



# RELATIONSHIP BETWEEN CALL VOLUME, RANK, AND RECOVERY ACTIVITIES UTILIZED BY ACTIVE-DUTY FIREFIGHTERS

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## INTRODUCTION

- For active-duty firefighters (FFs), the successful execution of job duties requires being physically and mentally healthy, as well as having the ability to work cohesively together<sup>1</sup>.
- Consequently, due to the inherent danger that exists within the FF occupation<sup>2</sup>, FFs are often exposed to stressors that affect their physical, psychological, and social health and well-being<sup>3</sup>. When not managed, these stressors place a burden on FFs professionally and personally.
- Current FF research focuses primarily on the stressors (e.g., call volume, rank) that FFs might experience<sup>3,4</sup>, yet little emphasis has been placed on practical strategies that can be utilized to manage those stressors. These strategies are important to consider as the stressors that FFs experience are often uncontrollable, while the activities that FFs might engage in to facilitate recovery are controllable.
- Because the stressors FFs experience may be a barrier to engagement in recovery activities while off-duty, the relationships between FF stressors and the recovery activities they engage in must be identified to inform the development of solutions to enhance holistic recovery in FFs.

## PURPOSE

The purpose of the current study was to explore the relationships between call volume, rank, and the type of physical, psychological, and social recovery activities used by active-duty FFs over a 7-day period.

## METHODS

### Participants

- 214 active-duty FFs
- $M_{age} = 39.2 \pm 9.6$  years
- 90.2% male; 9.8% female

### Measures

- The FF-adapted version of the Assessment of Recovery Activities for Athletes<sup>5</sup> (ARAA-FF) was used to assess FF engagement in physical, psychological, and social recovery activities.
  - Recovery activity subscales consist of: *Sleep*, *Readiness*, *Relaxation*, *Psychological Detachment*, *Mastery*, *Autonomy*, *Training Breaks*, *Community*, *Firefighter Interactions*, and *Non-Firefighter Interactions*.
  - Higher scores on each subscale indicates a higher engagement in recovery activities.

### Procedures & Statistical Analyses

- Following informed consent, participants completed the ARAA-FF using the online survey platform Qualtrics (Provo, UT). FFs also reported rank, as well as days they were on-duty and off-duty over those 7 days.
- Department call logs were used to provide data on the number of calls that occurred during each participant's 24-hour shift, as well as the type of call (i.e., Medical, Fire).
- Spearman's rank correlations ( $p < 0.05$ ) were used to examine the relationships between Rank and Medical Calls (Calls<sub>MED</sub>), Fire Calls (Calls<sub>FIRE</sub>), and Total Call Volume (Calls<sub>TOTAL</sub>), and recovery activities as indicated on the ARAA-FF.

## RESULTS

- Weak positive relationships existed between Rank and *Sleep* and *Autonomy*.
- Weak negative relationships existed between Calls<sub>MED</sub> and *Sleep*, *Relaxation*, *Psychological Detachment*, *Mastery*, and *Autonomy*, while a weak positive relationship was found between Calls<sub>MED</sub> and *FF Interactions*.
- Weak negative relationships existed between Calls<sub>FIRE</sub> and *Psychological Detachment* and *Mastery*.
- Weak negative relationships existed between Calls<sub>TOTAL</sub> and *Sleep*, *Relaxation*, *Mastery*, *Autonomy*, and *Training Breaks*, while a weak positive relationship was found between Calls<sub>TOTAL</sub> and *FF Interactions*.
- A moderate negative relationship was found between Calls<sub>TOTAL</sub> and *Psychological Detachment*.

Table 1. Correlations Between Recovery Activities, Rank, and Call Volume

ARAA Subscale	Rank	Calls <sub>MED</sub>	Calls <sub>FIRE</sub>	Calls <sub>TOTAL</sub>
Sleep	0.210*	-0.196*	-0.049	-0.205*
Readiness	0.61	-0.076	-0.003	-0.085
Relaxation	0.090	-0.230*	-0.134	-0.253*
Psychological Detachment	-0.002	-0.272*	-0.237*	-0.320*
Mastery	0.027	-0.258*	-0.151*	-0.268*
Autonomy	0.134*	-0.223*	-0.122	-0.242*
Training Breaks	-0.460	-0.111	-0.100	-0.148*
Community	-0.056	-0.053	-0.017	-0.083
Firefighter Interactions	-0.082	0.147*	0.114	0.146*
Non-Firefighter Interactions	-0.006	-0.015	-0.072	-0.052

Note. \*  $p < 0.05$

## CONCLUSIONS

- High levels of rank (i.e., lieutenant, captain, battalion chief) are associated with higher levels of both sleep and perceptions of autonomy as compared to lower levels of rank (i.e., FF, heavy equipment operator).
- Calls<sub>MED</sub>, Calls<sub>FIRE</sub>, and Calls<sub>TOTAL</sub> were negatively related to psychological detachment, indicating that an increase in call volume—regardless of the type—inhibited FFs' ability to not think about work while off-duty.
- Calls<sub>TOTAL</sub> also inhibited FFs' ability to sleep, relax, feel autonomous, and take breaks from work.

## PRACTICAL APPLICATIONS

- Development of post-call and off-duty recovery protocols targeting physical, psychological, and social components of recovery would benefit FFs at high-call volume stations, especially for those FFs who are of lower rank.
- Implementation of such recovery protocols may be an important component to improve health, performance, and career longevity in FFs.

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