

## Physical, technical and tactical training and stress management in law enforcement

GIANPIERO GRECO<sup>1</sup>, FRANCESCO FISCHETTI<sup>2</sup>

<sup>1,2</sup>Department of Basic Medical Sciences, Neuroscience and Sense Organs, School of Medicine, University of Study of Bari, ITALY

<sup>2</sup>Department of Public Security, Ministry of the Interior, ITALY

Published online: June 30, 2018

(Accepted for publication April 23, 2018)

DOI:10.7752/jpes.2018.02080

### Abstract:

Police officers are often exposed to periods of intense working stress to ensure investigative, surveillance and public order activities. However, differences in the way policemen manage stress and perceive psychophysical health are unclear compared to workers in other sectors. Thus, the purpose of this study was to investigate the sources of stress and coping strategies, and the perception of the physical and mental state of health of the law enforcement by comparing these indicators with a representative sample of the Italian population. The sample included 101 police officers (age: 46.08 ± 5.66 years; body mass: 81.60 ± 14.04 kg; and body height: 173.47 ± 6.14 cm) volunteered to this study. The Occupational Stress Indicator and the Short Form-12 were used. The z-test was used to determine the differences with the representative sample. The level of significance was set at p < 0.05. Police officers perceive less stress compared to the general population and have a more realistic attitude towards the various working situations. In addition, they use more resources outside of work (e.g. sport activities in leisure time) and have a greater perception of physical and mental well-being. The findings suggest that, likely, through the mentality acquired during the initial training course in the police school and subsequently the refresher courses in the context of the continuing education (i.e., physical, technical and tactical training: operational and self-defense techniques, physical fitness training, shooting drill), the police officers may be able to prevent and cope with occupational stress that causes harmful physical and emotional reactions and threatens the quality of life. Accordingly, they could improve physical and working efficiency.

**Keywords:** Sources of stress; Coping strategies; Quality of life; Physical health; Mental health.

### Introduction

Stress is a problem that also affects law enforcement (Amaranto, Steinberg, Castellano & Mitchell, 2003; Collins & Gibbs, 2003; Santana et al., 2012). The National Institute for Occupational Safety and Health defines work-related stress as the body of harmful physical and emotional reactions that occur when job demands are not commensurate with skills, resources or needs (NIOSH, 1999). The main work-related stress in the police recognize different origins: from those linked to the classic "routine work", to organizational, managerial and bureaucratic variables. (Kop, Euwena, & Schaufeli, 1999; Patterson, 2001). It has been shown that high levels of stress in policemen are linked to an increased risk of sub-optimal job satisfaction and quality of life. The size of these associations depends on age, gender and social status, highlighting the need for appropriate training in stress management. (Alexopoulos, Palatsidi, Tigani, & Darviri, 2014).

Perceived stress can contribute to the onset of cardiovascular disease in police officers (Franke, Ramey, & Shelley, 2002) and routine work can be significantly more stressful than a single critical event (Garbarino et al., 2011). In fact, the levels of work-related stress are significantly higher during routine public order activities, such as migration control activities, than during extraordinary public order activities, probably due to positive changes in the psychosocial components of the working environment (Garbarino, Magnavita, Cipriani, & Cuomo, 2011). Police officers are particularly resilient to stress, both because of the characteristics and personality of individual and mainly because of their training. Work-related stress is associated with a lower level of psychological wellbeing and an increase in the frequency of absences from work (Magnavita, Garbarino, & Siegest, 2014). To this end, to improve work performance, it has been suggested to include some psychological pressure in the simulations during training (Nieuwenhuys, Caljouw, Leijsen, Schmeits, & Oudejans, 2009).

The most appropriate strategies used by law enforcement to modulate stress and reduce it are based on achieving greater personal self-esteem that leads to positive effects on mental health and wellbeing, and to optimal interpretation of events (Gana & Boblique, 2000). Furthermore, communication in interpersonal and family relations is also an important strategy (Burke, 1993). Optimum use of leisure time (sports activities,

friendships, etc.) is also suggested for the ability to improve mood, facilitating a momentary coping of tension situations where engagement in positive support groups outside the workplace can help to improve stress levels (Iwasaki, Mannell, Smale, & Butcher, 2005). In general, good use is made of positive coping strategies among policemen (Acquadro Maran, Varetto, Zedda, & Ieraci, 2015).

