

Student engagement and perceptions of stigmatizing views in a mental health–focused collegiate organization

Suzanne C. Harris, PharmD, BCPP, CPP¹; Derek Yates, PharmD²; Michael Patel³; Khushboo Patel⁴

How to cite: 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]. 2017;7(5):187-93. DOI: 10.9740/mhc.2017.09.187.

Abstract

Introduction: While often unintentional, stigma associated with mental health remains prevalent among health care professionals and is implicated in treatment disparities between patients with and without mental disorders. Pharmacists and pharmacy students have also been previously described as prone to discomfort interacting with this population. The purpose of this study was to evaluate stigma, student involvement in mental health activities, and student interest in psychiatric pharmacy.

Methods: An anonymous, voluntary online survey was open to all student chapters in a mental health–focused professional organization. Sixty-five students from 19 chapters participated in the survey after consent was obtained. Stigma and social distance survey items were adapted from previously validated instruments. Descriptive statistics were used and correlations were investigated using Spearman rank correlation.

Results: Results indicated that students had overall low stigma but more negative views related to disclosure of one's own illness or to more personal interactions. Level of involvement was unrelated to level of stigma, and perceived impact by nonleadership activities was associated with lower stigma ($P = .016$). Shadowing pharmacists and community service were frequently reported as most influential on student perceptions of mental health (23% and 26%, respectively).

Discussion: Students involved in a mental health–focused organization had overall positive perceptions toward mental illness. Student engagement in specific opportunities at any level may be more influential than total number of activities participated in. Students have a strong interest in pursuing extracurricular activities in mental health and perceive interactions with patient contact as the most influential on their attitudes.

Keywords: stigma, social distance, mental health, student organization, engagement

¹ (Corresponding author) Clinical Assistant Professor, Division of Practice Advancement and Clinical Education, UNC Eshelman School of Pharmacy, Chapel Hill, North Carolina; Clinical Pharmacist Practitioner, UNC Medical Center, Chapel Hill, North Carolina, suzanne_harris@unc.edu, ORCID: <http://orcid.org/0000-0002-1751-4732>; ² PGY-1 Ambulatory Care Resident, William S. Middleton Memorial Veterans Hospital, Madison, Wisconsin; Clinical Instructor, University of Wisconsin School of Pharmacy, Madison, Wisconsin, ORCID: <http://orcid.org/0000-0003-3841-0964>; ³ PharmD candidate, UNC Eshelman School of Pharmacy, Chapel Hill, North Carolina, ORCID: <http://orcid.org/0000-0002-1462-6894>; ⁴ PharmD Candidate, UNC Eshelman School of Pharmacy, Chapel Hill, North Carolina, ORCID: <http://orcid.org/0000-0001-7752-3297>

Disclosures: The authors have nothing to disclose.

Introduction

Due to the large medication management burden and risk of earlier mortality that many mental health patients face, pharmacists are in a unique position to provide accessible medication management and education. Patients have referred to inadequacy in managing many known side effects of psychiatric medications and report a lack of proper medication counseling.¹ Therefore, a demonstrated need exists for health professionals with effective

understanding of psychotropic medications who can navigate around barriers to treatment.²

While often unintentional, a general stigma toward those with mental illness persists and has been identified as the greatest barrier to effective psychiatric patient care by the World Health Organization.³⁻⁴ The frequency of discrimination in mental healthcare settings ranges from 16% to 44%.^{1,5-7} Discrimination may affect a patient's self-esteem, likelihood to seek help, and medication adherence.⁸ A systematic review⁹ of studies that offered community pharmacy services to mental health consumers showed that medication counseling sessions improved adherence to antidepressant medications.

