Assessing stress among pharmacy faculty at five schools: Preliminary lessons learned and coping strategies recommended

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Abstract

Background: The 2016 ACPE Standards note that Pharm.D. programmes should ensure that "assessments include measurements of perceived stress in faculty, staff, and students and an evaluation of stress' potential for a negative impact on programmatic outcomes and morale." This study examines the perceptions of stress and satisfaction among pharmacy faculty and identifies their primary ways to cope with stress using a pilot survey instrument Scale To Recognize and Evaluate Stress and Satisfaction (STRESS). Methods: A PubMed literature search was conducted utilising key search terms: "faculty stress orburnout" and "stress survey". A draft survey was assessed by 20 experts resulting in a 10-question online survey (STRESS) that was administered across five US pharmacy schools. Descriptive statistics were used to analyse data. Results: The 117 faculty who completed the survey consisted of 55% females, 73% pharmacy practice department, and 36% assistant professor rank. When asked to rate stress levels on a scale of 1 (low stress) to 5 (high stress), the mean was 3.54, SD 0.94. The item with the highest stress rating was "feeling that I have too heavy a workload" (mean 3.63, SD 1.22), and 34% felt fatigued and/or overwhelmed on most days/daily. Conclusion: Preliminary findings can serve for stress reduction strategies and as indicators for targeted wellness initiatives.

Introduction

The World Health Organisation (WHO) defines stress as "the reaction people may have when presented with demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope" (World Health Organisation, 2020). Teacher stress can be defined as "the experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration, or depression, resulting from some aspect of their work as a teacher" (Kyriacou, 2001; Xu & Wang, 2023). Although stress is part of people's everyday lives, faculty tend to experience a higher level of stress as they are often required to wear "many hats" that encompass teaching, research, clinical, administrative, and other types of duties. The role of faculty in pharmaceutical education is ever-changing. Stressors can arise from didactic and experiential workload, scholarship requirements, practice site obligations, and institution or organisation service commitments. Faculty face multiple stressors in the academic setting as a result of the challenges associated with balancing numerous responsibilities amidst high self-imposed and institutional expectations. A 2015 survey evaluating career satisfaction, lifestyle, and stress levels among 811 pharmacy school faculty in the United States reported that approximately 52% of faculty worked 50
hours or more per week, and only 37% of faculty reported being very or extremely satisfied with the balance of work, family, and their social lives (Lindfelt, Ip & Barnett, 2015). Research has documented that stress at work contributes to low morale, reduced productivity, reduced job satisfaction, and higher turnover rates (Bhui et al., 2016; Lufler & McNulty, 2022).

Studies have addressed burnout among health professionals, noting that a person’s ability to positively confront stressors determines the individual’s success in minimising or averting related stress reactions (Shanafelt et al., 2012; Shahsavarani, Azad Marz Abadi & Hakimi Kalkhoran, 2015; Sasidharan & Dhillon, 2021). Managing stress effectively may also improve physiological, psychological, and behavioural outcomes. While validated instruments, including the Perceived Stress Scale (PSS) and the Maslach Burnout Inventory (MBI), have been used to assess stress and burnout levels among pharmacy faculty (El-Ibiary, Yam, & Lee, 2017; Verdone et al., 2021), there is no existing validated survey instrument that measures stress and satisfaction among pharmacy faculty. This study examines the perceptions of stress and satisfaction among pharmacy faculty and identifies their primary ways to cope with stress using a pilot survey instrument, i.e. the Scale To Recognize and Evaluate Stress and Satisfaction (STRESS).

