

# STRESS WITHIN, STRESS BETWEEN

## THE DAILY TRANSMISSION OF OCCUPATIONAL STRESS AND BURNOUT IN PARAMEDICS AND THEIR SPOUSES

UBC SCOPE (STRESS & COPING ACROSS OCCUPATIONAL & PERSONAL ENVIRONMENTS) STUDY

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### ABSTRACT

Due to the unique demands of their job, paramedics have been identified as high risk for post-traumatic stress and trauma-related symptoms. Using intensive longitudinal methods, this research examined the daily interplay between home and work environments in a sample of 87 Canadian paramedics and their spouses. Repeated measures were collected multiple times daily for a period of one week. Data were analyzed using hierarchical linear modelling, with daily measures nested within couples over time. Preliminary cross-sectional findings confirmed high levels of post-traumatic stress, burnout, and depressive symptoms in paramedics. Daily stress transmission to the home setting was also supported, whereby work stress, negative affect, and burnout predicted subsequent outcomes for both paramedics and spouses. An additional impact of work stress and burnout was observed on daily indicators of dyadic functioning. In particular, work stress predicted higher engagement in rumination (for paramedics) and interpersonal withdrawal (for both paramedics and spouses). Daily burnout was further associated with increased marital tension over time. Together, these findings help explain the intricacies of stress transmission and contagion in couples dealing with high levels of extramarital stress. Implications for paramedics specifically and married couples more generally are discussed.

### METHODS & ANALYSES

**Participants:** 87 paramedics (81% M) and their cohabitating spouses (87% F).

**Methodology:** Daily process; participants completed online questions 2 to 3 times daily (upon waking, at end of work, before bed) across typical work week (four 12-hour shifts).

**Daily Measures:** Negative Affect (POMS-15), Perceived Stress (Perceived Stress Scale), Burnout (Maslach Burnout Inventory), Marital Tension (Berlin Social Support Scales), Rumination (Rumination-Reflection Questionnaire), Interpersonal Withdrawal (Revised Ways of Coping)

Paramedic Day Off Work	Paramedic Day On Work	Paramedic Day On Work	Paramedic Day On Work	Paramedic Day On Work	Paramedic Day Off Work	Paramedic Day Off Work
Upon Waking Before Bed	Upon Waking After Work Before Bed	Upon Waking After Work Before Bed	Upon Waking After Work Before Bed	Upon Waking After Work Before Bed	Upon Waking Before Bed	Upon Waking Before Bed
Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed	Spouse Upon Waking Before Bed

**Analyses:** Actor-partner interdependence models (Cook & Kenny, 2005) were employed using hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992) with random slopes and intercepts. The following is a generic 2-intercept model based on the current analyses (Level 1 only):

$$Y_{ij} = B_{1j} (\text{paramedic}) + B_{2j} (\text{spouse}) + B_{3j} (T2 \text{ paramedic work variable}_{act}) + B_{4j} (T2 \text{ paramedic work variable}_{pm}) + r_{ij} \text{ where } Y_{ij} = T3 \text{ outcome, } B_{1j} = \text{intercept for paramedics (dummy-coded as 1 for all paramedics), } B_{2j} = \text{intercept for spouses (dummy-coded as 1 for all spouses), } B_{3j} \text{ and } B_{4j} = \text{actor and partner effects of paramedic's work variable (respectively).}$$

### SUMMARY OF FINDINGS

We observed evidence for an impact on paramedics, their spouses, and the daily functioning of their relationships via multiple pathways over time:

#### Evidence for spillover in paramedics...

- Paramedics' burnout at work → increased marital tension at home.
- Paramedics' burnout and negative affect at work → increased negative affect at home.
- Paramedics' work stress → increased stress at home; increased engagement in rumination and interpersonal withdrawal at home.

#### Evidence for crossover to spouses...

- Paramedics' burnout at work → increased withdrawal reported by spouses at home.
- Paramedics' negative affect at work → increased stress reported by spouses at home.

#### Evidence for an impact on dyadic functioning...

- The observed associations between work-related variables and outcomes of marital tension and withdrawal suggest a potential impact on the relationship itself.

### PARAMEDICS & SPOUSES of paramedics



Due to the unique nature and high demands of their job, paramedics regularly experience stress not common to the general population, such as death of a patient under their care, violence, and more generally, human suffering and tragedy (Regehr, Goldberg, & Hughes, 2002). As a result, paramedics are at an increased risk for post-traumatic stress, burnout, and trauma-related symptoms (Regehr, 2005), as well as chronic health conditions

such as hypertension and pain (Beaton, Murphy, & Pike, 1996). Limited research has suggested that these factors may impact the home environment in a number of ways. In particular, spouses and families of paramedics report having to deal with the occupational stress and burnout of their significant others (Regehr, 2005).