Pharmacists have also exhibited poor communication with and varying attitudes toward this patient population. Community pharmacists have been shown to be less effective at providing pharmacy services and medication counseling to mental health patients than those with other diseases.^{8,9} Lack of privacy, discomfort, inadequate training, and attitudes and stigma have been reported as factors in pharmacists' decision to provide care to psychiatric patients.^{8,10}

This cause for concern extends to pharmacy students, who have previously demonstrated stigma and discomfort interacting with patients with mental disorders.^{11,12} Mental health education in pharmacy schools lacks consistency between curriculums, and research suggests that traditional lectures are not enough to reduce mental health stigma among student pharmacists.¹²⁻¹⁷ Elective courses involving mental-health consumers, patient interviews, a stigma intervention course, mental health first-aid training, and medication education groups have been described as strategies that improved students' views toward psychiatric patients.¹³⁻¹⁷

Professional organizations such as the College of Psychiatric and Neurologic Pharmacists (CPNP) have the potential to address this gap by engaging students in ways beyond traditional didactic learning. With approximately 25 student chapters around the country, CPNP is in a unique position to expose students to psychiatric and neurologic pharmacy through service projects, speaking engagements, research and scholarship, and attendance at national meetings. Despite these unique opportunities offered, the impact on mental health stigma among student pharmacists has yet to be evaluated.

The purpose of this study was to describe and evaluate associations between participation in a mental health-focused student organization and perceptions toward patients suffering from mental illness. Overall student engagement and their plans to pursue additional educa-

tional opportunities in psychiatric pharmacy were also evaluated.

Methods

This was a descriptive study that developed an online survey instrument adapted from existing, validated instruments assessing stigmatizing beliefs. The first section of the survey included questions related to comfort and interactions with the mentally ill and were measured by 10 items from the Opening Minds Scale for Health Care Providers (OMS; see the Appendix) and 5 items from the Social Distance Scale (SDS; see the Appendix). The OMS is a validated instrument that measures the attitudes of health care providers toward people with mental illness using a 5-point Likert agreement scale ranging from strongly disagree (1) to strongly agree (5) (total range 10 to 50).¹⁸ The SDS, based on the work of Link et al,¹⁹ is a widely used validated instrument that measures how much social distance an individual would maintain from a former psychiatric patient on a 4-point scale ranging from definitely unwilling (1) to definitely willing (4) (total range 5 to 20). Previous studies have analyzed and reported OMS and SDS data as separate items^{16,17} or as summative scores.^{14,15}

The second section asked participants to respond to perceived impact of various activities on belief and their level of involvement given ranges with both categorical and numerical descriptors (eg, minimal, 0 to 1; low, 2 to 3; moderate, 4 to 6; or high ≥ 7). Ranges were determined based on consultation with other faculty advisers of CPNP student chapters. Leadership activities common to student chapters included holding an executive officer position, attending executive meetings, or organizing an event as duties of the position. Survey questions to assess participants' likelihood to pursue additional educational opportunities in psychiatric pharmacy used a Likert scale ranging from 1 (very unlikely) to 5 (very likely).

Demographic data and political orientation, coursework in mental health, and prior relationships to those with mental illness were also collected.

The anonymous, voluntary Qualtrics (Provo, UT) survey was disseminated electronically to all student CPNP chapter members by a third-party CPNP staff member. Participants were provided with information about the study in an e-mail, and consent was obtained through a simplified consent screen at the beginning of the survey. Data collection occurred from November 2015 to January 2016.

All quantitative data analysis was conducted in SPSS (v.3.22, Chicago, IL) for Windows. Descriptive statistics

were computed for all variables. Cronbach alpha was used to examine instrument reliability for the OMS items and SDS items. The OMS and SDS scores were derived by averaging responses for the OMS and SDS items, respectively. Spearman rank correlation was used to investigate correlations between demographics and level of engagement with perceptions of mental illness. Statistical significance was established at $\alpha=0.05$. This study has been reviewed by UNC – Chapel Hill Institutional Review Board and was determined to be exempt from further review (IRB #15-2679).

Results

The survey was disseminated to 450 student members. Students from 19 (82.7%) of the CPNP student chapters responded to and completed ($n=58$) or partially completed ($n=7$) the survey, with a response rate of 12% for completers. Both completed and partially completed surveys were included in the analysis. The majority of students in the study sample were white (70%), female (77%), and in their third year of pharmacy school (40%). Thirty-six (62%) had taken an elective in mental health, and almost all students (97%) indicated personally knowing someone who suffers from mental illness. All demographic variables were comparable between those with lower versus higher SDS scores (Table 1).

