

Fostering Resilience Among the Police

Judith P. Andersen, Ph.D.¹; Konstantinos Papazoglou, M.A.¹; Markku Nyman, M.Sc.²; Mari Koskelainen, D.Clin.Psych.²; & Harri Gustafsberg, M.Sc.²

1. University of Toronto, Mississauga Campus, Mississauga, Ontario, Canada
2. Police University College in Finland, Tampere, Finland

Abstract

Police officers are often mandated to respond to extremely stressful and potentially traumatic situations over the course of their careers (Andersen, Papazoglou, Koskelainen, & Nyman, 2015). Research has shown that occupational stress and trauma exposure has a negative impact on police officers' health and wellness (Violanti et al., 2005). Police officers are expected to respond to critical incidents and resolve challenging situations effectively despite routine exposure to severe stress. Even though local and national governments invest a vast amount of money in police tactical training and equipment, resilience building has not been a major component of police training. This paper aims to open a dialogue about the importance of mental preparedness training as a means of enhancing police resilience in the line of duty. The authors discuss the pioneering work of scholars (e.g., Andersen et al., 2015; Arnetz et al., 2013) who developed research initiatives to facilitate mental preparedness among police officers. Clinical and police training applications of the aforementioned research work, as well as future directions of such outcomes are discussed.

Keywords: police stress and trauma, resilience, health promotion, mental preparedness, optimal functioning, high job performance

Challenges in Policing: The Unique Nature of Police Work

Police work is challenging in many ways. Police officers experience operational, as well as organizational stress while on duty (McCreary & Thompson, 2006). More specifically, organizational stress may arise from an unreasonable, authoritarian commander who lacks effective communication skills. Operational stress emerges from police officers' exposure to multiple stressors and potentially traumatic incidents in the line of duty. Furthermore, the public maintains high expectations for police officers' performance and functioning (Rosenbaum, Schuck, Costello, Hawkins, & Ring, 2005; Wilson & Jasinski, 2004). Public scrutiny adds to the routine stress and high demands of policing. Exposure to routine stress and trauma is chronic, cumulative, and complex, because it encompasses both direct and indirect exposures (Papazoglou, 2013).

New York Police Department uniformed police psychologist, Daniel Rudofossi, pointed out that police officers - over the course of their careers - may encounter a range from 10 to 900 or more events that would potentially be classified as traumatic or severely stressful (2009, p. 59). In addition, police officers' roles are not just that of the "street fighter" per se (Manzella & Papazoglou, 2014). Officers are often expected to provide emotional support to victims of crimes (e.g., domestic violence, child abuse) because they are often the first caregiving professionals on scene.

Gilmartin (2002) described police work as a "biological rollercoaster," meaning that officers often experience high physiological arousal in preparation for calls, during calls, and sometimes in the transition period between critical incidents. Continual physiological arousal makes it difficult to return to a calm physical baseline, both during the shift and in transition to home life (Gilmartin, 2002). Researchers have shown that anticipatory stress is a significant concern. Anderson and colleagues demonstrated both the anticipatory and active duty stress responses among 297 general patrol police officers in British Columbia, Canada (Anderson, Litzenberger, & Plecas, 2002). Andersen and colleagues provided clinical evidence of the elevated physiological arousal among officers, both in training exercises and during real-world shifts (see Figures 1 and 2). Although some research shows that police officers are generally more resilient than the average civilian, the cumulative adversities of police work often have a negative impact on police officers' mental and physical health over the course of their career (Galatzer-Levy, Madan, Neylan, Henn-Haase, & Marmar, 2011).

The impact of extreme stress and trauma on police health

Exposure to highly stressful incidents and potentially traumatic situations can, over time, negatively impact an individual's cognitive abilities, memory, mental and physical health, and overall well-being (Sapolsky, 2004). Research with military personnel has shown that U.S. veterans of the Iraq and Afghanistan wars, diagnosed with post-traumatic stress disorder (PTSD) had significantly higher risk of developing cardiovascular diseases, musculoskeletal problems, and even cancer, compared to their peers who had not been diagnosed with PTSD (Andersen et al., 2010). Pioneering research by Violanti and colleagues (reviewed in the paragraphs below) has extended empirical work conducted with military populations to show that the police population also experiences the incapacitating effects of stress and trauma exposure on their mental and physical health.

