

BRIEF

Relationship of Burnout and Engagement to Pharmacy Students' Perception of Their Academic Ability

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Submitted February 22, 2019; accepted June 26, 2019; published February 2020.

Objective. To assess burnout and engagement in first- and second-year Doctor of Pharmacy (PharmD) students and to investigate their relationships to students' perception of their academic ability.

Methods. An online survey that included three validated scales was administered in May 2017 to first- and second-year pharmacy students enrolled in didactic coursework at Touro University California College of Pharmacy. The Maslach Burnout Inventory was used to assess burnout and the Utrecht Work Engagement Scale was used to measure student engagement. To characterize academic ability, Academic Self-Perception, a subscale of the School Attitude Assessment Survey-Revised, was used. Regression analysis was performed using statistical software.

Results. One hundred sixty-two students (81.4% response rate) completed the survey. Emotional exhaustion and professional inefficacy were negatively correlated with students' academic self-perception. Dedication was positively correlated with academic self-perception.

Conclusion. In pharmacy students completing the didactic portion of the PharmD curriculum, various engagement and burnout parameters correlated with academic self-perception.

Keywords: burnout, engagement, pharmacy, academic performance

INTRODUCTION

Burnout is an important social issue that has garnered a great deal of attention in academia in recent years.¹⁻⁵ It is defined as a multidimensional syndrome characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment.¹ Risk factors correlated with burnout include work-life imbalance, heavy workload, depression, interpersonal disputes, and a decreased sense of self-worth.⁶ Within the context of graduate programs, chronic exposure to these stressors places health professions students at increased risk of experiencing burnout.

Several studies have measured stress and burnout in medical, dental, and nursing students,²⁻⁵ however, few have included pharmacy students.^{7,8} Most of these reports have used the Maslach Burnout Inventory (MBI) to measure burnout. The MBI is an objective, validated instrument, considered to be the gold-standard for measuring burnout.⁹ It assesses burnout using questions in three subscales: emotional exhaustion, cynicism, and professional efficacy. The emotional exhaustion subscale measures feelings of emotional overextension and being emotionally exhausted from one's academic studies. Cynicism measures

indifference to one's studies, and professional efficacy measures satisfaction from past and present accomplishments.^{1,6,10} Burnout among pharmacy students is prevalent, and previous studies have demonstrated that it can impact academic performance. In a 2014 study, Duru and colleagues examined the relationship between emotional exhaustion and academic performance in 383 undergraduate students in Turkey. The findings suggested that emotional exhaustion can lead to increased cynicism, and that students begin to feel indifferent, insufficient, and unsuccessful in their studies when they underperform.¹¹

To better understand the impact of mental and emotional states on academic performance, researchers have assessed student engagement. Engagement is defined as a positive, fulfilling, work-related state of mind, and can be measured using the Utrecht Work Engagement Survey (UWES-9).¹² This scale is characterized by three subscales: vigor, dedication, and absorption. Vigor is defined as having high levels of energy, resilience, and willingness; dedication is characterized as having a sense of significance from one's work; and absorption is defined as being fully focused on and happily engrossed in one's work.¹² To date, no study has investigated the effect of burnout and engagement on academic performance in pharmacy students.

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To assess the impact of burnout and engagement on academic performance, a subscale of the Student Attitudes Assessment Survey (SAAS-R) called *academic self-perception* was used.¹³ Academic self-perception measures the student's perceived self-worth and reinforces the idea that students who are confident in their abilities are likely to succeed academically.

The objectives of this study were to assess burnout and engagement in students completing the didactic portion of a Doctor of Pharmacy (PharmD) program using MBI and UWES-9, and to investigate whether students' self-perception of academic performance was positively associated with engagement and negatively associated with burnout. Our hypothesis was that pharmacy students' self-perception of academic ability is positively associated with engagement and negatively associated with burnout.

METHODS

An online survey was administered in late May 2017 immediately following students' completion of final examinations. Data were de-identified to maintain participant anonymity and privacy. This study was approved by the Touro University California Institutional Review Board.

Participants were first- (P1) and second-year (P2) students enrolled at Touro University California-College of Pharmacy (TUC-COP). The college is a private institution with a "2+2" program. Students complete all didactic coursework in the P1 and P2 years, and then complete two years of advanced pharmacy practice experience (APPEs). Inclusion criteria was enrollment as a P1 or P2 student at TUC-COP at the time of the study. Exclusion criteria for students were that they were taking a leave of absence at the time of the study or did not agree to complete the survey.