Survey responses to OMS and SDS items provided insight into student perceptions of patients with mental illness (Table 2). Cronbach alpha scale reliabilities for the OMS and SDS items were 0.63 and 0.77, respectively. Cronbach alpha above 0.70 suggests that the survey items have acceptable internal consistency, while alpha less than 0.70 suggests suboptimal interrelatedness between items.²⁰ Data were analyzed and reported as separate items. For OMS items, lower scores indicate a more positive view (lower stigmatization) toward individuals with a mental illness. Of the respondents, 88% strongly disagreed that “health providers do not need to be advocates” and 69% strongly disagreed with “I struggle to feel compassion,” with overall low OMS means (1.2 [SD 0.66]) and (1.43 [SD 0.82]), respectively. However, despite the overall low stigma score for the statement “If I had a mental illness, I would tell my friends” (1.86 [SD 1.04]), only 40% of respondents agreed or strongly agreed that they were willing to disclose this information. Taking additional elective coursework versus none was associated with less stigmatizing views (OMS means 1.91 versus 2.26, $P=.007$), as was politically identifying as liberal versus other political orientations (OMS means 1.90 versus 2.16, $P=.037$).

For items related to social distance, higher scores indicate a greater willingness to interact with patients with mental

TABLE 1: Demographics characteristics of study participants by Social Distance Scale (SDS) score*

	SDS <15, n (%) ^a	SDS >15, n (%) ^a
Sex (n = 57)	n = 35	n = 22
Male	9 (26)	4 (18)
Female	26 (74)	18 (82)
Race/ethnicity (n = 57)	n = 34	n = 23
White, not Hispanic or Latino	23 (68)	17 (74)
Asian, not Hispanic or Latino	8 (23)	4 (17)
Black, Hispanic or Latino, 2 or more races	3 (9)	2 (9)
Age, y (n = 56) ^b	n = 35	n = 21
≤25	22 (63)	15 (71)
26-30	9 (26)	2 (9)
≥31	4 (11)	4 (18)
Political orientation (n = 58) ^b	n = 46	n = 22
Liberal	15 (42)	11 (50)
Moderate	13 (36)	5 (23)
Undecided	7 (19)	3 (14)
Conservative	1 (3)	3 (14)
Education and personal experience (n = 58) ^b		
Taken a mental health elective	20 (34)	16 (28)
Personally knows someone suffering from a mental illness	35 (60)	21 (36)
Year in pharmacy school (n = 58) ^b	n = 36	n = 22
Pharmacy year 1	7 (19)	4 (18)
Pharmacy year 2	12 (33)	6 (27)
Pharmacy year 3	14 (39)	9 (41)
Pharmacy year 4	3 (8)	3 (14)

* $P > .05$ for all variables.

^aSDS cutoff in table was determined using a median SDS score of 15, based on the distribution of SDS responses.

^bMay not add up to 100% due to rounding or the unrelated grouping within categories.

illness. For the interaction asking of students’ willingness to “work with” somebody with a previous psychiatric hospitalization, 98% of students indicated that they would be willing or definitely willing, with an SDS mean of 3.36 (SD 0.51). However, only approximately 50% indicated that they would be willing or definitely willing to “share an apartment with someone with a severe mental illness,” with a lower SDS mean of 2.58 (SD 0.76).

The level and types of activities in which students were engaged varied widely. For example, 46% and 31% of students indicated moderate to high involvement (≥ 4 times per semester, as determined by ranges described in methods) in leadership activities and content expert presentations, respectively. A larger percentage of students, more than 75%, indicated minimal or low