Police officers' experiences

Police officers around the world acknowledge that their work is challenging. In a national survey study of police officers in the Finnish National Police, more than 40% of survey respondents reported that they faced critical incidents in more than 20% of their on-duty time (Andersen, Papazoglou, Koskelainen, & Nyman, 2015). In the same study, over half (i.e., 50% of participants) reported that their work was emotionally demanding and stressful. In the U.S., researchers contend that police officers experience more critical incidents compared to military personnel and emergency service workers (Lieberman et al., 2002). The Federal Bureau of Investigation (FBI) releases thorough annual statistics akin to – among others – police deaths and police injury incidents occurred in the line of duty. More specifically, the 2014 FBI statistics revealed that 51 law enforcement officers were feloniously killed in the line of duty across the U.S. (Federal Bureau of Investigation, 2014). In addition, the number of police deaths in 2014 had increased by 89% compared to the previous year. Analogously, 9.3% of American police officers had been assaulted during 2013, and 29.2% from those assaulted also sustained injuries (Federal Bureau of Investigation, 2013). In their study with police officers (n=103) from the State of New York, Violanti and Aron (1995) aimed to develop a hierarchy of stressors experienced by police. Their findings revealed that the five top-ranked stressors were: 1) killing someone in the line of duty, 2) fellow officer killed, 3) physical attack, 4) battered child, and 5) high speed chases (p. 290). Likewise, pioneering work by Violanti with police officers from the State of New York has shown that police work is often characterized by prolonged exposure to extreme stress and trauma and often has a negative impact on police officers' mental and physical health (Violanti et al., 2006). More specifically, Violanti and colleagues' (2006) longitudinal research demonstrated that police officers are at greater risk of being diagnosed with heart disease, diabetes, and cancer compared to other workers employed in local government agencies (Violanti et al., 2005; Violanti, Vena, & Petralia, 1998). Further, American police officers (compared to the general population) reported much higher rates of depression, PTSD, burnout, and other anxiety-related mental health conditions (Asmundson & Stapleton, 2008; Austin-Ketch et al., 2012).

The impact of stress on police performance

Police officers are expected to make life and death decisions (i.e., shoot or not to shoot) within moments (milliseconds in some cases), all the while considering the laws of the land, and the best possible outcome for the civilians' and their own lives. Research findings demonstrated that stress experienced by police officers may have a negative effect on officers' performance while on duty (Conrad & Kellar-Guenther, 2006; Norvell et al., 1998; Wright & Saylor, 1991). For example, extreme stress arousal during a critical incident can result in respiratory changes (e.g., hyperventilation, or holding one's breath) that impair the areas of the brain that direct fine motor skills, sensory perception, and visual and auditory acuity. The very skills needed by an officer to perform well during life-threat situations (Johnson, 2008, p. 121-125). Indeed, Covey and colleagues (2013) found that police officers with symptoms of stress-related anxiety were more likely to shoot inappropriately in simulated critical incidents. As officers' performance suffers, organizations may notice increases in absenteeism, low job satisfaction, increased number of sick days, and early retirement or officers leaving policing (Conrad & Kellar-Guenther, 2006; Norvell et al., 1998; Wright & Saylor, 1991). The authors posit that if early resilience promotion intervention occurs within police organizations, the cumulative effect of

police-related stress and trauma may be prevented, at least to a large degree (Papazoglou, 2013; Papazoglou & Andersen, 2014).

The cumulative effects of police-related stress are not limited merely to the officers themselves. Police-related stress can negatively impact police organizations as well as local and national governments' budgets. Indeed, the Federal Government of Canada spent more than \$13.5 billion on policing in 2012, and this number has grown by \$378 million since 2011 (Statistics Canada, 2013). It should be noted that the amount of money spent on policing worldwide has gradually grown over the years. Costs associated with police health and rehabilitation continues to rise as well, to the tune of \$190 million in Canada alone (Statistics Canada, 2013). Analogously, the U.S. Federal Government spent over the last fiscal year (2014-2015) almost \$173 billion for police and fire protection (Bureau of Justice Statistics, 2014; Bureau of Labor Statistics, 2014; Chantrill, 2015). Not surprisingly, a considerable portion of the above-mentioned policing expenses are directed towards police officers' health, early retirement, and civilian lawsuits against the use of excessive force by the police. We believe that the rising costs of policing and the research evidence regarding the negative effects of police stress on health and performance indicate the need to invest in resilience programming. Proactive prevention strategies applied to maintain optimal mental and physical health among the police, are both timely and urgently needed.

