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## An Evaluation of Risk Attitudes and Risk Tolerance in Emergency Medicine Residents

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# An Evaluation of Risk Attitudes and Risk Tolerance in Emergency Medicine Residents

Nishad A. Rahman

Mentored by Dr. Dimitrios Papanagnou

## Introduction

An underlying issue to our current healthcare system is how decisions made in the emergency department affect patients. This is paramount for underserved populations, which are more likely to have poor physical and mental health, lack of primary care, greater use of health services, and be generally dissatisfied with their medical care.<sup>1,2</sup> What should the emergency physician (EP) do for these patients?

These decisions are largely based upon individual risk tolerance. While risk is an indelible part of emergency medicine (EM), a risk profile of EM residents has not been compiled. Knowledge of risk taking tendencies among this niche of medical professionals could be critical. If EM residents have great risk aversion, they might practice defensive medicine, thereby incurring crippling costs<sup>4</sup>. On the other hand, if emergency medicine residents are greatly risk tolerant, they may make decisions that lead to significant morbidity and mortality. It is essential to establish a baseline risk profile before any corrective measures can be advanced. This study attempted to accomplish precisely that using Risk Type Compass<sup>™</sup>.

## Materials and Methods

**Literature Review:** A systematic review of the literature was conducted to identify studies assessing risk attitudes and tolerance for uncertainty within emergency medicine practitioners, particularly concerning the impact of those attitudes on clinical decision making. The Scopus database was searched using the following strategies:

1. Risk AND emergency medicine AND (attitude OR tolerance OR decision making), returned 581 results
2. Risk assessment AND emergency medicine AND (aversion OR preference OR tolerance), returned 100 results

**Study Instrument:** The Risk Type Compass<sup>™</sup> (RTC) is a psychometrically validated EI assessment tool derived from Bar-On's model<sup>4</sup> of EQ-i. The RTC self-assessment is 102 questions in length, 82 for Part 1 and 20 for Part 2. It includes a self report with a 6-point Likert scale for Part 1 and 3-point rank ordering for Part 2, and is based on a normative sample of 4050 adults. It has proven to have notable internal consistency, with  $\alpha$  values greater than 0.8. The total RTC scores are computed by MHS software. One categorical RTC score is calculated in Risk Type. Five further subscales of risk tolerance in different domains of life are also generated; these include the following Risk Attitudes: Financial, Social, Health & Safety, Recreational, and Reputational. Differences in risk tolerance based on PGY-training level were assessed. This study was reviewed and received approval from the Institutional Review Board of Sidney Kimmel Medical College of Thomas Jefferson University.

## Methods and Materials (continued)

**Study Design:** This cross-sectional investigation was conducted at an urban EM residency training program. Study recruitment included all thirty-eight (38) EM residents (post-graduate year [PGY] 1-3) at a single academic medical institution (Thomas Jefferson University), twenty-four (24) of whom completed the presurvey in addition to RTC.

## Results

PGY	Expected RTi Based on Pre-survey				Actual RTi Based on RTC			
	Mean	Median	Std. Dev.	95% Confidence Interval	Mean	Median	Std. Dev.	95% Confidence Interval
PGY-1	50.50	50.00	18.17	9.88 [40.62 - 60.38]	47.23	48.00	12.50	6.79 [40.44 - 54.02]
PGY-2	58.75	67.50	19.04	10.35 [48.40 - 69.10]	46.69	53.00	13.88	7.55 [39.14 - 54.24]
PGY-3	45.00	55.00	24.29	13.74 [31.26 - 58.74]	44.83	48.00	13.24	7.49 [31.59 - 58.39]

Figure 1: Expected Risk Types and RTC Risk Types of PGY-1, PGY-2, and PGY-3.

