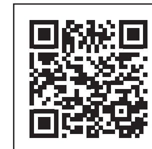
Slovenian Medical Journal



Attitudes toward mental disorder among medical students

Odnos študentov medicine do duševnih motenj

Špela Uplaznik,[1] Klara Vaupotič,[2] Hojka Gregorič Kumperščak,[2,3] Anja Plemenitaš Ilješ[4]

Abstract

Background: People with mental disorders are among the most stigmatized and vulnerable members of society. Our research study intended to determine the medical students' attitude toward mental disorders, the presence of stigma, and whether either changed throughout their six-year medical education.

Methods: The sample included 200 medical students of the University of Maribor. Empirical data were collected using the CAMI scale (Community Attitudes Towards the Mentally Ill), the Comparison of Attitudes of Patients and Students in Slovenia questionnaire, and additional questions regarding specific mental disorders. The results were processed using the SPSS 25 program. Descriptive statistics methods were applied, including the ANOVA test. Statistically, significant correlations and differences were checked at a 5% risk level.

Results: The students strongly agreed with the positive statements and disagreed with the negative statements on the CAMI scale (MV=3.93; SD=0.34; p=0.046). No significant discrepancies between individual undergraduate years were observed; the sixth-year students expressed the most positive attitude among all students. The mean value of all statements was 3.9 (Y1-Y6 SD=0.5), indicating a low presence of stigma.

Conclusion: The students expressed a positive attitude toward mental disorders. In sixth-year students, the least stigma, and better knowledge and attitude towards mental disorders were observed. Education, clerkship, and hearing personal confessions about experiencing a mental disorder are needed as they improve attitudes toward them.

Izvleček

Izhodišča: Osebe z duševnimi motnjami so bolj stigmatizirani in ranljivi člani družbe. Namen naše raziskave je bil raziskati odnos študentov medicine do duševnih motenj, prisotnost stigmatiziranosti do teh bolnikov pri njih in spremembo odnosa do oseb z duševnimi težavami med 6-letnim izobraževanjem.

[1] University Medical Centre Ljubljana, Ljubljana, Slovenia
[2] Faculty of Medicine, University of Maribor, Maribor, Slovenia
[3] Department of Child and Adolescent Psychiatry, Division of Pediatrics, University Medical Centre Maribor, Maribor, Slovenia
[4] Department of Psychiatry, University Medical Centre Maribor, Maribor, Slovenia

Correspondence / Korespondenca: Klara Vaupotič, e: vaupotic.klara21@gmail.com

Key words: attitude to mental health; stigma; medical education

Ključne besede: odnos do duševnega zdravja; stigma; študij medicine

Received / Prispelo: 10. 10. 2021 | **Accepted / Sprejeto:** 26. 3. 2022

Cite as / Citirajte kot: Uplaznik Š, Vaupotič K, Gregorič Kumperščak H, Plemenitaš Ilješ A. Attitudes toward mental disorder among medical students. Zdrav Vestn. 2022;91(7–8):273–84. **DOI:** https://doi.org/10.6016/ZdravVestn.3311

Copyright (c) 2022 Slovenian Medical Journal. This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Metode: Uporabljena je bila neeksperimentalna kvantitativna metoda zbiranja podatkov s strukturiranim vprašalnikom z lestvico CAMI (*angl.* Community Attitudes Towards the Mentally Ill), z vprašalnikom Primerjava stališč bolnikov in študentov v Sloveniji ter z dodatnimi vprašanji. V vzorec je bilo vključenih 200 študentov Medicinske fakultete Univerze v Mariboru. Rezultati so bili obdelani s programom SPSS 25 (IBM Corp., Armonk, NY). Uporabljene so bile metode opisne statistike in test ANOVA. Statistično značilna povezanost in razlike so bile preverjene pri 5-odstotni stopnji tveganja.

Rezultati: Pri preverjanju splošnega odnosa do duševnih motenj je bilo razvidno močno strinjanje s pozitivnimi in nestrinjanje z negativnimi trditvami (PV=3,93; SO=0,34; p=0,046). Večjih odstopanj med letniki ni bilo, od vseh letnikov so najbolj pozitiven odnos izrazili študenti 6. letnika. Povprečna vrednost vseh trditev je bila 3,9 (L1–L6 SO=0,5), kar kaže na nizko prisotnost stigme.

Zaključek: Rezultati kažejo pozitiven odnos študentov medicine do duševnih motenj in stanje brez pomembnega stigmatizirajočega odnosa do teh oseb. Pri študentih 6. letnika je bila zabeležena najmanjša prisotnost stigmatizirajočega odnosa. Izobraževanja, klinična praksa in poslušanje osebnih izkušenj ljudi z duševno motnjo so koristna, saj izboljšajo razumevanje duševnih motenj.

1 Introduction

According to the World Health Organization (WHO) definition, health is not only the absence of disease but general well-being, which includes a sense of fulfillment and the utilization of all of an individual's potentials (1). Mental health is composed of emotional, psychological, and social well-being (2). On the other hand, a mental disorder is a deviation in thinking, mood, or behaviour associated with distress and impaired functioning. Mental disorders are a significant global public health problem linked to other chronic illnesses, increasing their morbidity and mortality (3).

The WHO defines stigma as the presence of emotions such as shame and disapproval, followed by rejection, discrimination, and exclusion from society (4). Stigma means being marked by some trait, setting an individual apart from most people so that they and the people around them find this trait as deviant (5). People with mental disorders are among the most stigmatized and vulnerable members of society who suffer from discrimination in various areas of life (6). The most common is a social or public stigma (7). The stigma of mental illness among healthcare professionals is of utmost importance in the care of these patients (8). The causes of stigmatization of mental disorders are numerous and complex. One of the main reasons is ignorance and incognizance about mental disorders and general beliefs and stereotypes that people with mental disorders are dangerous, unpredictable, or violent (5). The consequences of stigma in patients with mental disorders can include shame, feelings of being different, inferiority, low self-esteem, feelings of rejection, and anxiety, resulting in a lower quality of life (9). The long-term consequences of stigmatization can lead to difficulties in finding employment, education and an intimate partner (10). Stigma can affect the quality of mental health care as it creates barriers to seeking medical help, interrupts treatment, and impairs mental and physical care (11).