A careful analysis of the literature has shown that law enforcement is often exposed to periods of intense work stress to ensure investigation, surveillance and public order. However, levels of stress among police officers are not significantly higher than in other confronted groups of workers (Van der Velden et al., 2013). Moreover, differences in the way policemen manage stress and perceive psychophysical health are unclear compared to workers in other sectors. Therefore, the aim of this research has been to analyze the sources of stress and coping strategies used by police officers, as well as the perception of their state of physical and mental health by comparing these indicators with the representative sample of the Italian population made up of subjects belonging to various areas of work.

## Materials & Methods

### Research design

In this research, an analytical-observational study design has been adopted with the aim of collecting data on the indicators of stress and physical and mental health perceived by police officers and comparing them with the representative sample of the general population. The results of the comparative analysis were defined by statistically significant differences between the scores observed on stress (Occupational Stress Indicator: sources of stress and coping strategies) and physical and mental health indicators (Short Form-12).

### Participants

A sample of 101 males (age  $46.08 \pm 5.66$  years, seniority  $23.69 \pm 5.92$  years, mean  $\pm$  SD) belonging to the State Police voluntarily participated in the study. The subjects were recruited in the police offices of the Apulia region (Italy) between September and November 2016. All volunteers were accepted for participation upon decision of the responsible physician and the office manager. The representative sample of the Italian male population is composed of subjects belonging to various areas of work and coming from the standardized test validation studies.

### Procedures

In this research, a self-administered paper-based questionnaire was used, to be completed anonymously, after the prior consent of the State Police Personnel Manager. All participants first received an explanation of the research purposes and then gave their informed consent. The study was carried out in three consecutive days in the month of November 2016 from 9 to 12 a.m., in accordance with the ethical principles of the latest version of the Helsinki Declaration. The questionnaire was filled in small groups with a maximum of 15 subjects and was administered under the same conditions, with a setting free of distractions and in comfortable space. It has been explained to compile in a systematic, fast and accurate way, but without time limits. The internal consistency of the measuring instruments was calculated using the Cronbach's alpha coefficient (Cohen, Manion, & Morrison, 2011).

### Instruments

To assess psychosocial stress and physical and mental health were administered the versions translated and validated in Italian of: *a*) two sections of the Occupational Stress Indicator (Cooper, Sloan & Williams, 1988; Sirigatti e Stefanile, 2002): "Sources of stress" e "Coping strategies"; *b*) the Short Form-12 health survey (Ware, Kosinsky & Keller, 1996; Apolone et al., 2001) which can be considered an indicator of the physical and mental health.

The *Occupational Stress Indicator (OSI)* is considered a useful indicator for detection of psychosocial stress in organizations. The "job stressors" section consists of 61 six-point Likert scale items and includes six subscales: (1) *Intrinsic factors to the job*: stress is perceived on the basis of how the group or individual engages their working days; (2) *Management role*: stress comes from living according to the expectations of one's own role; (3) *Relationship with others*: interpersonal stress is perceived; (4) *Career and achievement*: stress associated with personal develop; (5) *Organizational structure and climate*: stress is the result of a feeling of frustration due to the characteristics of the organization; (6) *Home/work interface*: stress depends on the characteristics of the family environment or an intrusion of work into family life. A high score means that a source of pressure is relevant for the specific function in question. In this section, the Cronbach's alpha coefficient showed an excellent level of reliability and internal consistency for its subscales ( $\alpha = 0.97$ ).

The "ways of coping with stress" section consists of 28 six-point Likert scale items and includes six subscales: (1) *Social support*: the way people rely on others as a means of coping with stress; (2) *Task strategies*: the way people cope with stress by reorganizing work; (3) *Logic*: the way to cope with stress by adopting a rational and not an emotional approach to the situation; (4) *Home/work relations*: concerns the use of resources outside work to reintegrate one's own capacity to cope with stress; (5) *Time management*: relates to time management; (6) *Involvement*: refers to having a realistic picture of what is possible. High scores suggest

that the strategy is used more often than in the representative sample. In this section, the Cronbach's alpha coefficient showed a good level of reliability and internal consistency for its subscales ( $\alpha = 0,79-0,84$ ).