Mental preparedness training among the police

The capacity of human beings to thrive in the face of adversity and to recover after exposure to extreme stress and trauma has been extensively studied in scientific literature (Bonanno, 2004). However, although police officers often receive excellent tactical training, operational preparation, and equipment to resolve critical incidents effectively, research on the mental preparedness and interventions to address the psychological stress of policing are sorely lacking. The lack of police mental preparedness programs have been noted by numerous scholars who are actively developing resilience promotion programs among police officers (e.g., Papazoglou & Andersen, 2014; Andersen et al., 2015; Arnetz et al., 2013; Arnetz et al., 2009). Such programs need to be evidence-based and customized to police officers' needs and duties.

The fundamental component of resilience promotion training among the police is mental preparedness. By the term *mental preparedness* we refer to: 1) psycho-education about the psychological and physiological aspects of extreme stress and potential trauma, 2) practice-focused techniques that allow officers to apply these techniques in their critical incident training and the real world, and sufficient opportunities to practice the resilience techniques in order that they become automatic physical and mental responses to the stress of real life policing (Andersen et al., 2015). Mental preparedness is a vital component of the following integral parts of police work: a) decision-making, b) situational awareness, and c) efficient energy management. Mental preparedness allows officers to maintain clarity of thinking and efficient information processing in order to make accurate decisions while on duty. Situational awareness is closely related to decision-making. In fact, it is the ability to use one's sensory perception (e.g., vision, hearing, touch, etc.) to assess the critical incident situation and engage in information processing that distinguishes threat from non-threat cues. In tandem with situational awareness is the ability to prioritize the order in which the threats, as recognized by situational awareness, need to be mitigated. Mental preparedness provides officers with the tools to remain in a moderate zone of arousal, which includes enhanced sensory perception and cognitive abilities to respond to the situation optimally. In addition, efficient energy management is important in police work.

Police officers respond to many different incidents over their shift and expend a great amount of energy in order to complete their duties successfully. Both physical and mental stressors deplete energy levels. Without adequate mental preparation, continual energy depletion leads officers to feel overwhelmed and exhausted at the end of their shift, with serious negative consequences on transition to home life and communication with their family. Mental preparedness training should not be limited to operational police officers; it can also be applied to anyone employed in a highly stressful position in police or other 'first responders' organizations. For example, officers serving in high stress task forces (e.g., child sexual abuse unit officers, homicide detectives and administrative position officers) who experience either organizational or secondary stress and trauma can benefit from mental preparedness training.

In order for a mental preparedness training to be effective, the following conditions must be considered: i) techniques need to be brief, since police officers are generally responsible for many different tasks (e.g., administrative work, equipment preparation, responding to critical incidents), therefore, they do not usually have enough time to apply long-term (or other time-consuming) techniques. ii) techniques should first be learned in a non-stressful environment, iii) after the techniques are mastered, they should be applied right before and right after an exposure to a critical incident. The application of mental preparedness techniques must be applied within these time intervals (e.g., right before and right after exposure to an incident) in order to prepare, mentally and physically, for a critical incident and recover from the stress encountered during the incident. Quick recovery prevents energy depletion and facilitates officers' preparation (mentally and physically) for the next call.

Evidence-based resilience promotion techniques

The authors recommend that an organization invest in resilience promotion training programs that consist of empirically tested, evidence-based mental preparedness techniques. Currently, the scientific literature regarding resilience promotion training among police is fairly limited. We conducted a comprehensive literature review and discovered only a handful of research studies aimed at promoting resilience training among the police. McCraty and Atkinson (2012) recruited police officers from California (n=64) and applied a breathing technique as a way to help police officers regulate their physiological stress response, including cardiovascular, respiratory, and stress hormones. At the end of the study they found that the police officers that received their resilience-promotion training achieved better job performance (e.g., judgment and decision-making) in comparison with the group that did not receive resilience promotion training (McCraty & Atkinson, 2012). In addition, mindfulness training has been identified as an effective way to reduce officers' trauma-related symptoms and improve overall resilience (Chopko & Schwartz, 2013). Christopher and colleagues (2015) developed and applied mindfulness-based resilience training to police officers (n=62) from a U.S. Pacific Northwestern state. Their findings showed that police officers that participated in the mindfulness-based training reported improvement in quality of sleep, anger management, perceived stress, fatigue, and a reduction in feelings of burnout. Likewise, other research study findings with police cadets (n=88) from a U.S. Northeastern state revealed that mental skills training – comprised of controlled breathing, mental performance imagery, and attentional focus exercises – improved memory recall in the same manner as did intense live action training scenarios (Page, Asken, Zwemer, & Guido, 2015). In the same study, police cadets who reported low levels of stress had better memory recall of the training scenarios compared to those who reported high levels of

stress. The aforementioned research findings highlight the crucial role of psychological resilience training in reducing stress and improving performance among police officers.

