




RESEARCH ARTICLE

# Pharmacy students' perceptions of individuals with mental illness: Exploring opinions on the right to vote

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## Abstract

**Background:** This study explored whether negative perceptions held by pharmacy students regarding the voting rights of psychiatric inpatients with serious mental illness (SMI) could be influenced through a structured didactic intervention. It also examined students' views on the political affiliations of psychiatric inpatients and their potential vulnerability to political influence or misinformation, as well as students' voting intentions for the 2024 election. **Methods:** An observational study was conducted among third-year pharmacy students enrolled in a required ethics course at a public university in New York State. Anonymous surveys were administered before and after a 90-minute lecture on the ethics of mental health. Surveys measured opinions on voting rights for psychiatric inpatients and perceptions of their susceptibility to political pressure. Pre- and post-lecture responses were compared to evaluate changes in stigma-related views. **Results:** Support for voting rights among individuals with mental illness increased from 88% pre-lecture to 96% post-lecture. Support specifically for hospitalised psychiatric inpatients rose from 63% to 80%, with uncertainty reduced. However, concerns about voting competence and individuals hospitalised under legal mandate persisted. **Conclusion:** A targeted educational intervention can positively shift pharmacy students' perceptions and reduce stigma towards individuals with SMI, particularly concerning their civil rights and political participation.

## Introduction

Persisting prejudice, unrecognised bias, and discrimination associated with serious mental illness (SMI)—including schizophrenia, bipolar disorder, major depressive disorder, and severe anxiety disorders—contribute to a broad range of disparities (Nakkeeran & Nakkeeran, 2018; Stangl *et al.*, 2019; Pescosolido *et al.*, 2021; SAMHSA, 2022; White *et al.*, 2025).

Few studies have explored the potential to change public perceptions of mental illness in the United States, and even fewer have examined unrecognised stigma in healthcare providers (White *et al.*, 2025). Evidence suggests that the type and severity of mental health disorders influence the degree of stigma. Additionally, healthcare professionals perceive depression as a relatable illness, provoking less

avoidance and hesitancy compared to schizophrenia, which is associated with more stigma (Crisp *et al.*, 2005). Higher rates of stigmatising behaviours and alienating perceptions have been observed in healthcare providers than in the general population. These negative perceptions and associated behaviours decrease the chance for a diagnosed individual to develop a therapeutic alliance, seek clarity in diagnosis, receive earlier interventions, and regain confidence in the possibility of their experiencing recovery from mental illness, all while increasing the likelihood of alienation and isolation (White *et al.*, 2025; Shahwan *et al.*, 2022; Sideli *et al.*, 2021; Paananen *et al.*, 2020).

In 2023, the U.S. Surgeon General released an advisory on the impact of loneliness and isolation, noting that nearly half of all Americans reported experiencing loneliness even before the COVID-19 pandemic (Office

of the U.S. Surgeon General, 2023). Diminished social connection has been linked to mental and physical health harms, with a mortality risk comparable to smoking fifteen cigarettes per day, exceeding that of obesity and sedentarity, with which it is often comorbid (Holt-Lunstad *et al.*, 2017).

Studies indicate that loneliness and isolation are most prevalent among people with poor mental health, people with disabilities, financial insecurity, those who living alone, single parents, and both younger and older populations with physical health challenges (Office of the U.S. Surgeon General, 2023). Evidence also shows that social connection is among the most powerful protective factors against suicide, regardless of whether an individual has a diagnosed mental health condition (Office of the U.S. Surgeon General, 2023).

Particularly relevant to this study is the issue identified by the advisory concerning the growing lack of political tolerance within communities. This phenomenon is often reflected in the shrinking of “*core discussion networks*,” the close social circles with whom individuals feel comfortable discussing complex and timely topics such as politics, religion, and global events. The willingness to engage with diverse perspectives and reconsider personal beliefs is often based on the size and diversity of these networks. However, these networks have significantly shrunk in recent decades, resulting in a homogenisation of political thinking, increased polarisation, and the rise of animosity, incivility, and distrust across groups (Office of the U.S. Surgeon General, 2023).