The *Short Form-12 (SF-12)* is a questionnaire that describes the physical and mental health of a group of people using 12 Likert scale items consisting of two questions for each of the SF-36 scales (Apolone & Mosconi, 1998). The synthetic indexes of the SF-12 questionnaire are the *PCS-12 (Physical Component Summary)* and *MCS-12 (Mental Component Summary)*: PCS reflects concepts related to physical morbidity, while MCS reflects morbidity and psychological and mental aetiologies. The scores range from 0 (worst health condition) to 100 (best health condition). Low PCS scores indicate substantial limitations in self-care and physical, social and personal activity; severe physical pain; frequent fatigue; health is judged to be poor. High scores in PCS indicate no physical limitation, disability or decrease in general well-being; high vitality; health is considered excellent. Low scores in MCS indicate frequent psychological discomfort; important social and personal disability due to emotional problems; health is considered poor. High scores in MCS indicate frequent positive psychological attitude; absence of psychological discomfort and limitations in social and personal activities due to emotional problems; health is considered excellent. The reliability and internal consistency level for SF-12 was excellent, determined by a Cronbach's alpha of 0.91.

*Statistical analyses*

Analyses were performed using the statistical software SAS Jmp (v.12.2, Cary, NC, USA) and the data were presented with mean values, standard deviations, minimum and maximum of the groups. The z test was used to determine statistically significant differences between the averages of scores obtained by police officers and representative population on stress and psychophysical health indicators. In addition, the *effect size* (Cohen, 1992) was calculated for the comparison between the sample average and the population mean with the following equation:  $d = |M - \mu| / \sigma$ . A value of *d* equal to 0.20, 0.50 and 0.80 indicates a small, moderate and large effect size, respectively. Statistical significance was set at  $p < 0.05$ .

**Results**

The comparison between the police officers and the representative sample of the Italian male population showed significant differences for all the subscales of the "Sources of stress" section and for four subscales of the "Coping strategies" section, as well as for both the SF-12 indexes (Table 1).

Table 1 – Mean values, standard deviation, minimum and maximum of the indicators of working stress and psychophysical health of the police officers participating study and the representative sample.

VARIABLES	Police officers				Representative Italian male population				p-value (effect size <i>d</i> )
	(n=101)				(n=319)				
Occupational Stress Indicator	M	SD	Min	Max	M	SD	Min	Max	
<b>Sources of stress</b>									
Job (FJ)	24.70	8.10	9	44	33.09	6.57	13	51	<0.0001** (1.28)
Management role (FM)	31.93	11.13	8	58	44.02	7.61	11	64	<0.0001** (1.59)
Relationship (FR)	26.40	9.11	9	51	36.36	6.86	13	53	<0.0001** (1.45)
Career and achievement (FC)	25.18	8.67	7	44	35.70	6.43	14	51	<0.0001** (1.64)
Organizational climate (FS)	32.51	10.62	11	55	44.89	7.46	16	66	<0.0001** (1.66)
Home/work (FI)	30.67	11.06	8	54	43.47	8.18	16	63	<0.0001** (1.56)
<b>Coping strategies</b>	<b>M</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	<b>M</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	
Social support (CS)	15.92	3.60	7	25	15.85	3.61	6	24	0.8438 (0.02)
Task strategies (CP)	28.11	4.88	14	39	27.02	4.62	13	42	0.0179* (0.24)
Logic (CL)	13.39	2.47	5	19	13.18	2.55	4	18	0.4166 (0.08)
Home/work relations (CR)	17.97	3.37	7	25	17.08	3.76	5	24	0.0173* (0.24)
Time management (CT)	15.39	2.68	6	20	16.78	2.71	5	23	<0.0001** (0.51)
Involvement (CI)	26.52	4.66	14	37	25.76	3.82	12	36	0.0442* (0.20)
<b>Short Form-12</b>	<b>(n=101)</b>				<b>(n=999)</b>				
	<b>M</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	<b>M</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>	
PCS-12	51.58	5.40	35	62	49.60	8.90	20	64	0.0254* (0.22)
MCS-12	53.31	6.66	31	67	48.80	9.80	14	67	<0.0001** (0.46)

Note: PCS = Physical Component Summary; MCS = Mental Component Summary. \* $p < 0.05$  significant; \*\* $p < 0.001$  highly significant; *d* equal to 0.20, 0.50 and 0.80 indicates a small, moderate and large effect size, respectively.

In all subscales, police officers showed lower scores than the representative population and statistically significant differences: “Intrinsic factors to the job” (FJ:  $z = -12.89, p < 0.0001$ ), “Management role” (FM:  $z = -15.96, p < 0.0001$ ), “Relationship with others” (FR:  $z = -14.60, p < 0.0001$ ), “Career and achievement” (FC:  $z = -16.44, p < 0.0001$ ), “Organizational structure and climate” (FS:  $z = -16.67, p < 0.0001$ ), and “Home/work interface” (FI:  $z = -15.72, p < 0.0001$ ) (Figure 1).