The study of medicine serves as an educational path to starting a medical doctor's career by providing essential knowledge of all the medical specialties. Foreign studies examining how psychiatric clerkship affects attitudes toward mental disorders show somewhat inconclusive results. A meta-analysis on the influence of clerkship on students' stigma toward mental illness clearly stated that there is a robust effect of clerkship on students' stigma of mental illness and highlighted that curriculum is a crucial component in the battle against stigma. It emphasized the role of psychiatry as a critical component of the curriculum and experiential learning as a necessary tool to combat stigma (12). An Irish study revealed that final year students who completed the clinical module demonstrated a positive attitudinal shift but found no significant difference in attitudes displayed by preclinical and clinical medical students before starting their respective modules on how to approach patients with mental illness (13). A British study showed that personal experience of mental health treatment, or that among family and friends, were associated with less stigmatizing attitudes and that mental health problems were not perceived as ones that deserved the lowest regard (14), which was similarly reported by a study performed in Papua New Guinea (15). A Greek study reported that psychiatric clerkship had a positive effect in reducing stigma toward psychiatry and mental disorders (16), which was similarly

reported in a Chinese study (17), studies performed in South Africa (18,19), and France (20). An Australian study found that attitudes toward psychiatry were positive at the beginning of the clerkship, and that negative, as well as stigmatizing views toward mental disorders post-clerkship decreased. However, the overall view on mental disorders remained unchanged and, in some areas, became even more negative (6). A study from Ethiopia reported that medical students who did not take a clinical psychiatry rotation had a more positive attitude toward psychiatry than students who completed the clinical psychiatry rotation (21). A study performed in Brazil reported that participation in a psychiatric clerkship was associated with greater social acceptance but not with improvement in other factors (22).

In line with other studies, both domestic (23) and foreign (12-14,16,24), we wanted to investigate the attitude toward mental disorders and the stigma among the students of the University of Maribor, Faculty of Medicine, and to examine how their attitudes change throughout the study of medicine.

2 Methods

2.1 Sample

To collect the sample, we used a non-random, dedicated pattern. The sample population for this study was recruited from the medical students studying in the academic year 2019/2020 at the University of Maribor. Printed questionnaires were handed out personally to classrooms of students in year one to year six who were present at the compulsory lectures and agreed to participate in the research. The students returned their completed questionnaires and signed consent forms. The study design was approved by the local Medical Ethics Committee of the University Medical Centre Maribor (No. UKC-MB-KME-94-1/19). A non-experimental quantitative data collection method was used for data collection.

2.2 Questionnaires

Empirical data were obtained using the following structured questionnaires:

1. The CAMI scale (Community Attitudes Towards The Mentally Ill) (25). It contains 40 statements divided into four blocks: 1. authority (statements 1–10; expressing inferiority/equality of people with mental illness and the need for forceful intervention), 2. compassion (statements 11–20; expressing (mis)understanding of and being (in)considerate toward people with mental illness), 3. social limitation (statements 21–30; expressing the belief that people with mental illness (do not) represent a threat to society and (do not) need to be steered clear of) and 4. ideology of mental health in the community (statements 31–38; expressing (the lack of) advantages of community presence and (the lack of) acceptance of care outside the institutions). Respondents indicated the level of agreement on a 5-point Likert scale (1 – I completely disagree, 2 – I disagree, 3 – I neither agree nor disagree, 4 – I agree, 5 – I completely agree). For a more straightforward overview of each dimension, we have changed the values of the mixed positive and negative statements accordingly and calculated the mean value (MV) of the four blocks – lower values represent a more negative attitude (Table 2).
2. The second questionnaire used was from the Stigma of Mental Illness study: Comparison of Attitudes of Patients and Students in Slovenia (23) to determine mental illness stigma. The questionnaire contains 14 statements comparing stereotypical and discriminatory beliefs, and the social distance of the respondents involved. It also includes a 5-point Likert scale, where higher values indicate a more negative attitude toward people with mental disorders.
3. Additionally, questions on demographic data (age, gender, year of study) and questions that determine whether the students understand the definition of individual mental disorders.
4. Lastly, we added two specific statements that interested us (‘’A person with a mental disorder cannot be a doctor.” and ‘’After completing my clinical practice and passing the psychiatry exam, my view of mental disorders has changed. ‘’), the second one referred only to sixth-year students.

2.3 Analysis

The results were statistically processed using the statistical computer program SPSS 25 (IBM Corp., Armonk, NY). We used descriptive statistics methods, the ANOVA test to compare the mean value of several groups, and the chi-square test due to some categorical clinical features. Statistically significant correlations and differences were checked at a 5% risk level. The results were presented in text and figures.

3 Results

Two hundred medical students were included. Of 250 questionnaires handed out, 214 were returned, and 200 were fully completed. Of these, 7.5% were first-year students, 23.5% second- and fourth-year students each, 20.5% were third year students, 12.0% fifth-year, and 13.0% sixth-year students. Seventy-six percent of the questionnaires were completed by female students and 24% by male students. The gender distribution also matches the actual representation of women and men in the faculty. Students were aged from 19 to 39 years (mean age 22.16, SD 2.226).

Students' general attitude toward people with mental disorders is shown in Table 1 and Table 2. The Cronbach's alpha value was 0.90.

Table 1: General attitude toward mental disorder.

