

ORIGINAL RESEARCH

Assessment of nursing students' attitudes and stigma towards mental illness: A cross-sectional study

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ABSTRACT

This study aimed to assess nursing students' attitudes toward mental illness in Saudi Arabia. The research design was cross sectional survey. A convenience sample of 315 nursing students. The attitudes towards patients with mental illness questionnaire (AMI) was employed. The results of analysis found that nursing students had favorable attitudes (social relationships) toward people affected by mental illness. Their AMI1 score was slightly higher than the neutral score 20.82. In addition, the findings suggested that students showed slightly affirmative attitudes of tendency to inform others in case oneself or a close relative being mentally ill. 10.50 was the score of AMI2. Nursing students had favorable attitudes towards mental illness despite having negative stereotyped attitudes toward mental illness.

Key Words: Attitudes, Students, Nursing, Mental illness

1. BACKGROUND

The World Health Organization estimates that there are 450 million people suffering from mental illness in the world. Mentally ill people are one of the most vulnerable populations as they often encounter discriminatory attitudes and stigma from health care professionals.^[1] Also, according to the WHO about 20% of the health care seekers seen by health care workers have one or more mental health disorders.

Health care professionals' positive attitudes towards people suffering from mental illness is a prerequisite for the provision of quality care (WHO). Mentally ill patients and their caregivers expect doctors and nurses to help and treat them without discrimination or prejudice.^[1] Unfavourable attitudes were detected toward people with mental illness among medical and nursing students.^[2-4] Negative attitudes among health care providers can, in turn, cause mismanage-

ment of patients with mental illness and low attention to patients, affect doctor and nurse interaction, and result in a lack of support and acceptance of patients.^[3] Assessment of the attitudes of future doctors and nurses towards mental illness is crucial.

Another important issue in the field of health care is perceived stigma among medical and nursing students. Stigma is an integration of lack of knowledge, negative attitudes and discrimination, and is a continuous process that starts with the unfavourable effects of labelling.^[2] Stigma towards mental illness is the major source of anxiety among nursing students.^[5] According to Högberg, Magnusson,^[6] not only the general population attach stigma and prejudiced attitudes to people diagnosed with mental illness, but also health care providers tend to have similar attitudes. In addition, improved undergraduate training could lead to less

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stigmatization and better care for patients.^[7] Furthermore, one of the most important impediments to progress in the development of mental health care is the stigma amongst health care providers.^[8] According to Samari, Seow^[9] perceived stigma amongst nurses towards mental illness and people with mental disorders can act as barriers to patients seeking treatment.

The studies reviewed found negative attitudes, beliefs and perceived stigma towards mental illness among university students. In addition, the majority of the studies assessed students' attitudes towards mental illness. There was only one study which measured attitudes and knowledge toward mental illness by utilising an ad hoc instrument.^[2,10] Furthermore, there were limited studies measuring attitudes and perceived stigma among university students toward mental illness.^[7] However, there were no studies assessing stigma and attitudes of nursing students towards mental illness and comparing students who have received a psychiatric course and clinical placement with those who have not.^[11] Also, the majority of the studies were considered to be of only moderate quality according to the JBI critical appraisal tool. Moreover, there was only one study which evaluated and compared medical and nursing students' attitudes.^[1] This is the first study to measure nursing students' attitudes and their relationship with their perceived stigma. Much uncertainty still exists about the relationship between students' attitudes and perceived stigma.

Poreddi, Thimmaiah^[11] compared medical and nursing students' attitudes toward mental illness by using the Attitude Scale for Mental Illness (ASMI). The authors suggested that nursing students had more positive attitudes towards mental illness (65.5%) compared with medical students (54.5%). Furthermore, the results of subscale analysis revealed that medical students expressed more favorable attitudes in the separatism domain (25.54) compared to nursing students in the same domain (27.54). Moreover, medical students had less stigmatizing attitude toward mental illness (mean 8.37 verses nursing students 9.27). However, nursing students were more benevolent towards mentally ill patients (mean 15.00 versus medical students 17.00). Concerning pessimistic predication, nursing students showed fewer negative attitudes (mean 11.83) compared to medical students (mean 13.49). The main strength of the study is that researchers used a scale with well-established psychometric properties (Cronbach's Alpha 0.86). Also, the sample size of the study was large, which means that the study was adequately powered.

A descriptive, cross-sectional study by Yildirim, Demirbukan^[12] demonstrated that the total scores on the Beliefs

Towards Mental Illness scale (BMI) were 46.5 ± 14.5 . It suggested that the study participants showed positive attitudes towards mental illness. Similarly, in the same year, the study of Connaughton and Gibson^[13] measured physiotherapy students' attitudes towards mental illness using the Attitudes Towards Psychiatry scale (ATP-30). The authors concluded that the participants illustrated positive attitudes towards mental illness. This scale has good psychometric properties, for instance, Cronbach's Alpha of 0.84. However, the main drawback in Connaughton and Gibson's study is that participants were recruited from one setting in Australia, so the sample cannot be representative of all university students. It is recommended that further studies should include more colleges and more programmes to draw clear evidence about Australian students' attitudes towards mental illness. Another limit found is that cross-sectional design delimits the ability to determine causality relationship between the variables.

