

## COMMENTARY

# Addressing the Conflict Between Promoting Wellness, Perpetuating Mental Illness Stigma and Making Psychiatric Pharmacy Education Less Intense

Suzanne C. Harris, PharmD,<sup>a</sup> Jolene R. Bostwick, PharmD,<sup>b</sup> Amy B. Werremeyer, PharmD,<sup>c</sup> Lisa W. Goldstone, PharmD, MS,<sup>d</sup> Marshall E. Cates, PharmD,<sup>e</sup> Charles F. Caley, PharmD<sup>f</sup>

<sup>a</sup> University of North Carolina, Eshelman School of Pharmacy, Chapel Hill, North Carolina

<sup>b</sup> University of Michigan, College of Pharmacy, Ann Arbor, Michigan

<sup>c</sup> North Dakota State University, School of Pharmacy, Fargo, North Dakota

<sup>d</sup> University of Southern California, School of Pharmacy, Los Angeles, California

<sup>e</sup> Samford University, McWhorter School of Pharmacy, Birmingham, Alabama

<sup>f</sup> Western New England University, College of Pharmacy and Health Sciences, Springfield, Massachusetts

Submitted August 20, 2020; accepted February 5, 2021; published August 2021.

One in five Americans has a diagnosable mental illness, and pharmacists encounter these patients daily. This commentary addresses the conflict between the profession's wellness movement and its ongoing contribution to mental illness stigma. The need for improved pharmacist wellness is based on the profession's risk for burnout and development of related mental illness. The presence of stigma towards patients with mental illness among pharmacists is multi-factorial and complex. Risk of those within the profession perpetuating mental illness stigma could be diminished by developing pharmacy curricula that provide greater opportunities for students to learn more completely about mental illness, how to effectively engage persons with mental illness, and how to take care of themselves, express vulnerability, and talk about mental illness. While reducing mental illness stigma through curricular revision is best achieved through in-person learning experiences, elective coursework and cocurricular activities may also help achieve this goal. Examples of evidence-based best practices are provided.

**Keywords:** mental illness, stigma, pharmacy, psychiatric pharmacy, curriculum

## INTRODUCTION

With respect to mental illness, academic pharmacy and the pharmacy profession are faced with a serious conflict. For the past several years, pharmacy has been addressing the impact of work stress and burnout on the wellness of its students, faculty, and practitioners.<sup>1-3</sup> Recently, the Argus Commission reaffirmed the American Association of Colleges of Pharmacy's (AACP's) initiative to develop appropriate strategies that decrease stress and burnout, and increase well-being and resilience.<sup>4</sup> The importance of this issue is linked directly to work stress and burnout being risk factors for mental illness, and in particular, for depression.<sup>5</sup> By contrast, however, stigma towards persons with mental illness has been widely documented within the pharmacy profession.<sup>6-9</sup> Being a source of mental illness stigma prevents persons with mental illness from achieving their best treatment

outcomes, and in turn, their own wellness. It also violates our professional oath. When the person with mental illness is also a member of the pharmacy profession, the presence of stigma reduces their opportunity for wellness because related fear and shame become obstacles to seeking help.<sup>10,11</sup> This raises the question of why the profession embraces the importance of mental well-being among its members but does not have a plan to eliminate the pervasive stigma directed at persons with mental illness.

Practice readiness for Doctor of Pharmacy (PharmD) graduates must include a demonstrated ability to effectively engage persons with mental illness. By preparing student pharmacists to become comfortable and confident when engaging persons with mental illness, academic pharmacy can help lead an effort to construct a comprehensive solution for this problem. This commentary discusses the wellness efforts being made by pharmacy, highlights the prevalence of mental illness and the reality of mental illness stigma in pharmacy, and reviews evidence-based stigma reducing opportunities within pharmacy education.

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**Corresponding Author:** Charles F. Caley, Western New England University, College of Pharmacy and Health Sciences, 1215 Wilbraham Rd., Springfield, MA 01119. Tel: 413-796-2443. Email: charles.caley@wne.edu

## DISCUSSION

### Wellness, Illness, and Stigma

Pharmacy has been focused on several issues related to mental health, both within the profession and as they relate to patient care. In particular, there has been a focus on the mental health and wellness of pharmacists, pharmacy residents, and pharmacy students.<sup>1-4</sup> At the center of this wellness movement is the prevalence of burnout in our profession, with reported rates ranging from 40%-60% of pharmacists surveyed.<sup>12-14</sup> This is concerning as burnout is a well-known risk factor for declines in mental health, physical health, and work performance.<sup>15</sup> It therefore means that vulnerable pharmacy students, pharmacy residents, and pharmacists are at risk of developing a mental illness, such as depression and/or anxiety.<sup>5</sup>

In 2019, the American College Health Association reported that more than one in three students felt too depressed to function in the previous 12 months, and more than three out of five felt overwhelming anxiety.<sup>16</sup> Rates of stress, depression, and anxiety have been reported to be higher in health professional students than those rates in the general population. A 2019 national study found that rates of depressive symptoms in pharmacy students were similar to rates among medical students, and significantly more pharmacy students met the clinical threshold for generalized anxiety disorder. In pharmacy residents, one study found 39.9% had Patient Health Questionnaire-9 (PHQ-9) scores  $\geq 10$ , which is consistent with major depression, while another study reported that 82% of pharmacy residents experienced an episode of depressed mood at least once during their residency, with 22% of those residents also experiencing an episode of suicidal thinking. Pharmacists have reported rates of stress, depression, and anxiety higher than, or comparable to, those in the general population, and 22% of pharmacy faculty have reported consumption of alcohol as a means to relieve stress.

