Perceptions of mental illness etiology and treatment in Saudi Arabian healthcare students: A cross-sectional study

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Abstract

Objectives: Cultural beliefs often affect people's attitude toward mental illness and their help-seeking behavior. Belief in superstitious causes of mental illness can lead to seeking help from non-medical practitioners, which might hinder treatment. This study aimed to explore the perception of mental illness and help-seeking behavior among healthcare students.
Methods: A cross-sectional study carried out on a sample of 400 randomly selected undergraduate health professional students in Riyadh. Data collection involved two self-administered questionnaires: the causes and treatment routes for a female vignette with psychosis and the General Health Questionnaire-28.
Results: The mean age of participants was 20.9 years, and 68.2% were male. Although participants reported a lack of personal history of mental illness (81.9%), female participants were more likely to disclose psychological distress as measured by General Health Questionnaire-28 (67.6%). Mental illness (47.2%) was chosen as the main reason for the problem depicted by the female vignette. General Health Questionnaire-28 scores for "caseness" did not affect perception about psychosis versus non-caseness. Factor analysis produced four dimensions for causes of psychosis: "social," "psychobiological," "superstitious," and "socially undesirable"; and two treatment routes: "clinical" versus "social interventions." Male participants leaned toward social factors for the cause of psychosis and were more likely to endorse social interventions for treatment.
Conclusion: Healthcare students in Riyadh remained supportive of a biomedical approach toward the causation and treatment of mental illness. The use of religious practices as an adjunct was apparent. Students, especially females, were prone to experience more psychological distress.

Background

Religious ideologies, superstitions, and social beliefs can influence how people perceive mental illness causation and treatment.[1] These doctrines and attitudes are largely affected by culture and can explain how a population perceives and deals with mental illnesses.[2] A meta-synthesis paper, which focused on the concept of mental health analyzed common themes and found stress to be the most reported cause for mental illness followed by spiritual causes, such as the wrath of God.[2] Similarly, a cross-sectional study in Pakistan involving a sample of 404 community members found that only 30% of the participants thought mental illness was a natural disease, while the remainder attributed mental illness to superstitious ideas or social issues (i.e. unemployment).[3]

People who have strong beliefs in superstition will often seek help from non-medical practitioners, before going to a psychiatrist.[4] For example, 84% of mentally ill medical students in Bangladesh consulted non-medical help before

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seeing a mental-health professional.[5] In Cape Town, South Africa, a questionnaire addressing mental health literacy, a term defined as "knowledge and beliefs about mental illness that aid their recognition, management or prevention,"[6] distributed to a sample of 1081 respondents, revealed that 24% of participants agreed that faith healers were the best course of treatment, and 28% believe that religious advisors were the best choice.[7]

Traditional beliefs which often lead people to faith healers, religious advisors, or any agency that provides non-medical treatment is apparent. These non-medical practitioners can be helpful in some circumstances. For instance, faith healers within the African culture also act as community counselors, helping their followers with a number of issues, health or non-health related.[8] It is in these circumstances that non-medical professionals may prove beneficial. However, non-medical help can hinder recovery. In the UAE, a study found that 44.8% of the 106 patients who participated, consulted a faith healer before attending the psychiatric service, and of those 44.8%, 47% reported no improvement after seeing the faith healer, and 7% reported a worsened condition.[9] In the United Kingdom, in an effort to adjust the cognitive behavior therapy manual for therapists dealing with patients with psychosis from ethnic minority groups, it was found that South Asian Muslims believed supernatural powers to be a major reason for mental illnesses.[10] Professional therapists were usually avoided for a number of reasons; the most prominent reason was associated sociocultural stigma with having a mental illness or with going to a professional.[11]

Stigma is a real concern from people experiencing mental health problems. People who suffer from a mental disorder may not only be rejected by their community, but also often seen as a burden by their family. Relatives of mentally ill people usually conceal the condition from others out of fear of public rejection or, in case of mentally ill women, concerns over negative effects on marital prospects.[12] Research literature from several studies confirm how different factors influence people's desire for social distance from individuals with mental illness.[13] This is also true of the Middle East. A Jordanian study reported that people who suffer from psychosis are not likely to be considered close friends by the respondents. Women suffering from psychosis were considered even less favorable to be considered a friend. Males were also reported to be more likely to lead a successful life than females. It is obvious that gender plays a role in social stigma in some cultures.[14] Mental health–associated stigma can even be prevalent among mental-care professionals. A South African study on psychiatric stigma and discrimination found reports of ill-treatment toward the mentally ill, including beatings, being ridiculed, and a lack of attention by professional mental health workers at clinics where they sought help. When the professionals were asked about whether stigmatization occurred in their facility, some were reluctant to answer.[15] While it is alarming that medical caregivers show some acts of stigma, it is unclear whether this attitude is present