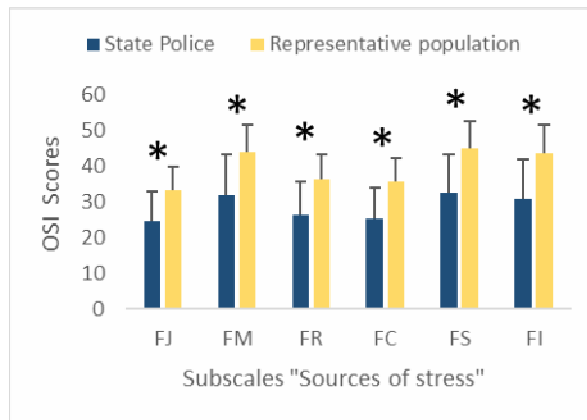


Fig. 1. OSI scores – Sources of stress: comparison between police officers and representative sample of the Italian male population. \* Significant difference between two groups ( $p < 0.05$ )

*OSI – Coping strategies*

Statistical analysis showed statistically significant differences and higher scores by police officers for the subscales: “Task strategies” (CP:  $z = 2.37, p < 0.05$ ), “Home/work relations” (CR:  $z = 2.38, p < 0.05$ ) and “Involvement” (CI:  $z = 2.01, p < 0.05$ ). While significant differences and a lower score was detected for the subscale “Time management” (CT:  $z = -5.17, p < 0.0001$ ) (Figure 2).

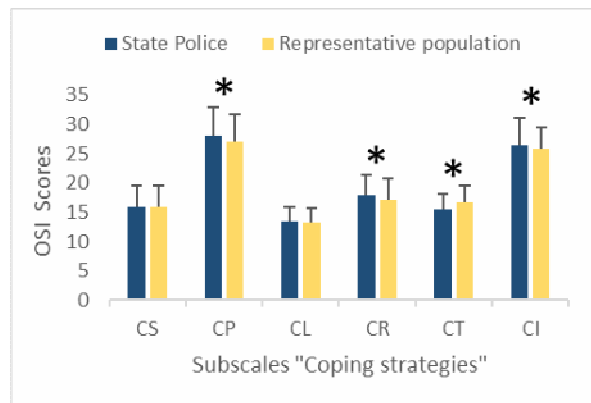


Fig. 2. OSI scores – Coping strategies: comparison between police officers and representative sample of the Italian male population. \* Significant difference between two groups ( $p < 0.05$ )

*SF-12*

Police officers showed higher scores for physical (PCS:  $z = 2.23, p < 0.05$ ) and mental (MCS:  $z = 4.62, p < 0.0001$ ) health indexes than the general population (Figure 3).

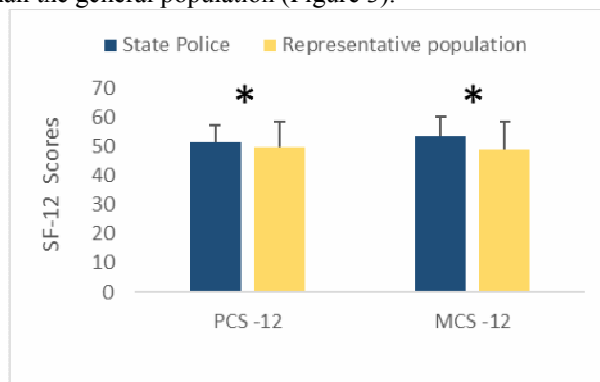


Fig. 3. Short Form 12 scores: comparison between police officers and representative sample of the Italian male population. \* Significant difference between two groups ( $p < 0.05$ )

## Discussion and conclusions

This study aimed to investigate the stress management and the perception of the physical and mental health of law enforcement comparing with the general population, as the existing literature does not provide solid evidence on any differences. It has been found that police officers perceive fewer sources of pressure than the general population and specifically: working days are lived with less stress; living the role itself does not create particular conflicting expectations; a particular interpersonal stress is not perceived; particular frustrations linked to personal develop or due to the characteristics of the organization are not experienced; finally, the family environment can contribute more to the acquisition of new resources than the representative population. To cope with stress, police officers reorganize their work more often, use resources outside of work more (e.g. sports activities in leisure time), show more efficient control of their time probably defending it from the demands of others and, finally, present a more realistic attitude with greater self-commitment in front of the various working situations. While police officers seem to rely on others and approach situations rationally in the same way as the general population. In addition, they show a greater perception of physical and mental well-being than the representative population.