Mental illness is highly prevalent worldwide. Globally, the numbers of affected persons are high, with an estimated 300 million people having been diagnosed with depression, 60 million with bipolar disorder, and 23 million affected by schizophrenia.<sup>17</sup> In the United States, these numbers equate to one in every five adults experiencing mental illness each year, with suicide being the second leading cause of death for people aged 10-34 years, and the tenth leading cause of death overall.<sup>18</sup> Primary care practices and community pharmacies are care settings where persons with mental illness receive treatment frequently. In a 2019 survey, 19 primary care physician respondents reported diagnoses of major depressive, substance use, and anxiety disorders in 25%-36% of all new patients. Respondents reported depression as the most common behavioral health condition for which

patients received care, with an average of 72% of these patients receiving treatment and 69% also being diagnosed with an anxiety disorder. Other conditions treated in the primary care setting included bipolar disorder (36%) and substance use disorders (33%), as well as attention-deficit/hyperactivity disorder (ADHD) (53%) and serious mental illness (27%). Correspondingly, one in six Americans has reported filling a prescription for a psychiatric medication.<sup>19</sup> Thus, the likelihood of pharmacists needing to engage persons with mental illness is high.

Unfortunately, persons with mental illness often do not receive optimal care from pharmacists. According to self-report data, a majority of pharmacists do not provide medication education or identify drug-related problems with psychiatric medications as often as they do with, for example, cardiac medications.<sup>8,21</sup> Pharmacists have also reported low rates of involvement in antidepressant counseling, with just 61% assessing patient knowledge and understanding of depression, and 36% discussing options for managing antidepressant adverse effects.<sup>22</sup> Just 25% of patients with mental illness reported that they received medication effectiveness or safety monitoring information from their pharmacist.<sup>23</sup> Pharmacists consistently report low levels of confidence regarding psychotropic medications and mental illness and, hence, provide services in these areas less frequently.<sup>8,23</sup>

There are many potential reasons behind pharmacists' lack of providing optimal care to persons with mental illness. Low levels of knowledge, low mental health literacy, workflow and time constraints, and stigma have all been identified as contributors.<sup>9</sup> Recent findings suggest that higher levels of stigma may be one of the most significant barriers to provision of pharmacy services for patients with mental illness.<sup>8</sup> Stigma toward patients with mental illness, including those with substance use disorders, on the part of pharmacists and student pharmacists has also been widely reported.<sup>24</sup> Patients who are stigmatized experience discrimination, barriers to care, and social marginalization. This increases their risk for treatment nonadherence, poor treatment outcomes, and shorter lifespans.<sup>9</sup>

Stigma affects everyone with mental illness. When health care professionals are affected with mental illness, it is common for them to avoid seeking mental health care because of embarrassment and stigma (Appendix 2). Untreated mental illness is detrimental to an individual's health, and for a practicing pharmacist, it could result in medication errors because mental illness can adversely affect cognition. A solution to this could include training future pharmacists to understand the impact of mental illness and stigma. To practice in a way that optimizes wellness, students should be taught how to take care of themselves, how to express vulnerability, and how to discuss

mental illness. When students are not adequately trained to care for mental illness, stigma cannot be actively addressed or decreased, and cultivating a help-seeking culture for their patients, their peers, or themselves cannot occur.

### **Psychiatric Pharmacy Education**

Despite the prevalence of mental illness in the United States, pharmacy curricula have not typically been designed to ensure that all graduates have a sufficient knowledge of mental illness or mental health literacy. When examining US psychiatric pharmacy education, it is routine to find at least four general curricular characteristics. First, all PharmD degree programs offer didactic psychiatric pharmacotherapy course work, albeit at different points in the curriculum and to varying degrees. Second, individual pharmacy programs frequently characterize psychiatric pharmacy as a specialty and typically employ just one full-time psychiatric pharmacy faculty member. Third, only small percentages of pharmacy students elect to complete guided pharmacy practice experiences in mental health care settings where they engage patients with mental illness. Fourth, a large majority of academic pharmacy programs do not operate with a mission of insuring that all graduates will demonstrate effective engagement of persons with mental illness. These program characteristics have been in place for several decades.<sup>25</sup>

Despite evidence that in-person contact results in lower levels of stigma, (Appendix 2 for the 2016 National Academies report) and with the knowledge that pharmacists frequently interact with persons with mental illness, completing practice experiences in psychiatry is not a requirement within most PharmD curricula. Introductory pharmacy practice experience (IPPE) placements in psychiatric settings are limited,<sup>27</sup> and while advanced pharmacy practice experience (APPE) placements in psychiatric pharmacy are available at most pharmacy schools, nearly all of them are elective experiences.<sup>25</sup> Historically, elective status has resulted in only one in five pharmacy students completing a guided experience in psychiatric pharmacy. One survey, for example, determined that the mean student enrollment in elective APPEs was approximately 20% (range, 3%-60%), while another survey found there were enough available placements in psychiatric pharmacy APPEs to accommodate 20% of pharmacy students. A 2019 unpublished five-year retrospective survey of seven New England PharmD programs echoed these outcomes, with 799 of 4,075 students (19.6%; range, 17.8%-20.8% per academic year) completing a psychiatric pharmacy APPE (C. Caley, personal communication, April 2019). The lack of a required rotation in psychiatry for student pharmacists is in sharp contrast to the education requirements for other health care professionals who provide direct patient

care. For example, psychiatry is a required clerkship for most Doctor of Medicine degree programs. This difference is problematic for academic pharmacy as research suggests that traditional didactic education alone does not suffice for improving student pharmacists' negative attitudes toward persons with mental illness.