TABLE 2: Student responses to stigmatization and social distance items

Scale	Median (Range)
Open Minds Scale (n = 65) ^a	
I am more comfortable helping a person who has a physical illness than I am helping a person who has a mental illness	3 (1 to 5)
If a person with a mental illness complains of physical symptoms (eg, nausea, back pain or headache), I would be more likely to attribute this to their mental illness	3 (1 to 5)
I would see myself as weak if I had a mental illness and could not fix it myself	3 (1 to 5)
I would be reluctant to seek help if I had a mental illness	3 (1 to 5)
If I had a mental illness, I would tell my friends	3 (1 to 5)
Despite my professional beliefs, I have negative reactions toward people who have mental illness	2.5 (1 to 4)
There is little I can do to help people with mental illness	2.5 (1 to 4)
More than half of people with mental illness don't try hard enough to get better	2.5 (1 to 4)
Health care providers do not need to be advocates for people with mental illness	3 (1 to 5)
I struggle to feel compassion for a person with mental illness	3 (1 to 5)
Social Distance Scale (n = 61) ^b	
I would share an apartment with someone with a severe mental illness	2.5 (1 to 4)
I would work with someone who was previously hospitalized with severe mental illness	3 (2 to 4)
I would have a neighbor who was previously hospitalized with severe mental illness	3 (2 to 4)
I would introduce someone who was previously hospitalized with severe mental illness to a friend as a relationship partner	2.5 (1 to 4)
I would recommend someone who was previously hospitalized with severe mental illness for a job	2.5 (1 to 4)

^aEach item measured on a scale from 1 (strongly disagree) to 5 (strongly agree).

^bEach item measured on a scale from 1 (definitely unwilling) to 4 (definitely willing).

participation in such activities as community service, research, patient medication education groups, or shadowing pharmacists. However, 57% reported that they would participate in ≥ 7 activities per semester if time allowed.

In our study, the extent of involvement (ie, number of activities) was unrelated to level of stigma, $r = -0.07$, $P = .604$. However, when students were asked to estimate which activities had “the greatest impact on your perception of mental health,” shadowing pharmacists and community service were most frequently reported as most influential, by 23% and 26%, respectively, compared with leadership activities (11%; Figure). In addition, when evaluating correlations to stigma, students who identified nonleadership activities as having the greatest impact had significantly lower mean OMS scores (less stigmatization) compared with those who indicated leadership roles as the most impactful (2.01 versus 2.47, respectively, $P = .016$). Interestingly, however, students who identified clinical activities (eg, shadowing, patient medication groups) versus academic activities (eg, attending presentations) as most impactful on their perceptions of mental illness did not differ in their mean OMS scores (2.10 versus 2.03, respectively, $P = .07$).

Finally, when evaluating additional extracurricular opportunities, shadowing experiences or neuropsychiatric ad-

vanced pharmacy practice experiences (79%), community outreach (86%), and mental health electives (71%) were the most commonly reported as likely or very likely to be pursued. Mental health research projects and postgraduate training in psychiatry or neurology were also likely or very likely to be pursued by 63% and 57% of students, respectively.

Discussion

Pharmacists work across many practice settings, which facilitates their role in optimizing medication regimens in patients with mental illness. While some pharmacy school graduates pursue residency training in psychiatry, the majority do not. Preparing all student pharmacists, including those who will serve as the first point of contact in the community, to feel competent and comfortable interacting with these patients is essential. This is important in light of Walgreen's 2016 platform, which aims to bring attention to mental health issues, help connect more people with resources, and improve adherence. While educating their pharmacists on psychiatric medications, online screening, and behavioral telehealth referrals will be instrumental, addressing student stigma prior to workforce entry will further help reach these goals.²¹ Previous research²²⁻²⁶ suggests that interventions, specifically those that facilitate personal contact with those with mental illness, are more likely to be

Of all of the types of activities in which you were involved, which would you estimate had the greatest impact on your perception of mental health and those who suffer from mental illness? (N=53)