A survey of 1,055 U.S. adults during the 2016 U.S. presidential election found that core discussion networks were smaller than in any other observed period and that the proportion of individuals with the same political preferences within these networks was higher than previously reported. Recent surveys found that 64% of individuals believe that people are incapable of having constructive and civil debates about issues on which they disagree, and almost 6 in 10 adults in the U.S. report that discussing politics with people who hold different political opinions is “*stressful and frustrating*” (van Green, 2021). Hence, restoring social connection has become increasingly pressing. This study’s findings may reveal ideological differences among pharmacy students that may cast stigmatising misperceptions about future patients diagnosed with SMI. Such beliefs may be modifiable through the implementation of established didactic interventions in classroom settings.

A recent study explored perceptions and stigma surrounding mental illness among 120 pharmacy students enrolled in a four-year doctorate (Pharm.D.) programme at a School of Pharmacy at a State

University in upstate New York (White *et al.*, 2025). Students were included in the cohort if they attended the ethics class lecture dedicated to a mental health-focused ethical topic within a comprehensive ethics course that is required in the third professional year (P3) of the university PharmD. curriculum and completed the survey. The anonymous pre- and post-lecture surveys had been distributed to two sequential P3 cohorts in 2021 (n = 100) and 2022 (n = 114). The 2021 surveys were administered in a paper format, and the 2022 surveys were administered electronically through Qualtrics.

Both study years (2021 and 2022) were co-taught by a pharmacy resident (though different each year), a pharmacy residency programme director who also taught psychiatric pharmacotherapeutics, and a medical doctor (MD) who was also a licensed pharmacist. The pharmacy residency programme director and MD participated in both years. All lecturers were employed by an inpatient state psychiatric hospital in Buffalo, New York. The lecture topics were selected based on their contemporary relevance, including but not limited to, the right to refuse medications and COVID-19 vaccinations, to engage in sexual relationships, to be given erectile dysfunction medications while hospitalised, and to own a gun post-hospitalisation. The presenters did not express opinions on these topics; instead, they jointly delivered a lecture based on 17 key messages—agreed upon and fact-checked—presented to both the 2021 and 2022 classes.

Both the 2022 and 2021 P3 cohorts favoured expanded ethical rights across most topics in the post-lecture survey results. However, an exception was observed in the 2022 cohort, where affirmative responses to whether individuals with a mental health diagnosis should have the right to vote declined by 1.23%. According to the authors, the only reference to voting during the lectures in both years was a brief mention that hospitalised psychiatric patients are allowed to vote; no slides specifically discussed voting or elections. It is also notable that the wording of the survey question varied between years by including the words “*the right*” in 2022:

- 2022: Should a person with a mental health diagnosis be allowed the right to vote?
- 2021: Should a person with a mental health diagnosis be allowed to vote?

However, expanded wording changes did not influence responses regarding the ethics of gun ownership in the same way. The 2022 post-lecture survey showed a 25.90% increase in affirmative responses supporting gun ownership, even with the added words, “*even if they have not been associated with violence during their lifetime?*”

- 2022: Should a person with a mental health diagnosis be allowed to own a gun?
- 2021: Should a person with a mental health diagnosis be allowed to own a gun, even if they have not been associated with violence during their lifetime?

The present study focused on the voting rights of individuals with serious mental illness, rather than general attitudes towards mental health. It builds on prior work that demonstrated how didactic intervention could favourably shift student opinions on ethical issues, such as the right to refuse medication. Given the parallels in advocating for civil rights, the exploration of voting rights represented a compelling extension of this educational approach. This study also contributes to the field of pharmacy and mental health advocacy by emphasising the importance of supporting patients' right to vote, particularly in electing representatives who influence public health policy and legislation. Empowering individuals with mental illness and their caregivers reinforces their roles as active stakeholders in systems that directly affect their care.

Findings from this study support the hypothesis that a reflective educational intervention can foster dialogue on controversial and often stigmatised topics. This approach could ensure the development of more inclusive and unbiased future healthcare professionals.

## Methods

### Design

The School of Pharmacy at a State University in upstate New York where this study took place offers a four year

program with approximately 120 students per class. Participants in this study were eligible if they attended a mental health-focused ethics lecture, delivered as part of the required ethics course in P3 of the curriculum. This lecture precedes formal instruction in psychiatric pharmacotherapeutics; thus, students' perceptions of psychiatry and patients with serious mental illness were likely based on personal experiences, social interactions, or media exposure. Anonymous pre- and post-lecture surveys were distributed to the 2024 P3 cohorts electronically through Qualtrics and analysed subsequently.