This pattern of only small numbers of student pharmacists completing psychiatric pharmacy practice experiences appears to extend into postgraduate training. Pursuit of residency training for student pharmacists interested in working with persons with mental illness is an additional pathway to cultivating a low-stigma pharmacy workforce. However, interested student pharmacists face barriers to achieving this goal. In 2020, only 63% of residency candidates interested in psychiatric pharmacy matched with a postgraduate year one pharmacy residency program (see Appendix 1 for the 2020 ASHP report). The impact of this dynamic is likely to be a reduction in the number of residency candidates who pursue additional training in psychiatric pharmacy, as well as to limit the number of persons with mental illness who receive care from residency trained psychiatric pharmacists.

The curricular characteristics of psychiatric pharmacy education described above could be intensified if US pharmacy programs adopt the recommended changes recently proposed by the 2019-2020 Argus Commission.<sup>4</sup> To better integrate pharmacists' and physicians' practices, the Commission has proposed that student pharmacists receive less intense coverage of "specialty" content, including psychiatric pharmacy, than current levels so that more in-depth coverage can be given to "more general topics." This seems to imply that future student pharmacists who are preparing for careers providing comprehensive medication management services for patients in primary care settings and community pharmacies do not need in-depth coverage about, for example, major depressive disorders, anxiety disorders, substance use disorders, or sleep disorders as part of their PharmD education. Given the high prevalence of patients with mental illness who are cared for in primary care and community pharmacy settings, and the presence of mental illness stigma within pharmacy, providing less intense psychiatric pharmacy education to US pharmacy students will very likely result in an increase in mental illness stigma which could decrease the profession's value to health care.

### **Accreditation Council for Pharmacy Education Standards and Evidence Based Opportunities**

In a review of Accreditation Council for Pharmacy Education (ACPE) standards for the PharmD degree,<sup>28</sup> several items can be readily identified that should address preparing pharmacy students to effectively engage persons with mental illness using a stigma-free approach. The challenge

is to have more members of the Academy interpret relevant items with this goal in mind. For example, each of the following ACPE standards has elements that provide schools with opportunities to focus instruction on pharmacy students effectively engaging persons with mental illness: Standard 2: Essentials for Practice and Care; Standard 3: Approach to Practice and Care; Standard 4: Personal and Professional Development; Standard 10: Curriculum Design, Delivery, and Oversight; Standard 12: Pre-APPE Curriculum; and Standard 13: APPE Curriculum. Yet, given the inclusive nature in which ACPE standards are worded regarding medical illnesses and patient populations, there is no guidance offered to encourage instruction focused on mental illness or engaging persons with mental illness. Accordingly, individual PharmD programs must determine their own curriculum needs and where any emphasis will be placed. Because individual psychiatric pharmacy faculty are likely to be a minority voice when advocating for curricular revision that focuses on engaging persons with mental illness using a stigma-free approach, interpreting the relevant ACPE standards with this goal in mind will require faculty who are not psychiatric pharmacy specialists to also determine that academic pharmacy has a responsibility to reduce mental illness stigma and prepare students accordingly. For this to happen on a broad scale, leaders within academic pharmacy, including at each program, must be involved in the effort. The first step in this process will be for all of those involved to agree that mental illness stigma must be addressed, that improving mental illness treatment outcomes is important, and that pharmacists should be essential contributors to these improved treatment outcomes.

There are numerous published accounts of mental health-related elective courses and other educational interventions that have been successful at addressing pharmacy students' attitudes toward mental illness. These courses and interventions have used various pedagogical techniques, such as contact-based sessions with people with mental illness, designed to promote a greater understanding of mental illness and patients' experiences with their mental illness. Experiential education and the co-curriculum offer additional opportunities to focus on improving student attitudes about patients with mental illness. Evidence-based practices across the curriculum and co-curriculum that can be impactful and integrated into existing programming are presented in Appendix 1. This appendix is intended to encourage stepwise implementation and not major curricular overhaul. For example, an initial step towards revising a curriculum to have a greater focus on mental illness could begin with a course coordinator shifting the emphasis of one required interprofessional activity toward an interaction with a person with major depressive disorder or opioid use disorder without changing the entire course. More substantial examples could include: all first year student

pharmacists completing Mental Health First Aid certification, all second year student pharmacists learning how to screen for depressive and anxiety disorders during a patient assessment skills laboratory, offering a semester-long elective to third year student pharmacists that has persons with mental illness helping to teach pharmacy students about living with a mental illness, or identifying new IPPEs or APPEs in community and institutional mental health care settings to increase the number of opportunities for students. The impact of such revisions would be greatest if they are a part of a coordinated, comprehensive approach to prepare pharmacy students to appropriately engage with, provide care for, and reduce stigma towards patients with mental illness. Coursework or topics that get displaced, if any, should be decided by college and course leadership at individual programs. One approach could be moving some Tier 3 pharmacotherapy topics, as described in the American College of Clinical Pharmacy's (ACCP's) 2019 Pharmacotherapy Didactic Curriculum Toolkit,<sup>29</sup> from required courses to elective courses. Ideally, pharmacy students would have several opportunities throughout their curriculum for in-depth learning about mental illness stigma and how to effectively engage persons with mental illness.