during undergraduate studies. A cross-sectional study in Pakistan involving multiple universities in Lahore found that those in the healthcare fields (i.e. medicine, dentistry) were most likely to associate mental illness with psychosocial trauma and work-related stress, while those who were in other disciplines had a higher tendency to believe in superstitious causes and non-medical treatment methods, such as asking a spiritual leader for help.[16]

Saudi Arabia is a very conservative county with mostly Muslim population. Saudi Arabia shares a lot of its traditional beliefs with the UAE and some South Asian countries (e.g. Bangladesh and Pakistan). The people of Saudi Arabia are strong believers in supernatural powers such as "the evil eye," and supernatural spirits called "Jinn." These beliefs stem from a mixture of Islamic and cultural ideologies. Also, Saudi Arabia segregates males and females in public gatherings for religious and social reasons. Whether this can lead to extremely varying views on mental illness, in both social and biological aspects is relatively unknown. Research on how these beliefs and conditions can affect help-seeking in Saudi Arabia is extremely scarce. A study looking at mental illness and stigma among 870 staff members of a large hospital in Al-Ahsa found the majority perceiving mentally ill individuals to be dangerous, therefore leading to discriminatory behavior toward them.[17] This study aims to understand how Saudi healthcare students at an undergraduate health university in Riyadh perceive mental illness and its etiology, treatment interventions, and help-seeking behavior. Given there are no validated questionnaires to examine perceptions for the causation of mental illness in Saudi Arabia, this study also aims to further explore the construct validity of a mental illness questionnaire produced by other authors.

Methods

Setting

This study follows a descriptive cross-sectional design and was conducted at King Saud bin Abdulaziz University for Health Sciences, Riyadh (KSAU-HS). Established in 2005 under the Ministry of National Guard, KSAU-HS is the only healthcare specialized public university in Saudi Arabia, and it has three campuses in all three major cities: Riyadh, Jeddah, and Al-Ahsa. At the Riyadh campus, an estimate of 3000 students was enrolled including post-graduate students. As with all public universities in Saudi Arabia, male and female students are segregated, students are not required to pay tuition fee, entitled to a stipend, and are varied socioeconomically.[18]

Sample

This study included sophomore, junior, and senior male and female students from all colleges of KSAU-HS Riyadh. Freshman students were excluded from this study, given that they were in a preparatory year and did not belong to any specific healthcare college. Postgraduate students were also

excluded to maintain the standardization. The total student population was 1946: College of Medicine (male = 347, female = 170); College of pharmacy (male = 42, female = 12); College of Public Health (male = 53); College of Dentistry (male = 70, female = 21); College of Applied Medical Sciences (male = 73); College of Nursing (female = 578); and College of Science and Health Professions (male = 338, female = 244). The sample was calculated using Raosoft software, and the required sample size was estimated at the 95 confidence level with an estimated 50% response distribution and a margin of error of ±5%. Students were sub-grouped into common strata according to their college, and a stratified random sampling technique was used to obtain the sample needed. The final estimated sample was determined to be 322; the final sample size was taken at 400 to account for a 20% non-response rate.

Instruments

This study utilized two self-administered questionnaires: a questionnaire eliciting students' perception of mental illnesses and the choice of treatment method;[3] and a questionnaire screening current psychopathology of students.[19]

