Effects of a psychiatric clinical rotation on pharmacy students' attitudes toward mental illness and the provision of pharmaceutical care to the mentally ill

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Abstract

Introduction: Previous studies have found ineffectiveness of psychiatric clinical rotations to change pharmacy students' attitudes toward mental illness, but those studies had various limitations that cast doubt on this conclusion.

Methods: Pharmacy students who participated in a psychiatric clinical rotation over a 2-year time frame were invited to complete a survey at the beginning and end of their rotation. The survey included scales that measured attitudes toward dangerousness, social distance, stigmatization, suicide prevention, and provision of pharmaceutical care.

Results: Forty-one (100%) students participated in the study. Statistically significant positive changes in total scale scores from pre-rotation to post-rotation were seen in the areas of stigmatization toward patients with schizophrenia ($P=.02$), attitudes toward suicide prevention ($P=.05$), and provision of pharmaceutical care services to patients with schizophrenia ($P<.00001$) and depression ($P=.0006$). There were no statistically significant changes on the total scores of the other scales, but there was a moderate improvement in stigmatization toward patients with depression.

Discussion: Pharmacy students' participation in a psychiatric clinical rotation failed to have a major impact on their social distance from mentally ill patients. Findings were mixed in regards to stigmatization of mentally ill patients. However, pharmacy students' attitudes toward suicide prevention and providing pharmaceutical care services to mentally ill patients were significantly improved by participation in a psychiatric clinical rotation. Preceptors in the clinical setting should consider including educational techniques that address pharmacy students' attitudes toward mental illness, as improvement in such attitudes may further enhance their willingness to provide pharmaceutical care services.

Keywords: pharmacy students, curriculum, attitude, mental illness

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Introduction

Pharmacists can have a substantial positive impact on the pharmacotherapy of patients with mental illness, such as improving medication adherence and optimizing prescribing patterns.^{1,2} However, multiple survey studies have exposed that pharmacists are less willing to provide pharmaceutical care services to patients with mental illnesses than to those with medical illnesses, and a few of those studies³⁻⁶ have directly linked the willingness of

pharmacists to provide pharmaceutical care services to patients with mental illness with the level of stigma. Reasons for diminished pharmacists' services to mentally ill patients could relate to such attitudes as a desire for social distance, concern about unusual behaviors, and doubt about the usefulness of pharmacotherapy, as well as the poor understanding of mental health conditions.^{6,7}

One rather apparent way for the profession to address this issue would be to include specific instruction and/or experiences in the curricula of colleges and schools of pharmacy that specifically target pharmacy students' attitudes toward mental illness.^{3,8} Unfortunately, traditional classroom instruction on psychiatric pharmacotherapy and the clinical aspects of psychiatric disorders appears to have limited to no effectiveness in improving pharmacy students' attitudes toward mental illness.⁸⁻¹¹ On the other hand, classroom instruction that is designed to foster a deeper understanding of mental illness and patients' experiences with mental illness via either direct or indirect contact with mental health consumers have been successful in improving pharmacy students' attitudes toward mental illness.^{7,12-18}

Given the apparent importance of patient contact in changing pharmacy students' attitudes toward mental illness, it would seem reasonable that clinical exposure to mentally ill patients would be effective as well; however, neither social distance nor stigmatization has changed as the result of pharmacy students' clinical experiences in psychiatry.^{8,10,19} The theory is that clinical rotations occur in the context of a hierarchical clinician–patient relationship, instead of one of more equal status, and do not involve a voluntary interaction.^{12,16,17} However, any conclusions about the usefulness of clinical rotations in this regard is dubious owing to the limitations of the available data, which include limited sample size, clinical experiences that are not concentrated in the field of psychiatry, lack of baseline scale scores for longitudinal comparisons, and/or limited attitudinal measures. Thus, the purpose of the current study was to provide a more thorough examination of the effects of a psychiatric clinical rotation on pharmacy students' attitudes toward mental illness.