## CONCLUSION

The pharmacy profession has a serious conflict to address regarding mental illness and academic pharmacy has an important role to play in the solution. It is improper to be aware of the construct described here and remain complacent. The impact of work stress and burnout on the mental health and wellness of pharmacy students, faculty, and practitioners makes it essential for the profession to address this critical issue. Recognizing mental illness stigma within pharmacy and preparing student pharmacists to effectively care for persons with mental illness should be of equal priority and actively addressed.

The pharmacy profession, including academic pharmacy, has no goal to evaluate or reduce the mental illness stigma that has been previously described. Yet, there are compelling reasons why PharmD programs should intentionally make this a high curricular and cocurricular priority. First, mental illness is common and is a health risk for many, including vulnerable pharmacists experiencing burnout. Second, a substantial proportion of pharmacists do not feel comfortable or confident engaging persons with mental illness or educating them about their illness or psychotropic medications. Third, denying pharmacist services to persons with mental illness because of discomfort is discriminatory. Fourth, patient discrimination leads to poor treatment outcomes, including early death, and fifth, discrimination directly, and unacceptably, violates the oath of a pharmacist.

Taking these dynamics into consideration, it would be counterproductive to diminish psychiatric pharmacy content in US pharmacy curricula as proposed by the 2019-2020 Argus Commission, as this could increase mental illness stigma among pharmacists and worsen treatment outcomes for persons with mental illness. Pharmacists will also be less prepared to meet the mental health care needs of persons in primary care and community pharmacy settings. Educating student pharmacists fully about mental illness by using evidence-based practices across the curriculum and co-curriculum will require schools and colleges of pharmacy and pharmacy leadership to give this issue high priority and to purposefully implement step-wise, comprehensive plans individualized to each program's needs. Ultimately, aligning the profession's support of pharmacist wellness with the reduction of mental illness stigma by the profession through improved preparation of student pharmacists should be our goal.