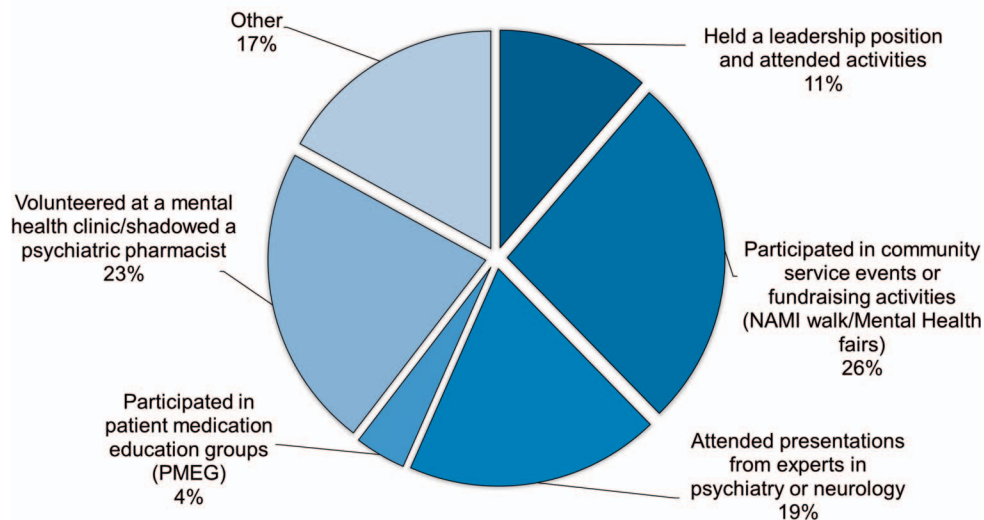


FIGURE: Pharmacy students’ responses to question of perceived impact on perception of mental health; “other” included responses such as personal experience dealing with mental illness in others or oneself, and discussions with patient presenters speaking of their experiences; NAMI = National Alliance on Mental Illness

successful at reducing stigma. Future research should explore existing pharmacy school interventions targeted to decrease stigma and better prepare our future pharmacists. It is imperative that we offer different educational approaches beyond standard curriculum to improve students’ comfort with those with mental illness, such as mental health first-aid programs, psychiatric consumer educators, simulation exercises, or experiential education involving psychiatric patients. To the best of our knowledge, this study was the first to evaluate student perceptions in a mental health–focused organization and the impact of specific activities on their attitudes toward psychiatric patients.

The stigmatization and social distance scores indicated that students had mostly positive perceptions of patients with mental illness. This is consistent with other studies^{14,15} that reported overall low baseline stigma within a mental-health elective or early psychiatric practice experience. However, compared with all stigma items, a smaller percentage of students reported positive attitudes when disclosing willingness to share their own personal mental illness with a friend. Bamgbade et al¹⁶ reported on disclosure and suggested that this may be explained by shame or embarrassment students feel about their own illness, despite having positive attitudes toward psychiatric patients overall. Compared with all other social distance items, students also had a lower SDS mean (more social distance) when indicating their willingness to share an apartment with someone with a

severe mental illness. Previous research¹⁶ also suggests that students have more stigmatizing attitudes associated with more personal relationships (eg, sharing a living space) versus less personal interactions (eg, working relationships). This may indicate that students prefer more separation when the interaction is of a more personal nature. Another viewpoint could be that one may report more stigma around personal disclosure or personal relationships, but this may not necessarily preclude someone with overall positive perceptions toward those with mental illness from providing unbiased patient care as a health care professional. More research is needed to explore the relationship between disclosure and separation stigma with barriers to providing effective pharmacy services.

The various types and level of activities reported may be more a reflection of each chapter’s offerings and students’ availability and not entirely based on students’ desired involvement. The majority of chapters offer content expert presentations; however, newer chapters may not have as many patient-related activities, thus explaining the reported level of involvement. Due to insufficient levels of participation across activities, correlations to stigma scores were difficult to assess. However, while the extent of student involvement was found to be unrelated to level of stigma per OMS, students reported perceived impact on stigma regardless of the level of participation. This is supported by the fact that despite minimal to low involvement in some clinical activities (eg, shadowing,

patient medication groups), students perceived these experiences as having the greatest impact on their views. This reflects other studies^{24,25} that showed educational interventions of face-to-face contact with mental health consumers lead to sustained lower stigma.

Consistent with the perceived impact of patient-related activities, students also reported a higher likelihood to pursue additional opportunities with patient interaction. While fewer students indicated plans to pursue postgraduate neuropsychiatric training, this may be a reflection of the students' current year in school; only 10% were in their last year of the curriculum, and students earlier in the program are less likely to be committed to a specific practice area.