**Methods**

In the summer of 2017, a team of investigators began developing a scale to measure the perceptions and attitudes of pharmacy faculty towards stress. Early discussion meetings were held to determine the best approach to capture faculty views and opinions regarding stress. The topic was brought before the faculty for feedback during faculty meetings, and independent focus groups were conducted to identify initial themes. A thorough literature search on the best practices for assessment of faculty stress was conducted using the time frame 2007-2017, PubMed and Google Scholar search engines, and key search terms “faculty stress”, “faculty burnout”, “faculty job satisfaction”, “pharmacy faculty stress”, “pharmacist stress”, “stress survey”, and “stress scales”. Based on this literature review, over 40 related articles, including 20 stress scales, were identified. The team of investigators spent six months reviewing items on each stress scale for relevance to pharmacy faculty. Themes emerged, and scale items were categorised into four constructs, resulting in the generation of a pool of 150 scale items. The constructs were based on indicator variables. In this case, six questions (indicator variables) were used to form a construct of a psychological trait that was unobservable. The four constructs were: 1) Support systems (spirituality, social support, coping strategies); 2) Mental health (emotional reactivity, emotional health, personality traits); 3) Physical health (energy, wellness activities); and 4) Satisfaction (work – environmental stress – compensation, life, and work-life balance). The four constructs included 150 scale items. Twenty questions were derived, including multiple scale items (e.g. removing duplicate questions and questions that were not relevant, such as using napping to cope with stress). Each survey item, including demographic questions, was mapped to a relevant article in the literature or an existing stress scale. The majority of items were adapted from existing stress scales but modified to develop pharmacy faculty-specific questions. The study was approved by the University of North Texas Health Science Center North Texas Regional Institutional Review Board.

Upon approval to administer the survey, a pilot test was conducted at the University of North Texas College of Pharmacy in May 2018. The faculty selected to take the pilot survey represented a wide range of backgrounds and positions, including assistant to full professors and administrators. Respondents were asked to provide feedback on question-wording, format, preference for a one-year or one-month reference time frame, and time allotted for survey completion. In June 2018, item wording and response categories were refined to create the final pilot survey, consisting of 10 scale items and 19 demographic questions. The pilot survey was then administered in January 2019 across five pharmacy schools to collect additional responses. Part one of the survey consisted of questions to collect demographic data on respondents, and part two of the survey consisted of questions to measure stress, satisfaction, and coping strategies. A copy of the pilot survey is included in Appendix A. A full-time faculty member was identified and appointed as a liaison at each of the five pilot institutions. Those individuals were asked to share the survey link with the faculty at each of their institutions. The e-mail consisted of a cover letter describing the purpose of the study and a link to the survey itself. Two additional e-mails with the same information were sent out in the subsequent eight weeks to ensure optimal responses from survey recipients. The survey was created and accessed using Qualtrics online survey software. The survey software compiled all survey responses anonymously. Completion of the survey was completely voluntary. A unique identification number was given to each survey participant to ensure that the survey was completed only once by each survey recipient.
Demographic data were analysed using descriptive statistics. All analyses were conducted using IBM SPSS Statistics, Version 25.0 (Armonk, NY).

**Results**

**Sample characteristics**

From the total of five pilot institutions, 120 faculty responded to the survey. The mean age was 41.5 years; 56.9% (n=67) were female, and 53.3% (n=64) had mentors. The majority had children (67.5%, n=81), and 58.3% (n=70) had pets. More than one-third (38.3%, n=46) received academic counselling, and 15.97% (n=19) reported that they had anxiety and/or depression (Table I).

**Stress**

Overall stress was reported on a scale from 1 (low stress) to 5 (high stress) (Figure 1). The majority of respondents (50%, n=41) reported a stress level of 4 or higher.

![Figure 1: Pharmacy faculty overall stress levels (n=82)](image)

**Sources of stress in the past year**

Participants were asked to rate their stress, on a scale of 1 (low stress) to 5 (high stress), over the past year in various areas, including professional and personal contributors. Some professional sources of high stress were heavy workload, programme changes and high self-expectations (Figure 2). Personal sources of stress were less commonly a concern compared to professional sources.

