (2005) described it this way: "the highly unpredictable and potentially dangerous persons who cannot be dependably identified in advance condition officers to treat each individual with suspicion and caution" (p.4). It is proposed that this is caused by the aggressive cognitive scripts that are developed by police officers due to their exposure to acute high-intensity stressors (Groves & Anderson, 2016; DeWall, Anderson, & Bushman, 2011). These aggressive cognitive scripts are developed through repeated observations of prior aggressive behaviours or internalized values, but can also include stereotypes that are learned through the socialization process (DeWall et al., 2011; Cox & Devine, 2015). The aggressive cognitive scripts can also be developed through environmental and contextual cues that activate stress-induced, out-group threat appraisals. This is manifested by means of such pervasive stereotypes of Black men being associated with criminality or violence. Hence, the appraisal of Black men as violent, combined with the aggressive cognitive scripts, may increase the risk of police misconduct with a Black male suspect compared to a White male suspect (Miller, Maner, & Becher, 2010).

Moreover, most researchers either define or theorize police misconduct based on several micro-meso-macro-level characteristics associated with law enforcement.

1. Micro-level characteristics such as police officers' race, age, length of service, and rank (Kane & White, 2012; Kane & White, 2009; Donner & Jennings, 2014; Wolfe & Piquero, 2011).
2. Meso-level characteristics such as the structural disadvantage of the community where police officers work, defined as percentages of persons in a given community with severe material hardships, and population mobility, defined as percentages of persons in a given community who reside at their current address less than five years (Kane, 2002).
3. Macro-level characteristics such as law enforcement policies and work culture (Wolfe & Piquero, 2011; Skogan & Frdyl, 2004; Brooks, 2005; Westmarland, 2005).

While others employ theoretical models to help understand and explain actions and behaviours, mainly from a micro-level perspective, as found in Thomas Hobbes' theoretical framework on deterrence theory (1651, trans.2017), which argues that, when faced with opportunities to break the law, we consider the long-term consequences of our actions and that may prevent us from engaging in criminal behaviour. Another is Gottfredson & Hirschi's (1990) self-control theory, which posits that a person's lack of individual self-control is the main factor behind criminal behaviour. Agnew's (1992) strain theory proposes that individuals experience negative emotional states, such as anger, depression, and fear, due to exposure to various forms of strain. Criminal behaviour develops as individuals attempt to cope with these negative emotional states through criminal activity. Tittle's (1995) control balance theory is based on the premise that a control ratio, which is the ratio of the controls that an individual exercises to what controls the individual experiences, is the main cause of criminal behaviour. Akers (1998)

social learning theory suggests that an individual's socialization produces both conforming and criminal behaviour. Druckman's (1998) social exchange theory hypothesizes that people weigh the potential benefits and risks of social relationships, which links perceived organizational treatment of employees to criminal behaviour.

While the above definitions and theories shed some light on police misconduct, the emergence of more critical, interdisciplinary theories is essential and needed to better understand such misconduct's underlying causes scientifically and practically. The purpose of this paper is to develop a conceptual model that provides a picture of police stress exposure, and the role of the bio-psycho-social and environmental contributors that can impact the police work environment, which may influence the stress experienced by police officers that lead to police misconduct. Results from this model development will increase our understanding of the biomedical and behavioural disparities that impact stressful exposure on health and well-being of law enforcement officers. The emergence of a more robust, interdisciplinary theory and framework will yield greater understanding by law enforcement, research, policy, and practice communities. The point across the behavioural continuum that tips the balance of healthy reasoning to a behaviour of police/criminal misconduct requires a comprehensive analysis of the bio-psycho-social and environmental health effects confronting police, thereby leading to appropriate prevention and intervention strategies.

METHODS

The current review utilized to develop Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LESD) summarizes the more representative studies investigating the relationship between stress and police misconduct. Relevant studies conducted from year 2008 to present were searched and collected through a number of databases, including the PubMed, the EBSCOhost Online Research, the Social Sciences Citation Index, the MEDLINE, the PsycINFO, and SOci. The search parameters focused on using keywords such as 'police misconduct and stress', 'police misconduct and general strain', 'police misconduct stress, and health', and 'police misconduct general strain, and health'. After relevant research articles were identified, further efforts were made to scan through the references of these articles to locate other relevant research articles for the review. Among all the studies that were identified, those with standard quality and representation in terms of design, method, and sampling were included in the review.

Although a substantial number of empirical studies investigated police misconduct and its relationship with stress, general strain and health were identified through the aforementioned databases, most of the studies did not fulfill the purpose for review. Empirical research articles adopted for this review were defined as quantitative or qualitative studies that included in their methods and findings at least the application of one inferential or correlation statistic to investigate the association between police misconduct and its relationship with stress, strain, and health. One exception was made which allowed for a comprehensive literature review of recent empirical research on police stress and psychological and physiological health outcomes in police officers due

to the depth of the content. The final sample for this review consists of eight quantitative studies, one qualitative study, and one comprehensive literature review, across the years from 2008 to 2018.

RESULTS

Preliminary Findings

Table I provides a summary of the characteristics of the ten studies that met the inclusion criteria.

The aim of the study conducted by Bishopp and colleagues (2018) was to examine the relationship among police stress, anger, depression, and burnout using the Police Work Experience Survey. This was a cross-sectional study utilizing data from 1,400 police officers employed at three large urban police departments in Texas. The researchers found that organizational stress was positively associated with depression and burnout. Organizational and environmental stress was positively associated with anger, although organizational stress had a stronger influence on expressions of

TABLE I Summary of key findings

Study	Sample Characteristics	Materials	Study Design	Findings
Bishopp, Piquero, Worrall, & Piquero,(2018)	1,400 sworn police officers from three of the largest urban centers in Texas: Agency A is located in south central Texas; Agency B is in northeastern Texas; and Agency C is found in the state's Western region.	3-item anger scale; 5-item depression scale; 4-item burnout scale; 10-item organizational strain scale; and 6-item environmental strain scale	Cross-sectional data analyses utilizing the Police Work Experience Survey (PWES).	Organizational stress was positively associated with depression and burnout. Organizational and environmental stress were positively associated with anger, with organizational stress being a stronger influence on anger. Minority officers reported less emotional-response to stress than white officers.
Reynold, Fitzgerald, & Hicks (2018)	Four former and 20 current police officers representing eight police departments in the United States; Police Department sizes ranging from approximately 30 officers in a department to more than 2,000 officers.	Officers were asked questions such as the following: 1. Can you think of an incident in which you felt that you were not treated fairly by the department? 2. How did that experience make you feel? 3. How did you respond to the experience?	Qualitative semi-structured interview process.	Police officers reported engaging in production deviance in response to organizational stress.
Zavala & Kurtz (2016)	1,104 police officers from Baltimore City Police Department.	1-item perpetrator; 1-item alcohol consumption; 4-item coercion; 2-item social-psychological deficits; 2-item social support	Cross-sectional data analyses utilizing the Police Stress and Domestic Violence in Police Families in Baltimore, Maryland, 1997-1999.	Child maltreatment and peer victimization related to IPV but mediated by anger. Street victimization and inherent policing coercion related to alcohol consumption.
Bishopp, Worrall, & Piquero (2016)	1,449 police officers from three large agencies in Texas: Agency A had 1,740 sworn officers serving a community of approximately 885,000; Agency B served 1.3 million constituents with 3,454 officers; and Agency C had 1,066 officers responsible for roughly 675,000 people.	3-item police misconduct; 3-item organizational strain; 3-item anger scale	Cross-sectional data analyses utilizing the Police Work Experience Survey (PWES).	Stress from fatigue and internal investigations was significantly related to driving misconduct. The relationship between organizational stress and yelling/cursing and unnecessary force was attenuated by anger.

TABLE I (cont'd)

Study	Sample Characteristics	Materials	Study Design	Findings
Kurtz, Zavala, & Melander (2015)	1,104 police officers from Baltimore City Police Department.	1-item police misconduct; 12-item physical/psychological stress; 2-item childhood strain exposures; 9-item critical incident strain	Cross-sectional data analyses utilizing the Police Stress and Domestic Violence in Police Families in Baltimore, Maryland, 1997–1999.	Exposure to childhood strain related to higher critical incident strain. Childhood strain and critical incident strain are associated with increased stress. Childhood strain and critical incident strain increases the odds of officer-on-officer violence.
Harris (2014)	938 officers who were employed by a large police department in the northeastern USA from January 1, 1987 through June 30, 2001.	Computerized records of academy scores and patrol zones retrieved from the personnel system; and computerized records of police misconduct data from the internal affairs (IA) unit.	Cross-sectional data analyses of police misconduct filed against officers, using both all complaints and only substantiated complaints, from data collected from police officers followed for a long period of their careers.	It takes approximately 3.7 years for onset of police misconduct. Police officers assigned to higher-crime patrol zones were more likely to onset of police misconduct than those who were assigned to lower-crime patrol zones.
Akinola & Mendes (2012)	81 active male police officers employed by a Massachusetts police department.	Saliva samples were obtained before and after stressful role play (Neuroendocrine responses) shoot/don't shoot video game simulation (decision-making).	Analyses of induced cortisol increases with an adapted Trier Social Stress Task and then police officers complete a shoot/don't shoot computerized-decision-making task.	Larger cortisol increases to the stress task was related to fewer errors in the decision-making task; relationship was stronger when the targets were armed and Black than when the targets were armed and White.
Wolfe & Piquero (2011)	Random sample of 504 police officers selected from all 3,810 Philadelphia Police Department (PPD) officers of the rank patrol officer, sergeant, or lieutenant as of January 2000.	3 measures of police misconduct; 6-item organizational justice; 2-item procedural justice; 3-item code of silence; 8-item noble cause beliefs; six hypothetical vignettes to measure perceptions of deviant peer associations	Cross-sectional data analyses utilizing the data originally collected by Greene and Piquero (2000) in a study of police integrity in Philadelphia funded by the National Institute of Justice.	Police officer perceptions of organizational justice was associated with lower likelihoods of police misconduct (e.g., having citizen complaints filed, IAD investigations instigated, or disciplinary charges).
Shane (2010)	Convenience sample of 461 sworn incumbent police officers, who were actively working in the patrol division, and from two police departments located in two different cities in the United States.	Two subscales measuring operational stressors (20 job content questions) and organizational stressors (20 job context questions); performance data gathered from police departments' records.	Cross-sectional data analyses utilizing the 40-item Police Stress Questionnaire.	Leadership and supervision, management, and internal affairs are negatively related to job performance. White officers, female officers, older, those who are not married, and those who have more children tend to have lower job performance.

TABLE I (cont'd)

Study	Sample Characteristics	Materials	Study Design	Findings
Violanti et al. (2017b)	66 empirical studies that examined the relationship between police stress and physical and psychological health outcomes (cross-sectional, prospective, retrospective, and experimental studies; meta-analyses or systematic reviews) from 15 countries around the world (Australia, Brazil, Canada, Finland, Germany, Israel, Italy, The Netherlands, New Zealand, Poland, Sweden, Switzerland, Turkey, United Kingdom, United States of America).	Articles that investigated associations between police stress and health-related outcomes.	Searches of relevant databases (years 1990-2016) including PubMed, Scopus, Embase, ProQuest, PsycINFO, PILOTS, and Google Scholar.	Number of studies showing police stress related to: <ul style="list-style-type: none"> • Burnout (3) • Chronic disease (1) • Cortisol (2) • Cortisol and PTSD (2) • CVD risk factors (6) • CVD risk factors and PTSD (1) • CVD risk factors and organizational stressors (5) • Depression (2) • Injuries (5) • Metabolic syndrome (1) • Metabolic syndrome and organizational stressors (4) • Neurological disorders (2) • Psychological strain (4) • Psychological strain and organizational stressors (1) • PTSD (2) • PTSD (5) • PTSD and organizational stressors (2) • Sleep disorders (16) • Sleep disorders and stressors (1) • Suicide ideation (1)

anger than environmental stress. When considering race, the officers who identified with a minority group reported less emotional-response to stress than non-minority officers. In another relevant study, Reynolds and colleagues (2018) conducted a qualitative study with 4 former and 20 current police officers representing eight police departments in the United States. The data analyses revealed that the events that police officers associated with organizational injustice were: disciplinary actions, citizen complaints, supervisory disagreements, and blocked career aspirations (i.e., promotions). The stress and anger associated with their perception of the events led them to engage in production deviance (e.g., wasting resources or intentionally altering discretionary activities such as proactive policing) and self-protective behaviours (withdrawing and “laying low”).

Zavala and Kurtz (2016) conducted a study of 1,104 police officers from the Baltimore City Police Department to examine the differences in coercion and social support theory on police officers' misconduct. Their cross-sectional analyses were done using data from the *Police Stress and Domestic Violence in Police Families in Baltimore, Maryland, 1997–1999* (Gershon, 2000). The focus of this study was to test whether social

support theory could explain intimate partner violence (IPV) and moderate-to-severe substance use among police officers. Evidence was found to support the proposition that a police officer's history of child maltreatment (e.g., child abuse) and peer victimization (e.g., assaulted by fellow police officer) were related to IPV, although the relationship was attenuated by anger. Also, history of street victimization (e.g., assaulted by suspects or civilians) and inherent policing coercion (e.g., making a violent arrest, responding to a bloody crime scene) were related to moderate or severe alcohol use.

Bishopp and colleagues (2016) utilized a similar sample and instrument as the study conducted by Bishopp and colleagues (2018), presented above, to investigate how the general strain theory could explain the relationship between organizational stress and police deviance among 1,389 police officers from three large police departments in Texas. Their analyses revealed that the stress from fatigue and internal investigations was significantly related to police misconduct relative to operating a police car. Even further, there was an association between organizational stress and verbal abuse by police officers and unnecessary force, although both types of relationships were attenuated by anger.

Another study that utilized the *Police Stress and Domestic Violence in Police Families in Baltimore, Maryland, 1997–1999* was conducted by Kurtz and colleagues (2015). They examined the influence of prior child abuse and exposure to interparental violence on police officers' participation in work-related traumatic events (e.g., shooting someone) psychological–physiological stress responses, and officer-on-officer assaults. This was a cross-sectional study utilizing a similar sample of police officers as the study conducted by Zavala and Kurtz (2016), presented above. The researchers found that a history of child abuse or exposure to interparental violence was related to higher incidents of participation in work-related traumatic events—all of which were associated with increased stress. The odds of officer-on-officer assaults were increased if police officers had a history of child abuse or exposure to interparental violence or participated in work-related traumatic events.

The aim of Harris' (2014) study was to examine the factors that contribute to, or mediate, the odds of engaging in an episode of police misconduct, among 938 police officers who were employed by a large police department in the Northeastern United States from January 1, 1987 through June 30, 2001. The computerized records of academy scores and patrol zones, as well as records of police misconduct data from the internal affairs unit, were analyzed. This cross-sectional study analyzed police misconduct filed against police officers, using both "all complaints" and "only substantiated complaints." It was determined that it takes approximately 3.7 years for the onset of police misconduct among these police officers. Most importantly, police officers assigned to higher-crime patrol zones were more likely to experience an onset of police misconduct than those who were assigned to lower-crime patrol zones.

The purpose of the Akinola and Mendes (2012) study was to examine the effects of neuroendocrine responses on police-related decision-making skills using a videogame simulation of a shoot/don't shoot task. First, cortisol levels were assessed among 81 active male police officers who were employed by a Massachusetts police department, using saliva samples. Next, the police officers participated in an adapted Trier Social Stress Task which included a high-stress role play involving Black males who reported physical and verbal maltreatment by a police officer based on his race. They then were exposed to images of Black and White men who were holding various guns and items that were not guns (e.g., cell phones) and instructed to quickly press a button on the computer to indicate how they would respond (shoot/don't shoot). The police officers earned points for correctly shooting armed individuals and lost points for shooting an unarmed individual or not making a decision within 850 milliseconds after viewing an image of a Black or White male. The results of the study revealed that as a police officer's cortisol level increases, there were fewer errors in their decision-making skills related to the stress task. The relationship between increased cortisol level and decision-making skills related to the stress task was stronger when the targets were armed and Black than when the targets were armed and White.