Several limitations are worth noting. Selection bias was likely introduced since this was a nonrandomized, small group of learners with some baseline interest in mental health. Due to the noncomparative design, it is unknown how stigma scores in this study compare with students involved in non-mental health organizations. Response bias cannot be ruled out since sociodemographic factors (eg, female, younger age, white individuals, higher education level) are associated with less stigmatizing beliefs, and the majority of study respondents fit these demographics (Table 1).²⁷ Also, the study was conducted as a one-time administered survey, mid-academic year, leaving it unclear how a longer follow-up may have further impacted student perceptions. Conducting pre- and post-surveys both at the beginning and end of the academic year, and during advanced pharmacy practice experiences and after graduation, would have allowed comparisons of baseline to endpoint changes in stigma as well as impact of various activities on clinical practice. Also, with any Likert-scale survey, subjectivity on findings cannot be ruled out, and the reliability of the OMS instrument (0.63) was suboptimal. Finally, the results may have limited generalizability to other health professional students or other mental health organizations that offer different experiences.

Despite the limitations noted, the study findings provide some insight into characteristics of student pharmacists and factors influencing their beliefs. The study offers useful information for existing CPNP chapters or pharmacy schools considering the development of strategies to engage students beyond didactics to decrease stigma. By highlighting mental-health related activities that have the most impact on students' beliefs (ie, patient contact), findings may influence chapter leadership to shape their organizational offerings by incorporating more patient-related experiences. Future research should aim to assess both immediate and long-term impact of specific educational opportunities with pre- and postintervention measures on stigma.