Table I: Characteristics of the sample (n = 120)

<table>
<thead>
<tr>
<th>Demographic characteristics*</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>51 (43.22)</td>
</tr>
<tr>
<td>Female</td>
<td>67 (56.78)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>99 (83.90)</td>
</tr>
<tr>
<td>Black</td>
<td>4 (3.39)</td>
</tr>
<tr>
<td>Asian</td>
<td>11 (9.32)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>4 (3.39)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>6 (5.60)</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>101 (94.40)</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
</tr>
<tr>
<td>Southwest</td>
<td>24 (20.00)</td>
</tr>
<tr>
<td>West</td>
<td>31 (25.80)</td>
</tr>
<tr>
<td>Midwest</td>
<td>18 (15.00)</td>
</tr>
<tr>
<td>Southeast</td>
<td>47 (39.20)</td>
</tr>
<tr>
<td><strong>Academic characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Department</td>
<td></td>
</tr>
<tr>
<td>Pharmacotherapy/pharmacy practice</td>
<td>88 (73.95)</td>
</tr>
<tr>
<td>Pharmaceutical sciences</td>
<td>31 (26.05)</td>
</tr>
<tr>
<td><strong>Rank (tenure track)</strong></td>
<td></td>
</tr>
<tr>
<td>Assistant professor</td>
<td>7 (13.46)</td>
</tr>
<tr>
<td>Associate professor</td>
<td>19 (36.54)</td>
</tr>
<tr>
<td>Full professor</td>
<td>26 (50.00)</td>
</tr>
<tr>
<td><strong>Rank (non-tenure track)</strong></td>
<td></td>
</tr>
<tr>
<td>Assistant professor</td>
<td>37 (58.73)</td>
</tr>
<tr>
<td>Associate professor</td>
<td>16 (25.40)</td>
</tr>
<tr>
<td>Full professor</td>
<td>10 (15.87)</td>
</tr>
<tr>
<td><strong>Have a mentor</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64 (53.33)</td>
</tr>
<tr>
<td>No</td>
<td>56 (46.67)</td>
</tr>
<tr>
<td><strong>Receive (academic) counselling</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46 (38.33)</td>
</tr>
<tr>
<td>No</td>
<td>74 (61.67)</td>
</tr>
<tr>
<td><strong>Psychosocial characteristics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Physical health (self-reported)</strong></td>
<td></td>
</tr>
<tr>
<td>Excellent or very good</td>
<td>75 (62.5)</td>
</tr>
<tr>
<td>Good or fair</td>
<td>44 (36.67)</td>
</tr>
<tr>
<td>Poor</td>
<td>1 (0.83)</td>
</tr>
<tr>
<td><strong>Diagnosed with anxiety and/or depression</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19 (15.97)</td>
</tr>
<tr>
<td>No</td>
<td>100 (84.03)</td>
</tr>
</tbody>
</table>

* Total number of responses for some variables was less than 120 due to missing data.
Figure 2: Distribution of the level of stress due to various sources (n=120)
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Assessment of stress among pharmacy faculty

(Figure 2 continued)

On a scale of 1 to 5, select your rating of stress related to the following in the last year, 1 being low stress and 5 being high stress.

Figure 2: Distribution of the level of stress due to various sources (n=120)
**Coping strategies**

Among the various coping strategies to relieve stress, eating a nutritious diet daily or most days topped the list with 70% (n=84) of the sample, followed by exercise daily or most days (46.7%, n=56) and using humour (46.7%, n=56), seeking emotional support from friends or family (37.5%), and seeking support from spirituality (35.9%) daily or most days. A majority (65%) noted that they rarely/never buy something for themselves as a method to relieve stress (Figure 3).

![Figure 3: Pharmacy faculty stress coping strategies (daily/most days; some days; rarely/never)](image-url)
Self-awareness
Participants were asked about their level of agreement with some self-reflective statements on a 5-point Likert scale ranging from strongly agree to strongly disagree (Figure 4). The statements with the highest levels of agreement were related to knowing where to turn to for help (78.15%, n=93), followed by feeling in control of their life (65.5%, n=78). The statement with the lowest level of agreement was related to having arguments with coworkers (3.3%, n=4).