Statements	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200	
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD
*1. One of the main reasons for mental disorder is a lack of self-discipline and willpower.	1.8	0.6	2.2	1.0	2.1	0.7	2.2	1.0	2.3	0.7	1.7	0.9	2.1	0.9
*2. The best way to treat people with mental disorders is inpatient treatment.	2.1	0.8	2.0	0.7	1.8	0.7	1.8	0.8	1.9	0.7	1.6	0.7	1.9	0.7
*3. There is something special about people with mental disorders that makes them easily distinguishable from normal people.	2.4	1.0	2.1	0.7	2.1	0.9	2.2	0.9	2.3	0.8	1.9	0.8	2.2	0.8
*4. As soon as someone shows signs of mental disorder, they should be hospitalized.	1.9	0.8	1.6	0.7	1.7	0.7	1.6	0.6	2.0	0.9	1.6	0.7	1.7	0.7
*5. People with mental disorders need the same supervision and discipline as young children.	2.2	0.7	2.4	0.9	2.3	0.9	1.9	0.8	2.3	0.8	1.8	0.7	2.2	0.8
6. Mental disorder is like all other illnesses.	2.7	1.0	2.7	1.2	3.3	1.2	3.1	1.2	3.3	1.2	3.3	1.3	3.1	1.2
7. People with mental disorders shouldn't be social outcasts.	4.3	0.6	4.3	1.1	4.5	0.8	4.5	0.7	4.4	0.8	4.5	0.8	4.4	0.8
8. Protecting the public from people with mental disorders should be less emphasized.	3.3	0.9	3.1	0.8	3.3	0.8	3.3	1.0	3.4	0.8	3.3	1.1	3.3	0.8
*9. Psychiatric hospitals are an outdated way of treating people with mental disorders.	2.4	0.8	3.0	0.9	2.7	0.9	2.6	1.0	2.5	0.8	2.4	1.0	2.7	0.3
10. Almost anyone can get a mental disorder.	4.1	0.9	4.1	0.9	4.3	0.8	4.3	0.7	3.9	1.0	4.3	0.7	4.2	0.8
11. People with mental disorders have been the target of ridicule for too long.	4.1	0.9	4.3	0.7	4.4	0.6	4.3	0.8	4.3	0.8	4.6	0.6	4.3	0.8
12. The state should allocate more funds for the care and treatment of people with mental disorders.	3.9	0.6	4.1	0.7	4.0	0.7	4.1	0.7	4.0	1.0	4.4	0.8	4.1	0.7

Statements	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200	
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD
13. As a society. we should be much more tolerant of people with mental disorders.	4.3	0.6	4.5	0.5	4.3	0.6	4.3	0.5	4.3	0.6	4.3	0.8	4.3	0.6
*14. Our psychiatric hospitals are more like prisons than a place where people with mental disorders are treated.	3.1	1.1	3.1	0.8	3.1	0.9	3.0	0.9	1.7	0.6	2.4	0.9	2.8	1.0
15. It is our responsibility to provide the best care possible for people with mental disorders.	4.4	0.6	4.3	0.6	4.5	0.6	4.4	0.6	4.5	0.5	4.4	0.8	4.4	0.6
*16. People with mental disorders do not deserve our empathy.	1.1	0.3	1.3	0.6	1.4	0.8	1.3	0.5	1.3	0.5	1.2	0.5	1.3	0.6
*17. People with mental disorders are a burden to our society.	2.1	0.9	2.2	0.9	2.3	1.0	2.3	1.1	2.6	0.7	2.1	1.1	2.3	1.0
*18. Increasing funding for the treatment of people with mental disorders means spending taxpayers' money.	2.2	1.1	1.6	0.7	1.9	0.8	1.8	0.8	2.0	0.8	1.5	0.7	1.8	0.8
*19. Sufficient services are already available for people with mental disorders.	2.4	0.9	2.4	0.7	2.6	0.7	2.4	0.7	2.4	0.6	2.0	0.8	2.4	0.7
*20. It is best to avoid people with mental health problems.	1.9	0.7	1.6	0.7	1.9	0.9	1.8	0.7	1.8	0.6	1.6	0.7	1.7	0.7
*21. People with mental disorders should have no responsibility.	1.9	0.9	2.0	0.8	2.0	0.6	1.8	0.7	2.0	0.7	1.8	0.8	1.9	0.7
*22. People with mental disorders should be separated from the rest of the community.	1.6	0.9	1.4	0.5	1.8	0.7	1.7	0.7	1.8	0.7	1.7	0.7	1.7	0.7
*23. A person would be foolish to engage in a serious relationship with a partner (person) who has had a mental disorder, even if he or she has already fully recovered.	1.5	0.5	1.7	0.8	1.5	0.8	1.7	0.7	1.8	0.8	1.5	0.7	1.6	0.8
*24. I wouldn't want to have someone who had a mental disorder as a neighbor.	1.8	0.9	1.8	0.8	1.8	1.1	2.0	0.9	2.1	0.9	1.8	0.9	1.9	0.9
*25. Anyone who has had a mental disorder should not be in the civil service.	1.9	0.8	1.8	0.7	1.8	0.8	2.0	0.8	2.3	0.8	1.5	0.7	1.9	0.8
26. People with mental disorders should not be denied their personal rights.	4.4	0.6	4.1	1.1	4.4	0.9	3.9	1.3	4.4	0.6	4.6	0.6	4.3	1.0
27. People with mental disorders need to be encouraged to take on the responsibilities of a normal life.	4.2	0.6	4.1	0.7	4.2	0.7	4.4	0.8	4.3	0.6	4.4	0.7	4.3	0.7
28. No one has the right to exclude people with mental disorders from their housing community.	4.2	0.8	4.1	0.8	3.8	0.9	4.1	0.9	3.9	0.8	4.1	0.8	4.0	0.9