Wolfe & Piquero's (2011) study used survey data originally collected by Greene & Piquero (2000) in a study on police integrity in Philadelphia, funded by the National Institute of

Justice (NIJ). The role of organizational justice in police misconduct was examined among a random sample of 483 police officers who were patrol officers, sergeants, or lieutenants as of January 2000, and employed in the Philadelphia Police Department. They found that police officers' perceptions of organizational justice were associated with lower likelihoods of police misconduct (e.g., having citizen complaint filed, IAD investigations instigated, or disciplinary charges). In a later publication, Shane (2010) conducted a study, utilizing the 40-item Police Stress Questionnaire, to examine the impact of organizational stressors on police performance. The study consisted of a convenience sample of 461 sworn incumbent police officers, who were actively working in the patrol division, and from two police departments located in two different cities in the United States. The analyses revealed that leadership and supervision, management, and internal affairs are negatively related to job performance. With regard to the role of socio-demographics, White officers, female officers, older officers, those who were not married, and those who had more children, were more prone to have lower job performance.

Finally, Violanti and colleagues (2017b) conducted a comprehensive literature review to examine the relationship between police stress and physical and psychological health outcomes. Relevant studies conducted from year 1990 to 2016 were searched and collected through a number of databases, including PubMed, Scopus, Embase, ProQuest, PsycINFO, PLOTS, and Google Scholar. They then reviewed 66 empirical studies that were either cross-sectional, prospective, retrospective or experimental. Included in this review were meta-analyses or systematic reviews. The strength of this review is the heterogeneity of the studies across 15 countries from around the world (Australia, Brazil, Canada, Finland, Germany, Israel, Italy, The Netherlands, New Zealand, Poland, Sweden, Switzerland, Turkey, United Kingdom, United States of America). The results revealed that police stress at the micro, meso, and macro levels was related to several biomedical and behavioural health outcomes to include the following: burnout, chronic disease, cortisol levels, PTSD, CVD risk factors, depression, injuries, metabolic syndrome, neurological diseases, psychological strain, sleep disorders, and suicidal ideation.

Primary Findings

The literature review provides empirical evidence of both biomedical and behavioural outcomes associated with police stress and the processes involved that may lead to police misconduct. The results of the nine studies and one literature review offer a conceptual idea of the associations among police stress, health, deviance, and police misconduct. First of all, law enforcement is an occupation that exposes police officers to a plethora of stressors that lead to biomedical and behavioural disparities, while at the same time increases the risk that a police officer will engage in police misconduct. This pathway seems to be experienced through several channels, such as police officers' perceptions of organizational justice, fatigue, burnout, current exposure to traumatic events, and history of past traumas. One of the constant findings was the role that anger played in the relationship between police stress and misconduct. This is significant, because anger is related to several factors including heightened stress levels,

PTSD, depression, low tolerance to frustration, emotional dysregulation, perceived injustice, and burnout—all of which is related to police misconduct. Second, there was an identified time frame for the onset of misconduct (approximately 3.7 years) after being exposed to the stressors associated with policing. This allows us to know that misconduct is not an immediate response to stressors, but rather an end result in the domino effect caused by the sequence of events related to stress, health, and deviant behaviours. Finally, certain socio-demographics must be considered when developing any interventions for police misconduct based on stress. For instance, Ross (2015) puts forward that police misconduct was more prevalent in police departments located in larger metropolitan counties plagued with extreme economic inequities and a large proportion of African American residents with low median incomes. Even more, it was found that the demographics of an average victim of police misconduct were a 29-year-old male (88.1%) who was non-White (70.4%). The average police officer was a 34-year-old male (94.7%) who was white (70.4%) (Lee, Vaughn, & Lim, 2014). Even more, while only 13% of the total US population is African American, they account for 28% of the persons killed by police officers. At the same time, while White Americans make up 61% of the total US population, they account for 75% of the employed police officers (Menifield, Shin, & Strother, 2018). Hence, public health and criminal justice practitioners should consider these socio-demographic factors, as well as others, when planning prevention and intervention strategies.

Although a key limitation is the cross-sectional design of most of the study designs, this is a “call to action” to inspire researchers to explore the associations among police stress, health, and police misconduct, utilizing a longitudinal study

design to determine causality. Nonetheless, the research findings from the literature review are based on sound bio-psycho-social and environmental evidence of the relationship between stress-related disorder and deviance that lead to misconduct among police officers.

DISCUSSION

Framing the Conceptual Model

The purpose of this paper serves as a guiding framework that more accurately provides a conceptual picture of police stress-exposure and the role of the bio-psycho-social and environmental contributors that impact the police work environment, thereby influencing the stress experienced by police officers that lead to police misconduct. To address the broader theoretical relationships across the various dynamic studies, theories, concepts, and approaches, we utilize an epidemiological criminology (EpiCrim) framework (Akers & Lanier, 2009; Akers, Potter, & Hill, 2013; Waltermaurer & Akers, 2013) to develop the Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LES_D), graphically illustrated in Figure 1. This model posits that the pathways of police stress leading to police misconduct requires researchers to examine the health and deviant behaviour among police officers as both distinct and balanced, while simultaneously differentiating between biomedical and behavioural disparities (Akers & Whittaker, 2010). Utilizing an EpiCrim framework allows the results of each level of analyses to be used as a blueprint for providing primary, secondary, and tertiary prevention approaches and techniques that can be implemented to address the etiological-stress dimensions linked to poor health outcomes and misconduct among police officers (Akers, Potter, & Hill, 2013).

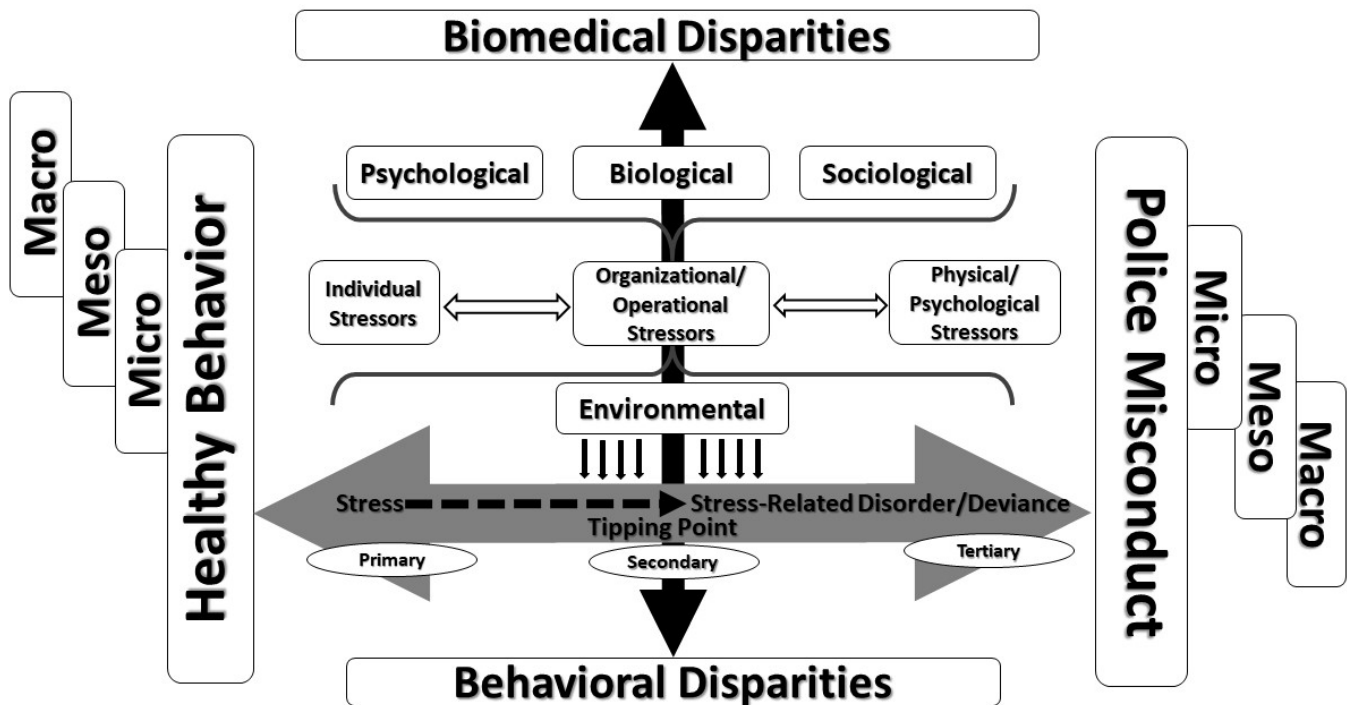


FIGURE 1 Behavioural-biomedical law enforcement stress discordance model (B²LES_D): An epidemiological criminology framework.

Due to the complexity of the model, we divide the full B²LESD model into three parts graphically to further explicate the concepts in the model portraying the police-stress process that leads to police misconduct. Part 1 (epidemiological criminology triad) breaks down further the description of the epidemiological criminology aspect shown in the full model (illustrated in Figure 2). Part 2 (bio-psycho-social-environmental explanation) dissects the part of the full model that shows how stressors (i.e., individual, organization/operation, physical/psychological) are related to biomedical and behavioural disparities, and associated with the psychological, biological, sociological, and environmental aspects of law enforcement (illustrated in Figure 3). Finally, Part 3 (treatment implications), discusses the proposed treatment process for law enforcement personnel with regard to stress related disorder/deviance, to reduce the prevalence of police misconduct (illustrated in Figure 4). Figures 2, 3, and 4 collectively show how the key factors illustrated in the full model (Figure 1) are connected to, or affected by, one another, as well as the connection from primary to tertiary prevention.

Epidemiological Criminology Triad

The Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LESD) is theorized around the critical elements from the ten studies reviewed. Some of the limitations in the research cited have been the lack of, in many ways, theories from epidemiology and criminology relative to their public health and criminal justice interaction, respectively. Quite literally, one of the only theories that integrate an

analysis that incorporates the sciences of epidemiology and criminology with the sciences of public health and criminal justice is the emerging theory, paradigm, and discipline of epidemiological criminology. However, the B²LESD examines the epistemology (or vector) of police-stress misconduct with the more conventional epidemiological triad of agent, host, and environment approach.

Figure 2, for example, illustrates that stress and police misconduct are considered in the environments in which they are defined, where they are experienced and manifested, and where police officers are assessed, diagnosed, and sanctioned—all done simultaneously for optimal results. In this process, the stress-agent (what) is the cause of the disorder and/or deviance in police officers that lead to misconduct (i.e., organizational, psychological, or individual stressors). The vector (how) is the transmittal that conveys the stressor as a pathogen from one police officer to another without actually causing the disorder itself, but may be a part of the infecting process. The host (who) is the police officer that is exposed to the stressors and harbours the stress-related disorder/deviance (SRD²), who may or may not become disordered or engage in deviant behaviour. The police officer may or may not know that they have SRD² and may not present with any visible signs and symptoms. It must be noted here that different police officers may have different exposure-reactions to the same stress-agent. The environment (where) is the favourable external surroundings or conditions where the police have contact, that causes or allows the stress-agent to transmit the SRD² (e.g., site of a mass shooting).

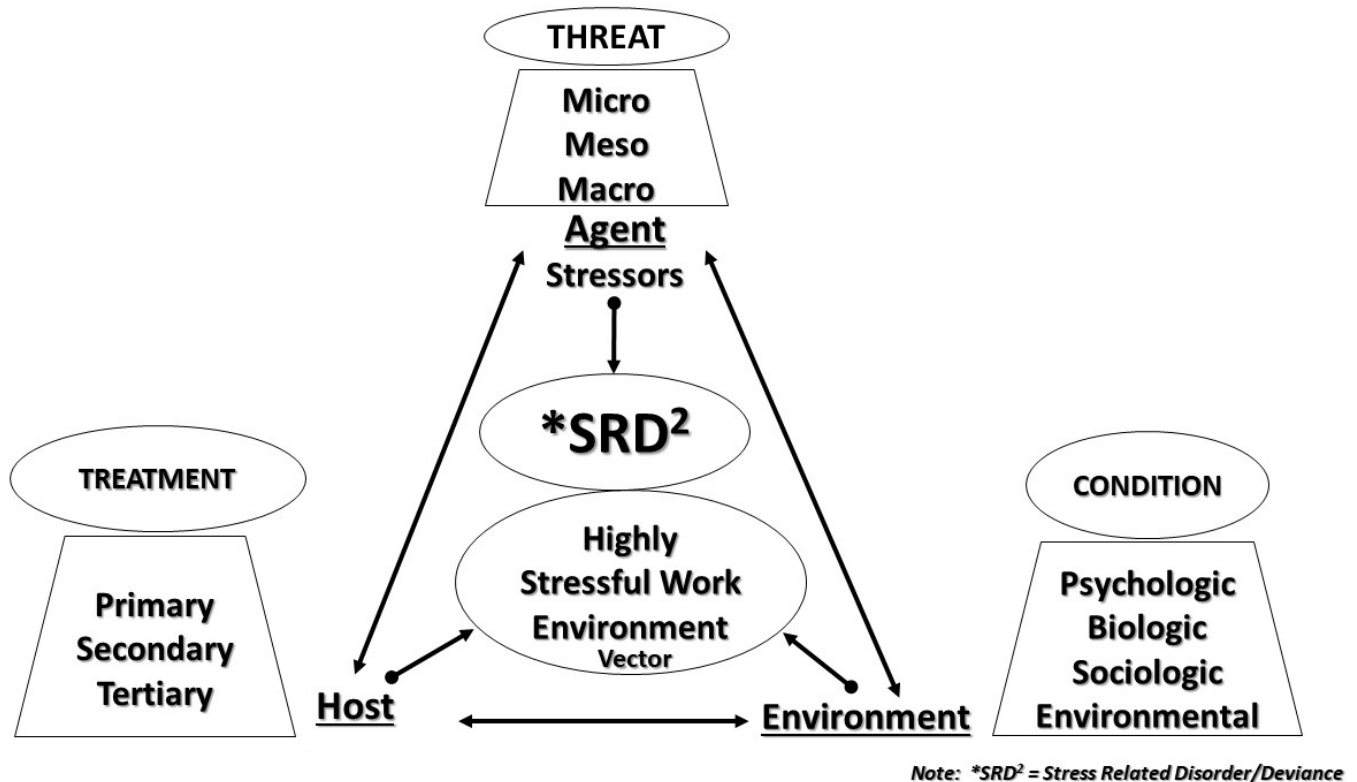


FIGURE 2 Epidemiology of police-stress misconduct.

Bio-Psycho-Social-Environmental Explanation

Even further, the analysis of the current literature review points to a bio-psycho-social-environmental explanation for the rates of police misconduct as police officers attempt to exist as 'normal human beings' while engaging in their policing expectations. This phenomenon is coined as "policing while existing"; depicted in the Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LES^D) and illustrated in Figure 3. The "policing while existing" phenomenon describes the cumulative bio-psycho-social-environmental cost of being employed in the law enforcement profession. First of all, the biological factors associated with the law enforcement profession are very important in epidemiological criminology. The biological markers associated with stress-related disorder/deviance (SRD²) (e.g., cortisol levels, BMI, personality neuroscience) help us to understand the prevalence and incidence of the disorder under investigation (Young, 2010; Perugula, Narang, & Lippman, 2017; Hartley et al., 2011b; Violanti et al., 2017a) from the perspective of biomedical disparities. Thus, an epidemiological criminology perspective also accounts for all of the behavioural changes that occur due to the police officer's exposure to stressors at the individual, administrative/organizational, and psychological levels. For example, certain psychological

states (e.g., PTSD, depression) developed as a result of the stress-exposure can shift a police officer from being healthy to having stress-related disorder/deviance (SRD²), leading to police misconduct. In sum, it is important to understand the psychological state of police officers in order to appropriately administer the right intervention strategy. Otherwise, such lack of understanding would be analogous to giving an antibiotic or other medication to a patient while not caring to try and diagnose the underlying condition.