The 2024 mental health lecture was co-taught by a pharmacy resident (different each year), the pharmacy residency programme director, who also teaches psychiatric pharmacotherapeutics, and an (MD) who is also a licensed pharmacist. Both the programme director and physician were involved in the earlier work published by White and colleagues. All lecturers shared the same inpatient psychiatric hospital in Buffalo, New York. While the topics presented in the lectures were the same of those in previous years, the 2024 session emphasised the voting rights of patients. This focus was prompted by prior findings indicating a decline in favourability toward voting rights, unlike other areas where student attitudes improved (Tables I and II).

Changes in opinion were assessed using a survey rubric before and after the lecture to determine whether there was a reduction in stigma and evaluate the magnitude of that change. Data were analysed by calculating the percentage change in affirmative responses from the pre-lecture to the post-lecture surveys.

**Table I: Changes in percentages between 2022 and 2021 affirmative post-survey responses**

Should a person with a mental health diagnosis be allowed to:	% Δ pre- vs post-survey "yes" votes		% Δ
	2022	2021	2022 vs 2021
refuse a medication?	1	10.24	9.24
vote?	3	-1.23	-4.23
erectile dysfunction medications prescribed during hospitalization?	26.81	12	14.81
sexually active relationships during hospitalization?	14	25.36	11.36
decline a COVID vaccination?	12	10.14	-1.86
own a gun?	15	25.90	10.90

**Table II: Pre- and post-class survey results regarding the voting rights of patients (2024)**

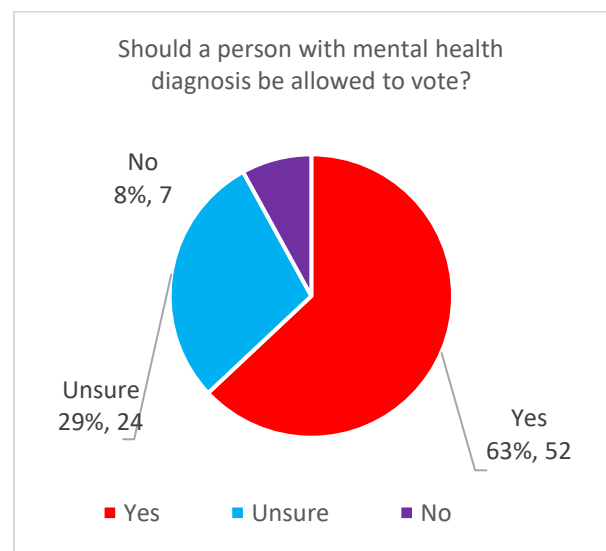
Should a person with a mental health diagnosis...	Pre-survey % (n=83)			Post-survey % (n=48)			Δ pre- vs post-survey "yes" votes
	Yes	No	unsure	Yes	No	unsure	
Be allowed to vote	63	8	29	80	5	10	17
Be allowed the right to vote?*	88	6	6	96	2	2	8
Should they have to demonstrate capacity or competency to vote?	63	23	14	65	25	10	-2
Do you believe CPL inpatients who have committed a felony and are deemed "not guilty by reason of mental defect" should have the right to vote?	28	41	31	33	48	19	-5

**Results and discussion**

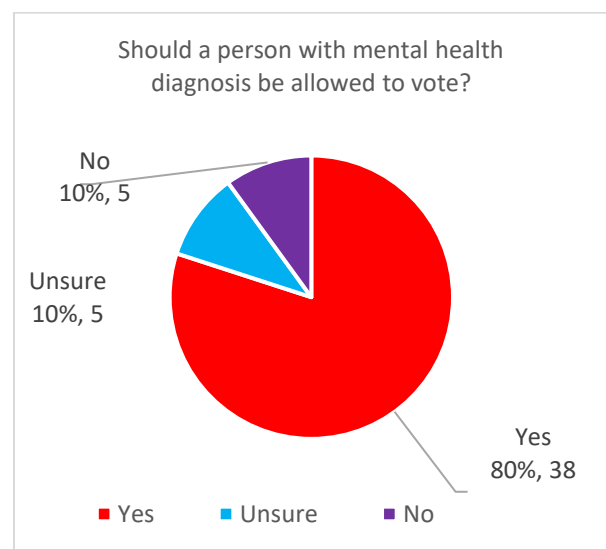
The 2024 P3 cohort included 83 respondents to the pre-lecture survey and 48 to the post-lecture survey. While the difference in response rates limited the ability to conduct statistical analyses for the primary objective, the observed trends were noteworthy. No demographic differences were assessed between pre- and post-lecture respondents, which may have influenced observed trends.