## REFERENCES

1. American Association of Colleges of Pharmacy. Wellness and resilience in pharmacy education. Accessed January 29, 2021. <https://www.aacp.org/resource/wellness-and-resilience-pharmacy-education>
2. APhA Statement on Commitment to the Well-being and Resiliency of Pharmacists and Pharmacy Personnel. Accessed January 29, 2021. [https://nam.edu/wp-content/uploads/2018/11/American-Pharmacists-Association\\_Commitment-Statement.pdf](https://nam.edu/wp-content/uploads/2018/11/American-Pharmacists-Association_Commitment-Statement.pdf). Accessed August 18, 2021.
3. ASHP Statement on Commitment to Clinician Well-Being and Resilience. Accessed January 29, 2021. [https://nam.edu/wp-content/uploads/2017/11/American-Society-of-Health-System-Pharmacists\\_Commitment-Statement.pdf](https://nam.edu/wp-content/uploads/2017/11/American-Society-of-Health-System-Pharmacists_Commitment-Statement.pdf)
4. Chase PA, Allen DD, Boyle CJ, DiPiro JT, Scott SA, Maine LL. Advancing our pharmacy reformation - accelerating education and practice transformation: report of the 2019-2020 Argus Commission. *Am J Pharm Educ.* 2020;84(10):8205.
5. Papathanasiou I. Work-related mental consequences: implications of burnout on mental health status among health care providers. *Acta Inf Med.* 2015;23(1):22-28. doi: 10.5455/aim.2015.23.22-28
6. Phokeo V, Sproule B, Raman-Wilms L. Community pharmacists' attitudes toward and professional interactions with users of psychiatric medications. *Psychiatr Serv.* 2004;55:1434-1436.
7. Rickles NM, Dube GL, McCarter A, Olshan JS. Relationship between attitudes toward mental illness and provision of pharmacy services. *J Am Pharm Assoc.* 2010;50:704-713.
8. O'Reilly CL, Bell JS, Kelly PJ, Chen TF. Exploring the relationship between mental health stigma, knowledge and provision of pharmacy services for consumers with schizophrenia. *Res Soc Adm Pharm.* 2015; 11(3):e101-e109. doi:10.1016/j.sapharm.2013.04.006
9. Calogero S, Caley CF. Supporting patients with mental illness: deconstructing barriers to community pharmacist access. *J Am Pharm Assoc.* 2017;(57):248-255.
10. Kay M, Mitchell G, Clavarino A, Doust J. Doctors as patients: a systematic review of doctors' health access and the barriers they experience. *Br J Gen Pr.* 2008;58(552):501-508. doi:10.3399/bjgp08X319486
11. Moutier C, Cornette M, Lehrmann J, et al. When residents need health care: stigma of the patient role. *Acad Psychiatry.* 2009;33(6): 431-441. doi:10.1176/appi.ap.33.6.431
12. El-Ibiary SY, Yam L, Lee KC. Assessment of burnout and associated risk factors among pharmacy practice faculty in the united states. *Am J Pharm Educ.* 2017;81(4). doi:10.5688/ajpe81475.
13. Jones GM, Roe NA, Lpuden L, Tubbs CR. Factors associated with burnout among US hospital clinical pharmacy practitioners: results of a nationwide pilot survey. *Hosp Pharm.* 2017;52(11).
14. Kraus S, Gardner N, Jarosi N, McMath T, Gupta A, Mehta B. Assessment of burnout within a health-system pharmacy department. *Am J Health Syst Pharm.* 2020;77(10):781-789. doi:10.1093/ajhp/zxaa042
15. Maslach C, Leiter M. *Maslach Burnout Inventory Manual.* 3rd ed. Consulting Psychologists; 1996.
16. American College Health Association. American College Health Association-National College Health Assessment II: Reference Group Executive Summary Spring 2019. American College Health Association; 2019. [https://www.acha.org/documents/ncha/NCHA-II\\_SPRING\\_2019\\_US\\_REFERENCE\\_GROUP\\_EXECUTIVE\\_SUMMARY.pdf](https://www.acha.org/documents/ncha/NCHA-II_SPRING_2019_US_REFERENCE_GROUP_EXECUTIVE_SUMMARY.pdf). Accessed January 29, 2021.
17. World Health Organization. Mental Disorders Key Facts. Accessed January 29, 2021. <https://www.who.int/en/news-room/fact-sheets/detail/mental-disorders>
18. National Alliance on Mental Illness. Mental health by the numbers. Accessed January 29, 2021. <https://www.nami.org/learn-more/mental-health-by-the-numbers>
19. University of Michigan Behavioral Health Workforce Research Center. Behavioral Health Service Provision by Primary Care Physicians. Ann Arbor, MI: UMSPH; 2019.
20. Moore TJ, Mattison DR. Adult utilization of psychiatric drugs and differences by sex, age, and race. *JAMA Intern Med.* 2017;177(2):274-275. doi:10.1001/jamainternmed.2016.7507
21. Goodman CS, Smith TJ, LaMotte JM. A survey of pharmacists' perceptions of the adequacy of their training for addressing mental health-related medication issues. *Ment Health Clin Internet.* 2017;7(2):69-73.
22. Cannon-Breland ML, Westrick SC, Kavookjian J, Berger BA, Shannon DM, Lorenz RA. Pharmacist self-reported antidepressant medication counseling. *J Am Pharm Assoc.* 2013;53(4):390-399.
23. Watkins A, McKee J, Hughes C, Pfeiffenberger T. Community pharmacists' attitudes toward providing care and services to patients with severe and persistent mental illness. *J Am Pharm Assoc.* 2017;57(3):S217-S224.
24. Murphy AL, Phelan H, Haslam S, Martin-Misener R, Kutcher SP, Gardiner DM. Community pharmacists' experiences in mental illness and addictions care: a qualitative study. *Subst Abuse Treat Prev Policy.* 2016;11(6). <https://doi.org/10.1186/s13011-016-0050-9>
25. Dopheide JA, Bostwick JR, Goldstone LW, et al. Curriculum in psychiatry and neurology for pharmacy programs. *Am J Pharm Educ.* 2017;81(7):5925. doi:10.5688/ajpe8175925.
26. Bostwick JR, Leung GP, Smith TL, Ahmed U, Bainbridge JL, Peyronnet JX. Survey highlights the need to expand offerings of introductory pharmacy practice experiences in psychiatry and neurology: benefits and example experiences. *Ment Health Clin Internet.* 2018;8(1):7-13. doi:10.9740/mhc.2018.01.007
27. Accreditation Council for Pharmacy Education. 2016. Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree. <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>. Accessed January 29, 2021.
28. Flannery AH, Soric MM, Benavides S, et al. 2019 Update to the American College of Clinical Pharmacy Pharmacotherapy Didactic Curriculum Toolkit. *JACCP.* 2020;3(2):455-464.

Appendix 1. Evidence-Based Course Work Designed to Reduce Mental Illness Stigma and Increase Mental Health Knowledge in Pharmacy Students