Figure 4: Distribution of the level of agreement with self-reflective statements (n=120)
Discussion
The Scale To Recognize and Evaluate Stress and Satisfaction (STRESS) is the first instrument to measure the perception of stressors among pharmacy faculty in particular. It consists of demographics and ten stress and satisfaction items in four constructs. Questions vary from a 4-point to a 7-point Likert scale, with higher values indicating higher stress levels. As STRESS is the first pharmacy faculty stress measurement instrument to be developed, it needs to be tested in further research to demonstrate its construct validity.

Item generation and outcomes
The authors formulated and reviewed item statements for the stress scale constructs, which resulted in an initial pool of 150 items. The operationalisation of the 150 items as representations of faculty stress in the context of pharmacy was initially assessed before the administration of the pilot survey. Four constructs were categorised: support systems, mental health, physical health, and satisfaction. The preliminary evidence suggests that the reliability and validity are good, but further analysis is required. Based on evidence from a study of factors that impact thriving at work, influential outcomes of stress were verified, including emotional exhaustion due to work, well-being at work based on health-related absences, organisational culture reflective of the perception that stress-reducing behaviour is supported within the organisation, and job satisfaction as an outcome suggestive of work-related well-being (Yang & Li, 2021). Although the influential outcomes of stress (e.g. emotional exhaustion due to work, organisational culture, job satisfaction) have been established in prior studies (Obrenovic et al., 2020; Copkova, 2021), this current stress scale will need to be tested on a larger sample of pharmacy faculty to confirm the expectation that these outcomes will be correlated to stress.

Coping strategies
This study aimed to examine the perceptions of stress and satisfaction among pharmacy faculty and identify their ways to cope with stress. Faculty were asked to complete survey questions that assessed several coping strategies, described through various concepts in the literature (Kennedy et al., 2022). Examples range from problem-focused coping to eliminate the source of stress (e.g. strategising for goal attainment) to emotion-focused coping skills (e.g. seeking to regulate distressing emotions in the face of adversity) (Folkman, 2013; Ogoma, 2020; Aulen et al., 2021). In this study, the most common coping strategies were eating a nutritious diet daily or most days, exercising daily or most days, using humour daily or most days, seeking support from spirituality, and seeking emotional support from friends and family daily or most days. Previous studies among faculty show similar evidence for the reliability and validity of the coping styles identified. Previous findings have shown that the most common ways faculty use to deal with stressful events are to increase exercise and foster healthy eating habits (Parveen, 2013). Furthermore, emotional support from family and friends is a key to coping with stress (Ozbay et al., 2007). Importantly, the majority of faculty in this study reported rarely/never buying something for themselves as a coping strategy. The association between buying something and perceived stress has been shown to affect a person’s ability to cope with stress. Indeed, a positive correlation has been found between online compulsive buying and perceived stress; however, these findings were moderated by self-esteem, and the effect was weaker in women with higher self-esteem (Zheng et al., 2020). The current cross-sectional study cannot provide evidence for a causal relationship between buying something and perceived stress, but this finding is a worthy area for future research.

The COVID-19 pandemic and stress
The recent coronavirus disease 2019 (COVID-19) pandemic also resulted in increased pharmacy faculty stress, as academic institutions had to rapidly adapt to partial or full remote learning environments. Worldwide, pharmacy faculty encountered increased stress from changes in instructional design, delivery, and assessment (Alzubaidi et al., 2021).

