Contents lists available at ScienceDirect

# Heliyon

journal homepage: www.cell.com/heliyon

Research article

# Religiosity and stigma toward patients with mental illness among undergraduate university students

Ahlam Al-Natour [a],[*], Sawsan Abuhammad [a], Hanan Al-Modallal [b]

[a] *College of Nursing, Jordan University of Science and Technology, P.O. Box 3030, Irbid 22110, Jordan*
[b] *Department of Community and Mental Health Nursing, Faculty of Nursing, Hashemite University, Zarqa, Jordan*

## ARTICLE INFO

## ABSTRACT

There is a dearth of research that investigates the relationship between religiosity and stigma of mental illnesses by the context of Jordanian culture. So, this study aimed to describe the relationship between religiosity and stigma against mental illnesses as described by undergraduate university students in Jordan. This study design was descriptive correlations study among 338 University Students, undergraduate students in Jordan. The findings indicate there is a significant correlation (r = - 0.154, p < 0.05) between stigma toward patient with mental illnesses and religiosity. The higher religiosity score is associated with more negativity toward stigma of patient with mental illnesses. Also, the findings indicated there was a significant difference between medical and non-medical student's specialty area and stigma toward patients with mental illnesses (t = 111.14, p = 0.01). Non-medical students reported more stigma for patients with mental illnesses. Stigma against patient with mental illnesses should be addressed at different levels. Cultural competency curriculum should be established for medical and non-medical students to assure more acceptance attitudes and avoidance of stigma against patients with mental illnesses.

## 1. Introduction

Mental illnesses have become crucial in peoples' lives as well physical illnesses. Mental illnesses were reported in high prevalent rates in Jordan. The frequency rates of mental illnesses and disorders was estimated as high as 20% among Jordanian (National Mental Medical Team [NMHT], 2010; World Medical Organization [WHO], 2016). Patient with mental illness is suffering from disease burden and public stigma as a result of chronic compliant of mental illnesses (Abi Doumit et al., 2019).

Stigma of mental illnesses was seen in terms of a set of negative attitudes and beliefs, discrimination, that ended with inappropriate labeling to people diagnosed with mental diseases or illness (Shammari et al., 2020). Stigma against patients with mental illnesses negatively affected them and ended with physical devastating consequences such as not adhering to treatment (Ciftci et al., 2013).

In addition, stigma against patients with mental illnesses resulted in social isolation and avoidance to seeking mental care services (Von Lersner et al., 2019). Stigma against patient with mental illness is widespread and patients were blamed for being diagnosed with mental illness, avoided mental care services, and experienced both physical and emotional violence by others (WHO, 2017).

University students showed diverse opinions and perspectives related to patients with mental illness. Nursing students reported positive attitudes toward patients diagnosed with mental illnesses (Abuhammad et al., 2018). On the other hand, most Egyptian undergraduate university students reported stigma toward patients with mental illness. Pharmacy student reported more negative attitudes and stigma than other medical and science undergraduate university students (Shehata and Abdeldaim, 2020). Furthermore, about 43.6% of the student at science college

---

reported stigma toward patient with mental illness (Pokharel and Pokharel, 2017).

In addition, the undergraduate university student in Qatar showed poor attitudes and stigmatized patients diagnosed with mental illness. About 60.2% of them believed that patient with mental illness could not have regular job, were dangerous against people (65.7%), refused to marry patient with mental disease (88.9%), and about 33.6% of students were ashamed to disclose if any family member had mental illness (Zolezzi et al., 2017).

Cultural believes including religious believes had a significant impact on citizens believes, attitudes, and stigmatization toward patient with mental illness (Lyons et al., 2015). Patient religious background could affect deeply personal life and health, where mental illness was denied and considered as it as religious faith related issue (Freire et al., 2016). About half (50.2%) of the undergraduate university student in Qatar believed that mental illness was a punishment from God (Zolezzi et al., 2017).

Spirituality and religiosity are considered as crucial dimension of peoples' lives including mental ill patients worldwide and should be considered in the process of mental illness treatment accordingly (Freire et al., 2016). Bushong (2018) Emphasized that religious beliefs significantly affected people beliefs of mental illness and stigma associated with such disease. The same study revealed no significant difference in the perception of stigma of mental illness among Christianity, Judaism, and Islam faith communities.

