ARTICLE:
- **Country:** USA
- **Funding Sources:** none

PURPOSE:
- **Research Question(s):**
  - **Primary objectives:**
    1) Assess the role of uncertainty tolerance in predicting career burnout
    2) Estimate the proportion of emergency physicians who exhibit high levels of career burnout
  - **Secondary objective:**
    3) Assess satisfaction with the career of emergency medicine

DESIGN:
- **Study Design:** Survey.
- **Outcome Variable(s):**
  - Career burnout
- **Predictor Variables:**
  - Uncertainty tolerance in emergency physicians
  - Emergency physician career satisfaction
  - Physician characteristics: age, sex, specialty certification, ED volume, # hospitals worked, physician coverage scheme, type of ED setting

SETTING / SUBJECTS:
- **Subjects:**
  - **Study population:** 450 actively-practicing emergency physicians with addresses on file with ACEP; randomly selected by Structured Query
Language software. 450 was selected, as it created a 20% buffer over the 378 participants required to achieve adequate power.

- **Inclusion / Exclusion criteria:** Needed to be a member of ACEP, with your address on file with them to be included. You were excluded if you were no longer in active practice.

- **Number (control / intervention groups):** 450 surveys mailed

- **Attrition:** Response rate was 50.2% of which 43.1% were included (2 returned with incorrect addresses, 5 returned blank, 27 returned with significant missing data or did not complete the main outcome portion of the questionnaire)

**METHODS:**

- **Instruments:** 3 Sections:
  1) 79 questions evaluating work-life satisfaction in 6 realms (administrative autonomy, clinical autonomy, available resources, work relationships, lifestyle satisfaction, challenges involved with the practice of emergency medicine) - taken from the Career Satisfaction Survey of Emergency Physicians (validated/reliable instrument) - 7-point scale ranging from -3 (strongly disagree) to +3 (strongly agree) - questions that were negatively worded were reverse-coded in order to create consistency in the scale
  2) 15 questions exploring uncertainty - the Physicians’ Reactions to uncertainty: Refining the Constructs and Scales measuring attitudes about 4 realms (anxiety caused by uncertainty, concern about bad outcomes, reluctance to disclose uncertainty to patients, and reluctance to disclose mistakes to physicians) - “discomfort with uncertainty” defined as scores on each subscale that placed respondent in the 75th percentile or above of all the respondents
  3) Maslach Burnout Inventory - designed from workers in human services and health care - measuring 3 dimensions of burnout (emotional exhaustion, depersonalization, reduced personal accomplishment) - scoring rubric which categorizes respondents in low, moderate, or high burnout for each scale.

   - The primary outcome of “career burnout” was dichotomized into yes/no; any respondent scoring in the high category on any of the 3 scales of the Maslach Burnout Inventory measurement were included in the “yes” category
Data Collection: Survey return. Attempts to improve response rate included pre-survey postcard, resending survey 1 month later to those who hadn’t responded. Follow-up postcards, emails, and phone calls for those who didn’t respond.

DATA ANALYSIS:
- Level of Data:  ☒ Categorical  ☒ Ordinal  ☒ Interval
  
  Categorical Examples: sex, specialty certification, type of ED setting, physician coverage scheme, career burnout, discomfort with uncertainty
  
  Ordinal: number of hospitals worked, annual ED volume
  
  Interval: emergency physician career satisfaction

Statistics Used:
- medians, means, and proportions for the questionnaire items, construct summaries, and outcome measures; medians reported with interquartile ranges
- primary outcome variable (career burnout) and demographic and practice-specific variables assessed for bivariate associations with $\chi^2$ tests and independent-samples t tests or Wilcoxon rank sums tests
- multivariable logistic regression model to assess characteristics of physicians who exhibited high levels of career burnout using all the variables associated with workplace dissatisfaction and discomfort with uncertainty
- These statistics were applied to the appropriate type of data, as listed above.

What, if any, confounding variables were controlled for / adjusted for:
- controlled for non-responders: unadjusted and adjusted odds ratios; estimates of best- and worst-case scenarios given for each variable to control for response bias

RESULTS:
- Brief answers to research questions:
  
  1) Dissatisfaction on the questionnaire constructs relating to clinical autonomy, challenges of emergency medicine, and life stress were significantly associated with high levels of burnout. Anxiety caused by uncertainty and concern about bad outcomes on the Physicians’ Reactions to Uncertainty measure were correlated with burnout.
  
  *High anxiety caused by concern for bad outcomes was the single best predictor of career burnout after controlling for all other variables (odds ratio 6.35).
  
  2) 32.1% of responders exhibited high levels of career burnout (best-case 13.8%, worst-case 64.1%)
3) Majority of respondents are satisfied with the career of emergency medicine.

- Additional findings:
  - Burnout primarily took the form of emotional exhaustion, not depersonalization or low sense of personal accomplishment.
  - The majority of emergency physicians appear to be satisfied with all aspects of emergency practice not related to uncertainty.

- Limitations?:
  - Small sample size/low response rate: response bias - non-responders may have had more career satisfaction or dissatisfaction/higher or lower burnout scores/higher or lower tolerance for uncertainty.
  - Only ACEP physicians sampled.
  - Survey responses based on perceptions of respondents at the moment they were filling out the survey.
  - Factors not surveyed may be associated with burnout.

IMPLICATIONS FOR PRACTICE:

- Applicable to this clinical practice:
  - 84.5% EM trained
  - 72.5% male
  - Median age 41
  - 14.5% of respondents practiced in EDs seeing 80,000 patients/year
  - 13.0% of respondents practiced in community EDs with EM residencies

- Feasibility (cost, resources, etc): n/a

- Clinically Relevant: not really; good thing to be aware of, but not likely to change any of our practice

LEVEL OF EVIDENCE / DECISION FOR USE:

- X Background Consider Replication Ready for use

- Level of Evidence:
  - Ia Evidence obtained from meta-analysis of randomized controlled trials
  - Ib Evidence obtained from at least one RCT
  - Iia Evidence obtained from at least one well-designed controlled study without randomization
IIb  Evidence obtained from at least one other type of well-designed quasi-experimental study

X  III  Well-designed non-experimental studies

IV  Expert committee reports, opinions of experts