Hailesilassie, Kerebih^[14] assessed medical students' attitudes towards mental illness. Their findings indicated that the students' attitudes were linked with the status of attending psychiatry rotation. Specifically, students' scores, as measured by ATP-30, deteriorated after being enrolled in psychiatry rotation (mean 49.75 v.s. 55.52; $p < .05$). The clinical rotation included psychiatry courses for six weeks and involved taking patient histories with their supervisors (psychiatrists). Furthermore, the study indicated that psychiatry clinical rotation affected negatively the participants' attitude, the results showing a decrease in the mean score on the ATP-30 scale after psychiatric rotation. The reason for this result may reflect the disparity between the medical students' expectations of the psychiatry clinical rotation and actual practice. Further study is needed to assess medical students' experiences during psychiatry clinical rotation. A limitation of Hailesilassie et al. (2017) was that the sample was chosen from one college and only fourth year medical students ($n = 122$). Another reason which might affect the results from the author's perspective is that the ratio of students to psychiatrists might have led students to have insufficient supervision time for their exposure to patients with mental illness.

Also, Sreeraj, Parija^[15] assessed attitudes towards mental illness among nursing students training in different colleges in the north Indian states Uttarakhand, Punjab, Haryana and Uttar Pradesh. Findings reflected higher pessimistic prediction and stereotypes about mental illness among nursing students. Interestingly, the mean score of ASMI was at a low level in stigmatization (2.1 ± 0.7). However, the number of the females was higher ($n = 90$) compared with males ($n = 10$). Therefore, further study is needed to draw clear conclusions about male nursing students' attitudes towards mental illness.

Popescu, Buzoianu^[2] found that the first-year medical students from the Romanian and English sections showed comparatively negative attitudes towards people with mental illness. Also, stigmatizing, stereotypic attitudes and social distance were observed towards mentally ill persons. Interestingly, positive attitudes towards mental illness were associated with prior experience with mental illness or knowing a mentally ill person. Similarly, in a recent study conducted in Spain by Granados-Gómez, Lopez Rodriguez^[16] who examined undergraduate nursing students' attitudes toward mental illness, first year students had received a basic course in psychosocial science and had not taken clinical practice in contrast with third year students who had completed a psychiatric course and clinical placements. The findings concerning those students who experienced mental illness or had a relationship with a friend or a family member who suffered from mental illness demonstrated more accepting attitudes toward mental illness.

Aruna, Mittal^[17] assessed medical students' perception, knowledge and attitude towards psychiatric disorder. Participants were recruited from three colleges in Karnataka. The result appeared that the participants had limited knowledge and attitudes towards psychiatric disorder. Furthermore, only (25%, n = 101) of the students were inclined to accept psychiatry as a profession in future, whereas (50.9%, n = 206) were reluctant to be involved in the psychiatric profession, while (24%, n = 97) were hesitant to provide answers. Similarly, Popescu, Buzoianu^[2] found that half of Romanian medical students did not consider depression to be a mental illness and only 4 out of 5 students recognize and consider schizophrenia a mental illness. The study showed lack of knowledge about mental illness among Romanian medical students. This result has an impact on the diagnosis, treatment and the outcomes of the patients. The major drawback of the Aruna, Mittal^[17] study is that the author assessed and evaluated perception, knowledge and attitudes by ad hoc measures that lacked psychometric properties. As a result, it is difficult to generalize the study's findings.

A descriptive, cross sectional study by Economou, Peppou^[18] reported that Greek psychology students' knowledge about major depression was considered poor. Furthermore, 98% of the participants recognized that the person has a mental illness. The Depression Stigma Scale-Personal (DDS-Personal) was employed to assess students' knowledge and attitudes towards major depression (Cronbach alpha = 0.72). However, the research does not take into account the fact that students belonged to different years of study which is expected to show variation in their responses. In a similar vein, Al-Darmaki, Thomas^[19] explored beliefs and perception toward mental health problems amongst female college students (n