Perceptions about the causes of schizophrenia and subsequent help-seeking behavior questionnaire were modified slightly to suit the present sample. The categorization in the original questionnaire was based on theoretical coherence and not validated statistically, and it was important to examine the questionnaire statistically. Permission was also obtained from the original authors to use their questionnaire. A female vignette with psychotic symptoms was presented in order to capture any cultural influences on the recognition and subsequent help-seeking behaviors of the participants. Some terms in the questionnaire were rephrased to accommodate Saudi Arabian culture, such as "Taweez" was changed into "Give him/her Quran and holy verses to gain God's protection." The questionnaire was then pilot-tested on a sample of 20 students, with equal number of male and female participants. Piloting of the questionnaire did not warrant any further changes. The questionnaire was originally developed in Urdu language and later translated to English by the original authors. Modifications were made on the English version and then translated into Arabic by two professional English-to-Arabic translators following the forward-translation and back-translation method. The questionnaire was divided into three parts: the first handled socio-demographic information, the second described a vignette of a 24-year-old unemployed female showing clear characteristics of paranoid schizophrenia. A list of 19 choices was arranged randomly below the vignette. Originally, the questionnaire included 22 choices, but three items were excluded because of their cultural irrelevance. Participants followed a 4-point Likert-type scale to rate each option according to its subjective importance. At the end of the list, participants were asked to write down one option from the list they thought was most important. The third and final part of the questionnaire asked the participants about their route of action had they

noticed the characteristics depicted in the vignette in someone they knew personally. In total, 11 choices were given with a 3-point Likert-type scale. The original questionnaire included 15 choices, but 4 were removed for their cultural irrelevance.

The second questionnaire used in this study was the General Health Question-28 (GHQ-28). Developed in 1978 by Goldberg, the GHQ-28 has been used for decades as a screening tool to detect people who are likely to be affected, or are affected by certain psychiatric disorders, such as hypochondriasis, depression, anxiety, and social impairment. In this study, the official Arabic version of the GHQ-28 was used. The cutoff point used was 4/5, sensitivity 72%, specificity 74%, positive predictive value 72%, negative predictive value 74%, misclassification rate 27%, and the correlation coefficient was rs = +0.57. The area under the receiver operating characteristic (ROC) curve was 69%.[20]

Ethical considerations

King Abdullah International Medical Research Center Institutional Review Board granted ethical approval. All willing participants were given a brief summary of the study's aim attached with the consent sheet. Confidentiality was agreed and participants were informed that they could withdraw from the study at any time. Participants were also made aware that they could contact one of the authors (I.A.) up to 3 months after their participation in case any issues arose regarding the study.

Data management and statistical plan

In order to assess the number of dimension for the questionnaire measuring causation of mental illness, factor analysis was performed. Cronbach's alpha was used to assess for the reliability of the extracted factors. Kaiser–Meyer–Olkin (KMO) along with Bartlett test for sphericity was performed to check for the sampling adequacy to perform factor analysis. Anti-image correlation matrix was performed to assess the sampling adequacy of each item. A total score of each factor was calculated as the average of all items included within the factor, and then recoded as yes if the mean score was less than 2.5. Frequency and percentages were used to present categorical data. Chi-square test and logistic regression were used to assess the association between psychopathology and baseline characteristics. All analyses were carried out using the statistical software IBM SPSS Inc. version 20. A test with a p-value less than 0.05 was considered significant.

Results

The socio-demographic profile of all students is shown in Table 1. Students' mean age was 20.9, with the minimum age of 18 and the maximum age of 29. Gender distribution was at 68.2% male students and 31.8% female students. The majority of students did not present with a history in mental illness (81.9%). Most students (79.8%) lived in a nuclear

Table 1. Demographic profile.

		N	%
Gender	Male	159	68.2
	Female	74	31.8
Age	19	40	17.6
	20	72	31.7
	21	36	15.9
	22	37	16.3
	23+	42	18.5
Father's education	Less than HS	26	11.2
	High school	44	18.9
	Graduate/postgraduate	163	70
Mother's education	Less than HS	47	20.2
	High school	52	22.3
	Graduate/postgraduate	134	57.5
Father's employment status	Employed	146	64
	Unemployed	82	36
Mother's employment status	Employed	86	37.7
	Unemployed	142	62.3
History in mental illness	Yes	42	18.1
	No	190	81.9
Family system	Nuclear	186	79.8
	Extended	47	20.2
Approximate family income per month	10,000–25,000SR	110	48
	Above 25,000SR	119	52

family system with employed fathers (64%) and unemployed mothers (63.3%). General education level of student's parents was at college level or higher graduates. The non-response rate was 27% approximately. Nursing students and male dental students refused to participate in this study citing "they were too busy" to participate as the main reason for refusal.

