Police job strain during routine activities and a major event

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Background Special police forces are exposed to periods of intense work stress in ensuring public order.

Aims To explore the relationship between the work context (routine work or special event) of special force policemen and psychological measures of job strain (demand–control) and effort–reward imbalance.

Methods All policemen assigned to the G8 meeting in L’Aquila, Italy, in July 2009 were invited to complete a questionnaire while engaged in routine work in January 2009 (Time A) and in June 2009 (Time B), while preparing for the special event.

Results Participation rate in the questionnaire study was 292/294 (99%) members of the special police force. Measures of job strain (β=0.39, P<0.001) and effort–reward imbalance (β=0.37, P<0.001) decreased significantly from Time A to Time B. On average, demand decreased from 14.2 ± 1.9 to 12.6 ± 2.7 (P<0.001), control increased from 11.8 ± 2.5 to 14.4 ± 3.4 (P<0.001) and social support increased from 17.8 ± 2.9 to 19.0 ± 3.1 (P<0.001). At the same time, effort decreased from 17.4 ± 3.2 to 11.8 ± 3.8 (P<0.001), reward grew from 37.6 ± 5.5 to 45.5 ± 7.4 (P<0.001) and overcommitment dropped from 7.1 ± 2.1 to 6.6 ± 1.7 (P<0.001).

Conclusions In special police forces, routine work may be significantly more stressful than a single critical event.

Key words Effort–reward imbalance model; G8 meeting; job strain model; law enforcement; occupational stress; perceived stress; police; public safety; routine work; stressful event.

Introduction

Police work is highly stressful. Exposure to traumatic incidents and interaction with violent subjects are specific occupational stressors. Other psychological stressors, such as rotating shift work, overtime, lack of consultation and communication, lack of control over workload, inadequate workplace support and excess workload are not specific to policing [1]. A recent study of Swiss police described organizational and operational stressors, including high mental and intellectual demand, inadequate work schedule, lack of senior support, self-perception of poor quality work, physical environment and age [2]. Previous studies [1–13] have investigated a variety of tasks, including traffic control, detective and administrative work and law enforcement, making comparison and interpretation difficult.

Theoretical approaches to the study of occupational stress include the demand–control–support (DCS) [14] and the effort–reward imbalance (ERI) [15] models. The DCS model fits the high decision latitude and psychological demands of police work. The increasing task complexity and surveillance required in law enforcement makes the ERI model appropriate too.

The ‘VI Reparto Mobile’ of Genoa is an Italian special police unit deployed to law enforcement and riot control at political or sports demonstrations, where public safety is at risk. Members are selected from ordinary policemen and receive specific psychophysical training. The VI Reparto Mobile was assigned to the G8 Summit Meeting in Genoa in 2001. The violent riots that took place on that occasion had enduring and unpleasant legal consequences, damaging the reputation of Italian police forces. In planning the 2009 G8 summit in L’Aquila, Italy, the police trade unions and team leaders requested specific training and stress risk assessment for the event.

The aim of this study was to compare stress levels perceived by members of the special police force: VI Reparto
Mobile, during routine activities and during a major event (the 2009 G8 summit meeting in L’Aquila). Specifically, we explored whether responsibility for the security of the special event increased perceived stress due to higher workload or decreased it due to higher job control and better rewards.

Methods

We administered occupational stress questionnaire surveys (available as supplementary data at Occupational Medicine online) to policemen in the Italian special police unit, ‘VI Reparto Mobile’ of Genoa, during routine activities (January 2009, Time A) and shortly before the G8 summit meeting in L’Aquila (June 2009, Time B). Anonymity was achieved by numbering the questionnaires, which allowed comparison at the two time points. Those who agreed to participate were reminded to complete questionnaires on their due date by two nurses assigned to the police unit. Those on long-term sick leave posted their completed questionnaires. Data from the only two female police officers were excluded.

Individual demographic and organizational data were recorded from administrative records and paired with questionnaire data. Demographic variables were age, educational level (≥8 years of schooling), marital status (single or divorced/married or cohabiting), presence of children (no/yes), housing (in barracks or home), origin (Northern or Southern Italy), years of service and rank (officer or supervisor and technical staff). Continuous variables (age and length of employment) were dichotomized at the median before analysis.

Occupational stress was measured using two standardized questionnaires: the demand–control–support questionnaire [16] derived from longer Job Content Questionnaire [17] and the effort–reward imbalance questionnaire [18]. These two questionnaires were both translated into Italian and validated [19].