= 70) from a national university in the UAE. The author reported that the participants lacked knowledge about mental health problems. Moreover, most participants indicated misconceptions about treatment or mental health services. Likewise, Granados-Gómez, Lopez Rodriguez^[16] indicated that nursing students who had no experience with mental illness or knew a mentally ill person had shortcomings in knowledge about mental illness. The main weakness of the Al-Darmaki, Thomas^[19] study is that the sample size was comparatively small, and the majority of the study participants were females. Moreover, another weakness is that participants were employed in a qualitative method (open-end questionnaire). This probably did not provide participants with the opportunity to further clarify their responses. So, further study conducting in-depth interviews is needed. An interesting Indian postgraduate study by Chandramouleeswaran, Rajaleelan^[7] assessed physicians' stigma and attitudes towards psychiatric patients and reported that most of the participants (70%) felt patients with mental illness were equally employable and accepted as friends. Moreover, observable stigmatization toward people suffering from schizophrenia with mean scores of AMIQ (-2.14) were found. Similarly, social distance towards schizophrenia patients is higher among Romanian medical students Popescu et al. (2017). The main drawback of the Chandramouleeswaran, Rajaleelan^[7] study is that the sample size was relatively small (n=70), which may have jeopardised the generalizability of the study findings by reducing the study power. Moreover, the reader should bear in mind that the study is based on cross-sectional design which may limit the ability to address causal connections from the study data. This study was intended to evaluate the nursing students' attitudes toward mental illness in Saudi Arabia. Furthermore, this study aimed to compare the attitudes and stigma of nursing students who had received a psychiatric course and clinical placement with those who had not.

2. MATERIALS AND METHODS

2.1 Study design

This study used a descriptive correlational explanatory design.

2.2 Setting

This study was conducted at Hail University in Hail city. The University of Hail was formally established on 14 June 2006. The university is comprised of five colleges: College of Medicine, College of Pharmacy & Medical Sciences, College of Engineering, College of Science, College of Computer Science & Computer Engineering, and Community College. Furthermore, the initial students were accepted on 11 February 2006. In 2007, two present colleges joined the

university, the men's Hail Teachers College and the Girls College of Education. These two colleges were formerly under the auspices of the Ministry of Education. Also, the university acceptance has now grown to further than 32,000 students. The purpose behind selecting this setting is that the availability of nursing students. Also, it has adequate numbers of nursing students. Moreover, it was easily accessed by the researcher.

2.3 Sampling and sample

The current study used a convenience sampling. The rationale of choosing this sampling is to obtain large and representative participants numbers. Furthermore, convenience sampling is the easiest procedure to distribute a questionnaire in classroom A convenience sample might result in too many men or women.^[20] Power analysis was calculated using the following four input parameters: alpha of .05, an effect size (f^2) of 0.15, and power of 0.80. The required sample size of 160 was determined with attrition rate of 15%. Then, the required sample size was 185. In this light, the sample criteria for this research are defined as follows: Nursing students in Hail University in Hail city; participants aged between 18 to 50 years old and male as well as female students.

2.4 Socio-demographic data

All students' demographical data were obtained including Age, Sex, level of education, Place of origin, Personal history of mental illness, Family history of mental illness, History of mental illness among close friends and Psychiatry clinical rotation completed or not.

Attitudes toward mental illness (AMI) questionnaire was used to measure the attitudes of nursing students in Hail University. AMI was measured by a 22-item questionnaire. The questionnaire was developed by Amini et al. (2016). The scale was distributed into five categories:

- 1) Six questions on attitude towards social relationships (AMI1).
- 2) Three questions on the tendency to inform others in case oneself or a close relative being mentally ill (three questions) (AMI2).
- 3) Six questions on the concept of treating patients (AMI3).
- 4) Three questions on the concept of etiology of the mental illness (AMI4).
- 5) Four questions on the stereotyped attitude towards mental illness (AMI5).

The scoring was grounded on a five-point Likert scale from 5 (strongly agree) to 1 (strongly disagree), providing an average score of 66. A more favourable attitude towards mental illness is indicated by higher score in this 5-point scale. The reliability of the scale was ranged from (Cronbach's alpha

0.603 to 0.857) across categories 3.

Perceived devaluation-discrimination scale developed by Link was utilised to measure the perception of stigma among nursing students. This self-administered survey with 12 five-point Likert scaled items has been used in numerous studies.^[2] The tool asks about the range of agreement with statements indicating that most individuals devalue current or former psychiatric patients by perceiving them as disappointments, as less intelligent than other persons and as individuals whose views need not to be taken seriously. Furthermore, asks to what extent the respondent agrees with statements indicating that most people discriminate against psychiatric persons in different social relationships. The scale is balanced as such that a high level of perceived devaluation-discrimination is showed by agreement with six of the items and by disagreement with six others. Items are appropriately recoded so that a high score reflects a strong perception of devaluation-discrimination. A homogeneity analysis was carried out which provides both optimal quantifications for the categories of the items and scores for the explanations, maximizing the internal consistency and Cronbach's alpha 0.86.^[2]

2.5 Ethical consideration and approvals

IRB rules and regulations at Hail University were applied to this study (45/IRB/2019); the investigators assured participants that confidentiality was maintained. Informed consent was obtained from all participants; rules and regulations set out by the IRB committee are applied to guarantee the application of a code of ethics to both research on the students and on the educational process, and the investigator guarantees no negative impact or harm shall occur.