Statements	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200	
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD
29. People with mental disorders pose a much lower risk than most people think.	4.1	0.6	3.7	0.9	3.9	0.8	3.6	0.9	3.8	0.9	4.2	0.8	3.8	0.8
30. Most women who were once treated in a psychiatric hospital can perform the work of a nanny.	3.3	0.5	2.9	0.8	3.2	0.9	3.0	0.8	3.1	0.7	3.3	0.9	3.1	0.8
31. Local citizens should accept the location of mental health facilities in their neighborhood as these serve the needs of the local community.	3.3	0.8	3.3	0.8	3.6	0.7	3.5	1.0	3.3	0.9	3.9	0.8	3.5	0.9
32. The best therapy for most people with mental disorders is to be involved in the community.	3.9	0.7	4.0	0.6	3.9	0.6	3.9	0.8	3.9	0.8	4.0	0.8	4.0	0.7
33. As much as possible. services for patients with mental disorders should be provided in community-based facilities.	3.6	0.9	3.9	0.5	4.0	0.7	4.0	0.8	4.0	0.6	4.2	0.6	4.0	0.7
34. Providing care for people with mental disorders in residential neighborhoods does not endanger other residents.	3.5	1.0	3.6	0.7	3.4	0.8	3.4	0.9	3.3	0.7	3.7	0.9	3.5	0.8
35. There is no reason for residents to be afraid of people coming to their neighborhood for mental disorder services.	3.3	1.2	3.6	0.8	3.5	0.8	3.5	0.9	3.6	0.8	3.8	1.0	3.6	0.9
*36. There should be no facilities for people with mental disorders in residential neighborhoods.	2.2	1.0	2.0	0.8	1.9	0.6	2.3	0.9	2.1	0.5	1.8	0.8	2.1	0.8
*37. Residents of the local community are rightly reluctant to allow the treatment of people with mental disorders in their community.	2.6	0.9	2.3	0.8	2.1	0.8	2.4	0.8	2.3	0.8	2.0	0.8	2.3	0.8
*38. It may really be beneficial from a therapy standpoint for people with mental disorders to live in local communities. but this poses too great a risk to residents.	2.6	0.9	2.6	0.9	2.3	0.9	2.5	1.0	2.3	0.7	2.1	0.8	2.4	0.9

Legend: Y1 – 1st year; Y2 – 2nd year; Y3 – 3rd year; Y4 – 4th year; Y5 – 5th year; Y6 – 6th year; Y1–Y6 – 1st–6th year; n – sample size; MV – mean value; SD – standard deviation; Values on the scale: 1 – I completely disagree; 2 – I disagree; 3 – I neither agree nor disagree; 4 – I agree; 5 – I completely agree. Low values in cells marked with the * sign represent a more positive attitude, while low values of unmarked cells' statements represent a more negative attitude.

The values show an overall positive attitude for the authority block, compassion block, social limitation block, ideology of mental health in the community block, and all of the blocks combined. Regardless of the year of study, the students showed a predominantly positive attitude regarding the following two statements: The statement ''People with mental disorders shouldn't be social outcasts." encourages the integration of people with mental disorders into the community (statement 7) and the statement ''It is our responsibility

Table 2: General attitude towards mental disorder – statement blocks.

Statements blocks	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200		F	p*
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD		
1.-10. (authority)	3.75	0.34	3.71	0.39	3.87	0.33	3.89	0.36	3.79	0.30	4.05	0.41	3.84	0.37	3.504	0,005
11.-20. (compassion)	3.98	0.35	4.09	0.35	4.00	0.33	4.06	0.37	4.13	0.36	4.30	0.45	4.09	0.37	2.592	0,027
21.-30. (social limitation)	4.15	0.45	4.03	0.43	4.08	0.47	3.97	0.49	3.96	0.39	4.22	0.49	4.05	0.46	1.383	0,232
31.-38. (ideology of mental health in the community)	3.53	0.71	3.68	0.43	3.76	0.45	3.65	0.64	3.67	0.43	3.96	0.60	3.71	0.54	1.713	0,133
1.-38.	3.87	0.37	3.89	0.31	3.94	0.30	3.91	0.35	3.90	0.30	4.14	0.42	3.93	0.34	2.305	0,046

Legend: Y1 – 1st year; Y2 – 2nd year; Y3 – 3rd year; Y4 – 4th year; Y5 – 5th year; Y6 – 6th year; Y1–Y6 – 1st–6th year; n – sample size; MV – mean value; SD – standard deviation; F – F-test value; p* – one-factor analysis of variance (significant values are in bold); Values on the scale: 1 – I completely disagree; 2 – I disagree; 3 – I neither agree nor disagree; 4 – I agree; 5 – I completely agree. Lower values represent a more negative attitude.

to provide the best care possible for people with mental disorders." encourages an active approach to treating and helping them (statement 15).

Table 3 shows results regarding stereotypical discriminatory beliefs and social distance toward people with mental disorders. The students' MV of all statements indicates a low presence of stigma.

All fifth- and sixth-year students enrolled in the subject Psychiatry (Table 4) and have thus encountered people with mental disorders in the clinical environment. Most fourth-year students also have clinical experience with people with mental disorders, while the lower-year students have considerably less clinical experience (Table 4). However, most students have

Table 3: Comparison of Attitudes of Medical Students in Slovenia to determine mental disorder stigma.