After the lecture on voting laws and rights for individuals diagnosed with mental illness was presented, students expressed more favourable views. Specifically, 80% supported allowing psychiatric inpatients to vote, compared to 63% before the lecture (Figures 1 and 2). When asked more broadly whether individuals with mental illness should have the right to vote, affirmative responses increased from 88% to 96% post-intervention (Figures 3 and 4). This shift suggests the potential impact of didactic content in addressing misconceptions about civil rights and mental illness.

These findings align with previous research on the role of educational interventions in reducing stigma, although studies specifically targeting stigma reduction in mental illness remain limited. A significant shift in students' beliefs was observed following completion of an Abnormal Psychology course, with participants reporting mental health to be more curable and less stigmatising, thus demonstrating the direct positive impact of education on attitudes toward mental illness (Shim *et al.*, 2022). Similarly, integrating anti-stigma components into healthcare provider training—such as recovery narratives, myth-busting strategies, and opportunities for social contact—has been shown to improve attitudes, clinical competency, and patient care outcomes. In one study, willingness to engage with individuals with mental illness rose from 54% pre-training to 81% at 16 months, while observed clinical competency increased from 49% to 93% (Kohrt *et al.*, 2020).



**Figure 1: Pre-survey: should patients be allowed to vote**



**Figure 2: Post-survey: should patients be allowed to vote**

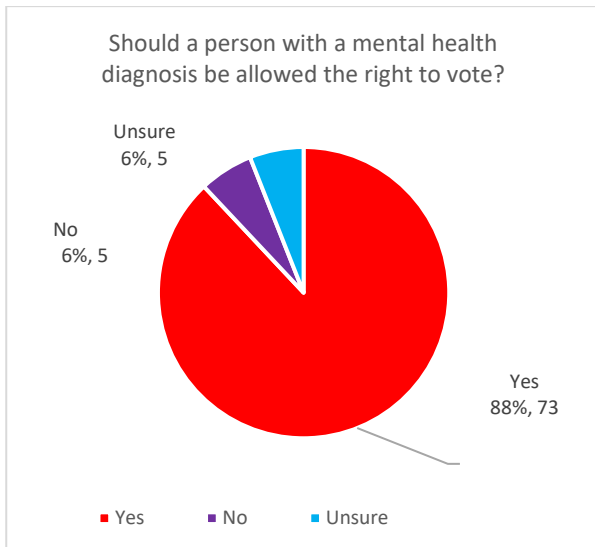


Figure 3: Pre-survey: patients allowed to vote

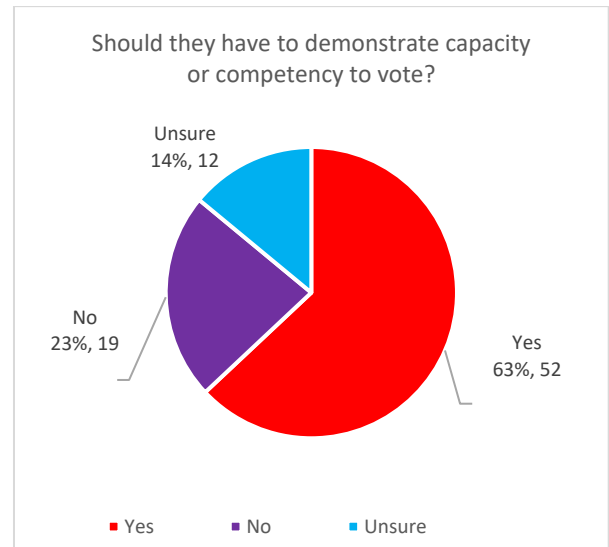


Figure 5: Pre-survey: patients to demonstrate capacity or competency to vote

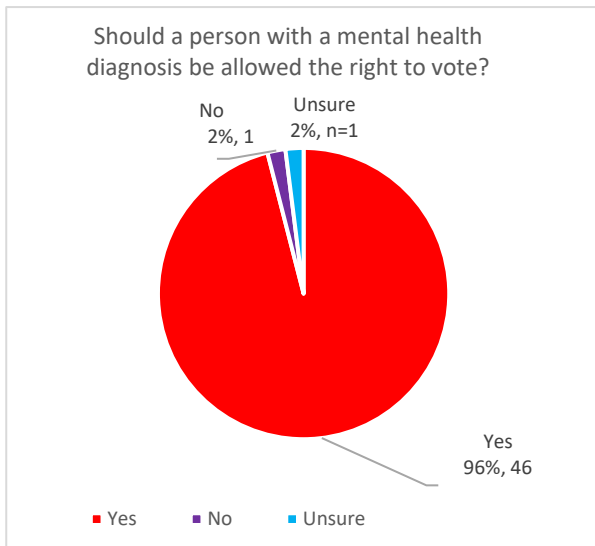


Figure 4: Post-survey: patients allowed to vote

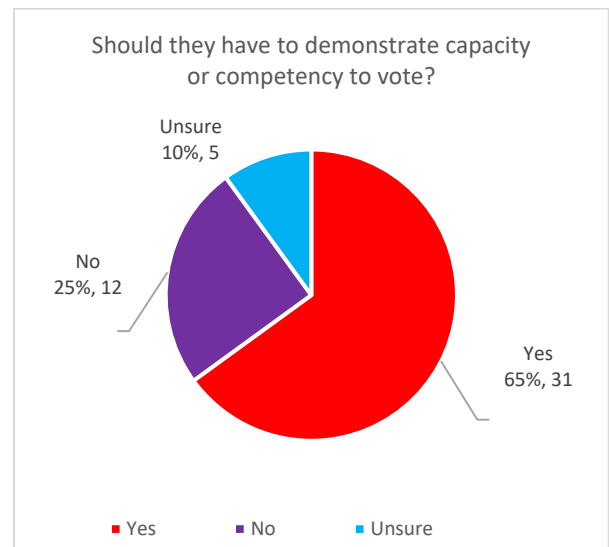
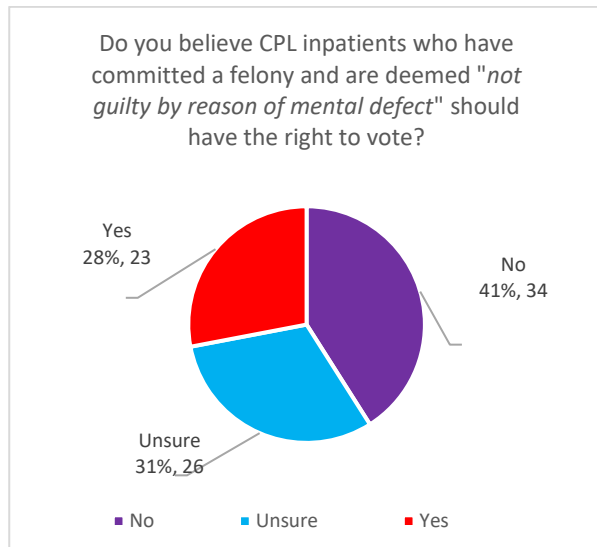


Figure 6: Post-survey: patients to demonstrate capacity or competency to vote

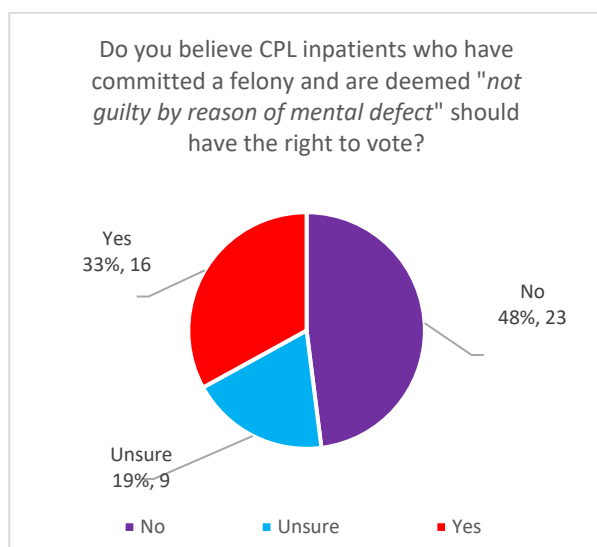
Student views on requiring patients with SMI to demonstrate capacity or competency before being allowed to vote remained unchanged. The majority of students maintained the belief that individuals with SMI should demonstrate capacity or competency to vote, with similar rates observed before (63%) and after (65%) the didactic intervention (Figures 5 and 6). This consistency may indicate a more deeply held belief regarding the need for competency assessments, regardless of exposure to legal education.

