



Public Stigma, Knowledge and Behaviors of the Attendees of Outpatient Clinics towards People with Mental Illness, Jeddah, Saudi Arabia

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Authors' contributions

This work was carried out in collaboration among all authors. Author NKI designed the study, performed the statistical analysis, wrote the protocol, helped in writing the first draft of the manuscript and supervise the whole work. Authors LAW, OAA and RA collected the data, helping in conduction of statistical analysis and writing the manuscript. Authors JAA and BA helped in supervision of the whole work. All authors read and approved the final manuscript.

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ABSTRACT

Background: Mental stigma represents a critical obstacle for delivering mental health care.
Aims: To determine public stigma, knowledge & behaviors of the attendees of outpatient clinics towards People with Mental Illness (PWMI), King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia.
Methods: A cross-sectional study was done in 2018. A sample of 600 attendees of outpatient clinics of KAUH were included. A standardized interviewing data collection sheet was used. It included three scales namely: the Community Attitudes towards the Mentally Ill (CAMI), Mental Health Knowledge Schedule (MAKS) & Reported and Intended Behavior Scale (RIBS).

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Authoritarian, socially restrictiveness, benevolent & Community Mental Health Ideology of CAMI sub-scales were calculated. Descriptive, inferential, and multiple linear regression analyses were applied.

Results: About two-thirds of the participants agreed that mental illness causes lacking self-discipline & will power. Gender was significantly associated with all CAMI sub-scales ($P < 0.01$). An increasing level of knowledge about mental illness was associated with lower stigma towards PWMI ($P < 0.001$). After controlling confounders in regression analyses, gender and knowledge were significant predictors of all CAMI sub-scales. Concerning MAKS, about half of participants incorrectly identified stress & grief as types of mental illness. Regarding RIBS, living with (30.2%), and having a neighbor (28.8%) with mental illness were the commonest reported experiences.

Conclusions: Negative attitudes towards PWMI still prevailed. Mental stigma was higher among males, older people, lower-educators, lower-income & those with poor mental knowledge. Participants had a moderate intention to accept PWMI. Anti-stigma intervention educational programs are required.

Keywords: Mental illness; stigma; knowledge; behaviors; public; CAMI; MAKS; RIBS.

1. INTRODUCTION

Mental illnesses are a group of complicated and multifaceted disorders that occur due to the interaction between personal, cultural, religious, and biological factors with the environmental conditions [1,2]. Mental illnesses represent a major contributor to the global burden of disease [3]. It was reported in 2017 that mental disorders ranked as the ninth cause of the global burden of disease, worldwide [4].

The attitudes of the community towards People with Mental Illness (PWMI) play a central role in mental health [5]. Mental illness is among the most stigmatizing conditions [6].

Stigma is an attribute that is deeply discrediting and reducing a person from the whole, and describe the usual person to be tainted and discounted one [7]. There are two kinds of the stigma attached to mental diseases; either public or internalized types [8]. There is a stigma to many diseases, even to Covid-19. The stigma attached to mental illness involves all groups and contributing to the continuation of mental illness. Such stigma leads to limiting access to health care and result in poorer quality of physical care that is available for PWMI [9]. So, such stigma represents critical obstacles that stand in the way of delivering mental health care [10] and lead to less psychiatric help-seeking behavior to PWMI [11].

Despite efforts to improve community knowledge and attitudes and to reduce discrimination against PWMI, public stigma is still high [12]. Community individuals can perform as reinforcing agents for prevention, seeking treatment, or illness, etc. [5]. Although the

previous decade had an increase of research on mental illness stigma, however, a lack of both consistency and clarity in the measurement of mental illness stigma was present [13]. Furthermore, limited studies were conducted among the general population in Jeddah to determine the stigma towards PWMI, or to identify their knowledge and behavior about mental illness. So, such studies are needed. The study was conducted to determine the public stigma, knowledge & behaviors towards PWMI among the attendees of outpatient clinics of King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia.