## 1.1. Study problem and significant

About 95% of Jordan community are Muslims. Related to Jordanian Islamic culture, Muslims considered mental problems and disorders as a test or a form of God punishment (Bagasra and Mackinem, 2014). However, many Muslims showed positive attitudes and acceptance for patient with mental illness, social stigma was highly noticed among many of Muslims (Ciftci et al., 2013).

There is a dearth of research that investigates the relationship between religiosity and stigma of mental illness by university students. So, this study aimed to describe the relationship between religiosity and stigma against mental illnesses as described by undergraduate university students in Jordan. Undergraduate university students are the future leading engines for change and development. Their good and positive attitudes toward patients diagnosed with mental illness could help in building cultural and religious strategies to prevent stigma and avoidance attitudes. All that could help in improving patients with mental illness, increase their access to mental services and compliance to treatment regimen, and improve their mental health and decrease the burden of treatment accordingly.

## 1.2. Study objectives

1. Investigate the difference in terms of stigma against patient with mental illnesses between medical and non-medical university students
2. Find whether there is a correlation between religiosity and stigma toward patient with mental illnesses among university students.
3. Determine the predictors of stigma toward mental ill patients in undergraduate students.

## 2. Method

### 2.1. Study design

This study design was descriptive correlations study. This research approach was used to investigate the relationship between religiosity and stigma toward mental ill patients among undergraduate university students in Jordan.

### 2.2. Study sample and setting

Study was conducted in a university (x) located in the northern part of Jordan. Undergraduate students from medical and non-medical colleges were asked to participate in the study using online survey. A convenient sample of 338 female and male undergraduate Muslim students completed and submitted study surveys. G power version 3 was used to estimate sample size. Sample size was estimated as 303 taking into consideration a power of 0.8, $p \leq .05$ and a moderate effect size.

### 2.3. Study instrument

#### 2.3.1. Religiosity questionnaire

The study survey included three parts including demographic information, questionnaire on religiosity, and stigma questionnaire. The questionnaire on religiosity consisted of five subscales that measured using four-likert scale that consist from 30 items; basic religiosity, central duties, religious experience, religious knowledge, and orthopraxis. Belief in the Quran and Angels and Jinn's presence were belief items included in the study (El-Menouar, 2014). The basic obligations of Islam, according to Waardenbursg (2002), include Five basic pillars of Islam: Al-Shahadah Prayer, Almsgiving, Fasting, and Pilgrimage. The Muslim, however, believe that implications emanate from the inner of being faithful in the 71 separate outcomes of specific actions. The alpha five-dimensions of Cronbach are the following: basic religiosity = 0 .80, central duties = 0.88, religious experience = 0.87, religious knowledge = 0.86, and orthopraxis = 0.76 (Al-Shatanawi, 2018). Cronbach alfa among the students in our study was .82.

#### 2.3.2. Devaluation–discrimination scale (DD)

The DD scale is employed to assess the extent to which a person believes that others will depreciate or discriminate someone with a mental disorder (Link et al., 1989). This scale measures anticipated discriminative behaviors against individuals with mental disorders or mental illness. It contains 12 items; half of these are reverse scored. Answers are assessed employing a 5-point Likert-scale starting from 1 (not at all) to five (a great deal), with higher scores reflecting more optimistic behaviors toward individuals with mental disorder. The inner consistency reliability of the DD scales extent between 0.72 and 0.88 among undergraduate nursing students (Abuhammad et al., 2018).

## 3. Data collection process

Data collection started after getting IRB approval (#20/120/2018) from Jordan university of Science and Technology. An official announcement was distributed though the official page of (x) university Facebook. All medical and non-medical students were invited to participate in the current study. At the first page of the online survey, students were informed about their rights of voluntary participation and withdrawal from the study. Students also were informed that their participation is anonymous, and no type of identity information could be shared. Study survey completion took 10–15 min. And data collection process took one month in May 2019.