The sociological perspective affords us the opportunity to include the meso and macro level units of analysis. Police officers' interaction with other police officers, community members, institutions, and organizations contribute to their cumulative health outcomes, leading to police misconduct. For example, the criminal justice system in which a police officer is indoctrinated has a long history of engaging in marginalizing behaviours towards immigrants and diverse minorities (Johnson, 1981), or others with few resources to challenge police officer behaviour. The early police officers had little to no formal training, and more often represented the political party in power than the legal system, while engaging in varied police misconducts (Conser & Russell, 2000). Most recently, law enforcement agencies have been attempting to address their fundamental mission while

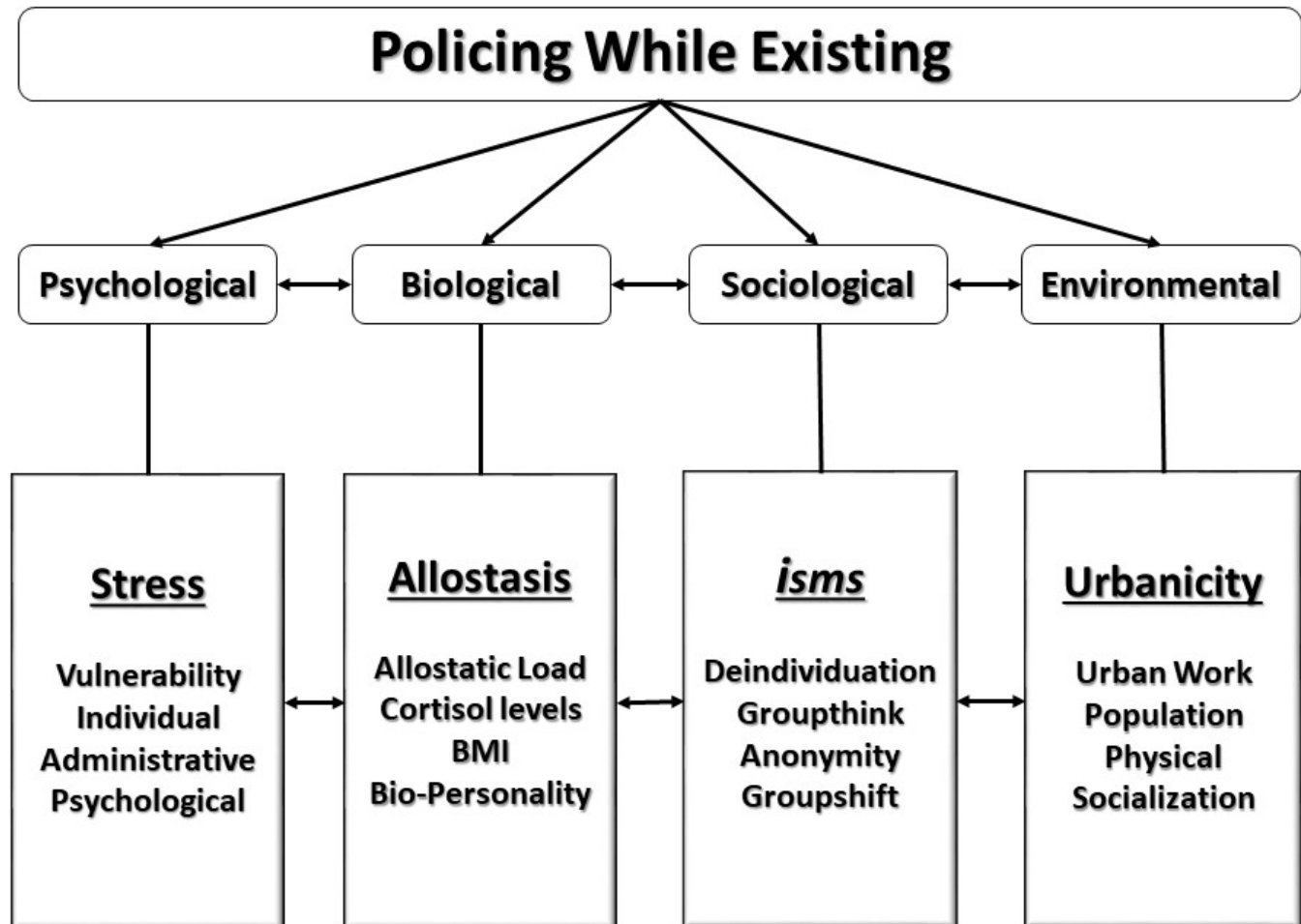


FIGURE 3 Policing while existing phenomenon.

concerning themselves with the issues inherent in the core strategies of policing (Weisburd & Braga, 2006). On the other hand, the police subculture is the primary peer group in which police officers develop new beliefs and values that may depart from acceptable behaviour. They may engage in a process of de-individualization, where police officers seemingly lose their sense of identity or individuality when placed in the police subculture. This results in the loss of what would be considered normal implementation of self-control or moral restraints, placing them at high risk for misconduct (Yousman, 2004). Even further, the police uniform plays a vital role in police officers losing their sense of anonymity and shifting their once-held individual standards of behaviour to adopt the police subculture beliefs, goals, and standards (Zimbardo, 1969).

The urban environmental perspective of police officers encompasses the social, physical, and the resource infrastructure. Keep in mind that the environment of police officers is determined and scrutinized by multiple political factors to include mayors, police commissioners, city council members, and community leaders. The environments that police officers are exposed to differ, based on the departmental policing style, population size versus size of police force, and the resources that are readily available. Furthermore, law enforcement personnel are currently being exposed to a rapidly changing environment, and these changes affect health and well-being through the pathways of increased pressure to learn new skills while adapting and competing for resources in order to manage work demands (Cox & Griffiths, 2005). This may result in stressful working environments that include longer hours, job insecurity, role conflict, insufficient rewards, harassment, and poor work-life balance, leading

to misconduct (Helleybuyck, Nguyen, Halphern, Fritze, & Kennedy, 2017).

Treatment Implications

The implications for developing the Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LES_D), from an epidemiological criminology perspective, are based on the premise that prevention is an important concept for both public health and criminal justice practitioners. It is also important to note that prevention is also important for health or mental health professionals (e.g., psychiatrists, psychologists, social workers), as well. At the micro and meso levels, mental health professionals' role is integral in changes such as preventative interventions and treatment, for example. Based on the results of this literature review, we can state with some confidence that there are many occupational factors associated with law enforcement that lead to increased risk for profound health issues and deviance among police officers. Hence, the law enforcement arena serves as a veritable petri dish for stress-related disorder/deviance (SRD²) requiring preventive actions. B²LES_D presents a multi-dimensional intervention process to interrupt the progression of stress-related disorders and deviance (SRD²) among police officers in order to prevent asymptomatic police officers from further risk.

The continuum of primary, secondary, and tertiary prevention is graphically presented in Figure 4 to illustrate the risk-process of movement from no stress-exposure to chronic stress-exposure. Primary prevention is required when police officers are not presenting with any symptoms of stress-related disorders and deviance (SRD²) although they may have been exposed to stressors. Secondary prevention

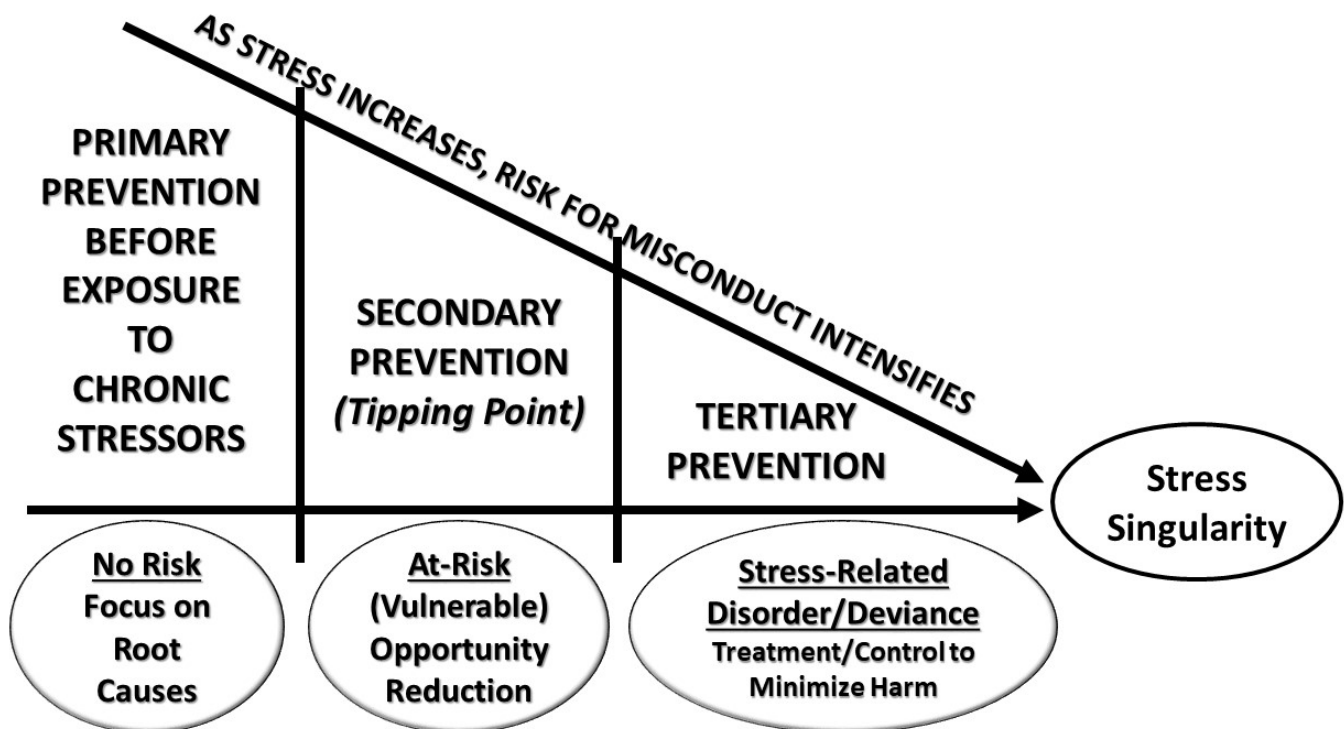


FIGURE 4 Police-stress misconduct prevention grid.

becomes necessary for police officers who have been exposed to chronic stressors and are showing symptoms of SRD² (e.g., poor and interrupted sleep, increased aggression). Tertiary prevention is warranted once SRD² is identified in a police officer, as a means of preventing further damage to the police officer and to the community. It also becomes necessary to prevent SRD² from spreading to other police officers.

It is also important to note that, as stress exposure increases, it becomes more focused, more intense, to such a degree that stress becomes theoretically infinite and eventually implodes into behaviours. These behaviours are led by outside external pressures that continuously push at the object/host, and, in our case, the police officer. This is what we call a “stress singularity”. In physics and engineering, a stress singularity is a force applied at a single point (point load) that, as refinement continues, the stress at the point load keeps increasing and increasing (Huston & Josephs, 2008; Joshi, 2008). The stress becomes theoretically infinite, and the matter and energy created converges on itself, thereby imploding. After an implosion, what follows is a massive explosion of force, and, in our context, police behaviour. Yet, to address this possible stress singularity, it will require treatment through medical and social rehabilitation and, in extreme cases, quarantine (Akers, Potter, & Hill, 2013).

CONCLUSIONS

Importantly, findings from the review of the literature point to the need for there to be an improvement in the bio-psycho-social and environmental health outcomes of law enforcement individuals employed in a highly stressed profession. The development of the Behavioural-Biomedical Law Enforcement Stress Discordance Model (B²LESD) is a developing framework for understanding the biobehavioural impact of stressful exposure on the health and wellness of law enforcement officers. It can serve as a tool to help the law enforcement, research, policy, and practice community to understand the stress-induced bio-psycho-social and environmental health effects confronting police, that seemingly lead to police misconduct (Akers et al., 2013; Shirom, 2003). In fact, Amaranto, Steinberg, Castellano, & Mitchell (2003) emphasized the importance of preventing and treating stress to prevent police officer misconduct. Understanding the bio-psycho-social-environmental perspectives in relation to the behavioural and biomedical disparities of police officers, who are likely to experience high levels of stress while on duty, can prove useful in the testing of stress-management theories and interventions geared towards reducing police misconduct. This reduction in stress may result in healthier police officers with high morale and greater job satisfaction. As a result, a mutually beneficial appreciation between police and communities may be developed, whereby reducing the prevalence of stress-related disorders and deviance (SRD²) that lead to police misconduct.

Recommendations

1. Use this suggested theoretical framework to create open dialogues of communication with professionals who are closely engaged with law enforcement personnel: public health and criminal justice practitioners, behavioural

and somatic health professionals/clinicians, policy makers, police researchers.

2. Law enforcement administrators should utilize this theoretical framework to engage in reforms within their agencies; especially those who are currently engaged in DOJ's Consent Decrees.
3. Include this proposed theoretical framework in police practice curricula to train police cadets or trainees on the phenomena of behavioural stress discordance among law enforcement that could lead to police misconduct. This could prove to be a way of exposing police officers to the relationship between trauma and stress-related disorders and police work. This could also normalize the experience of stress-related symptoms, which could, in turn, “break the silence” of this phenomena among police officers.
4. Develop a series of courses in colleges and universities on Epidemiological Criminology, utilizing this suggested theoretical framework to teach students from varied disciplines (e.g., public health, criminal justice, social work, psychology). The students will learn how to critically examine deviant and health behaviours in a consistent manner grounded in the same paradigms, regardless of discipline, while being able to develop solutions grounded in fully integrated theory and practice.

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CONFLICT OF INTEREST DISCLOSURES

The authors declare that there are no conflicts of interest.

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Hearing their voices and counting them in: The place of Canadian LGBTQ police officers in police culture

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ABSTRACT

The growing presence of LGBTQ police officers and civilian personnel within police organizations, their presence at LGBTQ community events, increased recruitment efforts, and the emergence of LGBTQ advocacy groups within policing invites research into the lived experiences of these police service members. My 2014 study of 21 LGBTQ sworn police officers in Ontario revealed that most officers believe their status and relationships in their workplaces are more positive today compared to other eras. However, it also found that they believe that police culture fundamentally retains a hyper-masculine and heterosexual orientation. A subsequent study of the intersectionality of gender and sexual orientation for gay female sworn police officers found that being “female” and being “gay” exposes LGBTQ female police officers to challenges regarding both their gender and their sexual orientation—specifically workplace harassment and having to conform to masculine “norms”. However, the research also suggests that these and other challenges in a police environment based on sexual orientation are not as overt as those based on gender alone. Understanding such subtle differences is vital to creating inclusive and supportive work environments in which LGBTQ members can thrive and contribute as their authentic selves and find legitimacy and respect as police professionals.