| <b>Study</b>  | <b>Design</b>   | <b>Findings</b>   |
|---|---|---|
| <b>Curricular Interventions-Elective Coursework</b> |   |   |
| <i>Consumers as Educators</i>                       |   |   |
| Bell et al, 2006                                    | 2 group, nonrandomized, clustered, comparative design; 1 group with 4 tutorial classes of standard pharmacist-led instruction, and 1 group with 5 tutorial classes of standard pharmacist-led instruction plus additional input from mental health consumer-educators                 | Students who received consumer intervention: had decreased social distance <sup>a</sup> scores, more strongly disagreed with negative non-social distance <sup>a</sup> statements, and more strongly agreed with positive non-social distance <sup>a</sup> statements |
| Buhler et al, 2008                                  | Survey of pharmacy students before and after taking a neuropsychiatry curriculum that included peer-level patient presenters; measured 4 aspects of schizophrenia and “clinical depression”   | Social distance <sup>a</sup> scores decreased in first-year pharmacy students who attended peer-level patient presentations; willingness to interact, understanding of illness cause and patient behavior also improved   |
| Nguyen et al, 2012                                  | Comparing the effectiveness of a direct, face-to-face contact intervention with an indirect (film based) contact intervention in reducing mental illness stigma of pharmacy students  | Both direct and indirect contact had an impact on mental illness stigma of pharmacy students, though direct contact had a comparatively stronger effect than indirect contact   |
| Patten et al, 2012                                  | Randomized controlled trial to evaluate the impact of contact-based education on mental illness stigma in pharmacy student using the Open Minds Survey for Health Care Providers  | Contact-based education resulted in a significant reduction in stigma in pharmacy students  |
| <b>Elective Courses in Mental Health</b>            |   |   |
| Dipaola et al, 2011                                 | Study the impact of an elective mental health course on social distance <sup>a</sup> on pharmacy students toward people with severe mental illness.   | Students completing the elective had significantly lower social distance <sup>a</sup> scale scores than students who did not complete the elective  |
| Gable et al, 2011                                   | Study the impact of a mental health elective course on social distance <sup>a</sup> and stigmatizing views of pharmacy students   | Course had a positive impact on pharmacy students’ perceptions of mental illness with social distance <sup>a</sup> and stigmatizing view scores improving   |
| McGuire et al, 2016                                 | Assess third year pharmacy student empathy for mental illness using the Jefferson Scale of Empathy Health Professions Student version pre- and post- a required therapeutics course, and then an elective course in psychiatry  | Empathy scores for third year pharmacy students improved non-significantly after the therapeutics course, but significantly after the elective psychiatry course.   |
| Cates et al, 2019                                   | Evaluate the effects of an elective “Mental Illness and Treatment in the Movies” course available to second- and third year pharmacy students on attitudes towards mental illness and providing pharmaceutical care to the mentally ill using standard mental illness attitude scales | Pharmacy students experienced significant improvements in attitudes about dangerousness, social distance*, stigma towards schizophrenia and depression, and provision of pharmaceutical care to people with schizophrenia and depression                              |
| <b>Experiential Education</b>                       |   |   |
| Cates et al, 2017                                   | Study the impact of psychiatric advanced pharmacy practice experiences (APPE) using pre/post surveys on attitudes toward dangerousness, social distance, <sup>a</sup> stigmatization, suicide prevention, and provision of pharmaceutical care  | Psychiatric APPE improved student attitudes towards provision of pharmaceutical care services to mentally ill patients, suicide prevention, and stigmatization towards patients with schizophrenia  |

(Continued)

Appendix 1. (Continued)

| Study  | Design   | Findings  |
|--|--|---|
| Diefender et al, 2020  | To evaluate the effects of an APPE in psychiatric pharmacy on students' stigma toward patients with mental illness using the Opening Minds Stigma Scale (OMSS) at 2 psychiatric hospitals. Pre/post surveys were collected during 3 academic years.  | APPE rotations in inpatient psychiatric hospitals resulted in a significant decrease in total OMSS scores indicating decreased stigma levels after completion of rotation and             |
| <b>Other Educational Interventions</b>                       |  |   |
| <i>Co-curriculum</i>   |  |   |
| Hillman et al, 2015  | Evaluate pharmacy student's attitudes toward patients with mental illness and comfort / ability to provide pharmaceutical services to this population before and after leading a patient medication education group on an adolescent inpatient psychiatric unit using the Social Distance <sup>a</sup> Scale and Open Minds Survey | Leading a patient medication education group resulted in reductions of social distance <sup>a</sup> and improvements in beliefs of pharmacy students about mental illness                 |
| Harris et al, 2017   | Evaluate impact of mental health-focused professional organization on stigma of pharmacy student members across multiple student chapters using the Social Distance <sup>a</sup> Scale and Open Minds Survey   | Shadowing pharmacists and community service were frequently reported as most influential on student perceptions of mental health. Direct patient interaction activities decreased stigma. |
| <b>Focused Interventions</b>                                 |  |   |
| Bamgbade et al, 2016   | To determine if exposure to a 2 class, 2.5-hour intervention impacts third year pharmacy student's mental health stigma and mental health knowledge using a one-group pre/posttest survey and true/false questions   | Students had improvement in their stigma scores in the sub-domains of recovery, safety, separation, and comfort; mental health knowledge also improved.                                   |
| Douglass et al, 2019   | Use of the Open Minds Stigma scale to evaluate whether a 90-minute interactive learning activity using social media and fictional case scenarios had an impact on stigma towards mental illness  | Mental illness stigma was significantly reduced in pharmacy students completing the intervention.   |
| Schartel et al, 2018   | Use of an Objective Structured Clinical Examination (OSCE) in a first year Patient Care Lab to determine impact based on self-assessments in pharmacy students' confidence and knowledge in management of opioid overdose  | Use of OSCE increased student pharmacist knowledge and confidence to counsel and administer naloxone  |
| <b>Mental Health First Aid (MHFA) and Suicide Prevention</b> |  |   |
| McCormack et al, 2017  | To determine the effect of MHFA training on stigmatizing attitudes toward those with mental illness among pharmacy and non-pharmacy students, using the Social Distance <sup>a</sup> Scale and Attitudes to Mental Illness Questionnaire   | MHFA was effective in decreasing stigmatizing beliefs among pharmacy and non-pharmacy students  |
| De Silva et al, 2015   | To determine impact of a 5-hour suicide awareness and intervention program to first year medical, paramedical and pharmacy students using pre/post surveys on knowledge, skills, and attitudes.  | The suicide prevention intervention increased knowledge, skills and attitudes related to the assessment and management of individuals at risk for suicide                                 |

<sup>a</sup> Social distance preference is a central element and contributor to stigma and is not related to recent social distancing mandates widely practiced throughout the COVID-19 pandemic. As it applies to persons with mental illness, social distance preference is an indicator of undesirability leading to rejection, lower engagement, and/or lack of willingness to care for an individual.

## Appendix 2. Additional References

### *Wellness, Illness and Stigma*

Munger MA, Gordon E, Hartman J, Vincent K, Feehan M. Community pharmacists' occupational satisfaction and stress: a profession in jeopardy? *J Am Pharm Assoc.* 2003;2013;53(3):282-296.