The survey measured demographics data, burnout, and engagement. Burnout was assessed using the Maslach Burnout Inventory-Student Survey (MBI-SS). Authorization to use the MBI-SS was purchased from Mind Garden (Menlo Park, CA).¹⁴ The MBI-SS is comprised of 16 questions divided into three subscales: emotional exhaustion, cynicism, and professional efficacy. For this study, professional efficacy scores were reversed to indicate professional *inefficacy*.¹⁵ The use of cut-off values to assess burnout scores is not advised as the scores are not clinically derived.^{14,16}

Student engagement was measured using the Utrecht Work Engagement Survey (UWES-9). The UWES-9 consists of three individual subscales: vigor, dedication, and absorption. It contains nine questions and employs a seven-point Likert scale ranging from 0=never to 6=always.¹²

Student academic self-perception was measured using a subscale of the Student Attitude Assessment Survey-Revised (SAAS-R), called the Academic Self-Perception (ASP) subscale. The ASP subscale consists of seven questions and employs a seven-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.¹³

Data analysis was conducted using STATA, version 14 (StataCorp, College Station, TX). Linear regressions were performed with components of burnout and engagement as independent variables and academic self-perception as the dependent variable. Any p values $< .05$ were considered statistically significant.

RESULTS

The number of first- and second-year students who were enrolled at Touro University California College of Pharmacy at the time of survey administration and completed the survey was 199 and 162, respectively, resulting in an 81.4% response rate. Of the 361 participants, 70.4% were Asian or Pacific Islander, 11.7% were Caucasian, 6.8% were Hispanic or Latino, and 7.4% indicated their ethnicity was "other." The average age of the student population was 25.0 (3.3) years old. Female students comprised 64% of the population.

Descriptive statistics of the burnout and engagement surveys are presented in Table 1. Average scores are reported as a reference to gauge where an average student at TUC-COP would score on a given scale range. For example, the average emotional exhaustion score of students in the survey population was 23.0 (6.2) on a scale of 0 to 30.

Results of the linear regression assessing the effect of each burnout subscale (measured by the MBI) on students' academic self-perception (a subscale of the SAAS-R) are presented in Table 2. We found significant negative correlations between the effect of emotional exhaustion and students' academic self-perception ($p < .001$, CI [-2.9, -0.9]) and between reversed professional efficacy and academic self-perception ($p < .001$, CI [-5.2, -2.7]). Similarly, the effect of each subscale of engagement on academic self-perception is summarized in Table 3. Only dedication resulted in a significant positive correlation with academic self-perception ($p = .003$, CI [0.9, 4.4]).

DISCUSSION

This is the first study that correlates the effect of burnout and engagement on perception of academic performance in pharmacy students. An objective of this study was to describe burnout and engagement in pharmacy students completing the didactic portion of the curriculum. Regarding burnout, emotional exhaustion appears to

Table 1. Pharmacy Students' Responses on Survey Instruments Used to Assess Burnout and Engagement (N=162)

Scale	Scale Range	Average	
		Score (SD) ^a	Mean (SD) ^b
Maslach Burnout Inventory			
Emotional exhaustion	0-30	23.0 (6.2)	4.6 (1.2)
Cynicism	0-30	15.9 (7.7)	3.2 (1.5)
Reversed professional efficacy	0-36	8.9 (5.1)	1.5 (0.8)
Utrecht Work Engagement			
Vigor	0-18	9.1 (3.6)	3.0 (1.2)
Dedication	0-18	11.4 (3.4)	3.8 (1.1)
Absorption	0-18	10.8 (3.6)	3.6 (1.2)

^a Average score is presented as a reference point to gauge where an average student would score on a given spectrum (0-30). The MBI authors do not recommend cut-off values to diagnose burnout. These values are for informational purposes and are not used for further analysis in this study

^b Mean is calculated by dividing the total score of each person by the number of questions provided in each subscale. The manual recommends using the mean for research purposes. This is used for further analysis in this study

have the greatest impact, revealing that students feel overextended in school. For engagement, students' mean scores for dedication and absorption were similar, followed by scores for vigor. Students may feel engrossed in their studies and feel a sense of significance because they are pursuing a career in pharmacy, but they may not have as much energy and resilience due to the requirements of a rigorous academic curriculum. These scores can be used for comparison in future studies that investigate burnout and/or engagement in pharmacy students.