Statements	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200		F	P*
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD		
1. People with mental disorders are more dangerous than other people.	3.1	0.8	3.4	0.9	3.3	0.8	3.3	0.7	3.1	0.8	3.7	1.0	3.3	0.8	1.487	0.196
2. People with mental disorders can attack someone.	2.2	0.7	2.4	0.8	2.8	0.9	2.5	0.7	2.2	0.7	2.8	0.9	2.5	0.8	2.783	0.019
3. Mental disorder is contagious.	4.8	0.4	4.7	0.8	4.8	0.6	4.7	0.8	4.8	0.5	4.9	0.3	4.8	0.6	0.634	0.674
4. People with mental disorders do not know how to behave.	3.9	0.6	3.9	0.8	3.9	0.9	3.8	0.9	3.6	0.7	3.9	0.8	3.8	0.8	0.462	0.804

Statements	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200		F	P*
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD		
5. People with mental disorders are less capable than other people.	4.2	0.8	3.8	0.9	3.8	0.9	3.6	1.0	3.4	0.7	3.7	0.7	3.7	0.9	2.021	0.077
6. People with mental disorders are to blame for their illness.	4.4	0.7	4.5	0.6	4.5	0.7	4.4	0.7	4.4	0.6	4.7	0.5	4.5	0.7	0.963	0.442
7. I am afraid to live next door to a person who has a mental disorder.	4.1	0.9	4.0	0.8	4.0	0.9	4.0	0.8	3.7	0.7	4.0	0.9	4.0	0.8	0.656	0.657
8. If my roommate had a mental disorder, I would move out.	4.1	0.8	4.1	0.9	4.3	0.7	3.9	0.8	4.1	0.7	4.0	0.8	4.1	0.8	1.161	0.330
9. If my boyfriend / girlfriend had a mental disorder, I would end the relationship.	4.3	0.7	3.9	1.0	4.1	0.8	4.0	1.0	3.9	0.9	4.0	0.9	4.0	0.9	0.724	0.606
10. It is better for society that people with mental disorders do not have a child.	3.9	0.7	3.9	1.0	3.9	1.0	3.7	0.9	3.3	0.9	3.5	0.7	3.7	0.9	2.517	0.031
11. It is better for society that people with mental disorders do not work with children and adolescents.	3.7	1.0	3.4	0.9	3.5	1.0	3.4	1.0	3.3	0.8	3.5	0.8	3.5	0.9	0.582	0.714
12. I can recognize people with mental disorders at first sight.	4.3	0.8	4.3	0.8	4.3	0.9	4.1	0.9	4.0	0.7	4.3	0.7	4.2	0.8	0.992	0.424
13. If I could decide, I would keep people with mental disorders in a psychiatric hospital for as long as possible.	4.2	0.9	4.3	0.8	4.3	0.7	4.1	0.9	4.1	0.8	4.4	0.7	4.2	0.8	0.470	0.798
14. I would feel ashamed if my friends found out that someone in my family has a mental disorder.	4.4	0.9	4.1	0.9	4.5	0.9	4.4	0.8	4.3	0.9	4.5	0.8	4.4	0.9	0.893	0.487
1.–14.	4.0	0.4	3.9	0.5	4.0	0.4	3.8	0.5	3.7	0.4	4.0	0.4	3.9	0.5		

Legend: Y1 – 1st year; Y2 – 2nd year; Y3 – 3rd year; Y4 – 4th year; Y5 – 5th year; Y6 – 6th year; Y1–Y6 – 1st–6th year; n – sample size; MV – mean value; SD – standard deviation; p* – one-factor analysis of variance (significant values are in bold); Values on the scale: 1 – I completely agree; 2 – I agree; 3 – I neither agree nor disagree; 4 – I disagree; 5 – I completely disagree. Lower values represent a higher presence of stigma toward mental disorder.

Table 4: Familiarity with, and knowledge of mental disorder definitions.

Q	A	Y1 n=15	Y2 n=47	Y3 n=41	Y4 n=47	Y5 n=24	Y6 n=26	Y1–Y6 n=200	Chi-square	P*
		%	%	%	%	%	%	%		
Have you attended a Psychiatry course yet?	NO	100.0	100.0	92.7	95.7	0.0	0.0	72.5		
	YES	0.0	0.0	7.3	4.3	100.0	100.0	27.5		
Have you ever met someone with a mental disorder in a clinical setting?	NO	80.0	87.2	65.9	14.9	0.0	0.0	43.5		
	YES	20.0	12.8	34.1	85.1	100.0	100.0	56.5		
Have you ever met someone with a mental disorder in a private setting?	NO	0.0	8.5	17.1	17.0	12.5	11.5	12.5		
	YES	100.0	91.5	82.9	83.0	87.5	88.5	87.5		
Do you know what it means if someone has depression or mania?	NO	0.0	8.5	0.0	6.4	0.0	0.0	3.5	8.784	0.118
	YES	100.0	91.5	100.0	93.6	100.0	100.0	96.5		
Do you know what it means if someone has an anxiety disorder?	NO	0.0	8.5	2.4	14.9	4.2	0.0	6.5	9.954	0.077
	YES	100.0	91.5	97.6	85.1	95.8	100.0	93.5		
Do you know what it means if someone has a psychotic disorder?	NO	13.3	27.7	12.2	21.3	4.2	7.7	16.5	9.062	0.107
	YES	86.7	72.3	87.8	78.7	95.8	92.3	83.5		
Do you know what it means if someone has a personality disorder?	NO	20.0	34.0	34.1	12.8	0.0	3.8	20.0	22.147	**<0.001**
	YES	80.0	66.0	65.9	87.2	100.0	96.2	80.0		

Legend: Y1 – 1st year; Y2 – 2nd year; Y3 – 3rd year; Y4 – 4th year; Y5 – 5th year; Y6 – 6th year; Y1–Y6 – 1st–6th year; n – sample size; Q – question; A – answer; p* – one-factor analysis of variance (significant values are in bold).

already encountered a person with a mental illness in their private environment (Table 4).

Most students were familiar with depression, mania, and anxiety disorders (Table 4). Fewer students knew of psychotic disorders and personality disorders (Table 4). Statistical significance was observed in the statistical analysis (Table 4) indicating that fifth- and sixth-year students have better knowledge about personality disorders than other students.

Table 5 Shows data of 2 statements that are very specific to medical students that interested us. Results showed a significant dispersion of data, SD of the statements exceeds or equals 0.9.