Within the United States, faculty at research-intensive institutions reported that family/home responsibilities, assisting children with schoolwork, and availability of childcare were among the highest challenges faced during the pandemic. In addition, practice faculty encountered barriers while utilising telehealth and other virtual services for patient care and experiential education (Clemmons et al., 2022). Pharmacy learners and educators also reported workflow and learning interruptions and decreased productivity during the pandemic (Moreau et al., 2021; Sasser et al., 2021). Although there have been several detrimental effects on pharmacy faculty stress reported during the pandemic, there were also reports of an increased focus on well-being, physical health, gratitude, empathy, resilience, and adaptability, all of which are positive outcomes to note (Naidoo et al., 2022). Additional research is warranted to explore how the pandemic has affected faculty from an emotional and mental perspective as well as its impact on career decisions.
Conclusion

While stress is a commonly encountered concern, the potential impacts of stress are significant and are an essential topic of focus. The use of a validated survey to assess faculty stress and satisfaction provides feedback for School or College of Pharmacy leaders regarding areas of strength and opportunities for improvement. Based on institutional survey results, administrators may more clearly identify potential interventions and assess the effectiveness through survey re-assessment. This pilot project completes a valuable milestone in the development and testing of the tool, allowing for the next step of administration to faculty at pharmacy schools across the country.

Conflict of interest

The authors declare no conflict of interest.

Source of funding

Nothing to disclose.

References


**Appendix A: STRESS (Scale To Recognize and Evaluate Stress and Satisfaction Survey Instrument)**

**Part I. Demographic Questions**

1. What is your age (in years)?
   - [ ] Male
   - [ ] Female
   - [ ] I would prefer not to answer

2. What gender do you identify with?
   - [ ] American Indian or Alaska Native
   - [ ] Asian
   - [ ] African American/Black
   - [ ] Native Hawaiian or other Pacific Islander
   - [ ] White or Caucasian
   - [ ] Other (fill in blank)
   - [ ] Prefer not to answer

3. What race do you identify with?
   - [ ] Non-Hispanic/Latino

4. What ethnicity do you identify with?
   - [ ] Hispanic/Latino
   - [ ] Prefer not to answer

5. In what region in the United States is your institution?
   - [ ] Northeast (ME, NH, VT, MA, RI, CT, NY, NJ, PA, DE, MD, DC)
   - [ ] Southeast (FL, GA, SC, NC, TN, VA, WV, OH, MI, IN, IL, IA, WI, MN, ND)
   - [ ] Midwest (IA, WI, MN, IL, MI, OH, IN, KY, IN, MI, IA)
   - [ ] Southwest (AZ, NM, TX, OK)
   - [ ] West (AK, HI, WA, OR, ID, MT, WY, CO, UT, NV, CA)
6. In which type of institution are you employed?
   □ Public
   □ Private

7. What is your department in the School or College of Pharmacy?
   □ Pharmacotherapy/Pharmacy Practice
   □ Pharmaceutical Sciences
   □ Other: ______________

8. What is your appointment/rank?
   □ Assistant Professor, Non-tenure track
   □ Assistant Professor, Tenure-track
   □ Associate Professor, Non-tenure track
   □ Associate Professor, Tenure-track
   □ Professor, Non-tenure track
   □ Professor, Tenure-track
   □ Other: ______________

9. Do you have children?
   □ Yes
     □ How many children do you have of any age?
     □ How many children do you have under the age of 12?
   □ No

10. In the past year, have you used Family Medical Leave of Absence (FMLA)?
    □ Yes
      □ How much FMLA did you use?
        □ Less than 6 weeks
        □ 6 weeks or more
        □ Other: __________
    □ No

11. A hobby is defined as an activity done regularly in one’s leisure time for pleasure. Which, if any, of the following would you consider your hobby? Select all that apply.
    □ Nature-related (e.g. gardening/landscaping, farming)
    □ Sports (e.g. football, soccer, basketball)
    □ Arts and crafts (e.g. painting, woodworking, scrapbooking)
    □ Performance arts (e.g. dancing, singing, choreography, music)
    □ Computers and technology (e.g. video gaming, blogging, social networking)
    □ Outdoor adventures (e.g. fishing, hunting, skiing)
    □ Indoor activities (e.g. board games, watching movies/TV, reading)
    □ Health and fitness (e.g. yoga, swimming, martial arts)
    □ Lifestyle activities (e.g. cooking, shopping, spa, travel)
    □ Other ______________
    □ I don’t currently have a hobby