Key Words Policing; police culture; LGBTQ; diversity; organizational culture

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INTRODUCTION

Lesbian, gay, bisexual, transgender, and queer (LGBTQ) police service members have become increasingly visible as Chiefs of Police, senior supervisors and managers, front-line police officers, and civilian personnel. Moreover, as these police officers and civilian personnel and their workplace allies have come to embrace LGBTQ community events such as Pride Parades, and many services have established dedicated personnel to liaise and recruit from within their LGBTQ communities, their visible presence has required police leaders to confront law enforcement’s troubled past regarding LGBTQ communities. It has also reopened debate within LGBTQ communities about embracing police personnel as part of these communities.

In the 1950s and 1960s, LGBTQ activists resisted police repression of their personal lives, largely centred on bars, which served as “the primary social institution” of LGBTQ life after World War II (Armstrong & Carge, 2006, p. 728). Police oppression was commonplace prior to the famous Stonewall Riots of the early 1970s in New York City and

reflected the hypermasculine and heterosexual orientation of policing. In Canada, such events as the 1981 Toronto Bathhouse Raids (Kirkup, 2013) and the Ottawa Police Service’s 2010 Steven Boone HIV non-disclosure press release (HIV & AIDS Legal Clinic Ontario, 2013) are examples of events that have aggravated tensions between police and LGBTQ communities.

Review of Literature on the Experiences of LGBTQ Police Officers

The increased visibility on the part of LGBTQ sworn police officers in their own workplace reflects a shift in Western society since the 1970s when LGBTQ individuals increasingly fought for their legal rights. As the broader culture changed to be more accepting of LGBTQ individuals, so has the police culture, which is deeply rooted and applicable to all police organizations, slow to change in its fundamental assumptions, and strongly defined by values and beliefs that are continuously reinforced to its members (Skolnick, 2008). Researchers such as Franklin (2007) and Collins (2015) have described the culture as heterosexual and hypermasculine

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in character, which has produced organizations that Miller, Forest, & Jurik (2003) labelled as “white, working class, male enclaves”.

Like all police organizational members, LGBTQ sworn police officers and civilian personnel face pressures to conform to the police culture; to adhere or conform to the culture of his or her police organization’s prevailing beliefs and values, which are passed onto new members and reinforced to current members through a series of “complex ensembles of values, attitudes, symbols, rites, recipes, and practices” that are unique to the law enforcement profession (Reiner, 2010, p. 116). In particular, research on the lived experiences of LGBTQ sworn police officers has generally concluded that they often live dual lives: their private life based on their sexual orientation and gender identity, and their professional life as a police officer (Burke, 1994; Miller et al., 2003). Burke (1995) specifically argued that an LGBTQ police officer’s ability to function openly within a police structure that is based on heterosexuality as the norm produced double, as opposed to integrated, lives.

The impact of the police culture is critical to understanding the lived experiences of LGBTQ sworn police officers. Most academic research into police culture sees it either as (1) a hegemonic monolith that encompasses all police officers, or (2) a series of subcultures (Paoline, 2004). The monolithic approach argues that police culture demands conformity through socialization, where officers are initiated into a police “brotherhood” as part of their training, socialize with one another, and tend to exclude non-police from their interaction; and solidarity, where officers develop a sense of “brotherhood”, the “blue line”, and “having one another’s back” (Skolnick, 1994, pp. 48, 52). Typically in this frame, police officers are seen as a “cynical, authoritative, and isolated group of people who have low self-esteem and feel they receive little respect” (Carter & Radlet, 1999, p. 166) and who resist challenges to the traditional status quo.

On the other hand, the subculture approach considers police culture as made up of subcultures with greater diversity and social variability than previously thought (Nickels & Verma, 2007) and that the traditional “cop” pictured in the monolithic approach may be just one of many subcultures or groups within modern police organizations (Paoline, 2004). According to Nickels & Verma (2007), these subcultures are impacted by management styles, policing philosophies, organizational traditions, shifting social-economic changes in society related to the shift toward community policing as a philosophy, as well as new demographics within police organizations (Colvin, 2012). Research on specific groups or subcultures within policing is increasingly common today (Colvin, 2012; Hassell & Brandl, 2009).

Insights from LGBTQ Police Officers

In 2014, I completed a study of LGBTQ sworn police officers in the Province of Ontario. This study was based on data from 21 open-ended interviews with officers. The use of interviews has been effectively used (Burke, 1994; Rumens and Broomfield, 2012) to explore why LGBTQ police officers choose a law enforcement career and to explore their experiences. One-on-one interviews, in particular, produce contextual cues such as commonly used words or phrases or common experiences that provide insight into perceptions

(e.g., how they assessed police culture, how their personal values aligned with the espoused values of their organizations, the impact of the dominant police culture on their careers, training, and promotional opportunities). I also analyzed seven types of artifacts from 16 police organizations: police service mottos, business plans, strategic plans, mission/vision statements, policies, uniforms, and policies related to physical structures of police facilities. This analysis provided further insight into the qualitative data derived from the interviews, and illuminated the role that discourse plays in reinforcing police culture.

The combined analysis of the interviews with 21 LGBTQ sworn police officers and study of the police artifacts revealed a number of key findings:

- While participants generally agreed that police culture is still conservative and male-dominated, most also agreed that it has evolved toward inclusivity over the past 20 years as more women, members of racialized groups, and LGBTQ individuals have been recruited and have risen through the ranks;
- Young, heterosexual recruits tend not to have a condemnatory attitude toward their LGBTQ peers. Study participants generally believed that organizational resistance toward inclusivity in their services centred primarily on middle managers, 50 years of age and older, who retain more traditional and negative attitudes toward LGBTQ police officers;
- While some participants reported experiencing overt discrimination and harassment during their careers, most report a greater presence of “microaggressions” in the workplace (e.g., inappropriate jokes);
- Participants confirmed a number of findings from other studies: exhibiting a “working personality” where they strive to become “prototypical cops” (Skolnick, 2008); tending to lead “dual lives” where their work and their sexual selves are largely separated (Burke, 1994; Miller et al., 2003); and, female officers emphasized “shared perceptions” that incorporate their gender challenges, as well as their sexual orientation, into how they must negotiate their workplace and career experiences (Colvin 2012 and 2015);
- Participants expressed concern about the disconnection between what organizations say (often expressed through artifacts) and how “things really are” in the workplace. The police culture’s continued emphasis on solidarity and secrecy leaves it vulnerable to abuse of authority and resistant to organizational change (Waddington, 1999);
- The study found strong support among participants for policing as a profession and for their own organizations in particular. This indicates that policing as a profession maintains a strong ability to bind its members to its goals of law enforcement and crime prevention regardless of their personal characteristics. In fact, most had no fundamental disagreement with the generally conservative values, beliefs, and assumptions of their services as they relate to law enforcement and crime prevention; and
- Participants confirmed what Hassell & Brandl (2009) identified as the most common workplace problem

experienced by officers in general: the lack of support and influence that officers experienced or had in the workplace.

Preliminary Insights from LGBTQ Female Officers

In 2018, I completed a more specific, preliminary study of LGBTQ female sworn police officers funded by the University of Guelph-Humber. This research flowed out of the 2014 study as a result of female LGBTQ police service members urging me to explore the intersectionality of gender and sexual orientation in policing. Specifically, I posited that female police officers who identify as LGBTQ face additional challenges when compared to their heterosexual, female counterparts because their experiences as LGBTQ female officers may be co-determined by their gender and their sexual orientation (Boogaard & Roggeband, 2010).

A total of 40 female LGBTQ police officers completed a survey on their lived experiences. Subsequently, 10 survey respondents participated in two focus groups to further consider their lived experiences. The research found that being “female” and being “gay” exposes police officers to some similar challenges in terms of both their gender and their sexual orientation—specifically, workplace harassment and having to conform to masculine “norms” (e.g., act tough) (Galvin-White & O’Neal, 2016; Jones & Williams, 2015). However, the research also suggests that these and other challenges in a police environment based on sexual orientation are not as overt as those based on gender alone. This may be due to one’s sexual orientation not being a “visible” characteristic (as gender or race would be) and, thus, less subject to overt harassment and other negative workplace experiences.

Questions Arising from LGBTQ Police Officers’ Experiences

The lived experiences of LGBTQ police officers in Canada remains an area of academic study deserving of further and greater urgency of research, particularly with the increasing numbers of “openly gay” officers joining policing. The emergence of LGBTQ advocacy groups within policing (e.g., *Serving With Pride*) and greater number of LGBTQ members serving at the highest levels of police organizations calls for the consideration of their experiences. LGBTQ police officers consistently express pride in their profession, and a desire for acceptance and respect from their peers.

The question of intersectionality of sexual orientation with other personal characteristics (e.g., race) is an area open to expanded research, as are the specific experiences of all LGBTQ police officers (e.g., transgender, two-spirited). With greater diversity in police services reflecting the communities they serve, understanding, affirming, and supporting the lived experiences and values of LGBTQ and other members who may not fit as readily into “traditional” policing “norms” will present a continuing and urgent challenge for police leaders and police service members alike. In an era where police legitimacy and even relevance is increasingly called into question, LGBTQ members of police organizations must also find legitimacy and respect as police professionals and play an active role in the future of policing in Canada.

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The author states that there are no conflicts of interest.

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Co-producing an emergency services well-being strategy in the UK

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This article is related directly to the recent Law Enforcement Public Health (LEPH) Conference in Toronto, Canada, October 2018

INTRODUCTION

Perhaps it is important to firstly outline a few of the multiple sources of pressure that Emergency Service Responders (ESRs) are experiencing in the UK. This may well be, and seems reasonable to assume, the status quo throughout the US, Canada, and Australasia. Primarily, they inhabit a world in which their safety and success requires them to be constantly alert and attentive to the smallest indication of a hazardous situation or an important piece of information. These demands can lead to a chronic state of hyperarousal. The pressure to remain constantly vigilant and engaged, while challenging and exciting, can lead to psychological exhaustion and burnout if not managed correctly. Furthermore, and as alluded to in the seminal work by Gilmartin (2002), ESRs post-duty can experience detachment, tiredness, isolation, and apathy in what he refers to as “the hypervigilance recovery period” (p.49). Additionally, there are hindrance stressors that emanate from government-imposed austerity measures. By way of example, in the UK these measures have resulted in reductions in services across the ESR piste (Her Majesty’s Inspectorate of Constabulary and Fire and Rescue Services [HMICFRS], 2017; National Audit Office Report on NHS Ambulance Services, 2017). The challenges of all this, together with technological advances in the way ESRs operate, have led to increases in reported stress (Tehrani & Hesketh, 2018), and have contributed to a landscape that requires more effective well-being interventions to help the workforce.

To address this critical wellbeing requirement, the Blue Light Wellbeing Framework (Hesketh & Williams, 2017) was introduced in the UK. This framework helps ESR organizations to become cognizant of good practice in relation to six key areas known to impact on the well-being of ESRs. The framework is sector-specific, and is grounded in academic research together with Public Health England expert guidance. The framework clearly demonstrates the UK police service’s commitment to officer and staff well-being, focusing on six key areas: Absence Management, Leadership, Creating the Environment, Mental Health, Protecting the Workforce,

and Personal Resilience. To supplement these six aspects, which are included within the framework, further guidance was provided to fill a lacuna in the areas of Psychological Risk Management (Hesketh, Tehrani & Harrison, 2017), Responding to Trauma (Hesketh & Tehrani, 2018) and PTSD (Hesketh, Brewin, Tehrani, Harrison & Miller, 2018). The overarching focus is on creating a positive working environment, one in which both officers and staff can draw meaning and purpose—the underpinnings of workplace well-being.

Co-Production

All the guidance documents produced in response to this requirement have been co-produced by collaborations between practitioners, academics, and experts in the fields. Co-production, in this context, is a capability based on identifiable competences of those who are contributing. This approach to informing and guiding front-line practitioners is wholly appropriate for ESRs, as it takes account of empirical evidence and theoretical knowledge, resulting in evidence-based practice.

It must be noted that such co-production is not always plain sailing. The bringing together of thinking and practice with multiple stakeholders has to be carefully considered. As suggested by Hartley, Hesketh & Chase (2017), the optimum working zone exists when there is creative tension, situated somewhere between cohesive or cozy working and conflictual working (p.160). This is described by Gray (1989) as “finding common ground”. With a focus on making life better for ESRs, the collaborators, in this case, worked with their own self-interest as secondary—as it should be. One of the most interesting aspects of the ESR—academic relationship is the speed at which the expectation for change is considered; academics eager to take time, crosscheck, validate, and so on; practitioners eager to get something out there to help employees—adding weight to the assertion of creative tension, discussed further in Hartley, Hesketh et al. (2017).

Involved Parties

As the research evolves on ESRs and their well-being, it is increasingly obvious that there are subtle differences in

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lifestyle. This includes levels of coping, attitudes towards risk, physical conditioning and, to some extent, living with what most would describe as a chaotic lifestyle. All of these impact on resilience, described by Paton et al. (2008, p.96) as, "... the capacity of agencies and officers to draw upon their own individual, collective, and institutional resources and competencies to cope with, adapt to, and develop from the demands, challenges, and changes encountered during and after a critical incident, mass emergency, or disaster." This helps to clarify that the well-being needs of ESRs can be fundamentally different to the general populous and, as such, it is often not particularly useful to provide general working population comparisons as evidence of physical or psychological functionality. For example, ESRs usually work unsociable hours, deal with deranged and/or violent individuals, regularly put themselves in harm's way and more generally deal with incidents that are high on emotional labour. It is oft said they are running towards situations that most are fleeing.

Therefore, some of the avoidance options open to others just simply do not apply to ESRs. However, the resilience of ESRs is not inexhaustible, and the Blue Light Framework and associated publications make that crystal clear. ESRs need to be well-led, they need to understand personal resilience. Furthermore, ESR organizations need to be cognizant of the working environment, maintaining meaning and purpose in the working life of ESRs. Figure 1 below outlines these key components.

The work involved with the conception, consultation, construction, and delivery of the Blue Light Wellbeing

Framework called upon multiple parties. These included Public Health policy makers, medical practitioners, clinical practitioners, neuropsychologists, ESRs themselves, senior and executive stakeholders, ESR charities, and occupational health practitioners. A full range of collaborators is recommended; however, caution is advised against having too many contributors. As with earlier assertions, there has to be compromise and a mutual understanding of the problems to be solved.

Closing Remarks

Coordinating key data on the health and well-being of ESRs supports both improved research and more effective practice, from national initiatives to the front line. This is critical to success, as are the Key Performance Indicators (KPIs) for well-being, which drive a consistent understanding of well-being needs. With the current landscape increasingly complex and ambiguous, ESRs find themselves experiencing increasing levels of emotional labour. To that extent, the Blue Light Wellbeing Framework has been welcomed by ESR practitioners.

Bringing numerous stakeholders together is always challenging, however the subsequent outcomes make this well worth the effort. The Blue Light Framework, at the time of writing (November 2018) has full sign up from the UK Police and Fire Services, and a burgeoning interest from the Paramedic Services. These services do not always work as one in the UK, with varying agreements found around the country. With no sign of abating, the demand for ESRs is rising, and their work grows ever more complex. In this

KEY FACETS TO WELLBEING

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FIGURE 1 The key facets to well-being in ESRs.

respect, coming together to agree an appropriate well-being strategy appears optimal for organizations, supervisors, and the ESRs themselves.

Whilst written in the context of the UK Emergency Services, this collaborative framework has received a burgeoning amount of attention from overseas ESRs and appears, *prima facie*, to be applicable throughout global emergency service settings. A focus on ESRs well-being has surely to be a critical element to any strategic decision-making. Having an evidence-based, cross-discipline guide to inform and steer strategy provides decision makers with a valuable resource to influence their thinking and ultimate courses of action, wherever in the world that may be.