2.6 Quantitative data analysis

Data was obtained from contributors were numerically coded and analysed utilising SPSS for Windows, version 23. Descriptive statistics was employed to summarise baseline characteristics, including socio-demographic and participants information. For the sake of the present study, we utilised correlation statistics Person's r and Spearman's ρ correlation to computed relationship between variables. In respect to multi-comparison tests to protector against wrongly rejecting a null hypothesis and type 1 error, the modification level of significance was performed. The adjusted level of significance set at baseline for all statistical tests were thus determined at the 5% level ($p < .05$).^[21-23]

3. RESULTS

Sociodemographic characteristics of participants are summarized in Table 1. The researcher student had distributed

325 papers and received 315 responses; the response rate was 97%. The study included 315 undergraduate nursing students from Hail University. The results showed that the average of the study participants age is 22.82 years with a standard deviation of 4.52. In addition, the majority of the study participants are 51.7% male nursing students. In terms of level of education, the results indicate that the vast majority of students attained middle or advanced education level (second year (36.8%) and third year (35.2%) as well as fourth year). However, only 1.6% of the participants completed the first year. Furthermore, 47.3% students completed who completed psychiatric course and clinical rotation compared to 52.7% (n = 166) of students did not complete the psychiatric course. It can be seen from Table 1 that small proportion of students (11.4%) experienced an episode of mental illness. Additionally, the results obtained from the preliminary analysis revealed that the least proportion of participants had a positive history of mental illness (7%) of who have family history of mental illness between participants were 7% (n = 22) and 93% (n = 293) did not have a history of it. Moreover, the vast majority of participants did not know or have direct contact with patients suffering from mental illness (59%). In this sense, there is a limited number of students who have a positive psychiatric family history (7%).

Table 1. Characteristics of the study participants (n = 315)

Characteristics	Frequency	%
Age, years (M, SD)	22.80	4.52
Gender		
Male	163	51.7
Female	152	48.35
Years of Education		
First	5	1.6
Second	116	36.8
Third	111	35.2
Fourth	83	26.3
Family History of Mental Illness		
Yes	22	7
No	293	93
Completed Psychiatric Nursing Course		
Yes	149	47.3
No	166	52.7
Experienced a mental illness		
Yes	36	11.4
No	279	88.4
Knowing or have direct contact with patient with mental illness		
Yes	129	41
No	186	59

The results of analysis found that nursing students have favorable attitudes (social relationships) toward people affected by mental illness. AMI1 score was slightly higher than the

neutral score 20.82. In addition, the findings suggested that students have slightly affirmative attitudes of tendency to inform others in case oneself or one of close relatives are mentally ill. 10.50 was the score of AMI2 and it is above neutral score.^[9] Also, further statistical tests revealed that participants had poor attitudes toward patients and treatment of mental illness. AMI3 scores were recorded 18.57. In the same context, AMI4 results demonstrated that students had misconceptions toward the etiology of mental illness and recorded mean scores (9.17). Notably, the most striking result emerged from the data is that participants had negative stereotyped attitudes toward mental illness. AMI5 scores were slightly lower than the neutral score 10.81. Overall, AMI outcomes indicate that nursing students have favorable attitudes toward mental illness. In terms of perception of stigma outcomes, the results demonstrated that students have devaluation and discrimination toward mental illness and patients affected by mental illness. In fact, the mean score for perceived devaluation-discrimination was 38.37. The data summarized in Table 2.

The results of subgroup analysis regarding AMI1 showed that female students had more favorable attitudes toward social relationships with patients diagnosed with mental illness compared with male students ($p < .003$). Also, the findings of a one-way ANOVA suggested that years of education had a significant impact on students' social relationships attitudes towards mental illness ($p < .002$). For instance, students at first year had an average of 17.16 to establish a social relationship with mentally ill person compared with 21.53 at third level of education. Notably, students who completed a psychiatric course showed positive impact to have a social relationship with mentally ill individual compared with students who did not enroll in the psychiatric course. This was evident from the mean differences between group (0.72; $p < .05$). Moreover, an evidence of more favorable social relationships attitudes was found when the students experienced a mental illness in some period of their lives compared with students who did not experienced ($p < .04$). However, the result of independent sample *t*-test found age and family history did not influence student attitudes (social relationship) towards mental illness. Additionally, no significant differences were found between students who have direct contact with mentally ill patient and who did not have on social relationship attitudes.

In terms of AMI2, the results indicate that students' age and gender did not have an impact on students' tendency to inform others in case oneself or a close relative being mentally ill. Also, the findings of a one-way ANOVA showed that years of education had no significant influence on students' attitudes (AMI2). Furthermore, students' attitudes of

tendency to inform others in case oneself or one of close relatives are mentally ill appeared to be not affected by family history and contact with patients with mental illness. Notable, there was no evidence that completed psychiatric course and experiencing mental illness has influence on students' attitudes (AMI2).