12. Over the span of a month, how often do you engage in a hobby?
    □ Daily
    □ Most days
    □ Some days
    □ Rarely
    □ Never
13. Have you, currently or ever, used counseling services?
   □ Yes
   □ No

14. Do you have a mentor?
   □ Yes
   □ No
   □ How often do you engage with your mentor?
     a. Weekly or more
     b. Monthly
     c. Quarterly
     d. Less than quarterly

15. In general, how would you rate your health status?
   □ Excellent
   □ Very good
   □ Good
   □ Fair
   □ Poor

16. Do you have an existing diagnosis of either anxiety and/or depression?
   □ Yes
   □ No
   □ I would prefer not to answer

17. Do you have a pet?
   □ Yes
   □ No
   □ What type of pet do you have? Select all that apply.
     ▪ Dog
     ▪ Cat
     ▪ Other: __________


19. Was there anything in the past year that would significantly impact your responses to the stress survey?
   □ Yes
   □ No
   □ Comment (optional):_____________________________________________________________

Part II. Measures of Stress

1. In the last year, how would you rank your overall stress level? (using the ‘slider’ function)
   1  2  3  4  5
   __________________________________________________________
   Low Stress                                                                 High Stress

2. On a scale of 1 to 5, select your rating of stress related to the following in the last year: (1 being Low Stress and 5 being High Stress, N/A being not applicable)
   □ Participating in university or departmental committees
   □ Participating in work related activities outside of usual working hours
   □ Feeling that I have too heavy a workload – one I cannot possibly finish during the normal work day
   □ Dealing with programmatic changes
   □ Imposing excessively high self-expectations
3. In the last month, how often have you experienced the following due to stress? (Scale: Daily, most days, some days, rarely, never)
   - Irritability
   - Headaches
   - Muscle tension
   - Fatigue
   - Insomnia
   - Gastrointestinal symptoms
   - Increased blood pressure
   - Feeling overwhelmed
   - Feeling depressed
   - Feeling anxious

4. In the last month, how frequently have you exercised?
   - Daily
   - Most days
   - Some days
   - Rarely
   - Never

5. In the last month, how frequently have you eaten a nutritious diet?
   - Daily
   - Most days
   - Some days
   - Rarely
   - Never

6. Do any of the following help you manage stress? Select all that apply.
   - Listening to music
   - Watching TV or movies for more than two hours per day
   - Spending time with friends or family
   - Reading
   - Praying
   - Spending time doing a hobby
   - Other: ___________

7. In the last year, how often have you used the following strategies when dealing with stressful situations or problems? (Scale: Daily, most days, some days, rarely, never)
   - I use humor to deal with my stress
   - I seek support from my spirituality
   - I ask for advice from others about what to do
   - I seek emotional support from friends or relatives
8. Rate your satisfaction with the following qualities about yourself: (Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied)
   - Level of resilience
   - Spiritual wellness
   - Physical health status
   - Current income level
   - Achievement of a rounded or balanced quality of life

9. Rate your satisfaction with the following qualities about your academic institution: (Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, N/A)
   - Academic freedom
   - Opportunities to publish
   - Facilities, such as laboratories, studios, and equipment needed for your field
   - Understanding the requirements needed for tenure or promotion
   - Institutional financial support for research
   - Flexible work schedule

10. Rate your level of agreement with the following: (Scale: Strongly agree, Agree, Neutral, Disagree, Strongly Disagree)
    - I feel in control of my life
    - During times of stress or crisis, I know where to turn for help
    - I neglect my personal life when I pursue important achievements in my work
    - What I invest in my work is more than what I should for my health
    - I receive adequate appreciation for my work
    - I am discriminated against at work
    - I have arguments with superiors, coworkers, or students

Other comments: ________________________________________________________________