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# Evaluation of Stress, Anxiety, and Relaxation Techniques in First Semester Pharmacy Students

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## Abstract

- The Accreditation Council for Pharmacy Education mandated measurement of perceived stress in Student Pharmacists as related to its impact on professional and academic performance.

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- In 2015, Burgess et al. found a significant effect of power posing ( $P < 0.01$ ) as a physiological indicator of mental empowerment; testosterone decreased after female students conducted low power poses and increased following the high power poses.
- This study expanded upon the potential... [Read More](#)

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# Evaluation of Stress, Anxiety, and Relaxation Techniques in First Semester Pharmacy Students

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## Background

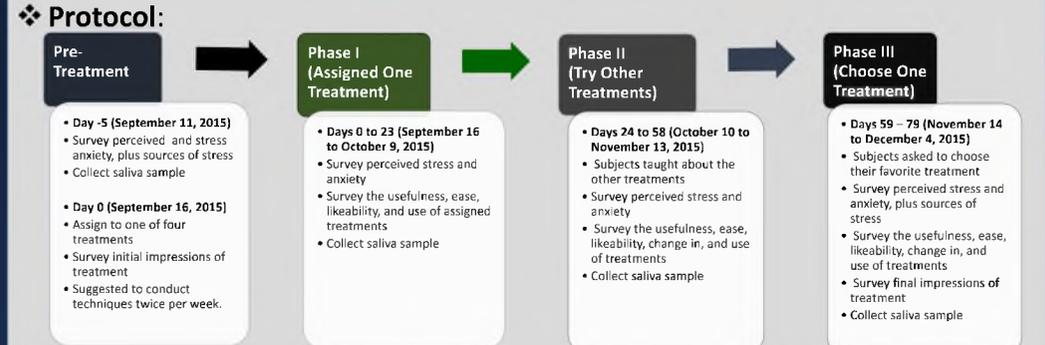
- ❖ The Accreditation Council for Pharmacy Education<sup>1</sup> mandated measurement of perceived stress in Student Pharmacists as related to its impact on professional and academic performance.
- ❖ In 2015, Burgess *et al.*<sup>2</sup> found a significant effect of power posing ( $P < 0.01$ ) as a physiological indicator of mental empowerment; testosterone decreased after female students conducted low power poses and increased following the high power poses.
- ❖ This study expanded upon the potential of using physical poses to impact mental status, by introducing Student Pharmacists to power posing and relaxation techniques to reduce levels of stress and anxiety over the course of a semester.

## Objectives

- ❖ **Primary outcomes:** To compare the effects of power posing and relaxation techniques over the course of a semester on perceived stress and anxiety.
- ❖ **Secondary outcomes:** To evaluate Student Pharmacist opinions of the usefulness, ease, likeability, and longevity of conducting power posing and relaxation techniques.

## Methods

- ❖ **Population:**
  - **41 Student Pharmacists** (22 females and 19 males) were recruited from students entering into the first year/first semester of pharmacy school.
- ❖ **Treatments used to measure primary and secondary outcomes:**
  - **Power Posing<sup>3</sup>** (initial  $n = 10$ ) – Holding an open pose
  - **Three relaxation techniques:**
    - **Body Scan Meditation** ( $n = 10$ ) – Systematically relaxing muscles
    - **Mindfulness Meditation** ( $n = 11$ ) – Focusing on the sound of a bell
    - **4 x 4 Meditation** ( $n = 10$ ) – Counting breaths



- ❖ **Analysis:**
  - Preliminary data analysis were conducted utilizing descriptive statistics, dependent t tests, and ANOVA of treatment means at each date utilizing Microsoft Excel<sup>®</sup>.
  - We expect relaxation techniques to lower stress and anxiety levels in Student Pharmacists more than the power pose. Accordingly, we expect them to like and use the power pose less than the other relaxation techniques.

## References

<sup>1</sup>Accreditation Council for Pharmacy Education. (2011). Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree 2.0. Chicago, IL: ACPE (Guideline 15.5; page 30).  
<sup>2</sup>Burgess, M.C.R., Murray, A.B., Appeddu, L.A., Burgess, G., Glasscock, M., Kositchaiwat, P., & Gothard, C. 2015. If you're sexy and you know it, are you powerful? Physiological and psychological effects of power posing and sexualization. Poster Presentation; Association of Psychological Science, New York.  
<sup>3</sup>Carney, D.R., A. J. C. Cuddy, and A. J. Yap. 2010. Power posing: Brief nonverbal displays affect neuroendocrine levels and risk tolerance. Psychological Science, 21 (10): 1363-1368. doi: 10.1177/0956797610383437.