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Unintended consequences as evidence to mission distortion: Reconsidering the intended contributions of policing to the public health

James Clover*

This article is related directly to the recent Law Enforcement Public Health (LEPH) Conference in Toronto, Canada, October 2018

For years I have encouraged my students to explore the unintended consequences of both policy and the subsequent operations within the criminal justice system, in a measure to aid their development in critical thinking and leverage their bright minds to seek creative resolutions to the issues we both face and create in policing.

During my participation at the 2018 Law Enforcement and Public Health Conference in Toronto (LEPH2018), I experienced a renewed confirmation that the unintended consequences of policing may be the evidence required to justify the re-examination of what the expected outcomes from policing responses are, as they relate to the mission of securing the public health.

The fourth iteration of this international conference, convened by the Centre for Law Enforcement & Public Health and supported by the *Journal of CSWB*, brought together practitioners, academics, and government from a variety of sectors to explore the intersect that exists between policing and public health. This gathering introduced a breadth of themes, topics, and assignments ranging from the influence of health determinants in criminal behaviour, the emerging field of Epidemiological Criminology, and the economics of illness and corrections. It also included the formation of a special interest group to develop a multisector-influenced curriculum for police officers relating to positive community health outcomes.

I was responsible for the facilitation of a panel presentation on how policing efforts may, as politely captured by conference organizers, ameliorate or exacerbate the risk to public health in marginalized communities. The panel was composed of people and professions from across the globe, and it is here where I met a young police officer from West Africa. Looking smartly dressed in his grey police uniform, clearly nervous about his pending contribution, this young man had travelled many miles to share his experience with a collection of professionals from around the world.

He quietly described his role as the HIV/AIDS Prevention Officer, and highlighted the topic of sex work in his jurisdiction. The sale of sexual services in his country is illegal, and police officers are trained to look for indicia of sex workers as part of their duty to conduct sanctioned work, to enforce the law, and to obtain convictions in court. As the panelist explained, police officers are trained to look for short dresses, exposed breasts, and the possession of condoms.

Having previously been the team commander for a police unit dedicated to investigating sex exploitation through collaboration with sex workers, I was keenly aware of where this conversation was heading. Independent of the reasons why men and women sell their sexuality for money, it could easily be anticipated that the sex workers described in this presentation would respond in their own manner to police protocols relating to the indicia of sex work. In an effort to avoid detection by police, sex workers would dress more common, ensure their bodies were covered, and would be less likely to use or possess condoms during their interaction with sex consumers.

The young police officer had no need to articulate the policy conflict that was revealed. With only eight years in his profession, this police officer had exposed the unintended consequence of police training relating to the practices of enforcement of sexual service laws in that country—outcomes that run in direct conflict with the mission to address the issue of systemic disease transmission within a vulnerable population.

For the remainder of the conference, in other presentations I was privileged to attend, I leveraged this story of police training and disease control during my interaction with conference delegates. How does the traditional role that police organizations assume, and the actions those organizations take to fulfill that mandate, conflict or misalign with the mission of addressing overall community health?

Models of modern policing over the past 20 years have been branded with strategies and approaches such as

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“community-based policing”, “intelligence-led policing”, and, most recently, “evidence-led policing”. Our current climate now includes the aggressive professionalization of the police tradecraft through additional training demands and increased academic standards, as observed in industry movements such as the Police Education Qualifications Framework championed by the College of Policing in England and Wales, among others.

These models of policing cannot be held solely responsible for the distortion that exists between the mission of law enforcement and that of public health, but I propose these models will continue to contribute to the conflict until we reconsider the expected or intended outcomes of police work as it relates to the overarching approach to improving the health of our communities.

If we choose to create a hierarchy to the shared social responses required to meet the needs of the community, and elevate the mission of public health as the overarching

umbrella that guides all, we will likely confirm that a healthy community is a safe community. And if the ultimate measure of police work can be evaluated through the filter of public health, and not only through the historic lens of combating the evident symptoms of an unhealthy environment as presented by crime and disorder, we might minimize those instances where the good work of police runs counter to collective efforts in securing public health and safety for all.

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Setting realistic expectations: The narrow use-case for Social Impact Bonds

Chris Giacomantonio^{1*}

INTRODUCTION

Sandra Hodzic's (2018) article in the previous issue of *JCSWB* identified a range of social and financial pressures faced by provincial governments across Canada, to which Social Impact Bonds (SIBs) are being considered as a response. Primarily, focusing on the case of Manitoba, Hodzic identifies reductions in federal transfers, shrinking resources, expanding elderly and newcomer populations, and priorities to improve child welfare as pressures on government to do better in social service provision in a climate of fiscal constraint. Certainly, these are real pressures, and there are no simple solutions to alleviate them. Governments need a range of tools through which to develop and fund innovative social services, and in this context, SIBs have recently arisen as a possible solution to many service-provision and up-front capitalization challenges.

However, research on SIBs has not borne out the wide-ranging benefits often expected from SIBs. What we have seen so far, especially in the UK—the jurisdiction that has done the most to promote the SIB model² of financing for social innovation—is that SIBs are often cumbersome strategies that introduce substantial transaction costs relative to other commissioning approaches, while also introducing unexpected and sometimes negative effects into social service provision (Roy, McHugh, & Sinclair, 2018). While there are certain sectors and models where SIBs have financed successful interventions, even in these cases it is unclear what benefit the SIB financing model added relative to alternative strategies of financing or funding services.

Adoption of SIBs in Canada has been slow and limited, and this is a good thing. There may be value in using SIBs under certain, rather narrow, conditions, but they ought not to be seen as solutions to a wide range of service provision problems. In the following, I will briefly outline the evidence around SIBs to date, and some of the key concerns that this evidence raises. I will then close by outlining what I believe to be the main use-case in which SIBs may make sense, recognizing that any use of SIBs needs to also address the normative concerns related to the marketization of social goods.

The Evidence to Date on SIBs

SIBs have gained popularity among a range of audiences since the establishment of the first SIB at HM Prison Peterborough

in the UK in 2010. A blend of impact investing and pay-for-performance or payment-by-results (P4P/PbR) contracting, the SIB has received a substantial amount of attention as a possible way to generate up-front capital for social interventions. Early years of optimism surrounding SIBs identified a wide range of possible benefits, including: 'risk transfer' from government to investors; 'cashable' government savings; improved performance and outcomes from service provision; enhanced performance measurement and rigorous evaluation; fostering innovation that cannot be supported in traditional public service settings; empowering service providers to better respond to client needs; and attracting private capital to finance social goods (Fraser et al., 2018a; Gustafsson-Wright, Gardiner, & Putcha, 2015).

The evidence on the results of SIB implementations to date is too substantial to sum up comprehensively here, but there are some important overview studies such as those produced by the Brookings Institution (Gustafsson-Wright et al., 2015); the Harvard SIB Lab (Azemati et al., 2013); and the Big Lottery Fund (Ronicle, Stanworth, Hickman, & Fox, 2014) that provide early-stage learning on the global experience with SIBs since their inception. There are also studies relating to multi-site projects, including the Commissioning Better Outcomes evaluation (Ronicle, Fox, & Stanworth, 2016) and the Trailblazer SIBs evaluation (Fraser et al., 2018a, in which I was involved as a part of the research team) that draw out commonalities and differences across a range of SIB financing contexts, models, and interventions. While the use of SIBs continues to grow—with over 100 SIBs operating or in development in high-income nations today (Gustafsson-Wright & Boggild-Jones, 2018), up from only one in 2010—the experience to date reveals some weaknesses in the model that need to be taken seriously.

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² While outside the scope of this commentary, we should recognize that there is not a single 'SIB model', but rather a range of models that each include some of the ingredients traditionally associated with SIBs (Fraser, Tan, Kruihof et al., 2018a, p. 10–14).

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First, genuine savings may not be a likely outcome of SIBs relative to other ways of contracting or delivering a service. As a starting point underpinning many cost problems with SIBs, the transaction costs associated with establishing a SIB are probably inescapably high relative to just about any other financing or funding option (Giacomantonio, 2017; Azemati et al., 2013) because a SIB requires additional contracting relationships that are unique to the SIB model. Whether these costs (including direct costs, as well as costs related to staff time) are immediately borne by government is a rather moot point—over the long term, adept investors and service providers will pass these costs onto the government that ultimately pays for the services through outcomes-based payments. Fraser and colleagues (2018a, p. 13) conclude that “successful achievement of outcomes [under a SIB] may come at increased costs... at least in the short-to-medium term, when set-up costs are taken into account.” In turn, for example, scholars from the Harvard SIB lab (Azemati et al., 2013, p. 21) have suggested that, due to the substantial “overhead costs” of SIBs including legal, evaluation, intermediary, and investor costs, “these costs are only worth incurring for a SIB contract worth at least \$20 million [USD]”—in other words, small-scale SIBs are unlikely to be cost-effective. It is worth recognizing that contracting tends to be more complicated than expected in a range of PbR schemes (National Audit Office, 2015), and these contracting complexities are only enhanced by the SIB investor and intermediary relationships, which are not present in other PbR contexts. It should also be recognized that there may be ways to reduce SIB transaction costs. For example, analysis of the Sweet Dreams SIB-financed initiative suggested that transaction costs in that particular SIB were kept low by use of a single outcome metric and the fact that an intermediary was not used, thus streamlining the contracting relationship (Loxley, 2017). SIBs still introduce certain costs (not least, the introduction of return-on-investment payments) not present in traditional contracting or service delivery, but models where comparatively simpler structures are put in place may provide a means to reduce the unique costs associated with SIBs.

Second, the market for SIB investment has thus far been largely limited to the philanthropic sector (Warner, 2013). While many potential traditional (for-profit) investors may indicate that they would consider social impact when thinking about investments, in practice evidence suggests they are still looking for market-rate returns and are unlikely to forego financial returns for social value alone (Ormiston, Charlton, Donald, & Seymour, 2013). While SIBs have attracted some ‘new’ kinds of investment into social services—for example, from high-value individuals and investment firms (Gustafsson-Wright et al., 2015, p.37–38)—on closer inspection, most of the financial support for SIBs that has come from ‘new’ players has been as part of Corporate Social Responsibility (CSR) activities, subsidized or guaranteed by philanthropic capital, or supported by government incentives such as guarantees, tax relief, and top-up funding. It remains unclear whether investors interested in profit could be brought into the SIB market without such incentives, and these incentives in turn represent real resources taken from philanthropies and governments that could be used elsewhere.

Third, SIB-financed interventions have not necessarily fostered innovation to the degree intended. Many

SIB-financed initiatives have been designed based on previously established interventions rather than truly innovative service-provision models. For example, reviewing the first five years of SIB development, Gustafsson and colleagues (2015, p. 42–43) concluded that, in general, SIBs did not foster innovation in service delivery. SIBs may be one way of ‘scaling up’ of existing interventions or allowing delivery to new populations or in new settings, but SIBs have not demonstrated a capacity to catalyze truly novel interventions and services any better than other forms of funding or financing social services.

Fourth, and perhaps most importantly, wherever we see a SIB-financed initiative succeed (i.e., where outcomes have been achieved and end-users are better-off), we need to keep in mind that there is no compelling evidence that the SIB financing mechanism—in comparative terms, relative to any other financing, funding or contracting mechanism—was responsible for this success, other than having provided up-front capitalization (which in most cases could be achieved through other, less expensive means). This lack of evidence stems in part from the fact that there have been very few studies completed to date that have successfully compared SIB-financed interventions with similar interventions funded differently from those SIBs. Where we do have comparative evidence, the main benefits from SIBs, looking across the existing evaluations, seem to be related to (a) improving performance measurement and encouraging an ‘outcomes focus’, and (b) creating longer-term ‘ring-fenced’ funding for service providers and initiatives than has normally been provided by government contracts (see e.g., Ronicle et al., 2014; Fraser et al., 2018a).

Regarding this latter benefit, where national and local governments, particularly in the UK, had a history of providing six-month or one-year grants to support pilot initiatives, SIB financing structures would often try to guarantee funding for longer periods to allow programs to become established, learn from early years, and achieve medium-term outcomes rather than only evaluate short-term inputs and outputs. However, we should also remain aware that perhaps the two most well-publicized SIBs in the world—at HM Prison Peterborough in the UK and Rikers Island correctional facility in the US—were both terminated earlier than expected, which brings into question the true stability of SIB financing arrangements.

Outside of the empirical evidence that should lead us to at least question the empirical value of SIBs, there exists a wider set of normative concerns and ‘narratives of caution’ about SIBs that have been well-established elsewhere (see Fraser, Tan, Lygarde, & Mays, 2018b). These include the potentially destructive tendencies of ‘financialization’ or ‘marketization’ of social policy, which perpetuates a ‘myth’ that market theories apply in social service provision (see also Hevenstone, 2015), and treats social welfare as a problem to be solved only where there is a possible benefit to investors. There is also a risk that SIB contracts will not be transparent, as intermediaries and investors may withhold information from government and public scrutiny (Warner, 2013), which can reduce, rather than enhance, oversight—and the limits to transparency in SIB contracts were experienced by our team in the Trailblazer evaluation (Fraser et al., 2018a, p. 135). However, even steering clear of

these wider normative concerns, the empirical case for SIBs remains uncertain at best.

Going Forward: Defining the Appropriate Use-Case for SIBs

Hodzic (2018) is correct in characterizing the SIB as a kind of loan; it can be misleading to think of SIBs like traditional bonds, for a range of reasons (Disley, Rubin, Scraggs, Burrows, & Culley, 2011, p. 1). I have argued elsewhere (Giacomantonio, 2017) that SIBs represent a kind of conditionally forgivable loan that may serve to maximize philanthropic granting capital in cases where philanthropists are not otherwise willing to provide non-repayable grants. However, SIBs are not likely to provide a robust market for diverse sources of investment or generate competitive financial returns while also creating savings for governments.

There is no question that some SIB-financed initiatives have achieved desirable outcomes, as Hodzic's article rightly points out. However, we need to be mindful that these initiatives could have been funded or financed in a variety of ways, and that the SIB may be more—not less—expensive as a form of capitalization than other options available to governments. SIBs may 'de-risk' governments, depending on the SIB structure, as Hodzic suggests; however, the wider body of literature on SIBs has shown that risk transfer is often not as comprehensive as expected (Gustafsson-Wright et al., 2015, p. 40), and that risk transfer between investors, governments, and providers can shift during the life of a SIB (Fraser et al., 2018a).

If we are satisfied, as we should be, that SIBs are unlikely to be money-making or savings-generating vehicles capable of fostering widespread improvement of social services, we may still be able to identify a narrow band of activity in which SIBs could serve as a useful tool in social policy development. In a recent policy brief, Khovrenkov and Kobayashi (2018) refer to a SIB as an "evidence-informed pilot"—a way of better understanding an untested intervention into a complex social issue. This is an apt characterization of the SIB's role in policy development—a tool that may make sense at a pilot stage under certain conditions.

For example, there may be interventions that are sufficiently innovative, where the likelihood of success and magnitude of potential savings to government are largely unknown, where the wider community of service providers would benefit from improved outcome measurement, where a philanthropic investor is willing to provide direct financial support (but would like some repayment if real government savings are realized), and where government would subsequently directly fund the intervention with better evidence of effectiveness (but would not otherwise fund a pilot). In these circumstances, a SIB may be an appropriate financing vehicle. Within this narrow scope—and if we maintain reasonable expectations amongst both investors and governments about the magnitude of financial and social return they can expect from SIBs—we may derive some benefit from the SIB model.

DISCLOSURES

The author declares there are no conflicts of interest.