In another study, Arnetz and colleagues (Arnetz et al., 2013; Arnetz et al., 2009) tested the resilience promotion effectiveness of another technique; that is, a relaxation exercise combined with mental skill rehearsal techniques. Participants in these studies were Swedish police recruits. In a classroom environment, participants listened to the description of critical incident scenarios ranked (by experienced police trainers) as the most threatening incidents (e.g., robbery and domestic violence). Simultaneously, while listening to the threatening scenario description, participants were instructed to apply relaxation techniques and visualize themselves in the critical incident environment trying to resolve the situation effectively. In both studies (Arnetz et al., 2013; Arnetz et al., 2009) researchers found that the experimental group, which received the resilience promotion training, reported significant improvement in job performance (e.g., situational awareness) compared to the control group. In addition, the experimental group showed better improvement in health outcomes (e.g., sleep patterns and energy repletion) compared to the control group. Similarly, Andersen and colleagues (2015) applied the resilience promotion techniques of Arnetz and colleagues (2013, 2009) to a platoon of Regional Special Response Team members in Finland (a.k.a. "VATI"). The techniques were applied during the scheduled training of the VATI team organized at the Police University College of Finland. The researchers found that the VATI officers significantly improved their physiological reactions (e.g., heart rate reactivity) to critical incident exposure throughout the five training days. Furthermore, survey participants reported significant improvement in job performance and were willing to encourage peers from other platoons to learn and apply the resilience techniques provided by Andersen and colleagues (2015).

Recent research by Andersen and colleagues (2015) built on the aforementioned resilience promotion research, thus advancing this area of resilience training. These researchers trained a team of officers from the Special Intervention Unit of the National Police of Finland (a.k.a. "KARHU"). Participants were actively instructed to apply psychological techniques aimed at promoting personal resilience as well as job performance. Techniques included: controlled breathing to enhance physiological control, visual/auditory imagery, and perception/attention enhancement through slow-motion tactical training. Police officers learned to effectively incorporate these resilience techniques before, during, and after exposure to critical incidents. The critical incidents applied in this study (Andersen et al., 2015) were developed by experienced Police Special Forces trainers so as to be the most threatening incidents (e.g., active shooter and domestic violence) for the Police Special Forces units. The researchers (Andersen et al., 2015) found that the experimental group had better stress-related psychophysiological outcomes (e.g., stress-hormone cortisol levels, heart rate reactivity and recovery time) compared to the control group. Impartial trainers, expert Special Forces police trainers, were recruited to rate the participants during the critical incident scenarios. Trainers rated overall performance, situational awareness, and decision making of the participants. The trainers' ratings revealed that officers who participated in the resilience training performed significantly better when compared to those who did not participate in the resilience promotion training. To our knowledge, Andersen and colleagues' (2015) study was the first resilience promotion training applied among Police Special Forces. The results of the research study provided scientific evidence that resilience promotion training should be incorporated into police units' training around the world.

Discussion, Conclusion, Future Research

Police organizations in democratic societies (e.g., Europe, Canada, and the U.S.) spend billions of dollars on policing. Many police organizations provide high quality training and highly technological equipment in order to help police officers maintain peace and order in their communities. However, given that police officers are routinely tasked face life threatening, dangerous incidents, it is imperative to provide them with tools to promote resilience and maintain personal wellbeing. We recommend that police officials establish collaborations with researchers in the academic world in order to facilitate the integration of resilience techniques into police training and evaluate the efficacy of such programs. It is imperative that scientific research “serves those who serve” our communities; that is, research provides police officers with the necessary techniques so that they manage stress and promote resilience effectively.

Progress in applying resilience training among police officers and first responders is expected in the years to come. For instance, other police units may also utilize the research studies described above (e.g., Andersen et al., 2015), (e.g., new recruits, detectives, patrol officers, etc.). The aim of this article is to raise awareness of the benefits of resilience training to police professionals, police researchers, and policy makers. Unfortunately, if police stress is not addressed, research indicates that the impact of trauma exposure on police officers may result in irreversible mental and physical health problems. That is, treatment after the exposure to trauma may not be enough for officers to maintain optimal functioning in the line of duty. Therefore, it is believed that prevention programs must be offered to police officers in addition to post-trauma interventions. We encourage police professionals, researchers, and policy makers to be proactive to critical incident stress by investing in empirically tested evidence based mental preparedness programs for their officers.