References

1. Gabbidon J, Farrelly S, Hatch SL, Henderson C, Williams P, Bhugra D, et al. Discrimination attributed to mental illness or race-ethnicity by users of community psychiatric services. *Psychiatr Serv*. 2014;65(11):1360-6. DOI: [10.1176/appi.ps.201300302](https://doi.org/10.1176/appi.ps.201300302). PubMed PMID: [25081996](https://pubmed.ncbi.nlm.nih.gov/25081996/).
2. Merrick J, Merrick E. Equal treatment: Closing the gap. A formal investigation into physical health inequalities experienced by people with learning disabilities and/or mental health problems. *J Policy Pract Intell Disabil*. 2007;4(1):73. DOI: [10.1111/j.1741-1130.2006.00100.x](https://doi.org/10.1111/j.1741-1130.2006.00100.x).
3. Sayers J. The World Health Report 2001: mental health – new understanding, new hope. *Bull World Health Organ*. 2001;79(11):1085. PubMed PMCID: [PMC2566704](https://pubmed.ncbi.nlm.nih.gov/PMC2566704/).
4. Saxena S, Funk M, Chisholm D. WHO's Mental Health Action Plan 2013-2020: what can psychiatrists do to facilitate its implementation? *World Psychiatry*. 2014;13(2):107-9. DOI: [10.1002/wps.20141](https://doi.org/10.1002/wps.20141). PubMed PMID: [24890053](https://pubmed.ncbi.nlm.nih.gov/24890053/); PubMed PMCID: [PMC4102273](https://pubmed.ncbi.nlm.nih.gov/PMC4102273/).
5. Henderson C, Noblett J, Parke H, Clement S, Caffrey A, Gale-Grant O, et al. Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry*. 2014;1(6):467-82. DOI: [10.1016/S2215-0366\(14\)00023-6](https://doi.org/10.1016/S2215-0366(14)00023-6). PubMed PMID: [26361202](https://pubmed.ncbi.nlm.nih.gov/26361202/).
6. Thornicroft C, Wyllie A, Thornicroft G, Mehta N. Impact of the "Like Minds, Like Mine" anti-stigma and discrimination campaign in New Zealand on anticipated and experienced discrimination. *Aust N Z J Psychiatry*. 2014;48(4):360-70. DOI: [10.1177/0004867413512687](https://doi.org/10.1177/0004867413512687). PubMed PMID: [24253359](https://pubmed.ncbi.nlm.nih.gov/24253359/).
7. Lasalvia A, Zoppei S, Van Bortel T, Bonetto C, Cristofalo D, Wahlbeck K, et al. Global pattern of experienced and anticipated discrimination reported by people with major depressive disorder: a cross-sectional survey. *Lancet*. 2012;381(9860):55-62. DOI: [10.1016/S0140-6736\(12\)61379-8](https://doi.org/10.1016/S0140-6736(12)61379-8). PubMed PMID: [23083627](https://pubmed.ncbi.nlm.nih.gov/23083627/).
8. Phokeo V, Sproule B, Raman-Wilms L. Community pharmacists' attitudes toward and professional interactions with users of psychiatric medication. *Psychiatr Serv*. 2004;55(12):1434-6. DOI: [10.1176/appi.ps.55.12.1434](https://doi.org/10.1176/appi.ps.55.12.1434). PubMed PMID: [15572574](https://pubmed.ncbi.nlm.nih.gov/15572574/).
9. Bell S, McLachlan AJ, Aslani P, Whitehead P, Chen TF. Community pharmacy services to optimise the use of medications for mental illness: a systematic review. *Aust New Zealand Health Policy*. 2005;2:29. DOI: [10.1186/1743-8462-2-29](https://doi.org/10.1186/1743-8462-2-29). PubMed PMID: [16336646](https://pubmed.ncbi.nlm.nih.gov/16336646/); PubMed PMCID: [PMC1345690](https://pubmed.ncbi.nlm.nih.gov/PMC1345690/).
10. Rubio-Valera M, Chen TF, O'Reilly CL. New roles for pharmacists in community mental health care: a narrative review. *Int J Environ Res Public Health*. 2014;11(10):10967-90. DOI: [10.3390/ijerph111010967](https://doi.org/10.3390/ijerph111010967). PMID: [25337943](https://pubmed.ncbi.nlm.nih.gov/25337943/).
11. 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):77. PubMed PMID: [17136196](https://pubmed.ncbi.nlm.nih.gov/17136196/); PubMed PMCID: [PMC1636970](https://pubmed.ncbi.nlm.nih.gov/PMC1636970/).
12. Bell JS, Aaltonen SE, Bronstein E, Desplenter FA, Foulon V, Vitola A, et al. Attitudes of pharmacy students toward people with mental disorders, a six country study. *Pharm World Sci*. 2008;30(5):595-9. DOI: [10.1007/s11096-008-9211-x](https://doi.org/10.1007/s11096-008-9211-x). PubMed PMID: [18360783](https://pubmed.ncbi.nlm.nih.gov/18360783/).
13. Einat H, George A. Positive attitude change toward psychiatry in pharmacy students following an active learning psychopharmacology course. *Acad Psychiatry*. 2008;32(6):515-7. DOI: [10.1176/appi.ap.32.6.515](https://doi.org/10.1176/appi.ap.32.6.515). PubMed PMID: [19190298](https://pubmed.ncbi.nlm.nih.gov/19190298/).
14. 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):34. PubMed PMID: [21519423](https://pubmed.ncbi.nlm.nih.gov/21519423/); PubMed PMCID: [PMC3073109](https://pubmed.ncbi.nlm.nih.gov/PMC3073109/).