4 Discussion

Our study investigated the attitude of medical students toward patients with mental disorders and mental disorders in the general population. We explored whether stigma changes throughout medical school education and whether clinical clerkship may impact attitudes toward mental disorders.

We found a generally positive attitude toward mental disorders in students regardless of the year of their medical studies. The students who completed the psychiatry course and exam agreed that the experience improved their attitude; however, they were not wholly convinced and answered indecisively. Sixth-year students showed the most positive attitude, which might be because they have already completed the psychiatry course and are thus educated adequately about mental disorders.

To the best of our knowledge, this is the first study in Slovenia assessing medical students' attitudes toward mental disorders. The only study performed in Slovenia compared stigmatizing attitudes from six different faculties, including medical students, with patients with severe mental illness. They reported that patients expressed higher stigmatization scores toward people with severe mental disorders than the students (23). Other foreign studies examining how psychiatric clerkship affects attitudes toward mental disorders show inconclusive results. Still, most of them showed a more positive attitude toward mental disorders after

Table 5: Specific statements.

Statement	Y1 n=15		Y2 n=47		Y3 n=41		Y4 n=47		Y5 n=24		Y6 n=26		Y1–Y6 n=200		F	p*
	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD	MV	SD		
1. A person with a mental disorder cannot be a doctor.	2.5	1.0	2.9	1.0	2.8	0.9	2.9	1.2	2.6	1.0	2.4	0.9	2.8	1.0	1.243	0.291
2. (ONLY FOR SIXTH-YEAR STUDENTS) After completing my clinical practice and passing the psychiatry exam, my view of mental disorders has changed.	/	/	/	/	/	/	/	/	/	/	3.6	1.0	/	/		

Legend: Y1 – 1st year; Y2 – 2nd year; Y3 – 3rd year; Y4 – 4th year; Y5 – 5th year; Y6 – 6th year; Y1–Y6 – 1st–6th year; n – sample size; MV – mean value; SD – standard deviation; F – F-test value; p* – one-factor analysis of variance; values on the scale: 1 – I completely disagree; 2 – I disagree; 3 – I neither agree nor disagree; 4 – I agree; 5 – I completely agree.

completing their clerkship, and that curriculum is a crucial component of the battle against stigma (12-17,20). On the other hand, some studies did not prove this connection (6,21,22).

The perspective of the interviewed medical students seemed to be multidimensional; since they reported that they do support deinstitutionalization and that inclusion and involvement in the community are appropriate for treating people with mental disorders. The majority of the students agreed that mentally ill people should be provided with community services. A study performed in the University Psychiatric Hospital Ljubljana showed that patients in psychiatric community treatment reported having better quality or satisfaction with their lives. They function better in all areas, although psychopathological symptoms persist at the same level as in hospitalized patients (26). The WHO has encouraged the development of public health policies worldwide to reduce the number of psychiatric beds and replace them with facilities where patients would be treated within the community (27), which is an effortful step towards deinstitutionalization.

Results showed slight stigma regarding violent behavior in the mentally ill. However, the fear of mentally ill people being violent and unpredictable is still present, as discovered in many studies. A Swedish study found that attitudes toward mental disorders did not change significantly from 1976 to 2014. In 2014, nearly a quarter of the population still believed that mentally ill people committed more violent acts (28). Similarly, a study from China also reported encountering a stigma related to fear of violent behavior by people with mental disorders (29). The cause for misconception could be, to some extent, the media, as they commonly emphasize crimes even further when a perpetrator is a person with a mental disorder. It is also detrimental that, in general, many of the symptoms and (socially unusual) behaviors of the mentally ill are considered antisocial and criminal; this can consequently lead to a misconception of the causal links between mental disorders and crimes (30). A literature review showed that people with a properly treated mental disorder do not pose a greater risk of violence than the general population (31).

The limitations of our study were a small number of participating medical students. In the study, female students were represented more frequently. The gender distribution also matches the actual representation of women and men in the faculty, so we could not influence this bias. Additionally, sixth-year students were less represented in the study since they attended the lectures less frequently according to the faculty's education plan. We could not motivate them to participate in the survey in higher numbers. Questions about understanding the definition of individual mental disorders were not part of standardized questionnaires, so they have less power.

In today's challenging COVID-19 pandemic

situation, when mental health is an important issue, the results of our study are even more compelling. Despite a positive attitude toward mental disorders, the sixth-year students were somewhat undecided about whether a person with a mental illness can be a physician, revealing some degree of stigma. On the other hand, it is a known fact that physicians had high rates of suicide and depression (32) even before the pandemic. This fact is particularly relevant to medical students – future physicians, since presently the prevalence of stress, anxiety, and depression among front-line healthcare workers caring for COVID-19 patients is even higher (33). In the pandemic and post-pandemic time, it would make sense to pay greater attention to the students' and physicians' mental health henceforward and provide safe environments where they can express their issues without fear and be treated appropriately. Among other solutions, the use of stigmatizing language should change, and support for each other should be prominent (34). In 2020, the National Institute of Public Health in Slovenia started to prepare for the implementation of the National Mental Health Program (NMHP) from 2021 to 2023, which includes a crisis plan regarding the COVID-19 pandemic. Improved accessibility was recognized as an essential factor in reducing the mental health burden in the COVID-19 crisis, and a general recommendation was made to organize services in the community. A Slovene study carried out mid-pandemic found that the Delphi method for constructing emergency mental health activities during a pandemic is needed, as it could help overcome many challenges (35).