About the Authors:

Professor Judith P. Andersen is a health psychologist who specializes in the psychophysiology of stress and stress related mental and physical health issues. Professor Andersen has more than a decade of experience working with populations exposed to severe and chronic stress, combat soldiers, and police. Currently, Professor Andersen is the director of the Health Adaptation Research on Trauma (HART) Lab at the University of Toronto. Professor Andersen's on-going research projects include measuring mental and physical health changes associated with resilience training among police and Special Forces teams in Ontario, the U.S., and Europe. Prof. Andersen is the primary contact for this article. Correspondence can be sent to: judith.andersen@utoronto.ca

Konstantinos Papazoglou is a psychology doctoral (PhD) candidate (clinical and forensic area) and a Vanier Scholar at the University of Toronto. He is a former Police Captain of the Hellenic Police and he holds a master's degree in mental health counseling from New York University (NYU). Currently, he works with Professor Judith P. Andersen at the University of Toronto focusing his research work on stress, trauma prevention, and resilience promotion among police. He has presented his research in many scientific venues (e.g., American Psychological Association, Academy of Criminal Justice Sciences) and received many awards (e.g., American Psychological Association – Criminal Justice Section Outstanding Doctoral Research Award).

Markku Nyman is a psychologist at the Police University College of Finland. He earned his Master's Degrees in Psychology and in Social Sciences in Tampere University in Finland. At the Police University College of Finland he is responsible for the psychological assessment of applicants for basic, continuation, and special training programs, with research and development of the processes and methods used therein as another main area of interest.

Dr. Mari Koskelainen is a Lecturer at the Police University College of Finland. She completed her Doctorate in Clinical Psychology at the Plymouth University, UK. She has worked in a forensic medium secure unit in London, UK completing violence risk assessments. At the Police University College of Finland she has focused on threat assessment procedures and after-care arrangements following critical incidents. She is a trained Eye Movement Desensitization and Reprocessing (EMDR) therapist.

Harri Gustafsberg has worked as a law enforcement officer since 1990. He has been a senior police officer for 25 years-and he worked as a Chief Inspector at the Police University College of Finland. He served as a member of the Finnish National Special Intervention Unit, called KARHU, for 22 years. During those years of service he worked as an Instructor Trainer and a Use of Force Instructor. He was also an Operational Commander and a K9 Instructor.

References

- Andersen, J.P., Gustafsberg, H., Papazoglou, K., Nyman, M., Koskelainen, M., & Pitel, M. (2015, August). *A Potentially Lifesaving Psychophysiological Intervention for Special Forces Police Officers*. Poster presented at the 2015 convention of the American Psychological Association, Toronto, ON, Canada.
- Andersen, J. P., Papazoglou, K., Koskelainen, M., Nyman, M., Gustafsberg, H., & Arnetz, B. B. (2015). Applying resilience promotion training among special forces police officers. *SAGE Open*, 5(2), 2158244015590446.
- Andersen, J.P., Papazoglou, K., Koskelainen, M., & Nyman, M. (2015). Knowledge and Training Regarding the Link Between Trauma and Health. *SAGE Open*, 5(2), 2158244015580380.
- Andersen, J., Wade, M, Possemato, K, & Ouimette, P. (2010). The relationship between posttraumatic stress disorder and primary care provider diagnosed disease among Iraq and Afghanistan Veterans. *Psychosomatic Medicine*, 72, 498-504. doi:10.1097/PSY.
- Anderson, G.S., Litzenberger, R., & Plecas, D. (2002). Physical evidence of police officer stress. *Policing: an international journal of police strategies & management*, 25(2), 399-420. <http://dw.doi.org/10.1108/13639510210429437>
- Arnetz, B.B., Arble, E., Backman, L., Lynch, A., & Lublin, A. (2013). Assessment of a prevention program for work-related stress among urban police officers. *International archives of occupational and environmental health*, 86(1), 79-88. doi: 10.1007/s00420-012-0748-6
- Arnetz, B.B., Nevedal, D. C., Lumley, M.A., Backman, L., & Lublin, A. (2009). Trauma resilience training for police: Psychophysiological and performance effects. *Journal of Police and Criminal Psychology*, 24(1), 1-9. doi: 10.1007/s11896-008-9030-y
- Bonanno, G.A. (2004). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59(1), 20-28. <http://dx.doi.org/10.1037/0003-066X.59.1.20>
- Bureau of Justice Statistics (2014). *Campus Law Enforcement*. Washington, DC: US Department of Justice. Retrieved from: <http://www.bjs.gov/index.cfm?ty=tp&tid=5>
- Bureau of Labor Statistics (2014). *Occupational Outlook Handbook: Police and Detectives*. Washington, DC: US Bureau of Labor Statistics. Retrieved from: <http://www.bls.gov/oes/current/oes333051.htm#nat>
- Chantrill, C. (2015, September 10). Government spending in the US. Retrieved from: <http://www.usgovernmentspending.com/>
- Chopko, B. A., & Schwartz, R. C. (2013). The relation between mindfulness and posttraumatic stress symptoms among police officers. *Journal of Loss and Trauma*, 18(1), 1-9. doi: 10.1080/15325024.2012.674442
- Christopher, M. S., Goerling, R. J., Rogers, B. S., Hunsinger, M., Baron, G., Bergman, A. L., & Zava, D. T. (2015). A Pilot Study Evaluating the Effectiveness of a Mindfulness-Based Intervention on Cortisol Awakening Response and Health Outcomes among Law Enforcement Officers. *Journal of Police and Criminal Psychology*, 1-14. doi: 10.1007/s11896-015-9161-x