## 4. Data analysis

The Statistical Package for Social Sciences (SPSS) version 25 was used for data entry and analyses. The information was evaluated using descriptive and inferential statistics. A descriptive assessment was conducted on the study's variables including, the mean, standard deviation and scoring range. All continuous variables were analyzed for normality, linearity, and homoscedasticity of each variable. The religiosity and stigma were categorized based on meaningful cutoff values and crosstab. T-test was conducted to determine the difference in the mean between medical and non-medical students' stigma toward mental ill patients. Correlation test was conducted between total religiosity score and stigma

toward mental ill patients. Multiple regressions test was conducted to determine the predictors of stigma toward patient with mental illnesses in undergraduate university students. Before conducting the multiple regressions multicolinearity diagnostic tests were conducted and multicolinearity was not found since VIF was less than 10. All the criteria of multiple regressions such as normality and the sample size that required conducting this type of analysis were met to conduct this test. Stigma toward patient with mental illnesses in undergraduate university students was entered as an outcome variable, whereas other factors such as age and gender were entered as potential predictors were conducted with an alpha level of $p \leq .05$.

## 5. Study results

There were 338 participants in the current study. Participants were females (n = 224, 66.3%), and 37.3% were males (n = 114). The population mean age was 21 (SD = 2.3) years. Table (1) represents participants' demographic data. After examining the undergraduate students' view on the perception scale of the 12 items, the findings showed a mean perception of stigma toward mental ill patients. The mean perception of stigma toward mental ill patients had a score of M = 44.17, and SD = 7.33.

### 5.1. Religiosity

The mean score for religiosity was 102 (SD = 14.4) with score ranging from 30 to 120, showing general favorable attitudes towards religiosity, with a peak score of 120. The lowest score was' I'm eager to attend of religious lessons (M = 3.35; SD = 1.28), and the highest score was' I feel the existence of God (Allah)' (M = 4.90; SD = .44).

### 5.2. Correlations between religiosity and stigma toward mental ill patients

To determine the relationships between total religiosity score and stigma toward mental ill patients, a Pearson correlation coefficient test was used. The findings indicate there is a significant correlation (r = -0.154, $p \leq .05$) between stigma toward patient with mental illnesses and religiosity. The higher religiosity score is associated with more negativity toward stigma of mental ill patients.

### 5.3. Difference between medical and non-medical and stigma toward mental ill patients

T-Test was used to determine the difference in the mean stigma score between medical and non-medical university students. The findings indicated there was a significant difference between medical and non-

**Table 1.** Demographic characteristics of the participants (N = 338).

| Variable | Frequency | Percentage% |
|---|---|---|
| **Gender** | | |
| Male | 114 | 33.7 |
| Female | 224 | 66.3 |
| **Nationality** | | |
| Jordanian | 306 | 90.5 |
| Others | 32 | 9.5 |
| **Age** | 20.3 (SD = 2.3) | |
| **Mother education** | | |
| Primary or secondary | 116 | 34.3 |
| Associate | 34 | 10.1 |
| Bachelor | 116 | 34.3 |
| Graduate | 72 | 21.3 |
| **Father education** | | |
| Primary or secondary | 97 | 28.7 |
| Associate | 43 | 12.7 |
| Bachelor | 123 | 36.4 |
| Graduate | 75 | 22.2 |
| **College level** | | |
| First year | 20 | 5.9 |
| Second year | 60 | 17.8 |
| Third year | 140 | 41.4 |
| Fourth year | 92 | 27.2 |
| Fifth year | 14 | 4.1 |
| Sixth year | 12 | 3.6 |
| **Medical or non-medical** | | |
| Medical | 188 | 55.6 |
| Non-medical | 150 | 44.4 |
| **Income** | | |
| Less than 400 | 162 | 47.9 |
| 400 to 600 | 68 | 20.1 |
| 600 to 800 | 27 | 8.0 |
| 800 to 1000 | 40 | 11.8 |
| More than 1000 | 41 | 12.1 |
| **Area of living** | | |
| City | 176 | 52.1 |
| Village | 162 | 47.9 |

medical student's specialty area and stigma toward patients with mental illness (t = 111.14, p ≤ 0.01). This means non-medical students reported more stigma for mental illness than medical university students.