Paramedics play a critical role in pre-hospital care. Recent improvements in training and education have cemented this role as a key component of primary health services in North America. Despite their essential nature, turn-over rates due to burnout are high (Patterson, Probst, Leith, Corwin, & Powell, 2005), indicating a need to better understand the stress and coping processes unique to this population.

In line with previous research, preliminary cross-sectional analyses identified the current sample of paramedics as having higher-than-average levels of post-traumatic stress (PTSD Checklist-C) and depression (CES-D). Additionally, 74% of paramedics reported 1+ symptoms of burnout (Maslach Burnout Inventory) in the high range.

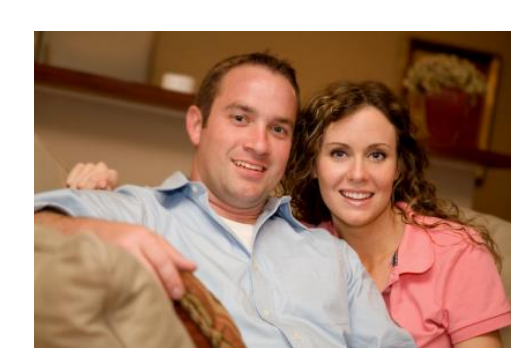
### A DYADIC PERSPECTIVE

The purpose of the current set of analyses was to offer a dyadic perspective on the daily stress and burnout experienced by paramedics and their spouses. Using intensive longitudinal methods, we examined the daily interplay between home and work environments over a typical work week. Both intra- and interpersonal outcomes were of interest, including: (1) negative affect, (2) perceived stress, (3) rumination, (4) interpersonal withdrawal, and (5) marital tension as reported by both spouses.



#### SPILLOVER

Are work stress and burnout spilling over to the home?



#### CROSSOVER

Are work stress and burnout crossing over to impact spouses?

### RESULTS: DAILY STRESS TRANSMISSION

Modeling actor (paramedic) and partner (spouse) effects over time (4 shifts).

T1 = upon waking | T2 = at end of work shift | T3 = before bed

Predicting T3 Negative Affect (controlling for T1 negative affect)	Paramedic Effect B (SE)	Spouse Effect B (SE)
T2 Paramedic Negative Affect at Work	0.18* (0.09)	0.04 (0.06)
T2 Paramedic Perceived Stress at Work	0.06 (0.10)	-0.04 (0.09)
T2 Paramedic Burnout at Work	0.11** (0.04)	0.01 (0.04)

Predicting T3 Perceived Stress (controlling for T1 perceived stress)	Paramedic Effect B (SE)	Spouse Effect B (SE)
T2 Paramedic Negative Affect at Work	0.06 (0.13)	0.30** (0.10)
T2 Paramedic Perceived Stress at Work	0.30** (0.10)	-0.19 (0.10)
T2 Paramedic Burnout at Work	0.03 (0.05)	-0.05 (0.04)

**Predicting T3 Marital Tension:** T2 paramedic burnout at work was also associated with higher T3 marital tension for paramedics ( $B = 0.11, p < .05$ ), controlling for T1 tension.

Predicting T3 Rumination	Paramedic Effect B (SE)	Spouse Effect B (SE)
T2 Paramedic Perceived Stress at Work	0.23** (0.07)	-0.04 (0.05)
T2 Paramedic Burnout at Work	-0.03 (0.04)	0.05 (0.03)

Predicting T3 Interpersonal Withdrawal	Paramedic Effect B (SE)	Spouse Effect B (SE)
T2 Paramedic Perceived Stress at Work	0.13* (0.06)	0.04 (0.05)
T2 Paramedic Burnout at Work	0.03 (0.03)	0.07** (0.02)

Note. Bs = standardized regression coefficients from multilevel models; SE = robust standard error. Predictor variables are person-centered. All models control for gender at Level 2.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

### CONCLUSIONS & DISCUSSION

Although causal inferences are limited, our results highlight the deleterious and contagious nature of work stress and burnout in Canadian paramedics. In addition to suggesting an impact of work stress and burnout on the daily functioning of the individual, these findings also point to a potential effect on the daily functioning of interpersonal relationships. This latter effect was supported by the confirmation of multiple crossover effects to spouses of paramedics.

Despite remaining limitations (e.g., a primarily male sample of paramedics, the self-report nature of the data), implications are bolstered by a reliance on daily process methods, which allowed us to study markers of daily stress closer to their real-time occurrence. These findings underscore the potential impact of work stress and burnout on the larger social context. Implications for the long-term adjustment of couples should be considered, particularly within occupations of a highly stressful and demanding nature. Interpretations may be especially relevant to other emergency or medical professions.



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