Another objective of this study was to investigate whether students' academic self-perception was positively associated with engagement and negatively associated with burnout. Emotional exhaustion and professional

Table 2. Results of a Linear Regression to Assess Correlation Between Burnout Subscales and Academic Self-Perception (N=162)

Maslach Burnout Inventory Subscale	Slope	p Value	95% Confidence Interval	
			Lower Bound	Upper Bound
Emotional exhaustion	-1.9	< .001 ^a	-2.9	-0.9
Cynicism	0.5	.2	-0.3	1.3
Reversed professional efficacy	-3.9	< .001 ^a	-5.2	-2.7

^a p<.05

inefficacy have a negative correlation with students' academic self-perception. In other words, students who feel overextended by their studies and are not satisfied with their educational accomplishments are less likely to perceive their academic achievements in a positive manner. This idea is supported in an investigation by Duru and colleagues which states that students who realize that they are unable to meet academic expectations will likely become frustrated and withdraw from these responsibilities.¹¹ They have proposed a model in which students become emotionally exhausted first and later become indifferent or cynical, which negatively impacts their academic performance.¹¹ However, a relationship between cynicism and academic self-perception could not be established as the results were not significant. Conversely, dedication is positively correlated with students' academic self-perception. This is in line with findings that if students feel a sense of significance from their work, they are likely to be more invested in their work and view their academic performance in a positive manner.¹⁷ A relationship of vigor and absorption with academic self-perception could not be established as the results were not significant.

While this study established that burnout can negatively impact pharmacy students' self-perception of their academic ability, there is evidence that burnout can affect their academic performance as well. A 2019 study conducted in Ireland by Fitzpatrick and colleagues found a strong relationship between burnout and the risk of depression in medical students. Those with greater scores in cynicism and emotional exhaustion were identified as having greater risk of depression.¹⁸ This data supports the observations in the current study as we found an inverse relationship between burnout and a student's emotional wellbeing and ability to perform. Although academic performance and emotional health can be influenced by many factors, burnout is clearly implicated and plays a negative role in students.¹⁸ Furthermore, a report by Wang and colleagues involving nursing students from China found that those with positive professional self-concept reported less academic burnout. Students who recognized that their role was essential to their respective field had lower scores of burnout.¹⁹ The findings from these studies demonstrate that burnout may have a negative impact on academic performance.

There were several limitations to this study. First, our findings cannot be generalized to all pharmacy students as student populations and curricula vary between pharmacy schools. Also, the majority (64.2%) of the surveyed population consisted of female students and this female-to-male ratio may not be representative of all pharmacy schools. Finally, this study looked at students' perceptions of their academic ability, which is a subjective measure rather than a measure of actual performance.

Table 3. Results of a Linear Regression to Assess Correlation Between Engagement Subscales and Academic Self-perception (N=162)

Utrecht Work Engagement Subscale	Slope	p Value	95% Confidence Interval	
			Lower Bound	Upper Bound
Vigor	0.1	.8	-1.1	1.4
Dedication	2.7	.003 ^a	0.9	4.4
Absorption	-0.6	.4	-2.1	0.9

^a p<.05

Future studies could include long-term assessment of burnout throughout students' pharmacy career including didactic years, clinical rotations, and postgraduation. Burnout levels during APPEs could provide insight into students' preparedness for APPEs and the learning environment provided for them at the rotation site. Another future direction could include assessing students at various schools and curricula and comparing the burnout and engagement levels. It may also be helpful to collect data from schools with different curricula to get a more generalizable sample. Furthermore, to assess actual performance, future studies could include student GPA retrieved from college registrar to objectively assess academic performance and ensure data accuracy.

CONCLUSION

The survey data on burnout and engagement obtained from students at TUC-COP did not entirely prove our hypothesis that less burnout and a greater level of engagement relate to positive academic self-perception in pharmacy students. However, the data reflect a general trend in that direction. Emotional exhaustion seemed to have the greatest impact on pharmacy students. Emotional exhaustion and professional inefficacy had a negative impact on students' academic self-perception, while dedication had a positive impact on academic self-perception. The intention of this study is to serve as a steppingstone to create awareness about emotional exhaustion in pharmacy students.

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