Studies on anti-stigma programs for physicians and medical students found that the confessions of a physician or medical student with personal experience of a mental disorder represent an essential part of immediate positive effects on stigma-related stress (19,36). A stable mental state of medical staff can lead to better treatment outcomes; therefore, this aspect is essential for future improvements (37). The COVID-19 pandemic has heightened interest in how physicians' mental health can be protected and optimized. New initiatives to reduce uncertainty and misinformation regarding mental disorders with evidence-based information are proposed at different levels - medical schools, healthcare settings, and professional colleagues - to protect the mental health and wellbeing of physicians (38). Medical school and education is the foundation; therefore, it is crucial to implement a clerkship alongside psychiatry lectures, allowing students to meet patients with mental disorders, hear their personal experiences, and actively minimize mental disorder stigma; and our results also support this.

5 Conclusion

We can conclude that the attitude toward mental disorders improves with education. Regardless of years of education, medical students expressed a positive attitude toward people with mental disorders. Sixth-year students showed the most positive attitude, as they have already completed the psychiatry clerkship and are thus most educated about mental disorders. However, the participants expressed slight stigma regarding violent behavior in the mentally ill, and there was some doubt regarding a physician having a mental disorder. Additionally, with the present COVID-19 pandemic, we face even more significant challenges and burdens. Now, more than ever, reducing mental health stigma is needed, as it might improve health-seeking in medical workers. Better mental healthcare accessibility, organized community services, and new initiatives are warranted to protect the mental health and wellbeing of students and physicians.

Conflict of interest

None declared.

Ethical approval

Our study was approved by the Medical Ethics Committee of the University Medical Centre Maribor (No. UKC-MB-KME-94-1/19). All procedures performed in our study were under the Declaration of Helsinki (1964) and its later amendments. The nature and purpose of the study were explained to the participants. Informed consent was obtained from all participants after the nature of the study had been fully explained.

References

1. World Health Organization. Mental health: strengthening our response. Geneva: WHO; 2018 [cited 2020 Jul 25]. Available from: https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response.
2. Galderisi S, Heinz A, Kastrup M, Beezhold J, Sartorius N. Toward a new definition of mental health. World Psychiatry. 2015;14(2):231-3. DOI: 10.1002/wps.20231 PMID: 26043341