AMI3 had six items on the questionnaire to measure the student's attitudes toward patient with mental illness. The results suggested that no significant correlation was found

between age and gender of the students' attitudes toward mentally ill patients. Also, the findings of a one-way ANOVA suggested that years of education had no significant impact on students' attitudes toward patient with mental illness. In addition, students' attitudes toward mentally ill patients appeared to be least affected by family history of mental illness and contact with patients had mental illness. However, students who completed psychiatric course were significantly changed their attitudes towards mental illness compared with those who did not complete psychiatric course ($p < .05$).

Table 2. Descriptive statistics for the main study outcomes

Study Outcome	Number of items	Minimum	Maximum	Mean (\bar{x})	Standard Deviation (SD)
AIM1 attitudes toward social relationships (neutral score, 18)	6	6	30	20.82	3.32
AIM 2 tendency to inform others in case oneself or one of close relatives are mentally ill (neutral score, 9)	3	3	15	10.50	2.08
attitudes toward patient (neutral score, 18)	6	6	30	18.57	2.97
attitudes toward the etiology of mental illness (neutral score, 9)	3	3	15	9.17	1.78
stereotyped attitudes toward mental illness (neutral score, 12)	4	4	20	10.81	3.44
Overall attitudes toward mental illness (neutral score, 66)	22	22	110	69.28	7.35
perceived devaluation-discrimination scale (neutral score, 36)	12	12	60	38.37	9.00

The findings of subgroup analysis regarding AMI4 showed that age and gender did not impact significantly mean scores of the participants attitudes towards stereotypes of mental illness between. Also, the findings of a one-way ANOVA revealed that years of education had no significant influence on students' attitudes (AMI4). Further analysis indicates that students' attitudes toward etiology of disease had appeared to be unaffected by family history of mental illness and experiencing mental illness. In addition, no significant differences in mean scores on the impact of the contact with mentally ill person on the student's attitudes toward etiology of mental illness. Notable, students who completed psychiatric course showed a significant change in stereotypes associated with mental illness positive attitudes (AMI4) compared with students who not enrolled in the psychiatric course and clinical rotation.

In terms of AMI5, the findings showed that students' age had a significant impact on the students' stereotyped attitudes toward mental illness ($p < .003$). In addition, the students stereotyped attitudes toward mental illness were significantly influenced by years of education ($p < .001$). For example, students placed at first year had an average of 13.00 compared with 9.89 among student at second level of education. However, there is no significant difference in mean scores of the impact of the family history on mental illness and experiencing mental illness on the participants stereotyped attitudes toward mental illness. Also, AMI5 appeared to be not affected by students' gender and having a relationship

with mentally ill patients. Besides, completed psychiatric course and clinical rotation did not influence students stereotyped attitudes toward mental illness. Overall, AMI results indicate that students age had significant impact on the students' attitudes toward mental illness ($p < .01$). For instance, students aged nineteen had an average of 65.60 compared with 72.37 aged twenty-five years old. In addition, the differences between the students' attitudes toward mental illness and years of education of the students was significant ($p < .0001$). For example, students placed at second year had an average of 66.97 compared with 71.58 at third level of education. Also, knowing or having a contact with mentally ill person negatively affected the students' attitudes ($p < .0001$). However, no significant differences in mean scores on the impact of the family history and experiencing mental illness on the students' attitudes toward mental illness. Furthermore, students' attitudes appeared to be unaffected by participants gender and completed psychiatric course or not.

In terms of perceived devaluation-discrimination scale, the results indicate that students' age did not have impact on students' perceived devaluation-discrimination. Also, showed that female students had expressed more devaluated discriminated towards patients diagnosed with mental illness compared with male students ($p < .003$). However, the findings of a one-way ANOVA suggested that years of education had no significant impact on students' perceived devaluation-discrimination. Additionally, the outcomes of independent sample *t*-test found family history and knowing or having di-

rect contact with patient with mental illness did not influence student stigma (perceived devaluation-discrimination). Furthermore, there is no significant differences in mean scores of

the impact of the completed psychiatric course and experiencing mental illness on the participants perceived devaluation-discrimination. The data is shown in Table 3.

Table 3. Attitudes towards Mental Illness and perceived devaluation-discrimination by Demographic Data

Characteristics	AMI1	AMI2	AMI3	AMI4	AMI5	AMI overall	Stigma
Age, years (M, SD)	12.80	3.72	4.87	1.42	18.77	90.07	34.30
	11.01	3.32	5.17	2.50	11.29*	51.30*	48.81
Gender							
Male	20.19	10.39	18.17	8.96	10.30	68.06	39.02
Female	21.30**	10.37	18.75	9.15	11.36	70.61	41.61**
Years of Education,							
First	17.60	11.40	19.40	8.60	13.00	69.60	34.80
Second	20.12	10.06	18.12	9.06	9.89	66.97	39.94
Third	21.53	10.56	18.77	9.07	11.67	71.58	40.99
Fourth	20.73**	10.53	18.40	9.06	10.83**	69.46***	40.10
Family History of Mental Illness							
Yes	21.59	9.68	18.59	9.68	10.13	69.68	41.59
No	20.66	10.43	18.44	9.01	10.87	69.26	40.17
Completed Psychiatric Nursing Course							
Yes	21.11	10.59	18.66	9.11	11.42	70.79	40.47
No	20.39*	10.19	19.25*	9.01*	10.27	67.95	40.09
Experienced a mental illness							
Yes	21.63	10.08	18.72	9.16	10.11	69.69	41.75
No	20.61*	10.42	18.41	9.04	10.91	69.24	40.08
Contact with patient							
Yes	21.83	10.68	18.76	9.13	11.46	71.75	40.60
No	19.96	10.17	18.23	9.00	10.37	67.59**	40.04