The classic 17-item DCS questionnaire consists of three scales termed ‘psychological job demand’, ‘job control or decision latitude’ and ‘workplace social support’. To obtain a continuous variable, termed ‘perceived job strain’, we divided demand by control (weighted by item numbers). A ratio of 1 indicates a balance between demand and control; values >1 indicate excessive perceived job strain [20].

The 23-item ERI questionnaire contains two scales: ‘effort’ and ‘reward’. The weighted ratio between effort and reward was calculated to quantify the degree of mismatch between effort and reward. Values >1 reflected an imbalance [21]. The ERI questionnaire includes a third scale ‘overcommitment’. This measures intrinsic personal occupational motivation and participation factors that modify the effects of stress.

For each stress-related variable, we subtracted values at Time B from the corresponding values at Time A to calculate the change in the period. The variables ‘demand/control change’ and ‘effort–reward change’ were dichotomized at the median. We examined bivariate relationships between all variables with chi-squared test, t-test, Wilcoxon-signed rank test and Spearman’s Rho. Logistic regression analysis was used to determine the association between demographic variables and changes in stress metrics. Analyses were performed using PASW/SPSS (17.0) software.

The study protocol was approved by the Ethics Committee of the Catholic University Rome School of Medicine, the National Police Management Board and the Institute of Occupational Medicine, which was responsible for co-ordinating the study.

Results

All but 2 of the 294 policemen in the force consented to participate in the study (99%). Table 1 shows participants’ demographic characteristics at Time A, which remained constant at Time B. Table 2 shows the means and standard deviations for each subscale of the questionnaires at Time A, during routine activity, and at Time B, shortly before the G8 meeting, and their differences. For each subscale in both models, scores were higher at Time A than at Time B and the differences were all statistically significant.

At Time A, 271 policemen (94%) had a job strain score (demand–control ratio) of >1. This number fell to 170 policemen (59%) at Time B. At Time A, 72 policemen (25%) had an ERI score of >1. This number fell to 21 policemen (7%) at Time B. For 169 policemen (58%), perceived job strain (demand/control ratio) was >1 at both Time A and Time B and 21 of these subjects (7%) also had an ERI score >1 at both times.

Table 1. Demographic characteristics of the study population in January 2009 (n = 290)

<table>
<thead>
<tr>
<th>Variable (mean; SD)</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Age, years (35.4; 7.5)</td>
<td>≤35 162 (56)</td>
</tr>
<tr>
<td></td>
<td>≥36 128 (44)</td>
</tr>
<tr>
<td>Length of employment, years (14.0; 7.9)</td>
<td>≤11 146 (50)</td>
</tr>
<tr>
<td></td>
<td>≥12 144 (50)</td>
</tr>
<tr>
<td>Education level Low (middle school)</td>
<td>72 (25)</td>
</tr>
<tr>
<td></td>
<td>High (high school, degree) 218 (75)</td>
</tr>
<tr>
<td>Marital status Single/single</td>
<td>182 (63)</td>
</tr>
<tr>
<td></td>
<td>Married/coupled 108 (37)</td>
</tr>
<tr>
<td>Offspring No</td>
<td>184 (63)</td>
</tr>
<tr>
<td></td>
<td>Yes 106 (37)</td>
</tr>
<tr>
<td>Living in barracks No</td>
<td>127 (44)</td>
</tr>
<tr>
<td></td>
<td>Yes 163 (56)</td>
</tr>
<tr>
<td>Rank Officer</td>
<td>150 (52)</td>
</tr>
<tr>
<td></td>
<td>Superintendent, technical staff 140 (48)</td>
</tr>
<tr>
<td>Origin Northern Italy</td>
<td>145 (50)</td>
</tr>
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<td></td>
<td>Southern Italy 145 (50)</td>
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</tbody>
</table>
Reliability of the subscales, measured by Cronbach’s alpha, was 0.76 for demand, 0.67 for control, 0.87 for support, 0.89 for effort, 0.88 for reward and 0.89 for overcommitment. Logistic regression analysis found no significant association between demographic, social and organizational factors and changes in demand–control and effort–reward ratios.

**Discussion**

We found that for each subscale in the DCS and ERI models, stress scores among special police force were significantly lower just before the L’Aquila G8 meeting, a potentially stressful event, than during routine activities.