## Results

### Stress and anxiety in Student Pharmacists since starting pharmacy school:

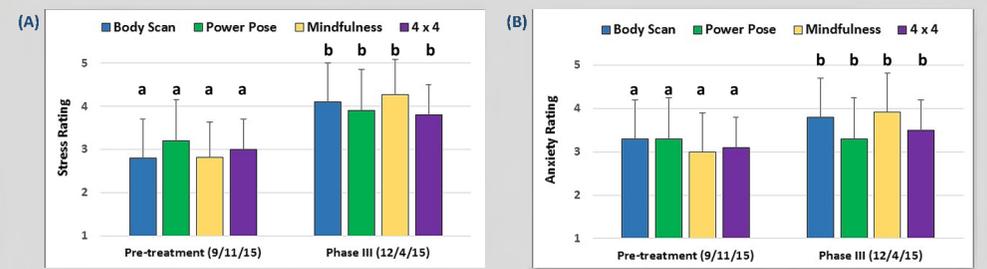


Figure 1. Self-reported (A) stress and (B) anxiety levels in first year/first semester Student Pharmacists since starting pharmacy school, with 1= No Stress or Anxiety and 5 = Severe Stress or Anxiety. [<sup>a</sup>Overall increase (dependent t tests;  $P < 0.05$ ) in stress and anxiety since starting pharmacy school].

### Survey results at the end of Phase I:

Table 1. Comparison of Mean Ratings for Survey Responses by Student Pharmacists.<sup>a</sup>

Survey Variable	Body Scan	Power Posing	Mindfulness	4 x 4
Perceived Stress	3.2 ± 1.03	2.6 ± 0.8	3.0 ± 0.8	3.0 ± 0.8
Perceived Anxiety	2.8 ± 1.2	2.4 ± 1.0	2.6 ± 1.0	2.7 ± 0.8
Easy to Conduct <sup>b</sup>	3.4 ± 0.73	4.4 ± 0.7	3.7 ± 1.1	3.7 ± 1.2
Usefulness	3.5 ± 1.2	3.4 ± 0.5	3.5 ± 1.1	3.6 ± 0.5
Likeability	3.3 ± 0.8	3.6 ± 0.8	3.6 ± 1.4	3.8 ± 0.9
Use (# days in Phase)	6.5 ± 3.7	7.0 ± 1.9	9.7 ± 8.3	9.2 ± 3.6

<sup>a</sup> Subjects scored responses from 1 – 5 with 1= No Stress or Anxiety and 5 = Severe Stress or Anxiety, or with 1 = Strongly Disagree and 5 = Strongly Agree to the survey statement regarding their treatment.  
<sup>b</sup> Numerical trend (ANOVA;  $P=0.17$ ) for power posing to be easier to conduct than meditation techniques.

- ❖ **18 Student Pharmacists (43.90%)** tried other techniques during Phase II, and **19 went on to (46.34%)** change or modify their technique by the end of Phase III. **Nine of those subjects (47.37%)** were in the Mindfulness Meditation group.
- ❖ Overall, **stress motivated 39 Student Pharmacists (95.12%)** to conduct their treatments, but **lack of time (24; 58.54%)** and **remembering to do it (12; 29.27%)** most prevented them from doing so.

### Future outlook:

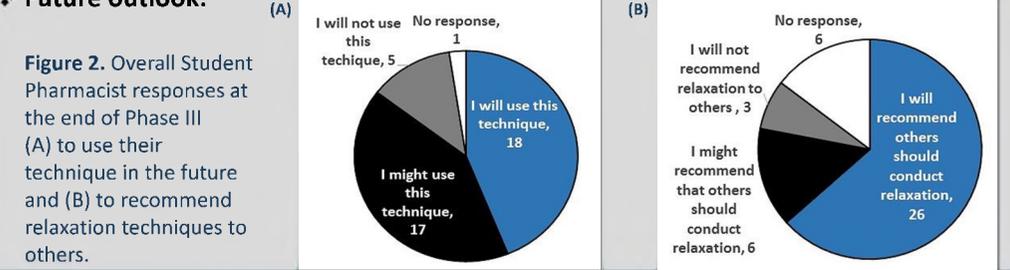


Figure 2. Overall Student Pharmacist responses at the end of Phase III (A) to use their technique in the future and (B) to recommend relaxation techniques to others.

## Conclusions & Future Directions

- ❖ Although Student Pharmacists did not rate effectiveness and likability of the three relaxation techniques to be better than Power Posing, their involvement in this study introduced them to alternative means of stress reduction and seemed to result in a favorable perception of relaxation techniques.
- ❖ Saliva samples will be analyzed for levels of cortisol and alpha-amylase (indicators of stress), and testosterone (indicator of empowerment).
- ❖ This research will be repeated in Fall 2016, with protocol changes to promote Student Pharmacists to try the other techniques and to improve compliance.