### 5.3.1. Difference between medical and non-medical and stigma toward religiosity

T-Test was used to determine the difference in the mean religiosity score between medical and non-medical university students. The findings indicated there was no significant difference between medical and non-medical student's specialty area and religiosity (t = 1.14, p = . 693).

### 5.4. Multiple regressions

Using prospective predictive variables such as age, gender, level of education, mother education, father education, and earnings, multiple regressions were used to predict stigma behaviors. There was no multi-colinearity since VIF was less than 10. The model was found significant (F = 8.92, p ≤ .05). Table 2 summarizes the outcomes. The results of multiple regression tests revealed that the two factors besides religiosity have impact on stigma against patients with mental illness. These factors included, was age (B = -.182, p ≤ .05), level of education (B = -.206, p ≤ .05), and religiosity (B = .149, p ≤ .05). As the age and level of education increased, the student showed lower level of stigma toward patient with mental illness.

## 6. Discussion

This study aimed to describe the relationship between religiosity and stigma toward mental patient among undergraduate university students. Stigma and discrimination contribute to the mental illnesses burden and might significantly restrict treatment, rehabilitation, and support-searching (Abuhammad et al., 2018). However, one study indicated that certain part of the society reacts on mental ill patients in apprehension, denial, alongside concern (Abuhammad et al., 2018; Crabb et al., 2012).

One study conducted in 2012 for the mental ill patients continues as a major human rights issue and medical issues globally (Crabb et al., 2012). These pessimistic behaviors may comprise between health care specialists: a research comprising SriLankan physicians and clinical undergraduate students indicated a large proportion of them accuse the mental ill patients for their situation (Fernando et al., 2010).

Research in China, similarly, discover that health care experts along with common citizens constantly carry a pessimistic attitude for mental disorder and inadequacy of understanding of mental illness (Wang et al., 2016). Thus, successfully rejuvenating mentally disordered persons in China, somewhat relies upon shifting the behaviors of household members, society, and health care specialists. In areas with people following religion on regular basis, the main route for accomplishing of shifting

behavior is to prompt insight of the mass that promote looking after the mental ill patients.

Related to the current study, the authors indicated that religious affiliation correlated with attitude toward stigma against patient with mental illness. However, higher levels of religious following were extensively related to more negativity towards stigma of patient with mental illness, even after that, this idea is mostly groundless after adjusting local indicators.

All the students in the current study were Muslims. Muslims showed positive attitudes toward patients diagnosed with mental illness (Ciftci et al., 2013). However, Muslims university students in (Zolezzi et al., 2017) study considered mental illness as a test from God or punishment that reflected on their attitudes and ended with stigmatizing patients with mental illness. These findings emphasized about addressing and avoiding stigma toward stigma against patient with mental illness at different community settings.

The means of religious beliefs are related to mental disorder insight and behaviors towards patient with mental illness – is distinct within the Hui and Han racial factions. The overwhelming prevalence of the Han group doesn't follow any coalition of religion, thus individuals who recorded beliefs of religion and exercises religious activities are the comparatively preferred community. They are related to better understanding of mental illness diseases and fewer public distance and work participation restrictions of individuals having instability situations.

A study within the Hui grouping where most of them are following Islam, found that the connection among the extent of religious beliefs and other outer impactors like understanding and behaviors towards the mental illness patient are comparatively less than the Han-group. They are also concealed by additional aspects that influence these behaviors like gender, age, instruction, and legal stature.

These research results partially incorporate to the proposition that people with strict religious believe are more willing to help patients with mental illnesses than non-believers (Yao, 2007). The inferred outcome for this assumption is that people strictly following religion are generously ready to assist mentally ill minorities.

Religious belief is entirely related to treatment engagement, successful coping, and support-searching attitude (Smolak et al., 2013). People following religion on regular basis are also used to mental illness statements, which probably leads to a far better knowledge of the mental disorder. One of the studies published, people who highly follows religious activity and inherent greater religious beliefs of mental health care (Pickard, 2006). And religion beliefs might accumulate public involvement and grow a bigger social hierarchy (Smith, 2003), bringing out more optimistic behaviors and impressions to circulate among religious communities.