Lindfelt TA, Ip EJ, Barnett MJ. Survey of career satisfaction, lifestyle, and stress levels among pharmacy school faculty. *Am J Health Syst Pharm* 2015;72(18):1573-1578. doi:10.2146/ajhp140654

Marshall LL, Allison A, Nykamp D, Lanke S. Perceived stress and quality of life among doctor of pharmacy students. *Am J Pharm Educ* 2008;72(6):137. doi:10.5688/aj7206137

Fischbein R, Bonfine N. Pharmacy and medical students' mental health symptoms, experiences, attitudes, and help-seeking behaviors. *Am J Pharm Educ* 2019;83(10):7558. doi:10.5688/ajpe7558

Williams E, Martin SL, Fabrikant A, Wang A, Pojasek M. Rates of depressive symptoms among pharmacy residents. *Am J Health Syst Pharm* 2018;75(5):292-297. doi:10.2146/ajhp161008

Mayberry KM, Miller LM. Incidence of self-reported depression among pharmacy residents in Tennessee. *Am J Pharm Educ* 2017;81:78-83.

Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *JAMA.* 2016;316(21):2214-2236. doi:10.1001/jama.2016.17324

Firth H, McKeown P, McIntee J. Professional depression, "burnout" and personality in longstay nursing. *Int J Nurs Stud.* 1987;24:227-237.

Golembiewski RT, Boss W. Phases of burnout in diagnosis and intervention. *Res Organ Change Dev.* 1992;6:115-152.

Gardner DM, Murphy AL, Woodman AK, Connelly S. Community pharmacy services for antidepressant users. *Int J Pharm Pr.* 2001;9:217-224.

Stoddard M. Palm Beach woman files suit against Walgreens. *South Florida Sun-Sentinel.* March 8, 2006. Accessed March 24, 2020. <https://www.sun-sentinel.com/news/fl-xpm-2006-03-08-0603070654-story.html>

Caley CF, Stimmel GL, CPNP Foundation. Characterizing the relationship between individuals with mental health conditions and community pharmacists. Accessed March 24, 2020. [https://cpnpf.org/\\_docs/foundation/2012/nami-survey-report.pdf](https://cpnpf.org/_docs/foundation/2012/nami-survey-report.pdf)

Giannetti V, Caley CF, Kamal KM, et al. Community pharmacists and mental illness: a survey of service provision, stigma, attitudes and beliefs. *Int J Clin Pharm.* 2018;40(5):1096-1105.

Knox K, Fezjic J, Mey A, et al. Mental health consumer and caregiver perceptions of stigma in Australian community pharmacies. *Int J Soc Psych.* 2014;60:533-543.

Thornicroft G. Most people with mental illness are not treated. *Lancet.* 2007;370(9590):807-808. doi:10.1016/S0140-6736(07)61392-0.

Knaak S, Mantler E, Szeto A. Mental illness-related stigma in healthcare: barriers to access and care and evidence-based solutions. *Health Manage Forum.* 2017;30(2):111-116. doi:10.1177/0840470416679413

Barney LJ, Griffiths KM, Jorm AF, Christensen H. Stigma about depression and its impact on help-seeking intentions. *Aust N Z J Psychiatry.* 2006;40(1):51-54. doi:10.1080/j.1440-1614.2006.01741.x.

Lyons B, Gibson M, Dolezal L. The art of medicine. Stories of shame (letter). *Lancet.* 2018;391:1568-1569.

Mahon LR, Hawthorne AN, Lee J, Blue H, Palombi L. Assessing pharmacy student experience with knowledge of and attitudes toward harm reduction: illuminating barriers to pharmacist-led harm reduction. *Harm Reduct J.* 2018;15, 57. doi:10.1186/s12954-018-0262-6.

Sciences NA, Engineering, Medicine. Ending Discrimination Against People with Mental and Substance Use Disorders: The Evidence for Stigma Change. The National Academies Press; 2016. doi:10.17226/23442

A.A.F.P. Rotations and Electives in Family Medicine. <https://www.aafp.org/students-residents/medical-students/begin-your-medical-education/rotations-and-electives.html>

Bell JS, Johns R, Chen TF. Pharmacy students' and graduates' attitudes towards people with schizophrenia and severe depression. *Am J Pharm Educ.* 2006;70(4):Article 77.

Cates ME, May KL, Woolley TW. Attitudes of pharmacy students toward mental illness across the professional curriculum. *Int J Pharm Educ Pract.* 2009;5(1):1-7.

Cates ME, Neace AL, Woolley TW. Pharmacy students' attitudes toward mental illness at the beginning and end of the professional curriculum. *Curr Pharm Teach Learn.* 2012;4(2):132-136.

Ono S, Hanya M, Tanaka H, Cates ME, Kamei H. Changes in attitudes of Japanese pharmacy students towards mental illness during the didactic portion of the curriculum. *Pharm Educ.* 2013;13(1):145-150.

### *Psychiatric Pharmacy Education*

Stimmel GL. Schools mediocre on psychopharmacy training. *Hosp Pharm Rep.* 1993;5(21):24.

Marken PA, Evans RL. Survey of psychopharmacy curricula and faculty at schools of pharmacy. *Am J Pharm Educ.* 1993;57:330-332.