Methods

The psychiatric clinical rotation in this study is a 5-week, elective advanced pharmacy practice experience. All students who participate in the clinical rotation are fourth-year pharmacy students at one school of pharmacy who have received approximately 25 contact hours of psychiatric therapeutics as third-year students. The clinical rotation can take place anytime during the fourth year of the curriculum. The practice site is a large, private medical

center with approximately 130 inpatient psychiatric beds. Students primarily provide care to patients with psychotic illnesses and severe mood disorders. Students continuously provide direct care to 5 to 7 patients, which includes taking medication histories, monitoring for medication efficacy and tolerability, and providing medication counseling. Given the average length of stay at the facility of approximately 1 week, students provide care to a total of at least 20 patients during the rotation. Students also conduct medication education groups and participate in rounds, group therapy sessions, a commitment hearing, and an electroconvulsive therapy session.

The study was a voluntary and anonymous survey that was approved by the university's Institutional Review Board. Participants in the survey were fourth-year pharmacy students who took part in the psychiatric clinical rotation over a 2-year time frame. The survey was offered to students on the first day (pre-rotation) and last day (post-rotation) of the course. The survey included demographic questions (pre-rotation only) and previously published, standard scales regarding attitudes toward mental illness. Demographic questions that were used in the survey included:

- Have you or a close family member/friend ever been diagnosed with a mental illness?
- Have you or a close family member/friend ever received a psychotropic medication to treat a mental illness?
- Have you or a close family member/friend ever been admitted to an inpatient psychiatric facility?
- Have you or a close family member/friend ever expressed suicidal thoughts?
- Have you or a close family member/friend ever attempted suicide?
- Has a close family member/friend ever completed suicide?

Attitude scales that were used in the survey are described in Table 1.^{12,13,20-25}

The primary outcome measure was change in total scores on the various scales from pre-rotation to post-rotation. The secondary outcome measure was change in individual item scores on the various scales from pre-rotation to post-rotation.

Two independent samples *t* tests were used to compare mean total scores and individual item scores on the various scales at the pre-rotation and post-rotation time points and mean total scores on the various scales at the pre-rotation time point for demographic variables. In all analyses, the type I error rate (α) was maintained at ≤ 0.05 .

TABLE 1: Attitude scales used in the survey

Attitude	Scale	Scoring
Dangerousness	Perceived Dangerousness of Mental Patients Scale ^{20,21} : 8-item scale with 6 negative statements and 2 positive statements regarding dangerousness of mentally ill patients.	6-point Likert scale from 0 (strongly agree) to 5 (strongly disagree). Negative statements are reverse scored. Total scores range from 0 to 40; higher scores indicate the belief that patients are more dangerous.
Social distance	Social Distance Scale ^{20,21} : 7-item scale with statements regarding willingness to interact with a person who was previously hospitalized with schizophrenia.	4-point Likert scale from 1 (definitely willing) to 4 (definitely unwilling). Total scores range from 7 to 28; higher scores indicate greater desire to distance oneself from the person with mental illness.
Stigmatization toward patients with schizophrenia and depression	Scale related to mental health stigma derived from 2 previously published surveys ^{22,23} : 8-item scale with negative statements regarding people with various mental illnesses.	5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). Total scores range from 8 to 40; higher scores indicate more favorable attitudes.
Stigmatization toward patients with mental illness	Index of Attitudes Toward the Mentally Ill Scale ²⁴ : 11-item scale with 7 negative statements and 4 positive statements regarding mental illness.	5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). Positive statements are reverse scored. Total scores range from 11 to 55; higher scores indicate more favorable attitudes.
Suicide prevention	Attitudes to Suicide Prevention Scale ²⁵ : 14-item scale with 12 negative statements and 1 positive statement regarding suicide prevention as well as a statement concerning the proportion of suicides that one considers preventable (increasing order).	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The positive statement and statement concerning proportion of suicides that are preventable are reverse scored. Total scores range from 14 to 70; higher scores indicate more negative attitudes.
Provision of pharmaceutical care services for patients with schizophrenia and depression	Scale related to delivery of pharmaceutical care to patients with schizophrenia derived from 2 previously published surveys. ^{12,13} Scale was adapted for patients with severe depression: 10-item scale with negative statements regarding delivery of pharmaceutical care.	5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). Total scores range from 10 to 50; higher scores indicate more favorable attitudes.