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Community safety and well-being: Concept, practice, and alignment¹

Chad Nilson*

This article is related directly to the recent Law Enforcement Public Health (LEPH) Conference in Toronto, Canada, October 2018

ABSTRACT

The purpose of this paper is to provide a conceptual understanding of community safety and well-being (CSWB). The current paradigm shift in Canadian human services, away from siloed, reactionary measures and towards upstream, multi-sector collaborative initiatives, is becoming increasingly recognized as CSWB. Problematic, however, is that this newly emerging field of social innovation lacks the broadly accepted conceptual framework required to build continuity in practice, consistency in measurement, and clarity for future planning and policymaking. This paper proposes both a conceptual and practical definition of CSWB, outlines a practice typology, clarifies key concepts, offers measurement assumptions, and presents key goals of alignment.

Key Words Community safety; well-being; concept; practice; alignment; measurement

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INTRODUCTION

In 2015, Community Safety Knowledge Alliance (CSKA) was formed to bring together and contribute to, the growing field of collaborative, multi-sector human service work that fosters both pragmatism and responsiveness in our social institutions. Its focus is mobilizing research and the development of a knowledge base that informs new and effective approaches to community safety and well-being (CSWB). In reflecting on significant enhancements to integrated service delivery, the identification of shared outcomes, and growing interest in system alignment, CSKA recognized various CSWB-spirited activities. Regardless of momentum in practice, however, there was no documented understanding or language of CSWB from a conceptual perspective. To address this, CSKA wanted a review of the emerging CSWB landscape in Canada, as well as some definition and structure around the concept. I am very fortunate and grateful to be the writer approached to do this work (Nilson, 2018).

To prepare for the paper, I began with a scan of multi-sector collaborative models being implemented in Canada. I then turned to the conceptual literatures on the topic,

followed by outreach to various topic experts, policy leaders, and practitioners. In an effort to achieve a fair and balanced perspective on the content described in the paper, a panel of 12 academics, advocates, practitioners, policy leaders, and subject matter experts was invited to review the paper. Feedback from this panel contributed greatly to the refinement and strengthening of the paper.

Once the paper was complete, it was circulated widely through emails, social media, and website links. The first public discussion on this paper took place in October of 2018, in Toronto, at the 4th International Conference on Law Enforcement and Public Health. In preparing for discussion of this paper at the conference, I wanted to make sure that my approach would resonate with all conference participants—not just those who have been part of the evolving CSWB landscape in Canada.

To be inclusive as possible, I reached out to this Journal's Editor-in-Chief for reflections on his experience introducing the *Journal of CSWB* to members of the LEPH community. His written response was quite telling of how these parallel movements came together, and was certainly helpful to me in sharing observations of CSWB in Canada without feeling in complete disregard to what else is going on in the world:

“As the growing interest in collaborative models unfolded across Canada between 2011 and 2016, the language used was very important in attracting and

¹ This paper is a scaled down version of a full paper released in May of 2018 by Community Safety Knowledge Alliance. See Nilson, C. (2018). *Community safety and well-being: Concept, practice and alignment*. Saskatoon, SK: Community Safety Knowledge Alliance.

reconciling differences among the multi-sector adopters and their respective stakeholders. For the police and criminal justice actors, the term community safety was easily recognized, and it also connected to the work of others in human service sectors, such as those in housing and in victim supports. But in frequent discussions with educators, child development specialists, health, mental health, and public health actors in particular, it was their attention to the well-being piece that ultimately led us to the combined term CSWB, first in Ontario and then more widely. It offered a terminology in which every sector could see themselves and the needs of their clients. Thus, when we founded the *Journal of CSWB* in 2016, we saw this as an opportunity to open a whole new field of social science research, knowledge exchange and dialogue, one anchored in and aligned with the widest scope of these collaborations.

“We were also aware throughout this period of the Law Enforcement Public Health movements developing in parallel in Europe and Oceania. The decision of leaders in that movement to bring their 4th LEPH Conference to Toronto in 2018 presented an unexpected opportunity to link these global interests in collaborative and upstream solutions. In advance of this event, and in the absence of any similarly wide-scope peer-reviewed publication, the organizers elected to name the *Journal of CSWB* as the official journal of the LEPH movement.

“Labels aside, I think all of us are simply excited to see the wider community of practice that can now collaborate, be served by the *Journal* as readers, and most of all, become a wider global source of research, experience, and innovation from which we can all draw and learn together” (personal correspondence, N.E. Taylor, October 18, 2018).

It is within this context, that I would like to highlight some of the key positions from the full paper. While this paper is Canadian-focused, I am hopeful that it will help offer a conceptual framework for the growing international dialogue on collaborative social innovation. This article represents a shortened version of the full paper originally released by CSKA in May of 2018. It is available for download at www.cskacanada.ca.

CONCEPT

The concept of community safety and well-being is rather new to the academic, advocacy, practitioner, and policy communities. Overall, very few authors (Ontario Ministry of Community Safety and Correctional Services, 2017; Nilson, 2014, 2017a; Russell & Taylor, 2014a; Taylor, 2016) have written on the matter. In fact, to date, very few attempts have been made to define the concept. One partial exception is my own very limited effort to define the concept while speaking at the Interactive *National Dialogue on Research, Evaluation, and Analysis of Hub/Situation Tables in Canada* event held in Toronto (Nilson, 2017b). While there, I defined CSWB as “the state at which the composite needs of a community’s collective safety and well-being are achieved”. In an effort to further specify

matters, the Ontario Ministry of Community Safety and Correctional Services (2017) described CSWB as “the ideal state of a sustainable community where everyone is safe, has a sense of belonging, opportunities to participate, and where individuals and families are able to meet their needs for education, health care, food, housing, income, and social and cultural expression” (p.54).

To some degree, the concept of community safety and well-being does represent a merger of two separate fields: ‘community safety’ and ‘well-being’. After all, it does combine the multi-dimensional elements of well-being with a broader understanding of community safety. However, unlike past understandings of these singular concepts, CSWB is much more than a measurable characteristic or condition of an individual, family, or community. Instead, CSWB embodies an element of interaction between community outcomes and social infrastructure that is enhanced through multi-sector collaboration. It is the space within which human services define and pursue shared outcomes that the likelihood of measured success in CSWB is highest.

While many multi-sector collaborative activities that contribute to CSWB have been around for decades (e.g., case management, healing circles), the collective description of these various efforts under the CSWB-label did not come about until recent work in Ontario (Ontario Ministry of Community Safety and Correctional Services, 2013; Russell & Taylor, 2014a) and Saskatchewan (Nilson, 2014) over the past decade.

As a social construct, CSWB accounts for several meanings at different levels. On a systemic level, it evokes thought of system-wide approaches to improving human service delivery outcomes. At the operational level, it captures the essence of multi-sector collaborative efforts to reduce risk, vulnerability, and ultimately, harm. On an individual level, it suggests a level of personal safety and security combined with stability in mental health, physical health, food security, housing, and financial capacity.

When looking at CSWB at the operational level, in particular, there are three additional concepts that require consistent understanding, application, and measurement. These include: risk, vulnerability, and harm. In a cyclical fashion, each of these concepts is linked through a causal relationship. Elevations in risk lead to increases in vulnerability, which lead to harm, which then leads to further re-elevations of risk—if not properly mitigated. In the current paradigm shift toward a state of community safety and well-being, the multi-sector collaboration of human services is designed to address risk and vulnerability before harm occurs. Where harm does occur, collaboration is used to mitigate the impact of that harm on further elevations in risk.

Considering the relationship between risk, vulnerability, harm, and CSWB, Table I proposes original definitions for each concept, including both a conceptual and practical definition of CSWB.

To further explore the difference between a simple merger of ‘community safety’ and ‘well-being’ and the growing CSWB movement in Canada, it may help to examine a few key elements. Based upon my own work in the CSWB field (Nilson, 2014; 2015a; 2016a; 2017a; 2017b), as well as my reflections on the work of others (Ontario Ministry of Community

TABLE I Definitions of key concepts in community safety and well-being

Concept	Definition
Risk	Is a condition, characterized by instability in safety and well-being, that can exist in unitary or composite form, which contributes to the vulnerability of individuals, families, and communities.
Vulnerability	Represents an increased probability—heightened by situational, personal, and/or systemic circumstances—for harm to occur because of acute elevations, high levels or chronic conditions of risk.
Harm	Is any physical, sexual, psychological, emotional, or economic injury or damage—whether it be intentional or unintentional—that affects the safety and well-being of individuals, families, or communities.
Community Safety and Well-Being	<p><i>Conceptual:</i> Is a targeted, aggregate result of our broader human service system that is achieved through collaborative generation of pragmatic solutions, evidence-based innovations, and shared community outcomes. It is the state at which the composite needs of a community’s collective safety and well-being are achieved. Such needs are met when conditions of risk are mitigated, vulnerability is reduced, and the occurrence of harm is nil.</p> <p><i>Practical:</i> Combined outcome from the greatest absence of crime, addiction, mental suffering, violence, poverty, homelessness, sickness, injury and/or other social harms that a community can achieve.</p>

Safety and Correctional Services, 2017; Russell & Taylor, 2014a; 2014b, 2015; Sawatsky, Ruddell & Jones, 2017), I propose some key elements that may help to stimulate further conceptual dialogue and measurement of the CSWB construct. As shown in Figure 1, CSWB involves the pursuit of certain outputs including: shared outcomes, risk mitigation, pragmatic solution-building, and evidence-driven innovation. CSWB is fuelled by inputs of multi-sector collaboration, community mobilization, shared problem ownership, shared measurement, and sustainable commitment.

Measuring the Concept of CSWB

As measurement practices remain fairly limited in CSWB, there is value to assess and focus our current efforts of developing indicators for CSWB. Past efforts (Nilson, 2015b, 2016c, 2017c; Russell & Taylor, 2014b) have helped us see the truly multi-dimensional nature of indicators relevant for measuring CSWB. Despite their contributions to the measurement of this evolving field, past suggestions of CSWB indicators lack four key components required for accurately measuring CSWB. The first is comparability between communities (or nations) where similar data are available. The second is recognition of the aggregate nature of multi-dimensional outcomes in CSWB. The third is a direct line of sight between client outcomes at the individual level and community outcomes at the aggregate level. The fourth is attention to multi-sector collaboration and its impact on human service outcomes.

To overcome these challenges, we must conceptualize CSWB as a final outcome. We must also accept that community progress toward CSWB can be examined and compared along an axis of proximity to that outcome. A community’s proximity to CSWB can be measured using aggregate indicators of the shared outcomes that ultimately embody CSWB. Typically, these outcomes stem from economic, health, social, safety, and environmental spheres of communities. As shown in Figure 2, a community’s

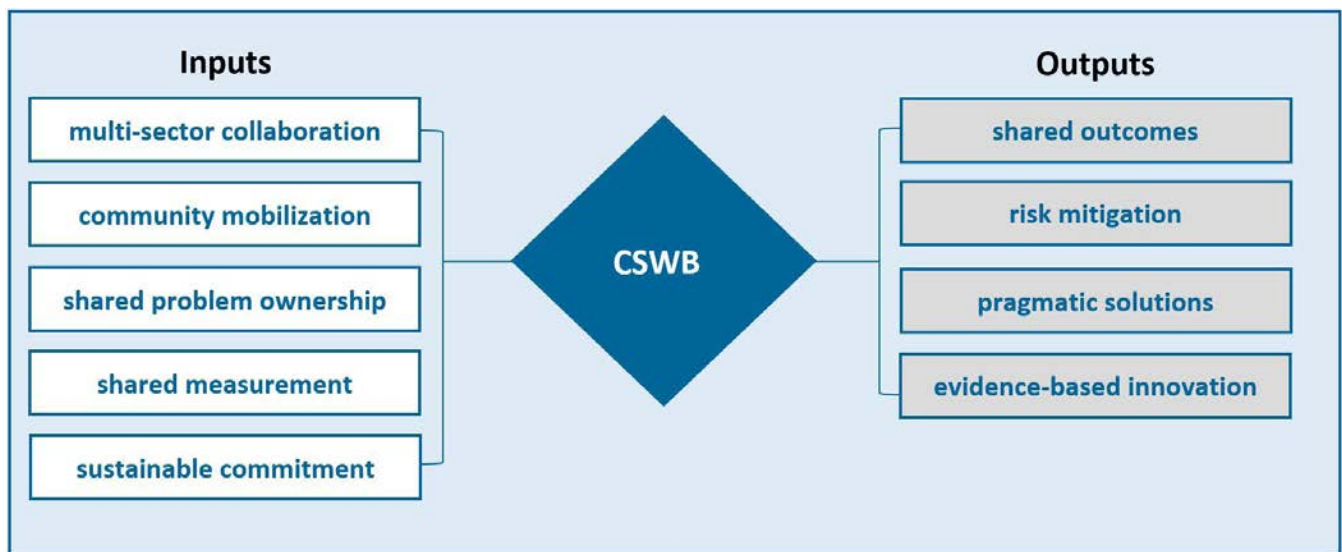


FIGURE 1 Inputs and outputs of community safety and well-being.

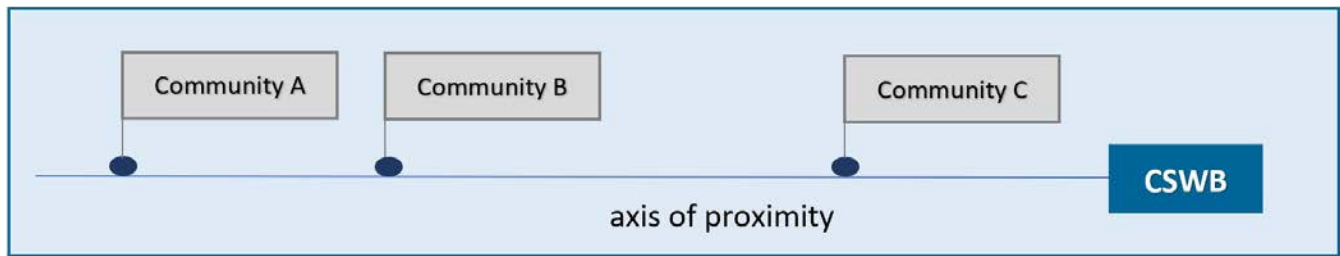


FIGURE 2 Illustration of community differences along CSWB axis of proximity.

absolute proximity to CSWB (as an outcome), as well as its relative proximity to other communities along that axis, are both measurable.

PRACTICE

Community safety and well-being initiatives are becoming the focus of local (City of Red Deer, 2016), regional (Halton Region, 2017), provincial (Ontario Ministry of Community Safety and Correctional Services, 2017; Russell & Taylor, 2015), federal (Public Safety Canada, 2014), national (Canadian Association of Chiefs of Police, 2012; Canadian Municipal Network on Crime Prevention, 2017), and First Nation (Nilson, 2016b) policy and program leaders. Shaped and nourished through initiatives of multi-sector collaboration, CSWB challenges conventional human service processes to become more fluid, integrated and less sector-specific.

Initially, some of the flagship practices within this movement have been collaborative risk-driven intervention (e.g., Hubs/Situation Tables), multi-sector coordinated support (e.g., intersectoral case planning, Wraparound, intervention circles), collaborative systemic solution building (e.g., Centre of Responsibility), and CSWB Planning (e.g., strategies, frameworks). However, as the concept of CSWB has grown, it only seems appropriate to include other pre-existing, multi-sector collaborations under the CSWB umbrella. While many of these initiatives are definitely unique to one another, they do share the common inputs of multi-sector collaboration, community mobilization, shared problem ownership, and sustainable commitment, as well as the common outputs of shared outcomes, risk mitigation, pragmatic solution-building, and evidence-driven innovation.