The special characteristics of the study population limits the extent to which our findings can be generalized to other geographical areas or police forces. Self-completed questionnaires are subject to recall and information bias, particularly if participants’ knowledge of the purpose of the study might influence their responses. However, the questionnaires used in this study are based on well-validated models. Many other factors might have influenced levels of support and perceived stress among the policemen. For example, changes of workload in the months before the critical event, more time in specific training, less night work and the fewer and shorter operations involving contact with the public. A full root cause analysis of sources of stress in the special police force was beyond the scope of this study. Further research is needed to clarify this issue.

Many studies of police forces include office staff, traffic police or detectives with different work tasks. This study focused on a homogeneous group of subjects engaged exclusively in law enforcement. Another common problem in epidemiological studies is low participation rates, which may be related to perceived stress in potential participants. In this study, staff commitment led to spontaneous and almost unanimous participation in the study, giving a very high response rate, which minimizes selection bias.

The characteristics of this study population are relevant to understanding the results. This was an élite group of policemen who volunteered for a special force, passed a selection test and received specific training to withstand severe and prolonged stress. They need to be able to switch rapidly and unpredictably between passive armed guard and active maximum alert, in which their own and others’ safety is at risk. This characteristic is reflected in the extremely low mean levels of ‘overcommitment’ or ‘intrinsic effort’ recorded in this population. Occupational stress in this special police force was not associated with an event that incurred risk to personal safety, nor from socio-demographic factors but from other ill-defined factors such as management style, workload, perceived fairness at work and physical and psychological conditions specific to each worker. This finding is consistent with literature suggesting that it cannot be assumed that policemen will experience stress from exposure to a particular event [21].

Special force policemen are willing to accept intense workloads and prolonged working hours that would be unacceptable to most workers and probably to other policemen. They are subject to high physical workload (expressed by the ‘demand’ variable of the Karasek model) and high mental load (better expressed by the ‘effort’ variable in the Siegrist questionnaire). To maintain balance, these policemen need a high degree of control over their own work (control) and to receive high material and immaterial rewards for their work (reward). Routine duties involve keeping law and order at sporting events or political and trade union demonstrations. Because of the nature of these events, operations cannot easily be planned and police action is often understaffed and under-resourced. Consequently, the Karasek model scores these working conditions, which are characterized by high demand and low control, as stressful for police officers. However, a major international event such as a G8 meeting, with a potentially large threat to law and order, is planned in greater detail (high ‘control’) and being well organized, is more gratifying for those involved (high ‘reward’).

This study suggests that a special police force assigned exclusively to the enforcement of law and order during...
major events has good capacity to withstand stress. This finding, which may be due to selection and training, can be observed in the mean stress scores that indicate a balance of demand and control and effort and reward, despite prolonged exposure to particularly stressful and dangerous situations. Nevertheless, a considerable proportion of policemen had scores indicating imbalance, suggesting disparity between work demands and control capacity and between effort and reward.

To our knowledge, this is the first published study in which a police force was studied using DCS and ERI models simultaneously. The comparison of two models for the study of work stress provides useful insights for measuring and monitoring stress in different work circumstances. This may help in planning better support in the organization of different police work activities.

A significant proportion of the policemen scored highly on measures of job strain and ERI. Further research is needed to explore how occupational stress can be better controlled and psychological well-being maintained in special police forces.

This study suggests an important difference in the two stress models used. The Karasek model (DCS), developed in the 1960s, appears to be more suitable for the physical aspects of occupational stress, while Siegrist's model (ERI), designed for the tertiary society of the 1980s, is more sensitive to stress resulting work relations and organizational factors. During routine activities, perceived stress varies less, and from an individual perspective, predictability, autonomy (control) and opportunity to use personal skills and abilities are greater. This has a strong effect on job strain in police work. During special events, perceived stress varies more, and individual police officers probably have more defined roles and less control compared to normal activities. The nature of special events may define well-being outcomes more efficiently by balancing efforts (high strain) and reward (being able to participate in important and challenging events). Therefore, the DCS model is more appropriate for recording stress when the policemen were exposed to routine law enforcement duties, while the ERI model was more appropriate just before the G8 meeting.

**Key points**

- Routine work is highly stressful for a special police force.
- Special events reduce measures of job strain and effort-reward imbalance in special police.
- The demand/control model measures work stress better during routine police work, while the effort-reward imbalance model is a more appropriate model during major events.

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**Conflicts of interest**

None declared.

**References**