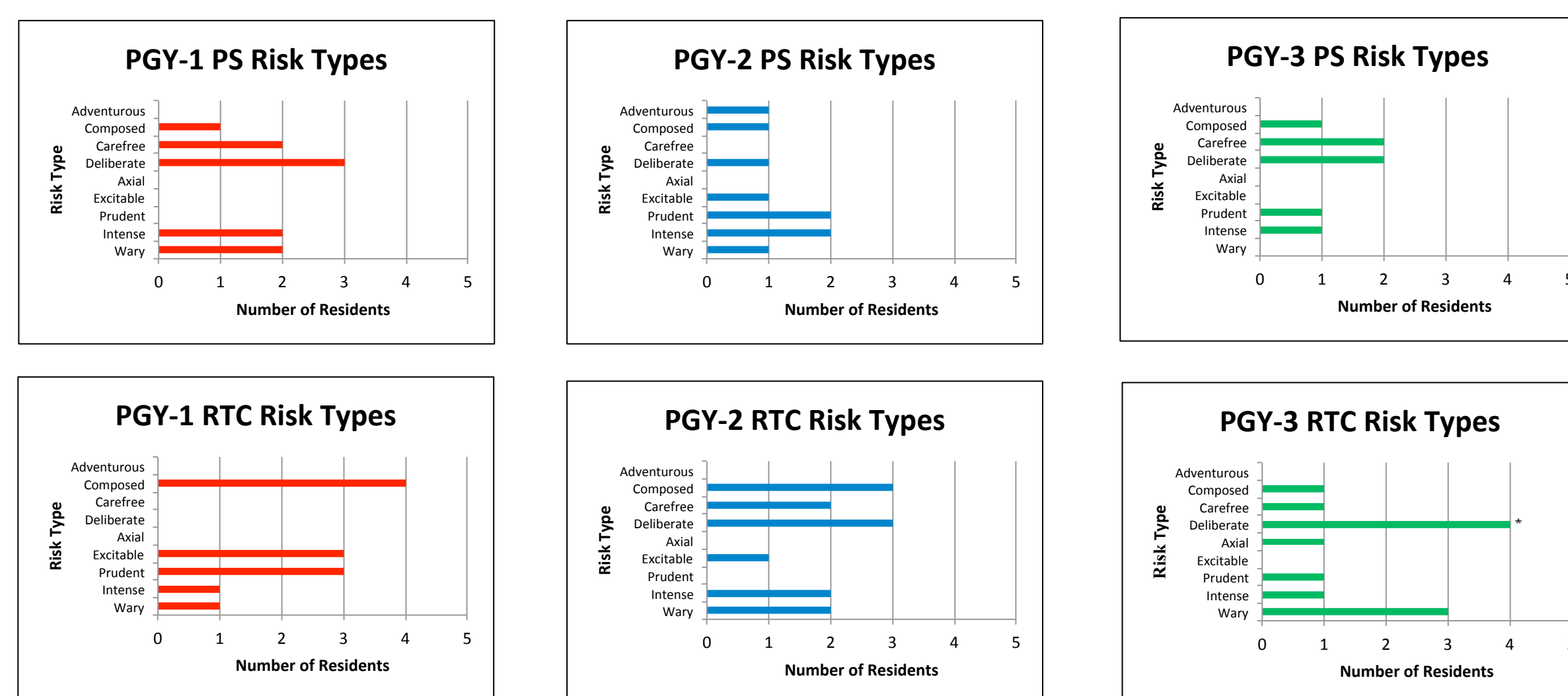


Figure 1: Expected Risk Types and RTC Risk Types of PGY-1, PGY-2, and PGY-3.

PGY	PS Risk Attitudes		RTC Risk Attitudes	
	Most Risk Tolerant Risk Attitude	Least Risk Tolerant Risk Attitude	Most Risk Tolerant Risk Attitude	Least Risk Tolerant Risk Attitude
PGY-1	Recreational	Health & Safety	Recreational	Financial
PGY-2	Recreational	Financial	Health & Safety and Reputational	Financial and Social
PGY-3	Recreational	Financial	Health & Safety	Recreational

Table 2: Risk Attitudes of PGY-1, PGY-2, and PGY-3 residents.

## Conclusions

There did not appear to be a significant difference in actual RTi scores over the years of residency. However, this did not remain true when analyzing data on Risk Types over the years. As such, RTi appears to lack the ability to gauge subtle changes in Risk Type.

When comparing expected Risk Types to actual Risk Types for PGY1 residents, the presurvey data seemed to indicate more risk taking Risk Types data than was displayed by Risk Type Compass analysis. This suggests that first year residents lean more towards caution than they either realize or are willing to admit.

Interestingly, presurvey results indicated that there is actually a decrease in risk tolerant Risk Types from PGY1 to PGY2. However, Risk Type Compass results indicated that PGY2 residents were actually more risk tolerant than their PGY1 colleagues. As such, it appears that first year residents may believe themselves to be or feel the need to appear more risk taking, while second year residents believe themselves to be or feel the need to appear more risk averse.

PGY3 residents showed a risk profile in between PGY1 and PGY2 residents, with more middle of the pack Risk Types appearing more prominently. This was despite the PGY3 presurvey data showing clustering at the diametric ends of the risk spectrum similar to the other residency years.

Based on the compiled Risk Type data, it appeared that among the studied population, first year residents were more risk averse, second year residents were more risk taking, and third year residents represented a more middle of the pack risk profile.

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