The study targeted college students to study factors associated with perception of stigma against patient with mental illness. We allocated medical and non-medical students in this study to identify whether there

**Table 2.** Multiple Regression for factors predict stigma in undergraduate students.

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 29.121 | 6.127 | | 4.753 | .000 |
| | Religiosity | .076 | .028 | .149 | 2.716 | .007 |
| | Age | -.611 | .231 | -.182 | 2.646 | .009 |
| | Sex | .184 | .855 | .012 | .215 | .830 |
| | Religion | -.006 | .058 | -.006 | -.106 | .916 |
| | Income | -.027 | .290 | -.005 | -.094 | .925 |
| | Living | -1.145 | .827 | -.078 | -1.384 | .167 |
| | Nationality | -1.301 | 1.455 | -.051 | -.894 | .372 |
| | Specialty | .118 | .105 | .062 | 1.129 | .260 |
| | Level of education | -1.425 | .472 | -.206 | -3.017 | .003 |
| | Mother education | .156 | .395 | .025 | .395 | .693 |
| | Father education | -.404 | .414 | -.062 | -.976 | .330 |

is a difference in stigma perception among students based on their field of study. The reason why we targeted students was because these students will eventually graduate and are expected to deal with customers in their future career and throughout their professional life. The identified results of the current study would help our participants as future employers and employees to understand how to deal with patients who were one day diagnosed with mental illness.

One of our findings indicated that our participants reported a relatively high stigma score (M = 44.17; SD = 7.33). This finding was congruent with findings of a relevant study where medical and nursing students reported a mean total score of Opening Minds Stigma Scale for Medical Care Providers (OMS-HC) of 35.7 (SD = 6.4) (Chang et al., 2017). In the meantime, non-medical students had higher scores of stigmas against patients with mental illnesses compared to medical students. This last finding was not surprising and expected. Medical students in general are exposed to topics of mental diseases as part of their curriculum. In some colleges, students are exposed to at least one major course in the curriculum such as those courses given to medical and nursing students.

It is significant to implement multi-component and virtual interventions and programs among university students for reduction of mental illness stigma. Such programs revealed a positive impact on reducing the level of stigma and stereotyping against patients diagnosed with mental illnesses among undergraduate students. So, these programs should be considered in the curricular plans for university students for reduction of stigma of mental illnesses (Rodríguez-Rivas et al., 2021).

In addition, students are obligated to meet patients with mental illnesses during some clinical courses. This confrontation between students and patients with mental illnesses is responsible to unveil the barrier between them and makes it easier for the student to realize that mental illness is an alteration in body function and works on the body in the same mechanism as other acute and chronic illnesses do.

Multiple regression results revealed presence of three predictors for stigma against patients with mental illnesses. These predictors were age (B = -.182, p ≤ .05), level of education (B = -.206, p ≤ .05), and religiosity (B = .149, p ≤ .05). This was partially consistent with Abuhammad et al. (2018) who found that senior students who had more experience with mental illnesses had more stigma toward patients with mental illnesses.

As students' academic year increases, their perception of stigma against patient with mental illness changes and becomes negative (B = -.206, p ≤ .05); meaning that they had pessimistic views against patients with mental illnesses. This finding was incongruent with a related study (Chang et al., 2017). This finding can be explained in light of understanding school programs. In medical schools, courses that target mental illnesses come by the end of the school's curriculum plan (i.e., during the 4th year and above). So, 4th (and above) year students are those who encounter theoretical and clinical courses on mental illnesses.

This confrontation is the first during their study and is responsible for making them stunned with the signs and symptoms associated with different mental illnesses. Such experience may help them build a mental (imaginary) picture of mental illnesses in a way that is translated in some sort of stigma against patients with mental illnesses. However, this stigma might disappear later by the end of the school years or after working with customers recovered from a mental illness.