15. 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):162-8. DOI: [10.9740/mhc.2015.07.162](https://doi.org/10.9740/mhc.2015.07.162).
16. 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):80. DOI: [10.5688/ajpe80580](https://doi.org/10.5688/ajpe80580). PubMed PMID: [27402983](https://pubmed.ncbi.nlm.nih.gov/27402983/).
17. O'Reilly CL, Bell JS, Kelly PJ, Chen TF. Impact of mental health first aid training on pharmacy students' knowledge, attitudes and self-reported behaviour: a controlled trial. *Aust N Z J Psychiatry*. 2011;4(7):549-57. DOI: [10.3109/00048674.2011.585454](https://doi.org/10.3109/00048674.2011.585454). PubMed PMID: [21718124](https://pubmed.ncbi.nlm.nih.gov/21718124/).
18. Kassam A, Papish A, Modgill G, Patten S. The development and psychometric properties of a new scale to measure mental illness related stigma by health care providers: the Opening Minds Scale for Health Care Providers (OMS-HC). *BMC Psychiatry*. 2012;12:62. DOI: [10.1186/1471-244X-12-62](https://doi.org/10.1186/1471-244X-12-62). PubMed PMID: [22694771](https://pubmed.ncbi.nlm.nih.gov/22694771/); PubMed PMCID: [PMC3681304](https://pubmed.ncbi.nlm.nih.gov/pmc/PMC3681304/).
19. Link BG, Cullen FT, Frank J, Wozniak JF. The social rejection of former mental patients: understanding why labels matter. *Am J Sociol*. 1987;92(6):1461-500. DOI: [10.1086/228672](https://doi.org/10.1086/228672).
20. Tavakol M, Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ*. 2011;2:53-5. DOI: [10.5116/ijme.4dfb.8dfd](https://doi.org/10.5116/ijme.4dfb.8dfd). PubMed PMID: [28029643](https://pubmed.ncbi.nlm.nih.gov/28029643/).
21. Lorenzetti L. "Walgreens is Launching a New Mental Health Platform." *Fortune* [Internet]. 2016 May [cited 2016 Oct 21]. Available from: <http://fortune.com/2016/05/10/walgreens-mental-health/>.
22. Corrigan PW, Penn DL. Disease and discrimination: two paradigms that describe severe mental illness. *J Ment Health* [Internet]. 1997;6:355-66.
23. Mann CE, Himelein MJ. Putting the person back into psychopathology: an intervention to reduce mental illness stigma in the classroom. *Soc Psychiatry Psychiatr Epidemiol*. 2008;43(7):545-51. DOI: [10.1007/s00127-008-0324-2](https://doi.org/10.1007/s00127-008-0324-2). PubMed PMID: [18286216](https://pubmed.ncbi.nlm.nih.gov/18286216/).
24. O'Reilly CL, Bell JS, Chen TF. Consumer-led mental health education for pharmacy students. *Am J Pharm Educ*. 2010;74(9):167. PubMed PMCID: [PMC2996757](https://pubmed.ncbi.nlm.nih.gov/pmc/PMC2996757/)
25. Bell JS, Johns R, Rose G, Chen TF. A comparative study of consumer participation in mental health pharmacy education. *Ann Pharmacother*. 2006;40(10):1759-65. DOI: [10.1345/aph.1H163](https://doi.org/10.1345/aph.1H163). PubMed PMID: [16968823](https://pubmed.ncbi.nlm.nih.gov/16968823/).
26. 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):106. DOI: [10.5688/aj7205106](https://doi.org/10.5688/aj7205106). PubMed PMID: [19214260](https://pubmed.ncbi.nlm.nih.gov/19214260/).
27. Parcesepe AM, Cabassa LJ. Public stigma of mental illness in the United States: a systematic literature review. *Adm Policy Ment Health*. 2013;40(5):384-99. DOI: [10.1007/s10488-012-0430-z](https://doi.org/10.1007/s10488-012-0430-z). PubMed PMID: [22833051](https://pubmed.ncbi.nlm.nih.gov/22833051/).

Appendix: Questions derived from Open Minds Scale^a and Social Distance Scale^b

On a scale of 1 (strongly disagree) to 5 (strongly agree)^a:

1. I am more comfortable helping a person who has a physical illness than I am helping a person who has a mental illness
2. If a person with a mental illness complains of physical symptoms (eg, nausea, back pain, or headache), I would be more likely to attribute this to their mental illness
3. I would see myself as weak if I had a mental illness and could not fix it myself
4. I would be reluctant to seek help if I had a mental illness
5. If I had a mental illness, I would tell my friends
6. Despite my professional beliefs, I have negative reactions toward people who have mental illness
7. There is little I can do to help people with mental illness
8. More than half of people with mental illness don't try hard enough to get better
9. Health care providers do not need to be advocates for people with mental illness
10. I struggle to feel compassion for a person with mental illness.

On a scale of 1 (definitely unwilling) to 4 (definitely willing), would you^b:

1. Share an apartment with someone with a severe mental illness
2. Work with someone who was previously hospitalized with severe mental illness
3. Have a neighbor who was previously hospitalized with severe mental illness
4. Introduce someone who was previously hospitalized with severe mental illness to a friend as a relationship partner
5. Recommend someone who was previously hospitalized with severe mental illness for a job