In this study, the results showed that police officers perceive fewer sources of stress than the general population, which is not in line with what Van der Velden et al. (2013) have said, even though police work is extremely stressful (Amaranto et al. 2003; Collins & Gibbs, 2003; Santana et al., 2012). This could be due to a greater propensity of police officers to use appropriate coping strategies or to a greater resilience to stress, both for their personal characteristics and for the continuing education and refresher courses they undergo (i.e., operational and self-defense techniques, physical training, shooting drill) (Magnavita et al., 2014). Police officers probably use positive coping strategies to address events (Acquadro Maran et al., 2015; Gana & Boblique, 2000) by placing emphasis on interpersonal and family relationships in line with the assertion of Burke (1993) and by appropriately using free time to find resources outside work (e.g. physical and sports activity) to reduce stress, in accordance with the study of Iwasaki et al. (2005).

Although the stressful nature of police work can cause musculoskeletal disorders (Beyaz & Ketenci, 2010; Von dem Knesebeck et al., 2005), the perception of the physical wellbeing of the police officers has been greater than the representative population, a discovery that does not confirm the study of Brown et al. (1998), which had not detected any differences. The results showed that the police officers have a better mental health status than the general population, confirming that mental health disorders are no longer common among police officers (Van der Velden et al., 2013). This could be since police officers use appropriate stress management strategies to control chronic fatigue at work and plan private life (Deschamps, Paganon-Badinier, Marchand, & Merle, 2003; Stepka & Basinska, 2014).

Based on previous research (Acquadro Maran, 2015; Alexopoulos et al., 2014; Magnavita et al., 2014; Nieuwenhuys et al., 2009) and results observed in this study, it can be said that continuing education (i.e., physical, technical and tactical training) could play an important role in providing strategies to prevent and manage stress and maintain a state of physical and mental well-being, fundamental conditions to improve the quality of life and physical and working efficiency of police officers.

This research has limitations that must be known. First, the small number of police officers recruited due to the difficulties encountered during the organizational phase in obtaining the necessary authorizations and having the subjects available. Moreover, the voluntary sample is not representative of the entire population of the law enforcement and therefore it is not possible to generalize the results. However, the results obtained could provide important indications for future studies conducted with experimental design that aim to know the effects of continuous workplace physical training on the occupational stress management

In conclusion, this study contains some strengths, in fact it provides important evidence in the prevention of work-related stress in the law enforcement. Through the mentality acquired during the initial training course in the police school and subsequently the refresher courses in the context of the continuing education (i.e., operational and self-defense techniques, physical fitness training, shooting drill), the police officers may be able to prevent and cope with occupational stress that causes harmful physical and emotional reactions and threatens the quality of life. Accordingly, they could improve physical and working efficiency.

**Conflicts of interest** - The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Authors' contribution

Gianpiero Greco contributed to the design of the study, conducted the statistical analysis and interpreted the data, revised and developed the manuscript. Francesco Fischetti coordinated the research, contributed to the design of the study, the interpretation of the data and the manuscript revisions.

## References

Acquadro Maran, D., Varetto, A., Zedda, M., & Ieraci, V. (2015). Occupational stress, anxiety and coping strategies in police officers. *Occupational Medicine*, 65(6), 466-73.

