

Appearances on Ambulances: Do Emergency Medical Technicians' Attire and Gender Affect Patients' Vitals during Prehospital Medical Emergencies?

Kuldeep N. Yadav^{1,2}, Christina A. Spoletti³, Keith R. Anacker³, Robert J. Eng⁴, Kinjal G. Solanki⁵, Susan Cachel⁶, Jeffrey DeWitt⁷, Gretchen B. Chapman⁸

¹Palliative and Advanced Illness Research (PAIR) Center, ²Leonard Davis Institute (LDI) of Health Economics, University of Pennsylvania; ³Rowan University School of Osteopathic Medicine; ⁴New Jersey State Department of Health; ⁵Jamaica Hospital Medical Center; ⁶Department of Anthropology, Rutgers University; ⁷Center for Bioethics and Social Sciences in Medicine (CBSSM), University of Michigan; ⁸Department of Social and Decision Sciences, Carnegie Mellon University



Background

- Prehospital medical care is known to vary among and within emergency medical service (EMS) agencies
- Emergency medical technicians (EMTs) responding to emergency calls can differ in their individual attributes
- It is unknown whether characteristics of EMTs differentially influence prehospital patient care

Objective

- To specifically determine whether the attire, number, and gender of EMTs affect patients during prehospital medical emergencies

Methods

- We conducted the study at a local volunteer first-aid squad from March 2015 to September 2015
- EMTs' attire (e.g., professional or casual) alternated weekly, but number and gender varied by the squad's shift schedule
- Emergency medical calls were included only if patients were 18+ years old, alert and oriented x3, not given advanced life support (ALS), not approached by police or fire personnel, and transported to a hospital
- We dichotomized the quantity into =2 or >2 EMTs and the gender of the EMT primarily providing patient care into discordant or concordant relative to the gender of patients.
- We examined associations between EMTs' attributes and patients' vitals before and after transport through regression models
- 48 emergency calls were included in final analyses
- EMTs' attributes were evenly distributed among all included emergency medical calls
 - attire: professional (n=23), casual (n=25)
 - number: =2 EMT (n=24), or >2 EMTs (n=24)
 - gender (EMT-Pt): concordant (n=26), discordant (n=22)

Results

- 48 emergency calls were included in final analyses
- Medical situations included general pain (31%), cardiac issues (19%), respiratory issues (15%), psychological evaluations (8%), and others (27%)
- Patients had an average age of 50 years (range=20-85 years), and 56% were female
- Patients' mean heart rate was 98.1 bpm before transport and 92.6 bpm after transport
- Patients' mean blood pressure (systolic/diastolic) was 144.7/88.1 mmHg before transport and 140.7/87.4 mmHg after transport
- No relationships between the attire or number of EMTs and patients' vitals were identified (Figure 1)
- When the EMT's gender was concordant to that of patients, patients exhibited a significantly higher systolic blood pressure reading before transport ($p<0.05$), but not after transport ($p>0.05$, Figure 1C)

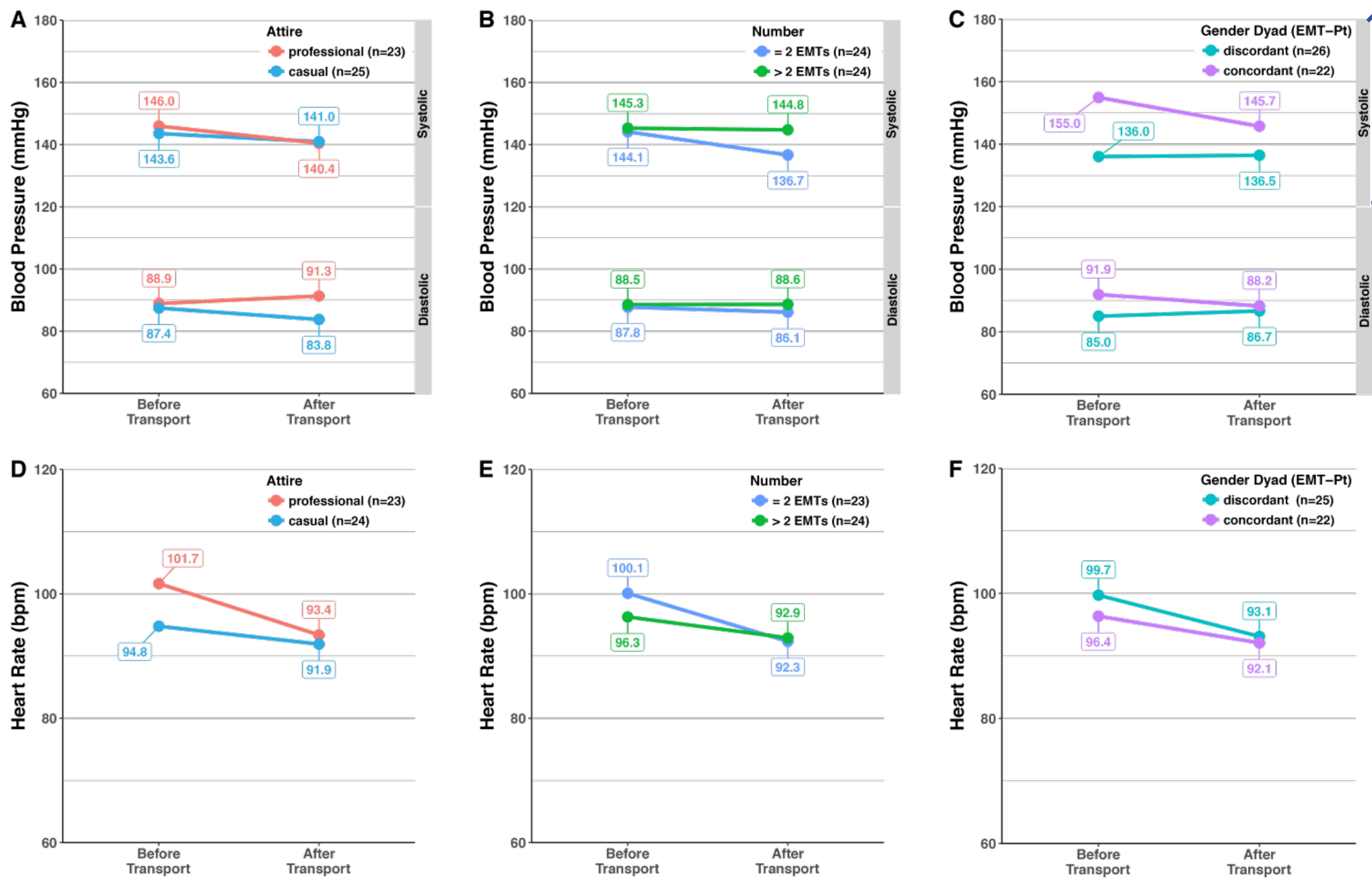


Figure 1. Variation in patients' vitals by attributes of emergency medical technicians

Limitations

- A study within a single small-town first-aid squad may not be generalizable to larger, regional EMS agencies
- We excluded several emergency scenarios:
 - patients who did not require or actively refused medical transport to the hospital
 - patients in emergency situations that had required police, fire, or ALS

Conclusions

- When patients are most vulnerable, EMTs' gender may elevate patients' systolic blood pressure, increasing their risks of cardiovascular events (e.g., stroke, heart attack)
- Our exploratory findings warrant future corroboration in a larger, representative sample
- Only then can we explore ways to reduce any undue influence of EMTs' attributes on prehospital patient care