*** $p < .001$, ** $p < .01$, * $p < .05$

The results of correlational analysis revealed that AMI1 is statistically correlated with participant’s tendency to inform others in case oneself or a close relative being mentally ill (AMI II) ($r = 0.32, p < .000$). In addition, relationships emerged between AMI1 and attitudes toward patients with mental illness and stereotyped attitudes towards disease. For instance, correlation with AMI3 ($r = 0.28, p < .000$), and AMI5 ($r = 0.16, p < .004$). Significant correlation was detected between students’ tendency to inform others in case oneself or a close relative being mentally ill (AMI2) and attitudes toward patients (AMI 3) ($r = 0.16, p < .003$). Besides,

AMI2 had moderate relationship with the attitudes toward the etiology of disease (AMI4) and stereotyped attitudes toward mental illness, for instance, correlation with AMI4 ($r = 0.11, p < .03$), correlation with AMI5 ($r = 0.16, p < .004$). A significant correlation between attitudes toward the etiology of disease (AMI4) and stereotyped attitudes towards the disease ($r = 18, p < .001$). Furthermore, stereotyped attitudes had a negative correlation with perceived stigma among nursing students ($r = -0.14, p < .01$). As Table 4 shows, a relationship was found between the main study outcomes.

Table 4. The relationships between the main study variables

Variables	AMI1	AMI2	AMI3	AMI4	AMI5	AMI overall	Stigma overall
AMI1	1	0.324***	0.286***	-0.006	0.160**	0.606**	0.074
AMI2	0.324**	1	0.166**	0.119*	0.161**	0.433***	-0.106
AMI3	0.286**	0.166**	1	-0.041	0.062	0.353**	0.064
AMI4	-0.006	0.119*	-0.041	1	0.183**	0.235**	-0.054
AMI5	0.160**	0.161**	0.062	0.183**	1	0.585**	-0.142*
AMI overall	0.606**	0.433**	0.353**	0.235**	0.585**	1	-0.088
Stigma overall	0.074	-0.106	0.064	-0.054	-0.142*	-0.088	1

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Further statistical tests revealed that AMI1 is significantly correlated with students' gender and years of education. For instance, correlation with students' gender ($r = 0.15, p < .007$), correlation with students' years of education ($r = 0.12, p < .02$). In addition, AMI1 is statistically correlated negatively with experience of mental illness, completed psychiatric course and having direct contact with mentally ill patients, for example, correlation with students' experiences mental illness ($r = -0.11, p < .03$), correlation with completed psychiatric course and clinical rotation ($r = -0.12, p < .02$), and had negative correlation with students' contact with mentally ill patients ($r = -0.26, p < .000$). Furthermore, a correlation was detected between students age and AMI1 ($r = 0.12, p < .02$). The results of correlational analysis indicate that AMI2 is statistically correlated with students' family history and contact with patients, for instance, correlation with students' family history ($r = 0.11, p < .04$), correlation with students' contact with mentally ill patients ($r = -0.13, p < .01$).

The findings of correlation analysis regarding AMI3 showed that students' attitudes toward patients is correlated with students' gender, knowing or having direct contact with patients and completed psychiatric course, for example, correlation with students' gender ($r = 0.12, p < .03$), negative correlation with students' contact with mentally ill patients ($r = -0.13, p < .01$) and negative correlation with completed psychiatric

course and clinical rotation ($r = -0.11, p < .03$).

Students' gender and students' years of education are statistically correlated with stereotyped attitudes towards mental illness (AMI5). For instance, correlation with students' gender ($r = -0.19, p < .001$), correlation with students' years of education ($r = 0.16, p < .003$). In addition, a negative relationship was found between AMI5 and knowing or having contact with patient suffering from mental illness ($r = -0.15, p < .005$). Overall, correlation results indicate that AMI Overall had a relationship with students' gender and students' years of education, for example, correlation with students' gender ($r = 0.16, p < .004$), correlation with students' years of education ($r = 0.18, p < .001$). Also, AMI Overall is correlated negatively with contact with mentally ill patients and completed psychiatric course. For instance, a correlation with students' contact with mentally ill patients ($r = -0.26, p < .000$) and correlation with completed psychiatric course and clinical rotation ($r = -0.20, p < .000$). Notably, a correlation was detected between students age and AMI Overall ($r = 0.13, p < .01$). In terms of the perceived devaluation-discrimination scale, students' gender is statistically correlated with students' stigma toward mental illness ($r = 0.21, p < .000$). Moreover, a negative relationship was detected between students perceived stigma and experienced mental illness ($r = -0.11, p < .04$). The data are shown in Table 5.