Students seemed conflicted about voting rights for patients admitted for inpatient hospitalisation pursuant to Criminal Procedure Law (CPL) §330.20: Not Responsible for Criminal Conduct by Reason of Mental Disease or Defect (Okwerekwu *et al.*, 2018; Lee, 2024). Both before and after the didactic intervention, the majority of students opposed granting voting access to individuals under this designation, with opposition increasing from 41% to 48% post-lecture. Although there was a slight increase in those in favour (from 28% to 33%), the most notable shift occurred among students who were previously unsure, decreasing from 31% to 19% post-lecture (Figures 7 and 8). This finding

suggests that educational exposure clarified students' positions, even if it did not result in a consensus shift.



**Figure 7: Pre-survey: CPL patients right to vote**



**Figure 8: Post-survey: CPL patients right to vote**

Most students reported that they believed the majority of patients at the hospital were either affiliated with the Democratic Party or had no political affiliation. These perceived affiliations appeared to mirror students' political affiliations: 41% of respondents indicated that patients were most likely Democrats, closely aligning with the 42% of students who self-identified as Democrats. Similarly, 18% believed patients were Republicans, compared to 12% of students who identified as such. Among those who

selected "other," 46% of students either had no political affiliation or were registered with a different political party. Students perceived a similar distribution among patients, with 36% selecting either "other" (18%) or "none" (28%). The alignment between student and patient political affiliations may reflect assumptions or projection rather than objective knowledge, though this was not formally assessed.

While the majority of students (73%) reported being registered to vote, only 69% stated they planned to vote in the 2024 presidential election. This gap between registration and voting intention may reflect common national trends among young adult populations.

When asked about access to campaign materials and the potential vulnerability to misinformation, students consistently supported allowing patients access to television, social media, and other campaign content. Approximately 60% of students favoured permitting access to social media and other campaign materials, and this opinion remained unchanged after the didactic intervention. Student views on the susceptibility of individuals with a mental diagnosis to misinformation also remained consistent, with the majority believing that such patients are likely or very likely to be influenced by misinformation and by people of strong political views, including staff involved in their care and fellow patients in shared hospital settings. Despite increased support for voting rights, concerns about cognitive vulnerability to misinformation appeared to persist.

No free-text responses were collected, which limited insight into the reasons behind students' choices and the factors shaping their opinions.

The strengths and implications of this study build on existing research, which shows that faculty, mentors, and healthcare community leaders play a primary role in reducing stigma, both by correcting misconceptions and modelling respectful, dignified treatment of individuals with mental illness (White *et al.*, 2025). Despite overall improvements in attitudes, students consistently opposed granting voting rights to psychiatric inpatients who had committed a crime but were deemed not criminally responsible due to their diagnosis. Future research should explore the roots of these persistent concerns, particularly regarding the intersection of mental illness, criminal behaviour, and civil rights, to better understand the factors shaping such beliefs.

#### **Limitations**

Since students could opt out of the study at any time, the post-survey saw 35 fewer responses in the 2024

post-class survey (n = 83 pre-survey, n = 48 post-survey). This reduction in response rate may affect the generalisability of the results and limits the ability to perform statistical analyses. Nevertheless, this smaller post-survey sample size likely did not alter the overall conclusions. Despite the potential for response bias, the increase in support from 63% “allowed to vote” to 88% “allowed the right to vote” remains compelling, regardless of post-survey changes.

The direction of potential bias remains uncertain: students who did not complete the post-survey might have held less favourable views, which would result in an overestimation of a favourable change.

Future studies should require anonymous survey completion as a condition for receiving class attendance credit when examining pre- and post-intervention responses. This approach may enhance response rates and reduce perceived bias. Moreover, the absence of a control group and the single-institution’s scope are additional limitations.

## Conclusion

This study highlights the potential of targeted educational interventions to improve student attitudes toward mental illness and promote greater civic inclusion of individuals with psychiatric diagnoses. Integrating content on social connection into healthcare curricula may further reduce stigma by underscoring the mental and physical health consequences of isolation. Empowering individuals with mental illness to engage in civic duties, such as voting, can foster inclusion and self-worth. Notably, students maintained restrictive views about voting rights for individuals deemed not criminally responsible due to mental illness—an area warranting deeper investigation. Faculty, mentors, and healthcare leaders can play a critical role in shifting perceptions by modelling empathy, challenging misconceptions, and promoting dignity in patient care.

## Ethical considerations

This study was reviewed and deemed exempt by the University at Buffalo (UB) Institutional Review Board, as it involved the retrospective analysis of previously collected data.

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## Conflict of interest

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