Results

All 41 students who took part in the psychiatric pharmacy rotation participated in the study, and all 41 students completed both pre-rotation and post-rotation surveys. Seventy-eight percent of the students were women, and 93% were white. Affirmative responses on demographic questions were as follows: diagnosis 25/41 (61%); treatment with psychotropic medication 21/41 (51%); psychiatric admission 7/41 (17%); expression of suicidal thoughts 18/41 (44%); suicide attempt 9/41 (22%); and suicide 4/41 (10%). Only one demographic variable was statistically significantly associated with total scale scores at pre-rotation. A prior history of personal or close family member/friend attempt at suicide was associated with a less favorable score on the stigma – depression scale (27.8 ± 4.3 versus 31.2 ± 3.2 ; $P=.011$).

Table 2 delineates the total scores on the various scales at pre-rotation and post-rotation. Numerical improvements were seen from pre-rotation to post-rotation on all scales;

however, these changes were minimal for the dangerousness scale, social distance scale, and stigma – mentally ill scale. Statistically significant positive changes in total scale scores from pre-rotation to post-rotation were seen in the areas of stigmatization toward patients with schizophrenia ($P=.02$), attitudes toward suicide prevention ($P=.05$), and provision of pharmaceutical care services to patients with schizophrenia ($P<.00001$) and depression ($P=.0006$). The change on the stigma – depression scale from pre-rotation to post-rotation was 1.7 ± 0.9 , which represented a trend toward significance ($P=.07$).

Table 3 delineates those individual items on the various scales that were statistically significantly improved from pre-rotation to post-rotation. There were no statistically significant changes on individual item scores on the dangerousness scale, social distance scale, or stigma – depression scale. There were statistically significant positive changes on 1 of the 11 items on the stigma – mentally ill scale, 3 of the 8 items on the stigma –

TABLE 2: Total scores on attitude scales at pre-rotation and post-rotation

Scale	Pre-Rotation (Mean $\pm$ SD)	Post-Rotation (Mean $\pm$ SD)	Significance
Dangerousness	16.9 $\pm$ 5.9	15.3 $\pm$ 6.4	$P = .27$
Social distance	18.8 $\pm$ 3.7	18.5 $\pm$ 4.3	$P = .79$
Stigma – schizophrenia	27.8 $\pm$ 3.3	29.7 $\pm$ 3.9	$P = .02$
Stigma – depression	30.6 $\pm$ 3.7	32.3 $\pm$ 4.7	$P = .07$
Stigma – mentally ill	40.0 $\pm$ 3.6	41.0 $\pm$ 4.7	$P = .28$
Suicide prevention	32.4 $\pm$ 5.6	29.8 $\pm$ 5.8	$P = .05$
Provision of pharmaceutical care services – schizophrenia	37.0 $\pm$ 3.9	41.4 $\pm$ 4.3	$P < .00001$
Provision of pharmaceutical care services – depression	38.8 $\pm$ 4.2	42.5 $\pm$ 4.8	$P = .0006$

schizophrenia scale, 4 of the 14 items on the suicide prevention scale, 5 of the 10 items on the provision of pharmaceutical care services – schizophrenia scale, and 7 of the 10 items on the pharmaceutical care services – depression scale.

Discussion

Participation in an inpatient psychiatric clinical rotation led to significant improvements in attitudes of pharmacy students toward suicide prevention and providing pharmaceutical care services to mentally ill patients. Results concerning stigmatization toward patients with mental illness were mixed, and there were no significant improvements in either perceived dangerousness of mentally ill patients or social distance from mentally ill patients. It should be pointed out that change scores on the scales with significant improvements were on the order of 2 to 4 points; therefore, attitudes were improved but still suboptimal.

To the extent of our knowledge, this is the first study to demonstrate the positive impact of psychiatric clinical rotations on pharmacy students' attitudes toward provision of pharmaceutical care services to mentally ill patients. The positive finding concerning the effect of a psychiatric clinical rotation on stigmatization toward patients with schizophrenia stands in contrast to the finding by Bell et al,¹⁰ who found similar rates of stigmatization toward patients with schizophrenia between third-year pharmacy students without previous exposure to mental health and pharmacy graduates with supervised clinical practice. On the other hand, the lack of improvement on stigmatization toward patients with mental illness in general was like the finding by Cates et al,⁸ who compared mean scores on the Index of Attitudes Toward the Mentally Ill Scale of students in the final year of the curriculum who had participated in a psychiatric clinical rotation with those who had not. Our finding of ineffectiveness of a clinical rotation to meaningfully improve pharmacy students' social distance from mentally

ill patients was reflective of both of the aforementioned studies^{8,10} as well as the study by Jermain and Crismon,¹⁹ who found identical social distance scores at pre-rotation and post-rotation for senior students who participated in a psychiatry rotation.