Religiosity was significantly correlated with negative attitude toward stigma of mental illnesses (r = .15, p ≤ .05) and was a significant predictor against stigma (β = .149, p ≤ .05). Religiosity is an energetic and a vital aspect in people's lives. Clients and religious members generally agree on this fact (Freire et al., 2016). Religiosity can be utilized as a primary coping strategy in life. In Jordanian culture, people rely on religiosity as well as some religious practices to deal and cope with life stressors. For example, to cope with loss such as death, people rely of prayers, supplication, and patience. They feel that such practices help them go through rough life events and obstacles, and eventually proceed in life.

The relationship between religiosity and positive attitudes towards patients with mental illnesses in Jordanian people stem from the above-mentioned connection. Muslims believe that "good" and "bad" things that people encounter in life are given by God (Allah). They believe also that "bad" things are rewards from God. From this understanding, students in our study possess positive attitudes towards mental ill patients are exposed and consider their illness as a "test" from God and patients have to go through such "test". Also, students as part of the society population believe that any person can be in the same situation of the patient because encountering illnesses (including mental illnesses) have no exceptions.

## 7. Conclusion

This study's findings are valuable for many reasons. This is the known first research to look at the coalition among belief in religion and mental state understanding using a population-based sample from Jordan. Furthermore, this article assessed the relationship among mental disorder awareness and religious interest where religion is frequently disregarded in prior studies Additionally, there were not any available study regarding correlation of religion and stigma toward mental ill patients. Eventually, provided the religious raising occurrence and huge figures of people with instability issues within the population (Shen et al., 2006; Abuhammad et al., 2020). These outcomes support specifying a possible corroborating of people following religion on regular basis and organizations may influence within the prerequisite of population-based mental illness assistance.

Findings of this study could add to the existing knowledge toward patient with mental illness and stigma associated with that. Stigma against patient with mental illness should be addressed at different levels. A specified, scientific based, and well-prepared curriculum should be established for medical and non-medical students to assure more acceptance attitudes and avoidance of stigma against patients with mental illnesses. Finally, addressing and avoidance of stigma against patient with mental illness could increase their acceptance among community members' and increase their access to mental health services and their entire lives accordingly.

## 8. Study limitations

This study findings can be generalized and applied to similar study population or same group age. The results are not generalizable to the entire population because the sample is not representative of the general population. This study was conducted among medial and non-medical Muslims Students. So, it is necessary to explore other religions besides Muslims in future studies that could determine a correlation with the level of stigma against patients with mental illnesses. Furthermore, more future efforts are needed to replicate the study on other target age groups and settings in Jordan and other countries.

## Declarations

### Author contribution statement

### Funding statement

## Data availability statement

Data included in article/supplementary material/referenced in article.

## Declaration of interests statement

The authors declare no conflict of interest.

## Additional information

No additional information is available for this paper.

## References

Abi Doumit, C., et al., 2019. Knowledge, attitude and behaviors towards patients with mental illness: results from a national Lebanese study. PloS One 14 (9), e0222172.

Abuhammad, S., et al., 2020. Religiosity and perceptions about research misconduct among graduate nursing students. Nursing Open.

Abuhammad, S., et al., 2018. Correlates and predictors of stigmatization of patients with mental illness among nursing students. J. Psychosocial Nursing Mental Med. Services 57 (1), 43–51.

Al-Shatanawi, T., 2018. The Association between Religiosity and Tobacco Use Among Muslim Primary School Students in Irbid, Jordan. Doctoral dissertation. Auckland University of Technology.

Bagasra, A., Mackinem, M., 2014. An exploratory study of American Muslim conceptions of mental illness. J. Muslim Mental Med. 8 (1), 57–76.

Bushong, E.C., 2018. The Relationship between Religiosity and Mental Illness Stigma in the Abrahamic Religions. Theses, Dissertations and Capstones, p. 1193. https://mds.marshall.edu/etd/1193.

Chang, S., et al., 2017. Stigma towards mental illness among medical and nursing students in Singapore: a cross-sectional study. BMJ Open 7 (12).

Ciftci, A., et al., 2013. Mental medical stigma in the Muslim community. J. Muslim Mental Med. 7 (1), 17–32.