Some of the other multi-sector collaboration initiatives explored in preparation of this paper include service-based collaboratives (Bruns, 2015; Cherner, Aubry, Ecker, Kerman & Nandlal, 2014; Mears, Yaffe & Harris, 2009; TRiP, 2016); addictions and housing initiatives (Tsemberis, 2011); police and mental health crisis teams (Chandrasekera & Pajooman, 2011); health and education partnerships (Buchanan, 2008); complex case management (Clark, Guenther & Mitchell, 2016; Fraser Health, 2017; Gaetz, 2014); police and domestic violence teams (Corcoran & Allen, 2005; Nilson, 2016d); emergency response partnerships (Murray, 2015); restorative justice programs for both youth and adults (Bonta, Rugge, Sedo & Coles, 2004; Latimer, Dowden & Muise, 2005; Wilson, Cortini & McWhinnie, 2009); community safety and well-being action teams (Nilson, Kalinowski, Hunter, Taylor & Taylor, 2016); court diversion programs and problem-solving courts for

both youth and adults (Fischer & Jeune, 1987; Hornick, Boyes, Tutty & While, 2005; Werb, Elliott, Fisher, Wood, Montaner & Kerr, 2007); Aboriginal partnerships (Hubberstay, Rutman & Hume, 2014; Public Safety Canada, 2014); community safety teams (City of Calgary, 2010; Hogard, Elis & Warren, 2007; City of Edmonton, 2013); police prevention initiatives (Giwa, 2008; Dumaine & Linden, 2005; Walker & Walker, 1992); and multi-sector harm reduction programs (van der Meulan, Claivaz-Lorander, Clarke, Ollner & Watson, 2016; Cooper, Moore, Gruskin & Krieger, 2005; Kerr, Small & Wood, 2005).

Past evaluations of multi-sector collaborative approaches have highlighted key strengths, including more rapid access to services and improved responsiveness of those services to client needs (Cherner et al., 2014; Gray, 2016; Lansdowne Consulting, 2016; Rezansoff, Moniruzzaman & Somers, 2013); improved information sharing among participating organizations and greater interagency awareness (Gossner, Simon, Rector & Ruddell, 2016; Bellmore, 2013; Lipman, Kenny, Sniderman, O'Grady, Augimeri, Khayutin & Boyle, 2008); enhanced community/school engagement (Cooper, 2014; Lafortune, 2015); and, reduced risk/vulnerability of clients and families (Gray, 2016; Kirst, Pridham, Narrandes, Matheson, Young, Neidra & Stergiopoulos, 2015; Augimeri, Farrington, Koegl & Day, 2007).

Recent scans of multi-sector collaboration (Braga & Weisburd, 2012; Hayek, 2016; Nilson, 2017c; Przybylski, 2008; Public Safety Canada, 2012; Stewart, 2016; Struthers, Martin & Leaney, 2009) have produced comprehensive inventories of different multi-sector collaboration initiatives. These and other efforts have allowed for broad access to an array of information on programs, projects, and opportunities within the multi-sector collaboration domain.

To narrow down this broad field of multi-sector collaboration in the human service sector, a *Typology for CSWB Models of Practice* is proposed. For the purposes of this paper, these models are conceptualized as the following:

- collaborative risk-driven intervention
- multi-sector coordinated support
- bi-sector response teams
- multi-sector monitoring and mitigation
- community safety teams
- problem-solving courts
- community safety and well-being planning
- collaborative systemic solution-building

Not all of the literature on these models defines each respective model as a contributor to CSWB. In fact, it would

not be unreasonable to assume that many practitioners working within these models do not currently see themselves as contributing to CSWB. However, the journey travelled to create these social innovations, the purpose and goals behind each model, and the multi-sector collaborative nature of each model, make for suitable categorization under a framework of CSWB.

ALIGNMENT

An important activity in pursuit of CSWB is alignment of our human service system. In moving us towards a greater commitment to alignment, there are a number of opportunities for government, human service leaders, and the non-profit sector to explore. These opportunities exist in prioritization, policy, practice, resources, mandates, and outcomes. Prior to pursuing any alignment efforts, however, it is important that multi-sector partners have a common perspective of alignment.

Past authors conceive of alignment occurring between practice and policy (Cohen & Loewenberg-Ball, 1990), between policies at different levels of government (Seidle, 2013), between policy and innovation (Freitas & von Tunzelmann, 2008), or between the institutional and functional divisions of government (Risser, O'Neill & Cain, 2011). For the purposes of advancing our work and understanding of multi-sector collaboration in human service delivery, however, a CSWB perspective on alignment is offered.

To begin, a CSWB perspective on alignment should be focused on the configuration of similar or shared priorities, practices, policies, resources, mandates, and outcomes among the different human service sectors. Movement towards alignment requires both self-reflection and monitoring of peers. Accountability for shared commitment to this process can be achieved through the development of systems leadership groups, alignment committees, or executive steering bodies.

As lead champions of alignment, representatives from all sectors must share equal input into the process and direction of alignment. As a collective, those participating in the alignment process should collaborate to identify a number of main goals. For consideration purposes only, the following goals are proposed for a CSWB alignment process:

- strengthen resolve through a client-centred configuration of human service delivery
- reduce service duplication among shared target groups and service areas (both from the government and non-government sectors)
- narrow system gaps by broadening sector mandates
- foster front-line service collaboration by engaging in collaborative leadership
- pursue shared outcomes that are driven by shared ownership and shared service delivery

Once goals of alignment are established, the next step is for CSWB partners to begin the process of aligning key components of collaborative human service delivery. The first of these components is government priority. Aligning priorities between different sectors can be fostered by a whole-of-government framework that maps each sector's preferred outcome areas (Treasury Board of Canada Secretariat, 2015). During this process, it is important that government

partners set priorities which are in line with the interests of all partners, but still pursuable in the given political, policy, and bureaucratic environment (Adamchak & Weiss, 1997). At this stage, it is critical that in satisfying all partners, the priorities themselves do not become watered down platitudes instead of the measurable defined outcomes they need to become.

The second component is alignment of policy. Much of the work required for policy alignment can be accomplished through a commitment to multi-sector policy analysis (Rihoux & Grimm, 2006), and where required, policy advocacy (Jenkins-Smith & Sabatier, 1994). Establishing a CSWB policy network that is open and fluid will allow for the types of innovation to occur that are less prominent in closed policy communities, which tend to be led by a few elite partners (Hecl, 1978; Marsh & Rhodes, 1992; Richardson & Jordan, 1979).

The third component of human service delivery alignment is resources. Collaborative partnerships provide an opportunity to build efficiency through resource sharing (OECD, 2013). Within the context of collaborative human service delivery, they can also provide an opportunity for improved outcomes (Kolbe, Allensworth, Potts-Datema & White, 2015). Moving toward CSWB, it is important for government to explore opportunities of resource-sharing across jurisdictional and geographic boundaries.

One of the more challenging areas in alignment is adjusting mandates. Some of the reasons for this difficulty are related to politics (King, Laver, Hofferbert & Budge, 1993), unintended consequences of mandate change (Button & Pearce, 1989), resistance to change (Landaeta, Mun, Rabadi & Levin, 2008), and influences from other levels of government (Baicker, 2001). Moving towards CSWB, government leaders must examine the current systemic gaps left by their mandates and broaden their reach to cover such gaps. Research on CSWB initiatives (Nilson, 2015a) suggest that governments must be flexible in their mandates and, when necessary, allow for solution-focused activities to trump rigid mandates that negatively impact human service outcomes.

Finally, one of the most important endeavours in CSWB alignment is establishing shared outcomes. Past research (Van Lange, 1999) suggests that even at an interpersonal level, achieving shared outcomes is a challenge. At the community and government levels, that task is made difficult by a lack of engagement, the slow pace of getting results, logistics of shared outcome structures, and sustainability of a shared agenda (Dillman, 2015). To overcome these obstacles, proper design, implementation and measurement are necessary. To the latter point, it is critical to achieve symmetry between shared outcomes and shared measurement of those outcomes (Rodin & MacPherson, 2012). An alignment of indicators to shared outcomes will strengthen the rigour of measurement and provide the much-needed results for sustaining collaborative work in CSWB.

To illustrate the important relationship between these six components and alignment, Figure 3 proposes a *Human Service Alignment Structure for CSWB*. The key components to this structure are represented by six independent streams: priority stream, policy stream, practice stream, resource stream, mandate stream, and outcome stream. In our conventional human service system (top portion of image), our different sectors (e.g., safety, health) have different positions

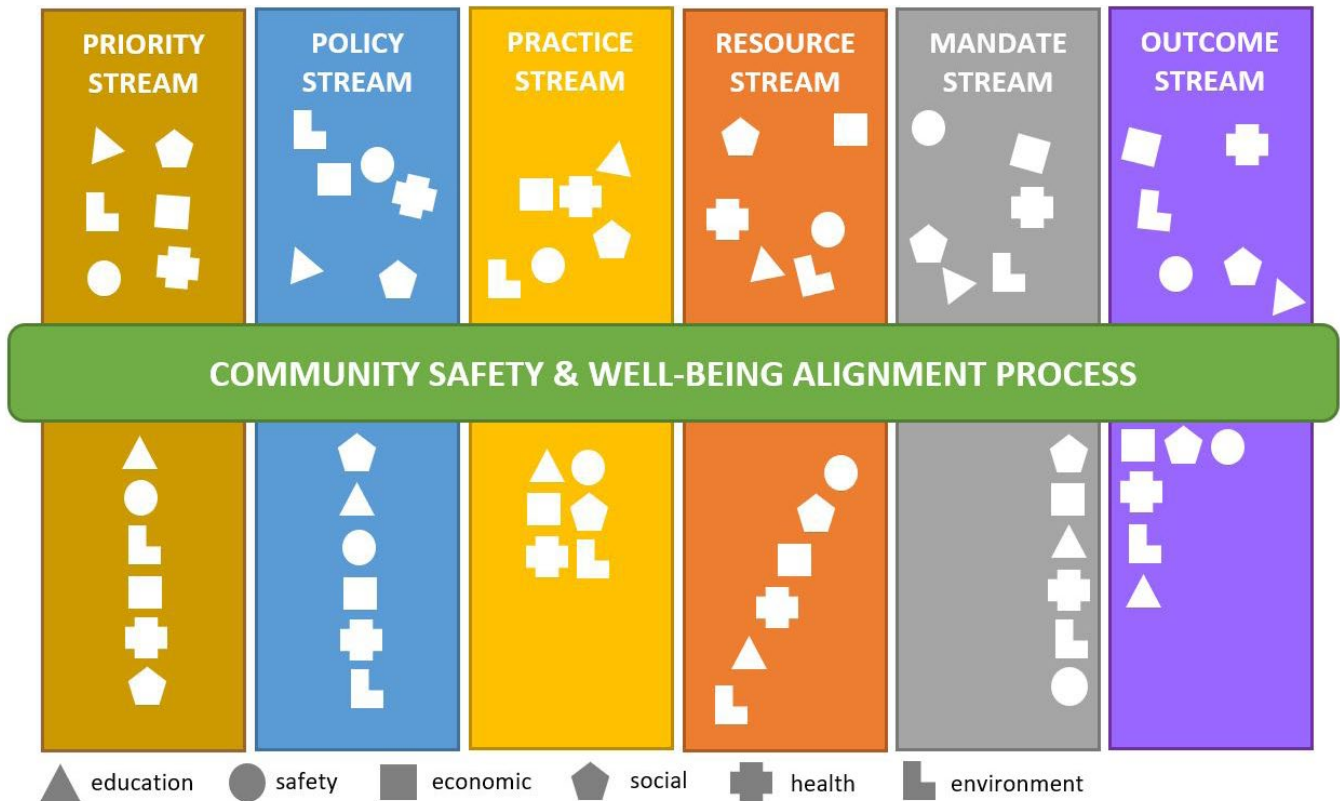


FIGURE 3 Human service alignment structure for CSWB.

TABLE II Suggestions for future momentum in CSWB

Audience	Suggestions
Academics	Work with practitioners and policymakers to finalize a set of indicators that can be used not only for evaluation purposes, but to guide initiative development and bring focus to what the state of CSWB really means and what impacts are occurring.
Advocates/ Special Interests	Generate broad interest and commitment among your target groups toward collaborative generation of pragmatic solutions, evidence-based innovations, risk mitigation, and shared community outcomes.
Practitioners (government)	Explore opportunities for both inter-government and government to non-government collaboration around meeting client need, building organizational capacity, and generating shared community outcomes.
Practitioners (non-government)	Pursue an agenda of capacity-building that positions your organization to participate in and/or lead engagements of multi-sector collaboration, community mobilization, shared problem ownership, and sustainable commitment to innovative solutions.
Indigenous Government	Consider CSWB an exercise in holistic nation-building, where the core principles of self-determination are embodied in initiatives driven by the pursuit of pragmatic solutions, evidence-based innovations, risk mitigation, and shared community outcomes.
Municipal Government	Support and/or engage in CSWB planning, program development, investment and policymaking that generates a direct measurable impact on your community.
Provincial Government	Pursue a truly all-of-government approach to promoting, funding, enabling, and measuring various types of CSWB initiatives—including those spearheaded at the community level and those designed by your own departments and ministries.
Federal Government	Support the policy, partnership, and funding needs of all other audience members listed in this table; while also making a shift away from short-term single sector investments to longer-term multi-sector investments that are made available to bottom-up, evidence-driven, socially innovative CSWB initiatives.

and symmetries concerning each stream. In some streams they are clumped together, and in others they are spread throughout. Once having passed through a process of CSWB alignment, however, the different sectors align. Of course, as the bottom half of the image shows, not all of these alignments are the same. Some alignments may have different configurations of leadership, while others may have different proximities across time and space. Regardless, the sectors are still aligned to support CSWB. Overall, Figure 3 should illustrate the complexity, instability, and often vulnerability of the human service system itself during the alignment process.

MOVING FORWARD

Moving forward, there is a rich opportunity for members of the academic, advocacy, practitioner and policy communities to continue this dialogue. Future examinations of the conceptual understanding, common practices, and alignment of CSWB should strike a careful balance between knowledge creation and theoretical validation.

While the bulk of this paper has had a conceptual focus, we cannot lose sight of the real-world applications of CSWB that are responsible for this emerging field. As different types of CSWB models and practices continue to grow over the years, it will be our shared responsibility as social innovators, to protect these opportunities from the assumptions, behaviours, and structures of our traditionally static social institutions.

To facilitate further momentum within the realm of CSWB, several suggestions are made to academics, advocates, practitioners, and policymakers at different levels of government (see Table II).

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Canadian crime rates in the penalty box

Simon Demers*

EDITOR'S INTRODUCTION

The following feature represents the first paper to which the *Journal of CSWB* has assigned a new article category, Food for After Thought. With thanks to this author, and with encouragement to others in the future, we welcome the opportunity to showcase items that might serve to remind us from time to time, no matter how important our work might be to others, never to take our own work, our own data, or ourselves too seriously.

Some say that noted engineer and statistician W. Edwards Deming once said, "In God we trust ... all others must bring data." Others credit him for saying, on another occasion, "Information is not knowledge. Let's not confuse the two". The celebrated sports journalist Howard Cosell once famously said, "Sports is human life in microcosm".

The degree to which this current paper resonates with any of these quotes, and/or sheds any light on our understanding or lack of understanding of safety and well-being in our communities, is left entirely to the reader. – Norman E. Taylor, Editor-in-Chief

ABSTRACT

Over the 1962 to 2016 period, the Canadian violent crime rate has remained strongly correlated with National Hockey League (NHL) penalties. The Canadian property crime rate was similarly correlated with stolen base attempts in the Major League Baseball (MLB). Of course, correlation does not imply causation or prove association. It is simply presented here as an observation. Curious readers might be tempted to conduct additional research and ask questions in order to enhance the conversation, transition away from a state of confusion, clarify the situation, prevent false attribution, and possibly solve a problem that economists call identification.