- Covey, T.J., Shucard, J.L., Violanti, J.M., Lee, J., & Shucard, D.W. (2013). The effects of exposure to traumatic stressors on inhibitory control in police officers: A dense electrode array study using a Go/NoGo continuous performance task. *International Journal of Psychophysiology*, 87(3), 363-375. doi:10.1016/j.ijpsycho.2013.03.009
- Federal Bureau of Investigation (2013). Law enforcement officers killed and assaulted. Retrieved October 1, 2015 from: https://www.fbi.gov/about-us/cjis/ucr/leoka/2013/officers-assaulted/assaults_topic_page_-2013
- Federal Bureau of Investigation (2014). FBI releases preliminary statistics for law enforcement officers killed in the line of duty. Retrieved October 1, 2015 from: <https://www.fbi.gov/news/pressrel/press-releases/fbi-releases-2014-preliminary-statistics-for-law-enforcement-officers-killed-in-the-line-of-duty>
- Galatzer -Levy, I.R., Madan, A., Neylan, T.C., Henn-Haase, C., & Marmar, C.R. (2011). Peritraumatic and trait dissociation differentiate police officers with resilient versus symptomatic trajectories of posttraumatic stress symptoms. *Journal of traumatic stress*, 24(5), 557-565. doi: 10.1002/jts.20684
- Gilmartin, K.M. (2002). Emotional survival for law enforcement. *ES Press, PMB*, 233, 2968.
- Johnson, B. R. (2008). *Crucial Elements of Police Firearms Training*. Flushing, NY: Looseleaf Law Publications.
- Liberman, A. M., Best, S. R., Metzler, T. J., Fagan, J. A., Weiss, D. S., & Marmar, C. R. (2002). Routine occupational stress and psychological distress in police. *Policing: An International Journal of Police Strategies & Management*, 25(2), 421-441. doi: <http://dx.doi.org/10.1108/13639510210429446>
- Manzella, C., & Papazoglou, K. (2014). Training police trainees about ways to manage trauma and loss. *International Journal of Mental Health Promotion*, 16(2), 103-116. doi: 10.1080/14623730.2014.903609
- McCraty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. *Global Advances in Health and Medicine*, 1(5), 44-66. doi: 10.7453/gamj.2014.073
- McCreary, D.R., & Thompson, M.M. (2006). Development of two reliable and valid measures of stressors in policing: The operational and organizational police stress questionnaires. *International Journal of Stress Management*, 13(4), 494. <http://dx.doi.org/10.1037/1072-5245.13.4.494>
- Page, J. W., Asken, M. J., Zwemer, C. F., & Guido, M. (2015). Brief Mental Skills Training Improves Memory and Performance in High Stress Police Cadet Training. *Journal of Police and Criminal Psychology*, 1-5. doi: 10.1007/s11896-015-9171-8
- Papazoglou, K. (2013). Conceptualizing police complex spiral trauma and its applications in the police field. *Traumatology*, 19(3), 196-209. <http://dx.doi.org/10.1177/1534765612466151>
- Papazoglou, K., & Andersen, J.P. (2014). A guide to utilizing police training as a tool to promote resilience and improve health outcomes among police officers. *Traumatology*, 20(2), 103-111. <http://dx.doi.org/10.1037/h0099394>
- Rosenbaum, D. P., Schuck, A. M., Costello, S. K., Hawkins, D. F., & Ring, M. K. (2005). Attitudes toward the police: The effects of direct and vicarious experience. *Police quarterly*, 8(3), 343-365. doi: 10.1177/1098611104271085
- Rudofossi, D. (2009). *A Cop Doc's Guide to Public-safety Complex Trauma Syndrome: Using Five Police Personality Styles*. Amityville, NY: Baywood Publishing.