Table 5. The results of correlations between the main study variables and sociodemographic

variables	AMI1	AMI2	AMI3	AMI4	AMI5	AMI overall	Stigma overall
Age	0.12*	0.036	0.076	-0.02	0.091	0.13*	-0.14
Gender	0.15**	-0.02	0.12*	0.06	0.16**	0.16**	0.21***
Years of Education	0.12*	0.09	0.07	0.004	0.11*	0.18**	0.10
Experiences mental illness	-0.11*	0.056	-0.056	-0.02	0.07	-0.02	-0.11*
Family History	-0.07	0.11*	-0.01	-0.08	0.06	0.016	-0.08
Contact with patients	-0.26***	-0.13*	-0.13*	-0.03	-0.15**	-0.26***	-0.04
Completed Psychiatric Course	-0.12*	-0.10	-0.11*	-0.02	-0.16	-0.20***	-0.04

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

4. DISCUSSION

The evidence that emerged from the present study demonstrated that nursing students had favorable attitudes (social relationships) toward mental illness. AMI1 score was slightly higher than the neutral score 20.82. This result may be explained by the fact that nursing students would be ready to work or live in the same place and be a close friend to a person affected by mental illness. These results seem to be consistent with other study which found 64.3% of the medical students had favorable attitudes (social relationships) towards mental illness.^[24] In contrast to earlier findings, un-

favorable attitudes (social relationships) was Amini, Shoar^[3] found among medical students towards mental illness, AMI1 scores were slightly lower than neutral score.

The results of this study showed that participants had a slightly affirmative attitudes of tendency to inform others in case oneself or a close relative being mentally ill. 10.50 was the score of AMI2 and it is above neutral score.^[9] This result correlates well with the previous studies that found favorable attitudes (AMI2) towards mental illness and scores higher than neutral score.^[3,25] Additionally, it can therefore

be assumed that the medical and nursing students had a tendency to inform others in case of oneself or a close relative having mental illness and did not have a sense of shame about mental illness.

Medical students had favorable attitudes towards patients and treatment of mental illness (AMI3), participants believed that medication are effective in treating people with mental illness.^[3,24] However, the findings of the current study do not support the previous research. The results indicate that nursing students had poor attitudes toward patient and treatment of mental illness. AMI3 scores were recorded 18.57. A possible explanation for this might be that previous studies included medical students whilst the current study recruited nursing students. Also, education systems might be different between Saudi Arabia and Iran.

As regards attitudes towards the etiology of mental illness (AMI4) domain, results demonstrated that participants had misconceptions about the etiology of mental illness. This was evident from the average of these items (9.17). This outcome is contrary to that of Amini, Majdzadeh^[25] who found that most of the medical students had positive attitudes towards etiology of mental illness. Additionally, Amini, Shoar^[3] demonstrated that medical students had favorable attitudes towards etiology of mental illness. This result may be explained by the fact that differentiation factor between nursing students and medical students has emerged different attitudes towards the etiology of mental illness. Another possible explanation might be a level education provided to the students.

The results of this study showed that nursing students had negative stereotyped attitudes toward mental illness. AMI5 score was slightly lower than the neutral score 10.81. Similarly, Sreeraj, Parija^[15] found nursing students reflected higher pessimistic prediction and stereotypes of mental illness. However, this result has not previously been described. In contrast, medical students did not have negative stereotyped attitudes towards mental illness and participants score higher than neutral score.^[3,25] This result may be explained by the fact that students' attitudes were shaped as consequences of interactions between many aspects, for instance, academic environment, curriculum and method of teaching. The concept of general attitudes appeared in this study's findings, which show that nursing students had favorable attitudes toward mental illness. Mean scores were slightly higher than the neutral score 69.28. In accordance with the present results, previous studies had demonstrated that medical and nursing students had reflected positive and acceptance attitudes towards mental illness.^[1,26,27] In addition, physiotherapy students showed favorable attitudes towards mental

illness.^[12,13] In contrast to earlier findings, medical students illustrated negative attitudes toward mental illness^[2,4,17]

This inconsistency may be due to many reasons. For instance, in previous studies they had students from different specialties and due to different attitudes towards mental illness and only one study assessed nursing students' attitudes towards mental illness and the results in the current study correspond with it. Another instance, method of teaching, sociocultural circumstances and curriculum have an impact on the students' attitudes. In keeping with previous studies, it has been demonstrated that medical students and nursing students exhibit an improvement in attitude towards mental illness after completing psychiatric course and clinical rotation.^[1,28,29] This study results support those of previous studies, showing that nursing students who completed a psychiatric course showed positive impact to have a social relationship with mentally ill individual compared with students who did not enroll in the psychiatric course. In contrast, Hailesilassie, Kerebih^[14] suggested that psychiatric course and clinical rotation have a negative impact on medical students. These findings may be somewhat limited by the sample size was chosen from one college and only fourth year medical students ($n = 122$). Another reason might impact on the result from the author's perspective is that contents of the clerkships or psychiatric course and the atmosphere of clinical rotation make it complicated to enhance the student's attitudes.^[3]