Risk factors of psychopathology (GHQ-28)

The results of the GHQ-28 questionnaire are shown in Table 2. Female participants disclosed more psychopathology than their male counterparts (odds ratio (OR)=0.4, confidence interval (CI)=0.21–0.69). Age was a significant factor in psychopathology, with the trend indicating higher number of GHQ-28 caseness for younger aged students compared to the older aged ones (OR=3.8, CI=1.51–9.5 for 19-year-old students). Students whose father had a graduate/postgraduate degree exhibited a less likelihood of GHQ-28 caseness, but the results were not significant. Also, students who reported to have a history in mental illness were more prone to suffer from psychopathology compared to students who did not report to have a history in mental illness; however, the difference was not statistically significant.

Causes of schizophrenia

Participants were allowed to choose more than one option as the "main reason" for the symptoms portrayed. The main reason reported by participants as the cause for psychosis by an overwhelming majority was "mental illness" at 47.2%, followed by "anxious personality" and "loneliness" at 16.5% and 15.4%, respectively. When asked what they perceived as the single most important main cause, 48.3% of students wrote down "mental illness" as the main cause followed by "undecided" at 12.4%.

Student's personal psychopathology as measured by GHQ-28 (caseness vs non-caseness) did not reveal any difference in the perception of mental illness as depicted by the vignette. However, "failure in love" was chosen as the main cause by those students achieving scores for caseness on the GHQ-28 (p-value=0.046), as shown in Table 3.

Principal components factoring was undertaken to explore the latent construct and dimensionality of the scale. The KMO statistics for sampling adequacy was 0.77 (the minimum acceptable value 0.6) and the Bartlett's Sphericity test was significant with a p-value <0.001. Most of the correlation coefficients of the anti-image correlation matrix of the 19 items were above 0.7 with a minimum correlation of 0.52. The determined factors, demonstrated in Table 4, were social factor (Cronbach's alpha=0.8), which combined "busy lifestyle," "work tension," "loneliness," and "anxious personality." Psychobiological factor (Cronbach's alpha=0.6), which combined "mental illness," "substance abuse," "heredity," and "sexual abuse during childhood." Superstition factor (Cronbach's alpha=0.8), which

Table 2. Risk factors of psychopathology.

		Case		p-value	OR	95% Confidence interval
		N	%			
Gender	Male	71	44.7	0.001	0.4	0.21–0.69
	Female[a]	50	67.6			
Age	19	28	70	0.004	3.8	1.51–9.5
	20	43	59.7	0.027	2.4	1.1–5.26
	21	16	44.4	0.57	1.3	0.52–3.21
	22	14	37.8	0.9	0.9	0.39–2.45
	23+[a]	16	38.1			
Father's Education	Less than HS	15	57.7	0.4	1.4	0.61–3.26
	High school	26	59.1	0.2	1.5	0.76–2.94
	Graduate/postgraduate[a]	80	49.1			
Mother's Education	Less than HS	27	57.4	0.3	1.4	0.73–2.8
	High School	29	55.8	0.4	1.3	0.7–2.54
	Graduate/postgraduate[a]	65	48.5			
Father's employment status	Employed	78	53.4	0.4	1.2	0.73–2.21
	Unemployed[a]	39	47.6			
Mother's employment status	Employed	44	51.2	0.9	1	0.57–1.69
	Unemployed[a]	73	51.4			
History in mental illness	Yes	24	57.1	0.4	1.3	0.66–2.56
	No[a]	96	50.5			
Family system	Nuclear	101	54.3	0.1	0.8	0.84–3.06
	Extended[a]	20	42.6			
Approximate Family income per month	10,000–25,000SR	59	53.6	0.7	1.1	0.6–1.8
	Above 25,000SR[a]	61	51.3			

[a]Reference group.

combined "possessed by Jin," "magic," "evil eye," and "punishment for sins." And finally, socially undesirable factor (Cronbach's alpha = 0.6), which combined "low IQ," "unemployment," and "bad upbringing." The combined Cronbach's alpha score for all four factors was 0.62. A few items were deleted simply due to them being unfit in any of the abovementioned factors and had poor factor loading, those items were "alien influence," "failure in love," "fate," and "attention-seeking behavior."