- Statistics Canada (2013). *Police Resources in Canada – Catalogue no. 85-225-X, p. 13*. Ottawa, ON: Minister of Industry Press.
- Violanti, J. M., & Aron, F. (1995). Police stressors: Variations in perception among police personnel. *Journal of Criminal Justice, 23*(3), 287-94. doi: 10.1016/0047-2352(95)00012-F
- Wilson, S., & Jasinski, J. L. (2004). Public satisfaction with the police in domestic violence cases: The importance of arrest, expectations, and involuntary contact. *American Journal of Criminal Justice, 28*(2), 235-254. doi: 10.1007/BF02885874

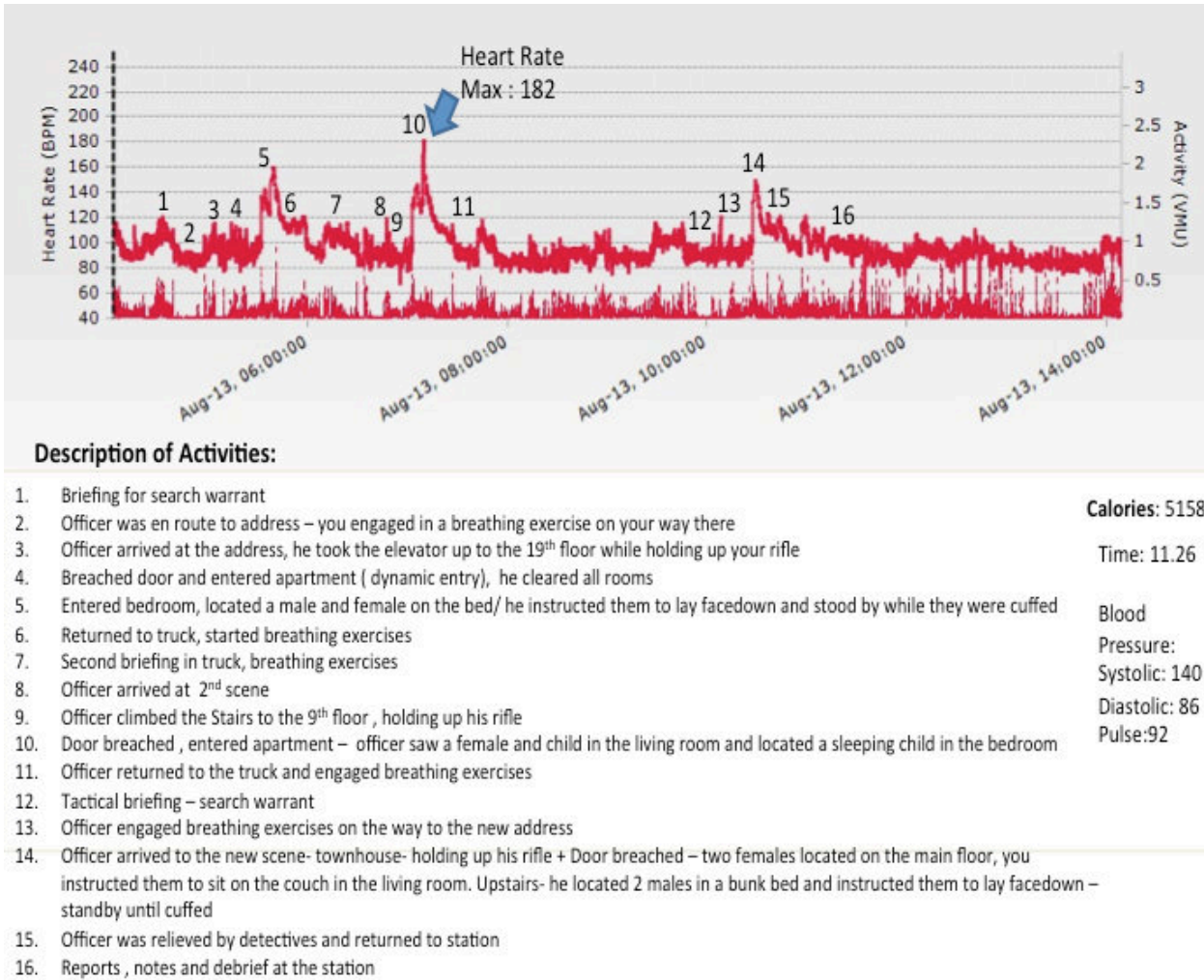


Figure 1: A Police Special Forces Officer’s Physiological Reactivity During a Real-World Shift (04.30-14.00)