3. Younger DS. Epidemiology of Childhood and Adult Mental Illness. Neurol Clin. 2016;34(4):1023-33. DOI: 10.1016/j.ncl.2016.06.010 PMID: 27719986
4. Subramaniam M, Abdin E, Picco L, Pang S, Shafie S, Vaingankar JA, et al. Stigma towards people with mental disorders and its components - a perspective frommulti-ethnic Singapore. Epidemiol Psychiatr Sci. 2017;26(4):371-82. DOI: 10.1017/S2045796016000159 PMID: 27018715
5. Strbad M, Švab V. Stigmatizacija in psihiatrija. Med Razgl. 2005;44:147-54.
6. Lyons Z, Janca A. Impact of a psychiatry clerkship on stigma, attitudes towards psychiatry, and psychiatryas a career choice. BMC Med Educ. 2015;15(1):34. DOI: 10.1186/s12909-015-0307-4 PMID: 25888984
7. Ahmedani BK. Mental Health Stigma: Society, Individuals, and the Profession. J Soc Work Values Ethics. 2011;8(2):41-416. PMID: 22211117
8. Liggins J, Hatcher S. Stigma toward the mentally ill in the general hospital: a qualitative study. Gen Hosp Psychiatry. 2005;27(5):359-64. DOI: 10.1016/j.genhosppsych.2005.05.006 PMID: 16168797
9. Link B, Phelan J, Sullivan G. Mental and Physical Health Consequences of the Stigma Associated with Mental Illnesses,in The Oxford Handbook of Stigma, Discrimination, and Health. In: Major B, Dovidio JF, Bruce GL, eds. The Oxford Handbook of Stigma, Discrimination, and Health. Oxford: Oxford University Press; 2017.
10. Kuklec V. Stigmatizacija pacientov z različnimi diagnozami s strani zaposlenih v zdravstveninegi. Obzor Zdr N. 2010;44(3):195-201.
11. Knaak S, Mantler E, Szeto A. Mental illness-related stigma in healthcare: barriers to access and care and evidence-basedsolutions. Healthc Manage Forum. 2017;30(2):111-6. DOI: 10.1177/0840470416679413 PMID: 28929889
12. Petkari E, Masedo Gutiérrez AI, Xavier M, Moreno Küstner B. The influence of clerkship on students' stigma towards mental illness: a meta-analysis. Med Educ. 2018;52(7):694-704. DOI: 10.1111/medu.13548 PMID: 29498433
13. O' Connor K, Brennan D, O' Loughlin K, Wilson L, Pillay D, Clarke M, et al. Attitudes towards patients with mental illness in Irish medical students. Ir J Med Sci. 2013;182(4):679-85. DOI: 10.1007/s11845-013-0955-5 PMID: 23605088
14. Korszun A, Dinos S, Ahmed K, Bhui K. Medical student attitudes about mental illness: does medical-school education reducestigma? Acad Psychiatry. 2012;36(3):197-204. DOI: 10.1176/appi.ap.10110159 PMID: 22751821
15. Muga F, Hagali M. What do final year medical students at the University of Papua New Guinea think ofpsychiatry? P N G Med J. 2006;49(3-4):126-36. PMID: 18389970
16. Economou M, Kontoangelos K, Peppou LE, Arvaniti A, Samakouri M, Douzenis A, et al. Medical students' attitudes to mental illnesses and to psychiatry before and afterthe psychiatric clerkship: training in a specialty and a general hospital. Psychiatry Res. 2017;258:108-15. DOI: 10.1016/j.psychres.2017.10.009 PMID: 28992547
17. Shen Y, Dong H, Fan X, Zhang Z, Li L, Lv H, et al. What can the medical education do for eliminating stigma and discrimination associatedwith mental illness among future doctors? effect of clerkship training on chinesestudents' attitudes. Int J Psychiatry Med. 2014;47(3):241-54. DOI: 10.2190/PM.47.3.e PMID: 25084820
18. De Witt C, Smit I, Jordaan E, Koen L, Niehaus DJ, Botha U. The impact of a psychiatry clinical rotation on the attitude of South African finalyear medical students towards mental illness. BMC Med Educ. 2019;19(1):114. DOI: 10.1186/s12909-019-1543-9 PMID: 31023368
19. Eksteen HC, Becker PJ, Lippi G. Stigmatization towards the mentally ill: perceptions of psychiatrists, pre-clinicaland post-clinical rotation medical students. Int J Soc Psychiatry. 2017;63(8):782-91. DOI: 10.1177/0020764017735865 PMID: 29067838
20. Simon N, Verdoux H. Impact of education program and clinical posting in psychiatry on medical students' stigmatizing attitudes towards psychiatry and psychiatric disorders. Encephale. 2018;44(4):329-36. DOI: 10.1016/j.encep.2017.05.003 PMID: 28606624
21. Hailesilassie H, Kerebih H, Negash A, Girma E, Siebeck M, Tesfaye M. Attitude of Medical Students towards Psychiatry: The case of Jimma University, SouthwestEthiopia. Ethiop J Health Sci. 2017;27(3):207-14. DOI: 10.4314/ejhs.v27i3.2 PMID: 29217919
22. da Rocha Neto HG, Rosenheck RA, Stefanovics EA, Cavalcanti MT. Attitudes of Brazilian Medical Students Towards Psychiatric Patients and Mental Illness:A Quantitative Study Before and After Completing the Psychiatric Clerkship. Acad Psychiatry. 2017;41(3):315-9. DOI: 10.1007/s40596-016-0510-6 PMID: 26883528
23. Strbad M, Švab I, Zalar B, Švab V. Stigma duševne bolezni. Primerjava stališč bolnika in študentov v Sloveniji. Zdrav Vestn. 2008;77:481-5.
24. Oliveira AM, Machado D, Fonseca JB, Palha F, Silva Moreira P, Sousa N, et al. Stigmatizing Attitudes Toward Patients With Psychiatric Disorders Among Medical Studentsand Professionals. Front Psychiatry. 2020;11:326. DOI: 10.3389/fpsyt.2020.00326 PMID: 32425827
25. Taylor SM, Dear MJ. Scaling community attitudes toward the mentally ill. Schizophr Bull. 1981;7(2):225-40. DOI: 10.1093/schbul/7.2.225 PMID: 7280561
26. Agius M, Bulic Vidnjevic I, Jeric A, Furlan M, Zajdela B, Svab V. The development of community treatment in Slovenia - first outcomes. Psychiatr Danub. 2009;21:78-80. PMID: 19953744
27. Loch AA. Stigma and higher rates of psychiatric re-hospitalization: são Paulo public mentalhealth system. Br J Psychiatry. 2012;34(2):185-92. DOI: 10.1590/s1516-44462012000200011 PMID: 22729415
28. Mirnezami HF, Jacobsson L, Edin-Liljegren A. Changes in attitudes towards mental disorders and psychiatric treatment 1976-2014in a Swedish population. Nord J Psychiatry. 2016;70(1):38-44. DOI: 10.3109/08039488.2015.1046916 PMID: 26051607
29. Luo A, He H, Mohamed S, Rosenheck R. Medical Student Attitudes Towards People with Mental Illness in China: A QualitativeStudy. Cult Med Psychiatry. 2018;42(3):535-51. DOI: 10.1007/s11013-018-9568-9 PMID: 29508204
30. Behere PB, Kumar K, Behere AP. Depression: why to talk? Indian J Med Res. 2017;145(4):411-3. DOI: 10.4103/ijmr.IJMR_295_17 PMID: 28862171
31. Rueve ME, Welton RS. Violence and mental illness. Psychiatry (Edgmont). 2008;5(5):34-48. PMID: 19727251
32. Ventriglio A, Watson C, Bhugra D. Suicide among doctors: A narrative review. Indian J Psychiatry. 2020;62(2):114-20. DOI: 10.4103/psychiatry.IndianJPsychiatry_767_19 PMID: 32382169
33. Salari N, Khazaie H, Hosseinian-Far A, Khaledi-Paveh B, Kazeminia M, Mohammadi M, et al. The prevalence of stress, anxiety and depression within front-line healthcare workerscaring for COVID-19 patients: a systematic review and meta-regression. Hum Resour Health. 2020;18(1):100. DOI: 10.1186/s12960-020-00544-1 PMID: 33334335
34. Brower KJ. Professional Stigma of Mental Health Issues: Physicians Are Both the Cause and Solution. Acad Med. 2021;96(5):635-40. DOI: 10.1097/ACM.0000000000003998 PMID: 33885412
35. Makivić I, Švab V, Selak Š. Mental Health Needs Assessment During the COVID-19 Pandemic: Consensus Based on DelphiStudy. Front Public Health. 2021;9:732539. DOI: 10.3389/fpubh.2021.732539 PMID: 34746080
36. Hankir A, Fletcher-Rogers J, Ogunmuyiwa J, Carrick FR, Zaman R. Reducing Mental Health Stigma in Medical Students and Doctors towards their Peerswith Mental Health Difficulties: A Protocol. Psychiatr Danub. 2020;32:130-4. PMID: 32890375
37. Goetzel RZ, Roemer EC, Holingue C, Fallin MD, McCleary K, Eaton W, et al. Mental Health in the Workplace: A Call to Action Proceedings From the Mental Healthin the Workplace-Public Health Summit. J Occup Environ Med. 2018;60(4):322-30. DOI: 10.1097/JOM.0000000000001271 PMID: 29280775
38. Harvey SB, Epstein RM, Glozier N, Petrie K, Strudwick J, Gayed A, et al. Mental illness and suicide among physicians. Lancet. 2021;398(10303):920-30. DOI: 10.1016/S0140-6736(21)01596-8 PMID: 34481571