It is possible that a larger sample size could have had an impact on the stigma – depression scale ($P = .07$) as a post-hoc analysis revealed that the power of the study to detect moderate differences was approximately 50%. Another factor was a possible ceiling effect. In fact, the pre-rotation score on the stigma – depression scale (30.6 ± 3.7) was more favorable than the post-rotation score on the stigma – schizophrenia scale (29.7 ± 3.9) despite significant improvement on the latter scale from pre-rotation to post-rotation.

Previous studies^{12,13,17,18} in the didactic setting that showed positive changes in pharmacy students' attitudes toward providing pharmaceutical care services also found positive changes in social distance and/or stigmatization, whereas we found no change in social distance and varied changes in stigmatization. This might be due to the setting of the patient interaction. In the current study, mentally ill patients had been admitted to a psychiatric facility, and were thus in the acute phase of their illness, whereas patients participating in didactic experiences were by default in the stable phase of their illness. Therefore, it might be more difficult for pharmacy students to overcome negative attitudes toward perceived dangerousness, social distance, and stigmatization when confronted with acute symptomatology. On the other hand, interactions with mentally ill patients in the inpatient setting might highlight the need for and value of pharmaceutical care services for these patients, thus affecting attitudes toward provision of those services. Further research is needed to distinguish the effects of educational setting (eg, inpatient psychiatry, outpatient psychiatry, classroom) versus educational techniques on pharmacy students' attitudes toward mental illness.

TABLE 3: Individual items with statistically significantly improved scores from pre-rotation to post-rotation

Item	Score at Pre-Rotation and Post-Rotation (Mean $\pm$ SD)	Significance
Stigma – schizophrenia		
“are unpredictable”	2.6 $\pm$ 0.6 to 2.9 $\pm$ 0.9	$P = .04$
“are difficult to talk to”	3.0 $\pm$ 0.8 to 3.3 $\pm$ 0.9	$P = .038$
“should pull themselves together”	4.0 $\pm$ 0.8 to 4.3 $\pm$ 0.7	$P = .05$
Stigma – mentally ill		
“most patients in mental hospitals are not dangerous”	3.4 $\pm$ 0.8 to 3.8 $\pm$ 0.8 [reverse scored]	$P = .032$
Suicide prevention		
“working with suicidal patients is rewarding”	2.6 $\pm$ 0.6 to 2.2 $\pm$ 0.7 [reverse scored]	$P = .006$
“if people are serious about committing suicide they don’t tell anyone”	2.7 $\pm$ 1.0 to 2.1 $\pm$ 0.7	$P = .003$
“I feel defensive when people offer advice about suicide prevention”	2.2 $\pm$ 0.7 to 1.9 $\pm$ 0.5	$P = .019$
“I don’t feel comfortable assessing someone for suicide risk”	2.7 $\pm$ 1.0 to 2.0 $\pm$ 0.6	$P < .001$
Provision of pharmaceutical care services – schizophrenia		
“patients with schizophrenia do not want to talk to pharmacists about the duration of treatment with their medications”	3.6 $\pm$ 0.7 to 4.2 $\pm$ 0.8	$P = .001$
“patients with schizophrenia receive all the information they need about their medications from psychiatrist and/or general practitioner”	4.0 $\pm$ 0.7 to 4.5 $\pm$ 0.6	$P = .002$
“I would feel awkward asking a patient why he or she has been prescribed an antipsychotic medication”	3.4 $\pm$ 1.0 to 4.1 $\pm$ 0.5	$P < .001$
“patients with schizophrenia do not want to talk to pharmacists about the side effects of their medications”	3.7 $\pm$ 0.8 to 4.5 $\pm$ 0.7	$P < .001$
“patients with schizophrenia do not want to talk to pharmacists about their mental health symptoms”	3.4 $\pm$ 0.8 to 4.2 $\pm$ 0.8	$P < .001$
Provision of pharmaceutical care services – depression		
“patients with severe depression do not want to talk to pharmacists about the duration of treatment with their medications”	3.8 $\pm$ 0.8 to 4.2 $\pm$ 0.8	$P = .016$
“patients with severe depression receive all the information they need about their medications from psychiatrist and/or general practitioner”	4.2 $\pm$ 0.5 to 4.4 $\pm$ 0.5	$P = .029$
“I would feel awkward asking a patient why he or she has been prescribed an antidepressant medication”	3.7 $\pm$ 0.9 to 4.4 $\pm$ 0.7	$P < .001$
“patients with severe depression do not want to talk to pharmacists about the side effects of their medications”	3.8 $\pm$ 0.8 to 4.3 $\pm$ 0.7	$P = .003$
“patients with severe depression do not want to talk to pharmacists about their mental health symptoms”	3.6 $\pm$ 0.9 to 4.1 $\pm$ 0.8	$P = .011$
“patients with severe depression do not follow the advice of pharmacists when using their medications”	3.6 $\pm$ 0.7 to 4.0 $\pm$ 0.7	$P = .016$
“patients with severe depression do not understand the information provided by pharmacists about their medications”	3.9 $\pm$ 0.7 to 4.2 $\pm$ 0.6	$P = .013$