Crabb, J., et al., 2012. Attitudes towards mental illness in Malawi: a cross-sectional survey. BMC Publ. Health 12 (1), 541.

El-Menouar, Y., 2014. The five dimensions of Muslim religiosity. Results of an empirical study. Methods, Data, Analyses 8 (1), 26.

Fernando, S.M., et al., 2010. Stigma and carer burden in Sri Lankan patient-carer dyads with schizophrenia. In: Australian and New Zealand Journal of Psychiatry, 44. Informa Healthcare, 52 Vanderbilt Ave, New York, Ny 10017 Usa. A28-A28.

Freire, J., et al., 2016. Calling for awareness and knowledge: perspectives on religiosity, spirituality and mental health in a religious sample from Portugal (a mixed-methods study). Open Theol. 1 (open-issue).

Link, B.G., Cullen, F.T., Struening, E., Shrout, P.E., Dohrenwend, B.P., 1989. A modified labeling theory approach to mental disorders: an empirical assessment. Am. Soc. Rev. 400–423.

Lyons, Z., et al., 2015. Stigma towards mental illness among medical students in Australia and Ghana. Acad. Psychiatr. 39 (3), 305–308.

National Mental Medical Team, 2010. National Report on Mental Medical System and Services in Jordan: the Higher council for Science and Technology. Retrieved from. https://jordankmportal.com/system/resources/attachments/000/000/319/original/National_Report_on_Mental_Medical_System_and_Services_in_Jordan_2010.pdf?1455906364.

Pickard, J.G., 2006. The relationship of religiosity to older adults' mental health service use. Aging Ment. Health 10 (3), 290–297.

Pokharel, B., Pokharel, A., 2017. Perceived stigma towards mental illness among college students of western Nepal. Birat J. Health Sci. 2 (3), 292–295.

Rodríguez-Rivas, M.E., et al., 2021. Controlled study of the impact of a virtual program to reduce stigma among university students toward people with mental disorders. Front. Psychiatr. 12.

Shammari, M., et al., 2020. Assessment of nursing students' attitudes and stigma towards mental illness: a cross-sectional study. J. Nurs. Educ. Pract. 10 (9).

Shehata, W.M., Abdeldaim, D.E., 2020. Stigma towards mental illness among Tanta university students, Egypt. Commun. Mental Med. J. 56 (3), 464–470.

Shen, Y.C., et al., 2006. Twelve-month prevalence, severity, and unmet need for treatment of mental disorders in metropolitan China. Psychol. Med. 36 (2), 257.

Smith, C., et al., 2003. Mapping American adolescent subjective religiosity and attitudes of alienation toward religion: a research report. Sociol. Relig. 64 (1), 111–133.

Smolak, A., El-Bassel, N., 2013. Multilevel stigma as a barrier to HIV testing in central Asia: a context quantified. AIDS Behav. 17 (8), 2742–2755, 1.

Von Lersner, U., et al., 2019. Stigma of mental illness in Germans and Turkish immigrants in Germany: the effect of causal beliefs. Front. Psychiatr. 10, 46.

Waardenburg, J., Waardenburg, J.J., 2002. Islam: Historical, Social and Political Perspectives (No. 40). Walter de Gruyter, .

Wang, X.Q., et al., 2016. Comparison of the quality of life, perceived stigma and medication adherence of Chinese people with schizophrenia: a follow-up study. Arch. Psychiatr. Nurs. 30 (1), 41–46.

World Medical Organization, 2016. Strengthening the mental medical system in Jordan. Retrieved from. http://www.emro.who.int/%20jor/jordan-news/strengthening-the-mental-medical-system-in-jordan.html.

World Medical Organization, 2017. Culture and Mental Medical in liberia: a Primer. World Medical Organization (No. WHO/MSD/MER/17.3).

Yao, X., 2007. Religious belief and practice in Urban China 1995–2005. J. Contemp. Relig. 22 (2), 169–185.

Zolezzi, M., et al., 2017. Stigma associated with mental illness: perspectives of university students in Qatar. Neuropsychiatric Dis. Treat. 13, 1221–1233.