Granados-Gómez, Lopez Rodriguez^[16] indicated that nursing students who experienced mental illness or had a relationship with a friend or family member who suffered from mental illness expressed more accepted attitudes toward mental illness. This finding broadly supports the work of the current study; evidence of more favorable social relationships attitudes was found when the students experienced a mental illness in some period of their lives compared with students who did not experience ($p < .04$). Additionally, it can therefore be assumed that having experienced mental illness or had a relationship with a mentally ill person has a positive impact on students' attitudes towards mental illness and patients suffering from the disorder. Several reports have shown that female students had expressed more favorable and accepted attitudes towards mental illness compared with male students.^[13,14,30] This finding is contrary to the current study which has suggested that there are no differences found between genders in terms of AMI scale. In addition, Amini et al. (2013) indicates that no differences were appeared between gender and attitudes towards mental illness. These results are likely to be related to that current study and Amini, Majdzadeh^[25] paper which were published in Middle East. Notably, the most interesting finding was that female students had expressed more devaluation discrimination towards patients diagnosed with

mental illness compared with male students ($p < .003$). As regards the participants' age, the findings indicate that students' age had a significant impact on the students' attitudes toward mental illness ($p < .01$). For example, students aged nineteen had an average of 65.60 compared with 72.37 aged twenty-five years old. This finding is contrary to previous study which have suggested that no association between age and attitudes towards mental illness. A possible explanation for this might be that different specialties for each study. For instance, Amini, Majdzadeh^[25] chose medical students as a sample while the current study used nursing students. Another possible explanation for this may be due to different sociocultural circumstances for each cohort.

The evidence that emerged from the present study demonstrated that the nursing students had devaluation and discrimination toward mental illness and patients affected by mental illness. In fact, the mean score for perceived devaluation-discrimination was 38.37. However, the findings of the current study do not support the previous research. Sreeraj, Parija^[15] and Chandramouleeswaran, Rajaleelan^[7] indicate that medical and nursing students had low stigmatizing attitudes towards mental illness. It is difficult to explain this result, but it might be related to the fact that the studies were published in India. There are many differences between Middle Eastern and India culture, for instance, community factors such as religion and economy. Another instance, level of education and education system provided to the students.

4.1 Strengths and limitations

To the best of our knowledge, the findings from this study make several contributions to the current literature. Firstly, this is the first study that has assessed nursing students' attitudes and their relationship with their perceived stigma. Secondly, the study has employed valid and reliable instruments to measure attitude and perceived stigma among nursing students and compared nursing students who received a psychiatric course and clinical placement and those who did not. Thirdly, as noted earlier there were no one from the investigators measured students' attitudes and perceived stigma together and the scope of their impacts. Fourthly, most investigations were carried out in the West, only a limited number of nations being represented from the developing

world. No study was conducted to measure nursing students' attitudes and perceived stigma toward mental illness in Saudi Arabia. Finally, the majority of the studies were measured as of moderate quality according to JBI critical appraisal tool. According to JBI critical appraisal that current study was measured as high quality and adequately powered.

The generalizability of these results is subject to certain limitations. Firstly, the nursing students were chosen from only one college and the outcomes may not be generalizable to all colleges in Saudi Arabia. Secondly, as the research is cross sectional in design, and to recognize which variable influenced the other in a cross sectional design is complicated.^[20] Thirdly, convenience sampling was selected, which makes it complicated to generalize the outcomes. Some of the available participants might be atypical of the population and that's the convenience sampling problem.^[20] Finally, the participants' responses might be influenced by social desirability because the questionnaires were distributed with the help of teachers, especially in the women's section and this could be explained by cultural factor. Notable, the present study was planned to take place in the AL Qassim University in AL Qassim region and in Fakeeh College in Jeddah City. However, the time limitation of the master program was a barrier to expansion to many regions.

4.2 Implications for nursing practice

The main goal of the current study was to assess nursing students' attitudes towards mental illness, and it was found that nursing students had favorable attitudes towards mental illness. Besides, students had negative stereotyped attitudes toward mental illness. The second aim of this study was to evaluate the students' stigma towards mental illness, and the disappointing results showed by current study that nursing students expressed devaluation and discrimination towards mental illness and mentally ill people. This study hopes to help the educational organization to found some of the limitation including negative attitudes and stigma amongst nursing students. Also, age and the level of the education has significant impact on nursing students' attitudes towards mental illness.

CONFLICTS OF INTEREST DISCLOSURE

The author declares that there is no conflict of interest.

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