After determining the factors, the following outcome variables were set as "social factors," "psychobiological factors," "superstition factors," and "socially undesirable factors." Students above the age of 23 were grouped due to their small number. Univariate logistic regression analysis indicated that males (OR = 3.3, CI = 1.45–7.69), and younger students who were 19 years of age (OR = 8, CI = 1.75–36.59) were more inclined to choose social factors as the main cause of mental illness (reference groups: females, 23+ years old, respectively). On the other hand, students who were 21 years of age (OR = 0.3, CI = 0.1–0.92) and students whose mothers were employed (OR = 2.5, CI = 1.1–5.8) were more likely to go with psychobiological factors as the main cause (reference groups: 23+ years old, unemployed mothers, respectively). It was noted that 19-year-old students (OR = 7, CI = 2.23–22) leaned toward choosing superstitious factors, and male

students (OR = 3.2, CI = 1.23–8.6) also exhibited a tendency toward unsociable factors

Treatment routes in healthcare students

Student indicated their choices for their appropriate route of intervention on a 3-point Likert-type scale. The majority of students chose visiting a psychiatrist as the best treatment route at 77%, followed by reciting the Quran or written prayers for protection at 52%, and taking him or her to a family physician at 49%. A positive psychopathology result did not seem to have a significant impact on students' management approach toward mental illness, as demonstrated in Table 5.

To assess the construct validity of the interventions section of the questionnaire, the KMO statistics for sampling adequacy was 0.69 and the Bartlett's Sphericity test was significant with a p-value <0.001. Most of the correlation coefficients of the anti-image correlation matrix of the 11 items were above 0.7 with a minimum correlation of 0.51. Factor analysis resulted in two groups, demonstrated in Table 6, of interventional routes: clinical intervention (Cronbach's alpha = 0.34), which combined "take him or her to a psychiatrist," "take him or her to a family physician," and "take him or her to a mental hospital." Social intervention (Cronbach's

Table 3. Psychopathology affect on perception.

	Non-case		Case		p-value
	Main reason		Main reason		
	N	%	N	%	
Low IQ	3	2.8	2	1.7	0.567
Attention-seeking behavior	4	3.8	7	5.8	0.482
Mental illness	52	48.1	56	46.3	0.778
Heredity	13	11.5	7	5.8	0.118
Work tension	7	6.5	8	6.7	0.97
Busy lifestyle	5	4.7	5	4.1	0.842
Loneliness	12	11.1	23	19.3	0.087
Anxious personality	13	12.3	24	20.3	0.104
Fate	9	8.9	6	5	0.243
Substance misuse addiction	15	14.2	16	13.2	0.839
Unemployment	4	3.7	4	3.4	0.878
Bad upbringing	3	3.0	2	1.8	0.555
Sexual abuse during childhood	4	3.7	6	5	0.653
Alien influence	4	3.8	4	3.4	0.868
Magic	6	5.8	11	9.2	0.329
Evil eye	4	3.8	7	5.8	0.473
Failure in love	1	0.9	7	5.8	0.046
Punishment for sins	1	1.0	4	3.3	0.234
Possessed by Jin	7	6.8	13	10.7	0.302

Table 4. Factor analysis: perception of mental illness.

	Social factors	Superstition	Psychobiological	Socially undesirable
Busy lifestyle	0.830			
Work tension	0.795			
Loneliness	0.790			
Anxious personality	0.684			
Magic		−0.887		
Evil eye		−0.887		
Possessed by Jin		−0.874		
Punishment for sins		−0.687		
Mental illness			0.741	
Substance misuse addiction			0.662	
Bad upbringing				−0.816
Low IQ				−0.708
Unemployment				−0.574
Sexual abuse during childhood			0.512	
Heredity			0.471	

Extraction method: principal component analysis.
Rotation method: Oblimin with Kaiser normalization.

alpha=0.7), which combined "counsel him or her," "take him or her to Sheik/Imam," "try to dispose him or her from evil spirits," "get him or her married," "change his or her job," "give him or her small Quran or written prayers for protection," "give charity," and "tell him or her to rest."

Results of univariate logistic regression analysis with the outcome variables being "clinical intervention" and "social intervention" revealed that males (OR=4, CI=1.65–9.6) and 19- to 20-year-old students (OR=7.2, CI=1.9–27.2; OR=4.7, CI=1.5–15, respectively) were more inclined to choose social routes of intervention compared to clinical ones.

Discussion

In this study of undergraduate medical students in Riyadh, focusing on the perception of the etiology of psychosis and

Table 5. Psychopathology affect on treatment route.

