

# Understanding how transactional stress relates to stress reactions and safety outcomes

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## Introduction

Increasing attention is being paid to the impact of stress and fatigue on safety in paramedicine. Specifically, empirical linkages have been established between fatigue, chronic work stress, critical incident stress, and safety outcomes. However, the relationship between transactional stresses, stress reactions like posttraumatic stress, fatigue, and safety outcomes (safety compromising behaviors, medication errors and adverse events, and injuries or exposures) have not been assessed.

There are two types of transactional stress. **Internal transactional stresses** are associated with the day to day provision of service (e.g., offload delays, being placed on standby, dealing with dispatch, inappropriate use of EMS, mandatory overtime, and dealing with frequent service users).

**External transactional stress** involves interacting with allied professions (e.g., law enforcement, Base Hospital, ER Charge nurses, ER Physicians, ER primary nurses, and fire fighters).

## Objective

The purpose of this study was to see if there was significant variation in levels of transactional stress in paramedics that endorsed high levels of posttraumatic stress, fatigue, or reported negative safety outcomes.

## Methods

An online survey was conducted with ten Canadian paramedic services with a 40.5% response rate (n= 717).

T-tests were used to assess for significant differences

## Results

	Internal Stress (mean score)	External Stress (mean score)
Not fatigued	20.60	14.30
Fatigued	24.78	16.66
	<b>p&lt;.001</b>	<b>p&lt;.001</b>
Subclinical PTSS	22.13	15.02
Clinical PTSS	27.29	18.99
	<b>p&lt;.001</b>	<b>p&lt;.001</b>
No injuries/exposures	20.87	13.65
Injuries/Exposures	23.26	15.89
	<b>p&lt;.05</b>	<b>p&lt;.001</b>
No safety compromising behaviors	16.08	11.31
Safety compromising behaviors	23.17	15.71
	<b>p&lt;.001</b>	<b>p&lt;.001</b>
No errors/adverse events	21.53	14.77
Errors/adverse events	23.29	15.83
	<b>p&lt;.05</b>	<b>p&lt;.05</b>

## Conclusion

These results indicate that there are higher levels of transactional stresses between paramedics that report pathological levels of posttraumatic stress, significant fatigue, and negative safety outcomes.

These exploratory analyses indicate that transactional stresses may influence the wellbeing of paramedics. The ability to further break down and focus on the specific factors may offer opportunities addressing posttraumatic stress and negative safety outcomes..

## Implications for Future Research

To promote the health and well being of paramedics, it is critical to continue the exploration of work-related stresses. Understanding what may elicit stress reactions can guide evidence based intervention.

## Limitations

- Non-experimental design
- Modest response rate
- Not generalizable
- Open to non-response, self report, and recall biases

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## Questions?

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