Cates ME, Monk-Tutor MR, Drummond SO. Mental health and psychiatric pharmacy instruction in US colleges and schools of pharmacy. *Am J Pharm Educ.* 2007;71(1):Article 4.

Martello JL, Kreys TJ, Paxos C, Thornton A. Survey of psychiatric pharmacy education at US schools of pharmacy. *Curr Pharm Teach Learn.* 2016;8:782-787.

### *Evidence-based Opportunities*

Sherwood DA. Healthcare curriculum influences on stigma towards mental illness: core psychiatry course impact on pharmacy, nursing and social work student attitudes. *Curr Pharm Teach Learn.* 2019;11(2):198-203.

Jermain DM, Crismon ML. Students' attitudes toward the mentally ill before and after clinical rotations. *Am J Pharm Educ.* 1991;55:45-48.

McLaughlin JE, Kennedy L, Garris S, et al. Student pharmacist experiences as inpatient psychiatric medication education group leaders during an early immersion program. *Curr Pharm Teach Learn.* 2017;9(5):856-861. doi:10.1016/j.cptl.2017.06.005

Davies EB, Beever E, Glazebrook C. A pilot randomised controlled study of the Mental Health First Aid eLearning course with UK medical students. *BMC Med Educ.* 2018;18:Article 45. doi:10.1186/s12909-018-1154-x

Burns S, Crawford G, Hallett J, Hunt K, Chih HJ, Tilley PJ. What's wrong with John? A randomised controlled trial of Mental Health First Aid (MHFA) training with nursing students. *BMC Psychiatry.* 2017;17:Article 111. doi:10.1186/s12888-017-1278-2.

American Society of Health-System Pharmacists - Resident Matching Program. Summary results of the match for positions beginning in 2020 combined phase I and phase II applicants. Published July 21, 2020. <https://natmatch.com/ashprmp/stats/2020applstats.pdf>

#### **Appendix 1 References**

Bell JS, Johns R, Rose G, Chen TF. A comparative study of consumer participation in mental health pharmacy education. *Ann Pharmacother.* 2006;40(10):1759-1765.

Buhler AV, Karimi RM. Peer-level patient presenters decrease pharmacy students' social distance from patients with schizophrenia and clinical depression. *Am J Pharm Educ.* 2008;72(5):Article 106

Nguyen E, Chen TF, O'Reilly CL. Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. *Soc Psychiatry Psychiatr Epidemiol.* 2012;47(7):1-12. doi:10.1007/s00127-011-0413-5

Patten SB, Remillard A, Phillips L, et al. Effectiveness of contact-based education for reducing mental illness-related stigma in pharmacy students. *BMC Med Educ.* 2012;12:Article 120.

Dipaola BA, Qian J, Mehdizadegan N, Simoni-Wastila L. An elective psychiatric course to reduce pharmacy students' social distance toward people with severe mental illness. *Am J Pharm Educ.* 2011;75(4):Article 72.

Gable KN, Muhlstadt KL, Celio MA. A mental health elective to improve pharmacy students' perspectives on mental illness. *Am J Pharm Educ.* 2011;75(2):Article 34.

McGuire JM, Bynum LA, Wright E. The effect of an elective psychiatry course on pharmacy student empathy. *Curr Pharm Teach Learn.* 2016;8(4):565-571.

Cates ME, Mullins KM, Woolley TW. Description of an elective course about mental illness and treatment in the movies. *Pharm Educ.* 2019;19(1):108-115.

Cates ME, Woolley TW. Effects of a psychiatric clinical rotation on pharmacy students' attitudes toward mental illness and the provision of pharmaceutical care to the mentally ill. *Ment Health Clin Internet.* 2017;7(5):194-200.

Diefenderfer LA, Iuppa C, Kriz C, Nelson LA. Assessment of pharmacy student attitudes and beliefs toward patients with mental illnesses on inpatient psychiatric units. *Ment Health Clin Internet.* 2020;10(1):1-5.

Hillman A, Kennedy L, Garris S, McLaughlin JE, Rhoney DH. Stigmatizing beliefs: how leading patient medication education groups on an inpatient psychiatric unit impacts pharmacy learners. *Ment Health Clin Internet.* 2015;5(4):162-168.

Harris SC, Yates D, Patel M, Patel K. Student engagement and perceptions of stigmatizing views in a mental health focused collegiate organization. *Ment Health Clin Internet.* 2018;7(5):187-193. doi:10.9740/mhc.2017.09.187.

Bamgbade BA, Ford KH, Barner JC. Impact of a mental illness stigma awareness intervention on pharmacy student attitudes and knowledge. *Am J Pharm Educ.* 2016;80(5):Article 80.

Douglass M, Moy B. Evaluation of the impact of a social media focused intervention on reducing mental health stigma among pharmacy students. *Ment Health Clin Internet.* 2019;9(3):110-115. doi:10.9740/mhc.2019.05.110

Schartel A, Lardieri A, Mattingly A, Feemster AA. Implementation and assessment of a naloxone-training program for first-year student pharmacists. *Curr Pharm Teach Learn.* 2018 Jun;10(6):717-722.

McCormack Z, Golbert J, Ott C, Plake KS. Mental health first aid training among pharmacy and other university students and its impact on stigma toward mental illness. *Curr Pharm Teach Learn.* 2018;10:1342-1347. doi:10.1016/j.cptl.2018.07.001

De Silva E, Bowerman L, Zimitat C. A suicide awareness and intervention program for health professional students. *Educ Health (Abingdon).* 2015;28(3):201-204.