Finally, it should be noted that pharmacy students’ psychiatric clinical rotations are by their very nature geared toward the clinical care of patients with mental illness. However, the very types of interactions in didactic settings that have been found to be effective in changing attitudes toward mental illness could be used in the clinical setting as well. Preceptors in the clinical setting should consider including educational techniques that address students’ attitudes toward mental illness in addition to their usual clinical assignments. Examples include interactions with representatives from the local

chapter of the National Alliance on Mental Illness or interactions with stable patients in the outpatient setting with focused discussions on patients’ experiences and challenges with mental illness.^{14,15,26} Improvement in pharmacy students’ attitudes toward mental illness may further enhance their attitudes toward provision of pharmaceutical care services.

Strengths of our study included the use of multiple scales and the 100% response rate. Limitations included the relatively small sample size and the lack of a control

group. Another limitation is the unknown generalizability beyond the students at one private, religious-based school of pharmacy in the southeastern United States. For example, our sample primarily comprised white women.

Selection bias is a possibility when a sample is not representative of the population.²⁷ The psychiatric clinical rotation is an elective experience, so it is possible that those who participate in the rotation have relatively more favorable attitudes toward mental illness. A factor that might limit this effect in the current study is that the clear majority (approximately three-fourths) of students at the school register for the psychiatric clinical rotation. Another cautionary consideration is that over one-half of students answered affirmative on demographic questions concerning experience (ie, personal, family, or friend) with a diagnosis of mental illness or receiving psychotropic medication to treat a mental illness. The former question has been asked in a somewhat similar manner in previous studies involving US or Canadian pharmacy students that either surveyed entire classes of students or at least had a control arm. Affirmative response rates have been 30% in a study by Crismon et al²⁸ (76/250 students; conducted in the mid-1980s), 47% in a study by Dipaula et al²⁵ (122/262 students; elective plus control groups), 59% in a study by Cates et al¹¹ (243/411 students), 83% in a study by Gable et al¹⁴ (33/40 students; elective plus control groups), and 85% in a study by Patten et al¹⁶ (105/123 students). Thus, our finding of 61% is entirely in line with published data.

Response bias can lead to less truthful answers in surveys that examine socially unacceptable attitudes or behaviors.²⁷ This factor may not have been as pronounced in this study since survey results from two different time points were being compared. Response bias can also occur when survey participants answer according to what they think researchers prefer as opposed to being truthful. In an attempt to minimize this type of bias, there were no focused discussions regarding content of the survey throughout the clinical rotation and students were strongly encouraged to answer all questions on the survey in an honest manner. Lastly, some students may have felt pressure to answer more favorably if they had a potential interest in psychiatric pharmacy as a career choice.

In sum, this study provides evidence that psychiatric clinical rotations can have a positive impact on pharmacy students' attitudes toward mental illness and especially their attitudes toward the provision of pharmaceutical care to the mentally ill. Nevertheless, the need exists for preceptors to explore more successful ways to deal with pharmacy students' negative attitudes toward perceived dangerousness, social distance, and stigmatization.

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