Key Words Crime; penalties; stolen bases; correlation; hockey; baseball; NHL; MLB

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INTRODUCTION

This short research note highlights surprisingly strong correlations between Canadian aggregate crime trends and certain professional sport trends that were observed throughout the 1962 to 2016 period.

Beyond any entertainment value, these empirical relationships provide new opportunities to test, validate or refute criminological theories. In the United States, for example, there appears to be a strong negative correlation between measures of consumer sentiment and rates of not only robbery and property crime (Rosenfeld & Fornango, 2007) but also homicide (Blumstein & Rosenfeld, 2008) and felony homicide in particular (Rosenfeld, 2009). This suggests that changing economic conditions can have an impact on crime. Similarly, divorce rates and crime rates also seem to move together over time (Greenberg, 2001), supporting the idea that major social changes and family strains can engender crime.

DATA

The analysis relies on police-reported data compiled by Statistics Canada as part of its Uniform Crime Reporting (UCR) Survey. The aggregate UCR Survey data permit historical comparisons back to 1962 (Allen, 2018). Following convention, crime numbers are converted into rates per 100,000 resident population to facilitate year-over-year comparisons that take into account population growth. The focus of the analysis is on violent crime, property crime, and homicide rates.

Penalty data for the National Hockey League (NHL) were extracted directly from its official website (NHL.com, 2018). These NHL data include the total number of penalties (Pen) and the associated number of penalty infraction minutes (PIM) for each season.

Batting data for the Major League Baseball (MLB) were downloaded from the website Baseball-Reference.com (2018).

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These MLB data include various statistics intending to reflect offensive productivity. The analysis focuses on stolen base attempts or stolen base opportunities, which is the combination of stolen bases (SB) and “caught stealing” events (CS).

RESULTS

Violent Crime in the NHL Penalty Box

First, it turns out that the Canadian violent crime rate is positively correlated with the number of NHL penalties and penalty minutes in a surprisingly strong manner, as measured by Pearson’s correlation coefficients ($r = 0.951$ and 0.925 , respectively). Figure 1 illustrates the quality of the linear fit. The ordinal association is also quite strong, as measured by Kendall’s rank correlation coefficients ($\tau = 0.775$ and 0.750 , respectively).

This statistical relationship is notable because NHL penalties are typically assessed by referees for excessive toughness and physical violence and are, therefore, the closest thing to a violent crime in the context of professional ice hockey (Heckelman & Yates, 2003), besides actual on-ice criminal assaults (CityNews Staff, 2016).

Possible underlying factors that could drive such a strong correlation between violent crime and NHL penalties include all factors that professional hockey players would have been exposed to with essentially the same timing and same intensity as the rest of the general population. This could plausibly encompass, for example, early childhood lead exposure (Nevin, 2000; Nevin, 2007; Wolf, 2014) and a social civilizing or pacifying process (Spierenburg, 2001; Stille, 2003; Restrepo, 2015).

The latter argument is a sociological one. It is based on the idea that society in general may have become more enlightened over the last few decades. Better self-control and social pressures would therefore explain parallel reductions in both crime and on-ice penalties. The former argument is built on the idea that hockey players who played in the NHL throughout the late 1980s and early 1990s may have been exposed to harmful amounts of lead when they were growing up in the 1960s and 1970s, before leaded gasoline and lead-based paint became regulated. In contrast, hockey players born after the mid-1970s were more likely to grow up with healthier brains and a lower propensity for violence. Canadians and Canadian youths in particular would have been similarly affected.

It is not possible, at this stage, to completely eliminate the possibility that NHL penalties might actually “stimulate” violent crime at the national level, through some kind of copycat or emulation effect, for instance (Moser, 2004; Adubato, 2011; Card & Dahl, 2011; Kirby, Francis, & O’Flaherty, 2014). Although this may sound far-fetched at first glance, earlier studies did reveal some correlation between the success of sports teams and reductions in suicide (Joiner, Hollar, & Van Orden, 2006), and even homicide rates (Fernquist, 2000). In fact, some studies examined the relationship between homicide rates and the introduction of television in certain countries and found a consistently positive correlation between the two (Centerwall, 1989), revealing that not only televised sport—but television more generally—has the potential to engender violence in society (Centerwall, 1992).

We note, in passing, that the correlation between violent crime and NHL penalties is unlikely to be explained away by annual weather or temperature variations (Burke, Hsiang, & Miguel, 2015) because NHL games are generally played in a climate-controlled environment, unlike baseball (Reifman, Larrick, & Fein, 1991; Larrick, Timmerman, Carton, & Abrevaya, 2011) or American football games (Craig, Overbeek, Condon, & Rinaldo, 2016), for instance.

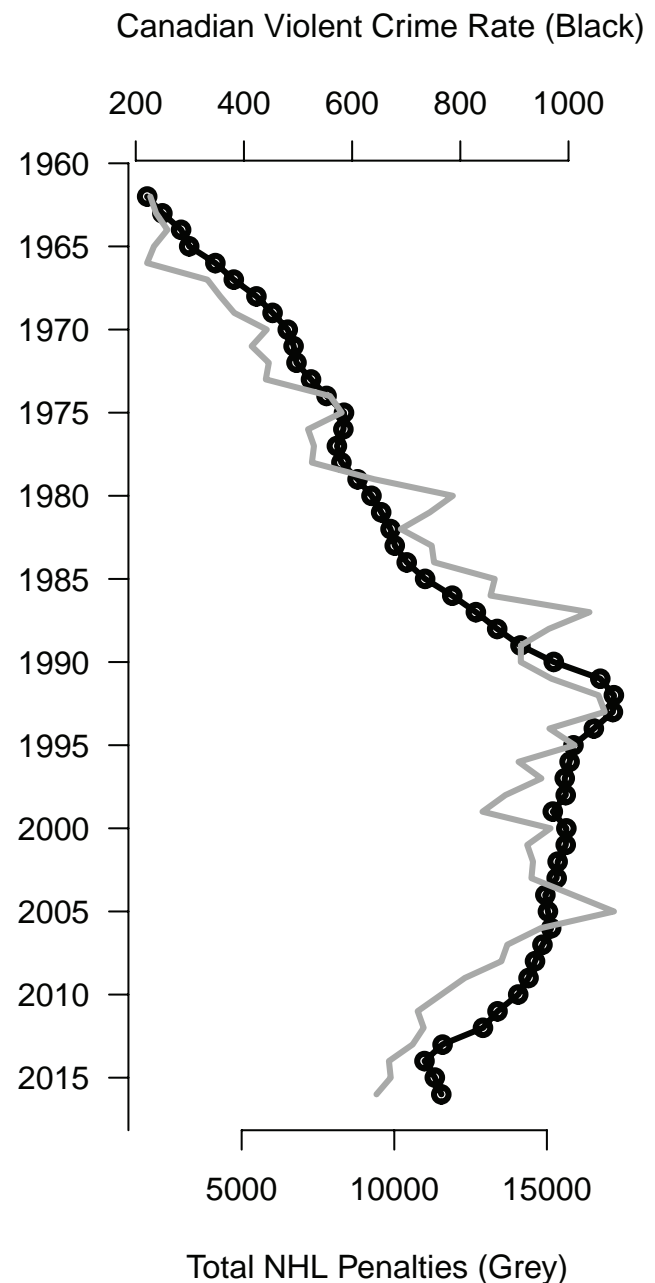


FIGURE 1 Canadian violent crime rate and NHL penalties, 1962–2016. Two NHL lockouts shortened the 1994–95 and 2012–13 regular seasons to 48 games instead of 82 games per team. The totals for those seasons are manually adjusted (normalized) to account for lost games and to make year-over-year comparisons possible. For its part, the 2004 NHL lockout led to a completely cancelled season. In that case, fictitious 2004 data are imputed by simply interpolating between 2003 and 2005 data points.

Property Crime Around the Baseball Diamond

Second, it turns out that the Canadian property crime rate is positively correlated with the rate of stolen base attempts in the MLB ($r = 0.894$ and $\tau = 0.696$). Figure 2 illustrates the quality of the linear fit.

Stolen base attempts reflect the propensity of baseball players to opportunistically try to move forward around the bases at the expense of the defensive team, in order to possibly score more runs as a result. Stolen base opportunities can, therefore, properly be seen as the professional baseball equivalent of a lawful property crime.

Plenty of explanations have been professed to explain the relative rise of base stealing in the mid-1970s (McMurray,

2015), its peak throughout the 1980s (James, 1982), and its decline in the mid-1990s (Kurkjian, 1994). However, identifying the underlying factors that could explain why stolen bases in the MLB may be related to property crime in Canada remains an open problem.

As a side note, Farrell, Hodgkinson, & Andresen (2018) already highlighted that there was a remarkable similarity between historical property crime and homicide rates in Canada, once attempted murders and actual homicides

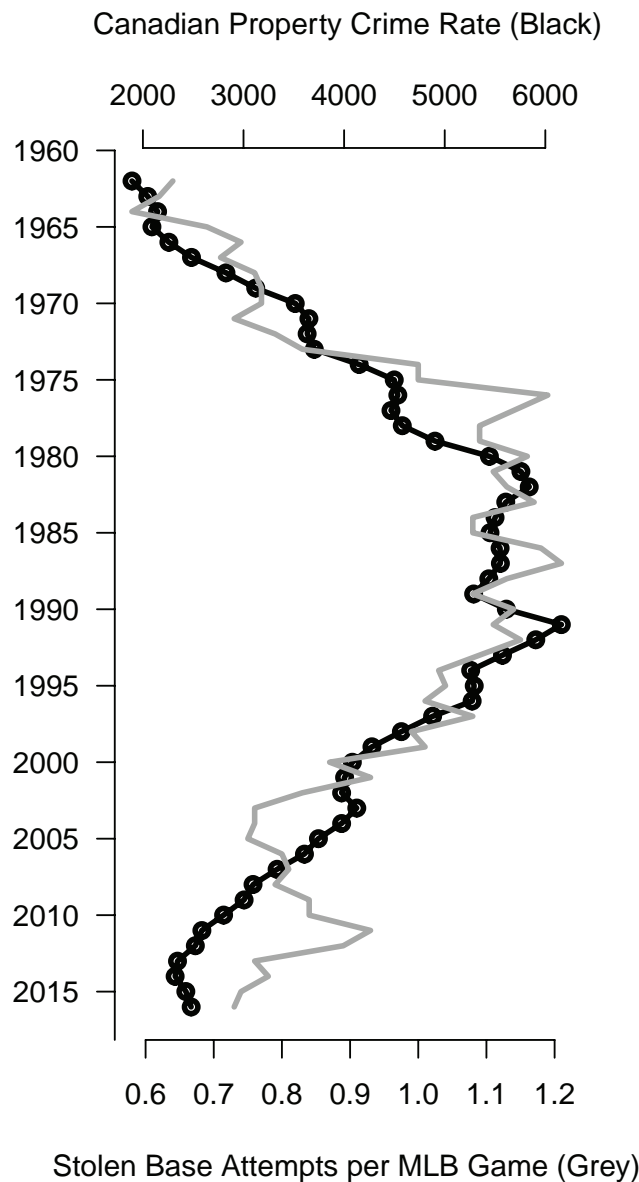


FIGURE 2 Canadian property crime rate and stolen base attempts in the MLB, 1962–2016. Three significant MLB strikes resulted in lost games during the 1972, 1981, 1994, and 1995 seasons. However, the MLB data are averaged on a per-game basis, which removes the need to normalize the data or simulate full seasons in order to account for lost games.

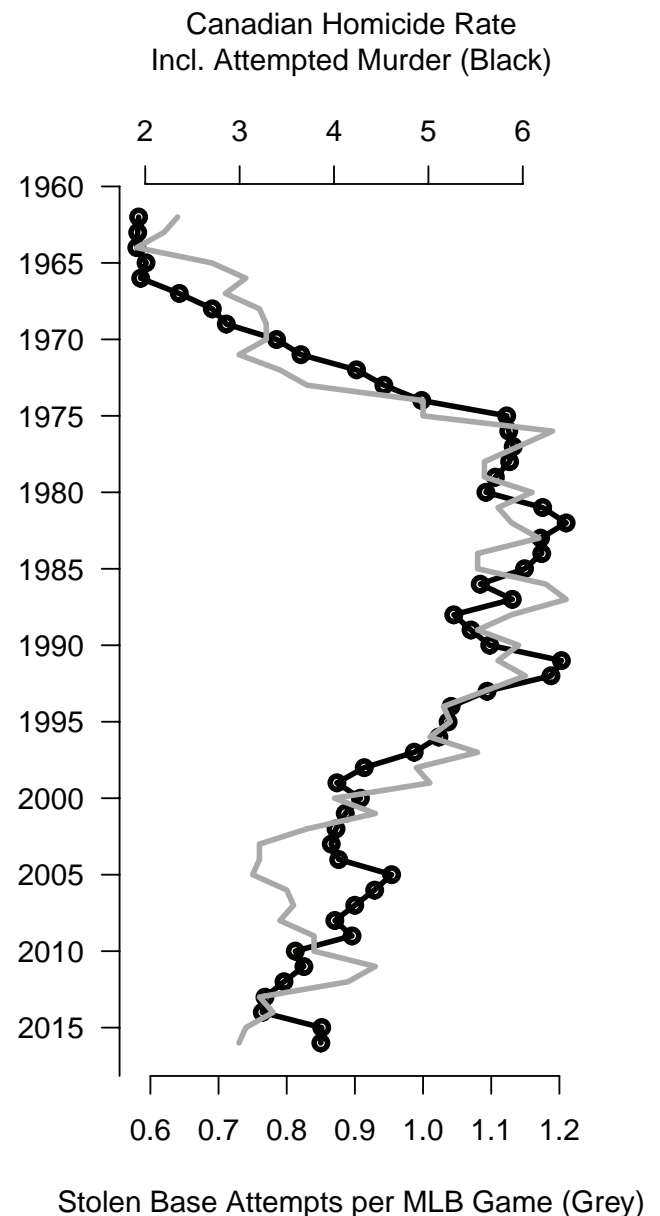


FIGURE 3 Canadian homicide rate and stolen base attempts in the MLB, 1962–2016. The Canadian homicide rate is actually correlated most strongly with *failed* stolen base attempts where the runner was caught stealing ($r = 0.822$), while the rate of attempted murders is actually correlated most strongly with *successful* stolen bases ($r = 0.906$). This may look incongruent at first glance, but this is only because stolen bases are defined from the point of view of the runner. From the point of view of the defensive team, a runner who is caught stealing represents a *successful* out.

are aggregated into a single measure of total homicides ($r = 0.91$). In that context, and in light of the previously discussed results, it should not come as a surprise that Canadian homicides and attempted murders, like property crimes, are also correlated with stolen base attempts ($r = 0.894$ and $\tau = 0.695$). This is shown by Figure 3.

Farrell, Hodgkinson, & Andresen (2018) speculated that similarities between historical homicide and property crime rates may have been driven by the progressive implementation of security improvements, especially in the second half of the 1990s. While it is not immediately obvious whether (or how) this security hypothesis may also apply to stolen base opportunities in the MLB, more research into this area could be enlightening (and probably entertaining).

CONCLUSION

Correlation does not imply causation and it is entirely possible that the statistical relationships presented in this short research note may be coincidental or spurious, in the vein of Andersen (2012) and Vigen (2015), for example. However, they also very well could be examples of life imitating sports (Steen, 2014) or vice versa (Goldstein, 1989).

More research would obviously be required to assess whether these statistical relationships are purely coincidental, to determine to what extent both trends might be influenced by common underlying factors, and to investigate the possibility that they might be fueled endogenously through a copycat effect, among many other possible pathways.

CONFLICT OF INTEREST DISCLOSURES

The author declares there are no conflicts of interest.

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