Table 3 Comparison of scores on the Beliefs about Mental Illness Scale between Year 3 and other students

Multiple comparisons Bonferroni dependent variable	Groups		MD	SD	P
A mentally ill person is more likely than a normal person to harm others	Year 3	Year 4	0.64	0.49	1.000
		Year 5	1.24	0.49	0.073
		Interns	2.24	0.49	< 0.001
Mental disorders require a longer period of time to be cured than general diseases	Year 3	Year 4	1.64	0.46	0.003
		Year 5	1.28	0.46	0.038
		Interns	2.72	0.46	< 0.001
It may be a good idea to stay away from a person who has a psychological disorder because their behaviour may be dangerous	Year 3	Year 4	0.20	0.44	1.000
		Year 5	0.96	0.44	0.186
		Interns	1.64	0.44	0.002
The term psychological disorder makes me feel embarrassed.	Year 3	Year 4	0.16	0.49	1.000
		Year 5	0.08	0.49	1.000
		Interns	1.12	0.49	0.144
A person with a psychological disorder should have a job with only minor responsibility	Year 3	Year 4	0.68	0.49	1.000
		Year 5	1.08	0.49	0.183
		Interns	1.72	0.49	0.004
Mentally ill people are more likely to be criminals	Year 3	Year 4	1.16	0.46	0.078
		Year 5	1.24	0.46	0.049
		Interns	2.16	0.46	< 0.001
Psychological disorders are recurrent	Year 3	Year 4	−0.20	0.43	1.000
		Year 5	0.36	0.43	1.000
		Interns	0.76	0.43	0.477
I am afraid of what my boss, friends and others would think if I were diagnosed as having a psychological disorder	Year 3	Year 4	−0.40	0.44	1.000
		Year 5	−0.32	0.44	1.000
		Interns	0.64	0.44	0.884
Individuals diagnosed with a mental illness suffer from its symptoms throughout their life	Year 3	Year 4	0.60	0.46	1.000
		Year 5	0.92	0.46	0.298
		Interns	1.44	0.46	0.015
People who receive psychological treatment are likely to need further treatment in the future	Year 3	Year 4	0.48	0.51	1.000
		Year 5	0.68	0.51	1.000
		Interns	1.68	0.51	0.008
It may be difficult for mentally ill people to follow social rules such as being punctual or keeping promises	Year 3	Year 4	−0.12	0.52	1.000
		Year 5	−0.64	0.52	1.000
		Interns	0.60	0.52	1.000
I would be embarrassed if people knew that I was in a relationship with a person who had received psychological treatment	Year 3	Year 4	0.36	0.54	1.000
		Year 5	0.12	0.54	1.000
		Interns	1.08	0.54	0.290
I am afraid of people who are suffering from psychological disorders because they may harm me	Year 3	Year 4	1.16	0.53	0.181
		Year 5	1.12	0.53	0.217
		Interns	2.00	0.53	0.002
A person with a psychological disorder is less likely to function well as a parent	Year 3	Year 4	1.08	0.54	0.296
		Year 5	0.60	0.54	1.000
		Interns	1.72	0.54	0.012
I would be embarrassed if a person in my family became mentally ill	Year 3	Year 4	0.52	0.50	1.000
		Year 5	0.00	0.50	1.000
		Interns	1.20	0.50	0.116
I believe that psychological disorders can never be completely cured	Year 3	Year 4	−0.28	0.53	1.000
		Year 5	−0.88	0.53	0.592
		Interns	0.48	0.53	1.000

Table 3 Comparison of scores on the Beliefs about Mental Illness Scale between Year 3 and other students *(concluded)*

Multiple comparisons Bonferroni dependent variable	Groups		MD	SD	*P*
Mentally ill people are unlikely to be able to live by themselves because they are unable to assume responsibilities	Year 3	Year 4	0.36	0.54	1.000
		Year 5	−0.20	0.54	1.000
		Interns	1.04	0.54	0.336
Most people can be friends with a mentally ill person without knowing	Year 3	Year 4	0.96	0.52	0.396
		Year 5	0.92	0.52	0.468
		Interns	2.56	0.52	< 0.001
The behaviour of people with psychological disorders is unpredictable	Year 3	Year 4	0.08	0.51	1.000
		Year 5	−0.04	0.51	1.000
		Interns	1.40	0.51	0.046
Psychological disorders are unlikely to be cured, regardless of treatment	Year 3	Year 4	−0.72	0.55	1.000
		Year 5	−0.52	0.55	1.000
		Interns	0.72	0.55	1.000
I would not trust the work of a mentally ill person assigned to my team at work	Year 3	Year 4	−0.08	0.55	1.000
		Year 5	−0.17	0.55	1.000
		Interns	1.12	0.55	0.259

MD = mean difference; SD = standard deviation

and 6 credit hours. Various teaching methods are used, including lectures, clinical training, simulated patients, videos, flipped classrooms, group discussions, and field visits. In addition to this, students have 12 contact hours engaged in a problem-based learning approach to mental illness as part of their training in family medicine during the same period. In 2009, the national competence framework for medical schools in Saudi Arabia recommended a biopsychosocial approach to clinical encounters (*19*). Accordingly, all medical schools in Saudi Arabia have introduced a 3–12-week clinical clerkship. Majmaah University medical students have a 2-month elective clerkship in psychiatry available during internship. Similar results were published in a study using the questionnaire of Balon et al. from Al-Hassa that involved 56 medical students (*20*). The study showed that participants who had psychiatric training involving 25 hours of lectures and 180 hours of practical training, which add up to 205 contact hours, corresponding to 6 credit hours, had a positive attitude towards mental illness. Regarding the duration of psychiatric training for medical students, a study from Egypt concluded that 3 weeks of psychiatric training resulted in no clear overall trend in attitudes towards mental illness (*21*). Thus, this length of training may not have been sufficient for students to witness improvement in mental illness after treatment; therefore, it might have negatively reinforced the preconceived idea that mentally ill patients are untreatable.

The present study clearly showed that students with a higher level of training had more positive attitudes towards mental illness compared to their juniors. Similar positive findings were reported in a study conducted among students in their final year of clinical training in China using a 21-item Attitude Towards Psychiatry questionnaire (*22*). A similar study conducted in India also revealed that interns demonstrated a significant positive difference in their attitudes towards psychiatric illness compared to other study groups (*23*). Both studies support the findings of the present study, that students with more psychiatric training at a higher level have a more favourable attitude towards mental illness. We also suggest that voluntary and active learning approaches and innovative teaching methods in psychiatry and in the medical curriculum likely contributed to the positive attitude of undergraduate medical students in the present study.

A similar study using the web-based Attitude Towards Psychiatry-30 (ATP-30) scale among medical students and interns from Umm Al-Qura University, Makkah, Saudi Arabia, revealed a neutral to positive attitude to mental illness (*24*). A study from Bahrain using the ATP-30 scale showed a moderately positive attitude towards mental illness with female and junior students demonstrating more positive attitudes than male and senior students, which suggests that greater psychiatric exposure did not result in more positive attitudes of medical students towards mental illness (*25*). Similarly, a number of authors from different countries, including Jamaica, India and Sri Lanka, have observed negative attitudes in nursing and medical students towards psychiatry (*26–28*). The results of the present study are in contrast with those previous studies. This may be because of the duration of training and effective implementation of teaching modules, cultural background of the participants, the questionnaires used to measure the attitudes, and the student populations studied.

The present study suggests that institutions should conduct similar surveys that may bring valuable insights and a neutral or negative attitude among medical students toward patients with mental illness, indicating