	Non-case		Case		p-value
	Will definitely do		Will definitely do		
	N	%	N	%	
Tell him or her to rest	43	41	51	42.9	0.77
Take him or her to a family physician	48	45.7	62	52.5	0.77
Take him or her to psychiatrist	84	75	96	79.3	0.43
Counsel him or her yourself	38	36.5	42	35.6	0.88
Take him or her to Sheik/Imam	18	17.5	25	21	0.50
Try to dispose him or her from evil spirits	5	4.8	5	4.2	0.83
Get him or her married	4	3.8	7	5.8	0.49
Change his or her job	3	2.9	5	4.3	0.59
Give him or her small Quran or written prayers for protection	52	50	64	53.8	0.57
Give charity	31	30.1	40	34.8	0.46
Take him or her to a mental hospital	19	18.3	29	24.2	0.28

Table 6. Factor analysis: intervention routes in mental illness.

	Social intervention	Clinical intervention
Tell him or her to rest	0.518	
Take him or her to family physician		0.425
Take him or her to psychiatrist		0.776
Counsel him or her yourself	0.448	
Take him or her to Sheik/Imam	0.652	
Try to dispose him or her from evil spirits	0.488	
Get him or her married	0.596	
Change his or her job	0.549	
Give him or her small Quran or written prayers for protection	0.724	
Give charity	0.639	
Take him or her to a mental hospital		0.640

Extraction method: principal component analysis.
Rotation method: Oblimin with Kaiser normalization.

preference for treatment routes by healthcare students, participants mainly chose mental illness as the primary cause for psychosis as depicted by the female vignette, with anxious personality and loneliness as forerunners, highlighting a biopsychosocial explanation. When pushed to choose a single cause, participants favored a biological cause, citing mental illness as the main reason. Exposure to behavioral sciences is an important part of the medical curriculum, perhaps a crucial factor in influencing the understanding of the students and therefore explanations for the causation of mental illnesses. Similarly, findings have been found for undergraduate medical students from Pakistan who reported a biopsychosocial explanation for mental illness, including psychosocial trauma, work-related stress, genetic predisposition toward mental illness, physical abuse, study-related stress, and divorce as causes of mental illness. Whereas, non-medical students were more likely to report evil eye, punishment from God, and possession by Jinni as possible causes of mental illness.[16]

Since psychiatry and biomedical syllabus is not part of the curriculum for students in the sophomore years of academic study, also known as the pre-professional phase, these students could be viewed as similar to the non-medical students from Pakistan, whom showed comparatively similar belief systems.[16] Perhaps, it is conceivable to infer that the beliefs of the pre-professional students were more representational of the general population, that is, beliefs consistent with non-medical explanations for psychosis. Research literature has shown that the general population of both developed and developing countries hold a range of non-medical beliefs about the causation for psychosis.[21–23]

In Zafar et al.'s study,[3] six categories were assigned for participant's beliefs concerning the cause of schizophrenia: biological, psychosocial stressors, social issues, personality issues, religious reasons, and superstitious beliefs. These categories were derived from general theory and not validated statistically. It was therefore necessary to examine the

construct validity of the questionnaire statistically and to suit out population. In our study, using the same items for assessing causation of psychotic symptoms, factor analysis confirmed only four categories. Some items loaded statistically better and appeared to fit closely to the categories suggested by the original questionnaire. For example, items for the superstitious beliefs category matched closely with good Cronbach's alpha value. Other items did not fit the categories requiring re-arrangement of items and to form new labels. For example, the socially undesirable category incorporated items that were suggestive of features, which were unlikely to be valued in society, such as having low IQ, bad upbringing, and being unemployed. Perhaps this highlights some issues with overlapping of items in Zafar et al.'s study. However, it was beyond the scope of this research to modify the questionnaire and more research is needed to look into this area adequately.

Personal psychological distress, as measured by GHQ-28 caseness, did not appear to influence student choice for the causation of psychosis. However, being young and male increased manifold the likelihood of perceiving the causation of psychotic symptoms as a result of social, superstition, and socially undesirable factors. Older students with a mother in employment tended to provide psychobiological explanations for psychosis. These finding are consistent with previous research.[4] Interestingly, however, students who were deemed GHQ-28 cases were significantly more likely to choose "failure in love" as a reason for the psychotic symptoms. Perhaps reflecting social struggles young students were facing from relationship issues. Breakdown in attachment relationship can be extremely distressing and behavioral manifestations may appear similar to those who experience mental ill health.