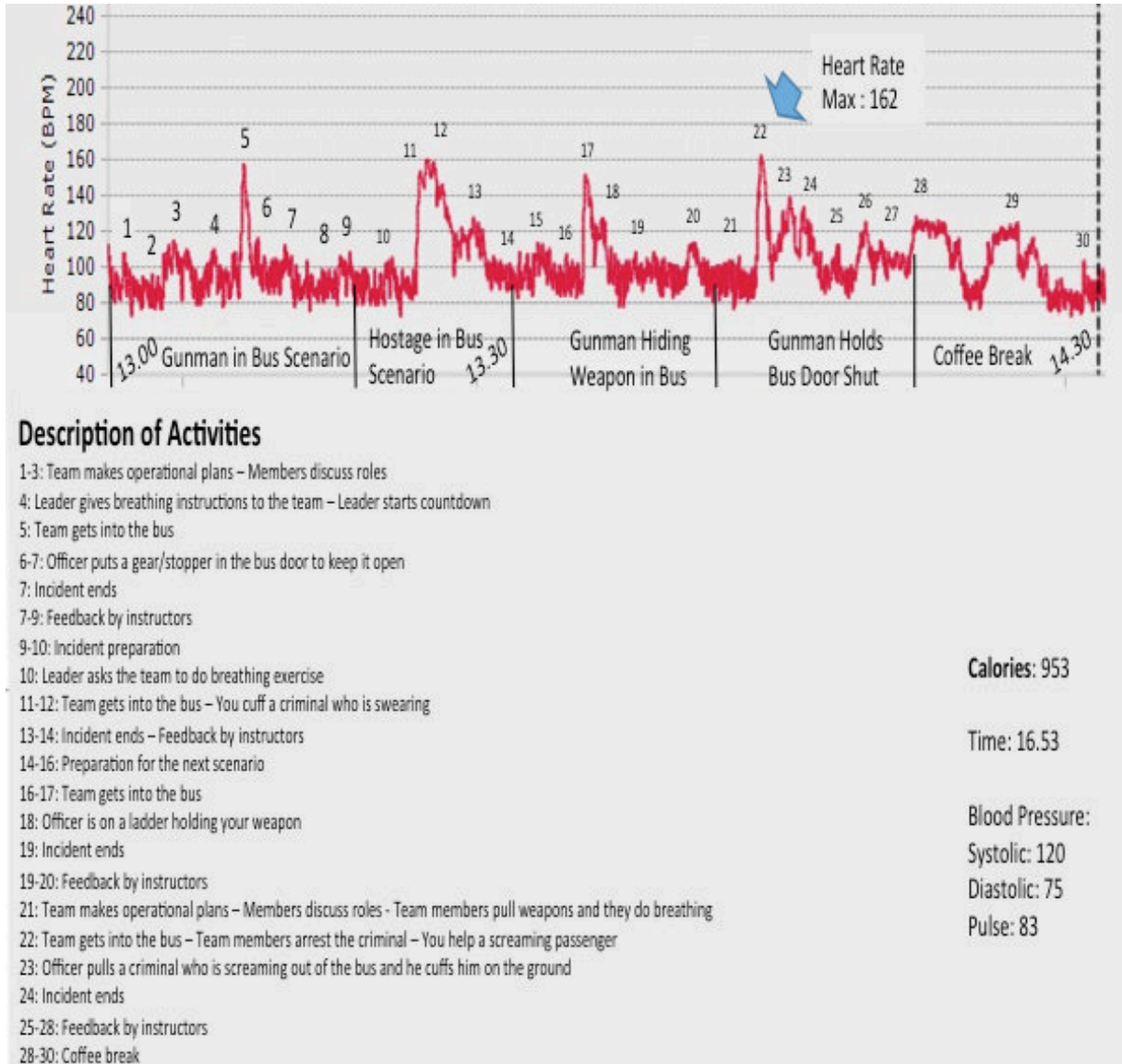


Figure 2: A Police Special Forces Officer’s Physiological Reactivity During a Training Day (13.00-14.30)