- Apolone, G., & Mosconi P. (1998). The Italian SF-36 Health Survey: translation, validation and norming. *Journal of Clinical Epidemiology*, 51, 1025-1036.
- Apolone, G., Mosconi, P., Quattrociochi, L., Gianicolo, E., Groth, N. & Ware Jr, J. E. (2001). *Questionario sullo stato di salute SF-12* [Health Status Questionnaire SF-12]. Milano, Italia: Istituto di Ricerche farmacologiche Mario Negri.
- Alexopoulos, E. C., Palatsidi, V., Tigani, X., & Darviri, C. (2014). Exploring stress levels, job satisfaction, and quality of life in a sample of police officers in Greece. *Safety and Health at Work*, 5(4), 210-215.
- Amaranto, E., Steinberg, J., Castellano, C., & Mitchell, R. (2003). Police stress interventions. *Brief Treatment and Crisis Intervention*, 3, 47-53.
- Beyaz, E. A., & Ketenci, A. (2010). Low back pain in policemen. *Agri*, 22(1), 1-6.
- Brown, J. J., Wells, G. A., Trottier, A. J., Bonneau, & J., Ferris, B. (1998). Back pain in a large Canadian police force. *Spine (Phila Pa 1976)*, 23(7), 821-827.
- Burke, R. J. (1993). Work-family stress, conflict, coping and burnout in police officers. *Stress Medicine*, 9, 171-180.
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, 112(1), 155-159.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research Methods in Education (7th edition)*. Oxford, UK: Routledge.
- Collins, P. A., & Gibbs, A. C. (2003). Stress in police officers: a study of the origins, prevalence and severity of stress-related symptoms within a county police force. *Occupational Medicine*, 53(4), 256-264.
- Cooper, C. L., Sloan, S. J., & Williams, S. (1988). *Occupational Stress Indicator: Management guide*. Windsor, UK: NFER-Nelson (Italian translation by S. Sirigatti & C. Stefanile. Firenze, Italia: Giunti O.S. Organizzazioni Speciali, 2002).
- Deschamps, F., Paganon-Badinier, I., Marchand, A. C., & Merle, C. (2003). Sources and assessment of occupational stress in the police. *Journal of Occupational Health*, 45(6), 358-364.
- Franke, W. D., Ramey, S. L., & Shelley 2nd, M. C. (2002). Relationship between cardiovascular disease morbidity, risk factors, and stress in a law enforcement cohort. *Journal of Occupational and Environmental Medicine*, 44(12), 1182-1189.
- Gana, K. & Boblique, C. (2000). Coping and burnout among police officers and teachers: Test of a model. *European Review of Applied Psychology/Revue Europeenne de Psychologie Appliquee*, 50(4), 423-430.
- Garbarino, S., Magnavita, N., Ciprani, F., & Cuomo, G. (2011a). The coping and support activities in the phenomenon of mass immigration in Italy: evaluation of work-related stress in police forces. *Giornale Italiano di Medicina del Lavoro ed Ergonomia*, 33(3), 170-174.
- Garbarino, S., Magnavita, N., Elovainio, M., Heponiemi, T., Ciprani, F., Cuomo, G., & Bergamaschi, A. (2011b). Police job strain during routine activities and a major event. *Occupational Medicine*, 61(6), 395-399.
- Iwasaki, Y., Mannell, R. C., Smale, B. J., & Butcher, J. (2005). Contributions of leisure participation in predicting stress coping and health among police and emergency response services workers. *Journal of Health Psychology*, 10(1), 79-99.
- Kop, N., Euwena, M., & Schaufeli, W. (1999). Burnout, job stress and violent behaviour among Dutch police officers. *Work & Stress*, 13(4), 326-340.
- Magnavita, N., Garbarino, S., & Siegrist, J. (2014). Metodi di valutazione dello stress lavoro-correlato nelle Forze dell'Ordine [Methods of assessing work-related stress in law enforcement]. *Giornale Italiano di Medicina del Lavoro ed Ergonomia*, 36(4), 400-404.
- Nieuwenhuys, A., Caljouw, S. R., Leijsen, M. R., Schmeits, B. A., & Oudejans, R. R. (2009). Quantifying police officers' arrest and self-defence skills: does performance decrease under pressure? *Ergonomics*, 52(12), 1460-1468.
- The National Institute for Occupational Safety and Health (1999). *Stress at work*. (Publication No. 99-101). Cincinnati, OH: DHHS(NIOSH).
- Patterson, G. T. (2001). The relationship between demographic variables and exposure to traumatic incidents among police officers. *The Australian Journal of Disaster and Trauma Studies*, 2001-2.
- Santana, A. M., Gomes, J. K., De Marchi, D., Girondoli, Y. M., Rosado, L. E., Rosado, G. P., & de Andrade, I. M. (2012). Occupational stress, working condition and nutritional status of military police officers. *Work*, 41(1), 2908-2914.
- Stepka, E., & Basińska, M. A. (2014). Chronic fatigue and strategies of coping with occupational stress in police officers. *Medycyna Pracy*, 65(2), 229-238.
- Van der Velden, P. G., Rademaker, A. R., Vermetten, E., Portengen, M. A., Yzermans, J. C., & Grievink, L. (2013). Police officers: a high-risk group for the development of mental health disturbances? A cohort study. *BMJ Open*, 3(1). doi:10.1136/bmjopen-2012-001720.
- Ware, J., Kosinsky, M., & Keller, S.D. (1996). 12-Item Short-Form Health: construction of scales and preliminary tests of reliability and validity. *Medical Care*, 34, 220-233.