It is unclear to what extent the presentation of psychotic symptoms depicted by a female vignette influenced the perception of the participants' causation of mental illness and subsequent treatment options. Research from cross-cultural studies report that stigmatizing attitudes are greater in collectivist cultures, such as the Middle East, compared to individualistic cultures.[24] Given this study did not directly examine attitudes toward individuals with psychosis, rather identification of psychosis, it would be difficult to comment on how culture influences attitudes toward gender differences. Identification of mental illness in studies using case vignettes found that identification of schizophrenia resulted in more negative attitudes and desired increased social distance.[25,26] For female participants, research finding indicates even more social distance and lack of desirability after recognition of psychotic disorders.[14] Further research is needed to put light on the difference in perception for the causation of mental illness between genders and subsequent help-seeking behaviors.

Research has shown that the beliefs one holds about the causes of an illness will also drive treatment direction. Supernatural or religious beliefs will therefore most likely result in seeking help from faith healers and following religiously prescribed interventions.[27] Our study findings showed that young and male students were more likely to choose social causes for psychosis and seven times more likely to choose social routes for help rather than medical interventions. These findings were also consistent with previous research.[5]

Relatives of patients experiencing schizophrenia often hold multiple, diverse, and sometimes contradictory explanatory models of illness.[28] However, non-biomedical beliefs can lead to stigmatizing people who experience schizophrenia, and research findings show that schizophrenia is considered the most stigmatizing of all psychiatric illnesses.[29] Stigma also affects self-esteem of patients[30] and can act as major barrier to recovery.[31] Therefore, it is important to address the negative perceptions of mental ill health and especially among healthcare professional who are most likely to come into contact with these individuals from a helping perspective.

Alarmingly, a third of the participants choose themselves to counsel the person with psychosis as a management strategy. This is problematic in terms of delaying appropriate medical treatment. The duration of untreated psychosis (DUP) is the time from manifestation of the first symptoms to beginning of appropriate treatment. There is a strong link between appropriate treatment and the outcome of schizophrenia and therefore it is an important aspect for psychosis management.[32,33] A delay in medical treatment, at the very least, may unwittingly increase the duration of distress experienced by the person with psychosis and their family members. At worst, mental illness may take the trajectory of unrelenting psychotic symptoms or increase self-harm or harm to others.[34]

Not surprisingly, Quran reciting was the second most considered option for the treatment of psychosis. Given the religious and traditional background of these students, viewing religious practices as a curative adjunct to medical treatments was expected. However, the trend notice in this study was that biomedical training shifted the perception of the causation of psychosis from non-medical to biomedical explanations. This may not always be the case as greater exposure to psychiatric study within medical training in Pakistan appeared to be associated with an increase in the likelihood of holding supernatural explanatory beliefs about mental illnesses such as depression.[35]

Although our study did not examine for attitudes toward mental illness, studies on similar population have found that when medical ill health is explained from a biopsychosocial model, tolerant attitudes toward medical illness become more evident.[16,36]

Saudi Arabian universities are segregated, and gender mixing is not usually accommodated. Therefore, stressors cannot be generalized between them. The findings that female healthcare students scored significantly higher on the GHQ-28 for "caseness" than their male counterparts are not

clear. These findings help us acknowledge the need for a student-wellness program that identifies and mitigates stressors affecting different student populations. Future studies should explore these social obstacles and whether there is a difference between female and male students in experiencing psychological difficulties and their management.

Limitations of the study

Although students in this study were from a fairly homogeneous sample in terms of age, profession, good family mental health history, and living in a stable nuclear family structure, caution is required in generalizing the results to the general Saudi population. We cannot be confident to what extent we can infer whether these students perceived mental illness as a result of their educational training or from Saudi societal norms. And while all healthcare colleges were targeted, some were not cooperative and did not participate in this study, such as College of Nursing, limiting the perceptions from a female perspective. Also, as with all Likert-type scaled questions, there was a central tendency bias in the questionnaires administered.

Future studies should focus on understanding the perceptions and help-seeking behavior in the general population, and study whether perceptions differ between female and male mentally ill individuals.

Conclusion

Healthcare students in Riyadh while being subjected to many religious and cultural beliefs that support their own remedies to treat psychiatric illness remain supportive of a biomedical cause for psychosis and would pursue a medical approach toward its management. The use of religious practices as adjunct to medical treatment was apparent. Students were prone to suffer from emotional distress, with female students showing higher incidence than males.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

Ethical approval for this study was obtained from King Abdullah International Medical Research Center (SP15/006).

Informed consent

Written informed consent was obtained from all subjects before the study (consent form uploaded).

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