2. METHODS

A cross-sectional study was conducted among attendees of the outpatient clinics of KAUH during 2018. The sample size was calculated by the formula for the calculation of the sample from the cross-sectional study [14]. As there is a lack of previous similar studies about mental stigma among the general population in Jeddah, so, the prevalence of stigma was suggested to be 50% (as the most conservative sample). Hence, $q = 0.5$ and the absolute precision "d" was set at 0.04. The total calculated sample was 600 persons. A convenience sample was taken from all individuals who aged ≥ 18 years, who were not previously diagnosed by physicians as having a mental illness, attended the outpatient clinics of KAUH during the study period & accepted to participate in the study.

A standardized, Arabic, interviewing data collection sheet was used. It asked about personal & socio-demographic information. It inquired about any contact between the participants and PWMI. Furthermore, the sheet

contained three standardized questionnaires, which were:

2.1 The Community Attitude towards the Mentally Ill Scale (CAMI) [15]:

It consists of 40 items rated on a five-point Likert scale. The standardized Arabic version of CAMI was used [10]. It measures the attitude of the participants towards PWMI. Studies from different countries found the CAMI scale to be valid & reliable [16]. It contains four sub-scales (10 items in each scale). These sub-scales are Authoritarianism (AU), Social Restrictiveness (SR), Benevolence (BE), and Community Mental Health Ideology (CMHI). AU refers to a view of the mentally ill person as someone who is inferior and requires supervision and coercion. BE is a humanistic and sympathetic view of mentally ill persons. SR covers the belief that mentally ill patients are a threat to society and should be avoided. CMHI corresponds to the acceptance of mental health services and the integration of mentally ill patients in the community [16]. Higher scores on the *authoritarianism* scale denote more coercive attitudes toward PWMI. Similarly, higher scores on SR reflect the fear of PWMI and consider them dangerous. On the other hand, higher scores on the BE and CMHI suggest a more accepting belief toward PWMI (lower scores remark more stigma) [10,15,17].

2.2 Mental Health-Related Knowledge (MAKS)

It consists of 12 items answered on a 5-point Likert scale. The first six items cover some areas of stigma-attached to knowledge about mental health and are utilized to calculate the total score. Items 7 –12 evaluate the levels of participants' recognition and familiarity with types of mental illnesses. The 12 items are scored on a scale (from 1 to 5). In a correct statement, strongly agree answer took "5" points, while strongly disagree took "1". "Don't know" is coded as neutral (that is 3). Three items [6,8,12] had reversed codes to reflect the direction of the correct response [18].

2.3 The Reported and Intended Behavior (RIBS)

It consists of 8 items. RIBS items from number 5 to number 8 are scored on an ordinal scale (from 1 to 5). RIBS items were dichotomized so that 4–

5 scores were considered people who agree to contact PWMI [12]. A greater willingness to contact PWMI was indicated by having a higher RIBS score [19].

The last two scales (MACKS and RIBS) were translated from English to Arabic through a back translation method; with an initial translation and back translation process. Upon completion of this process, the translators compared the English to the Arabic versions to determine whether the variables had the same meaning. Two experts assessed the translation. The validity of the data collection sheet was also assessed by 2 experts. The internal consistency reliability of the three used scales was more than 0.80.

SPSS version 21 was used for the statistical analysis. Overall stigma against PWMI was computed by summing up the 4 CAMI sub-scales. Negatively stated items were reversely coded for analysis [16].

The total knowledge score (MAKS) was calculated for the first 6 items. Knowledge score was classified into three categories; satisfactory score: $> \text{mean} + \text{SD}$, fair score: from $\text{mean} - \text{SD}$ to $\text{mean} + \text{SD}$ and poor score: $< \text{mean} - \text{SD}$.

Descriptive statistics were done as means, standard deviations, and frequency tables. Inferential statistics were done. For the continuous variables, independent sample t-test, and ANOVA, with the Least Significant Difference (LSD), tests were done. Multiple linear regression analyses were applied to determine the significant predictors of CAMI sub-scales, after controlling the confounding factors. P-values < 0.05 were considered statistically significant.

3. RESULTS

The study included 600 participants with a male to female ratio of 1:1. Their mean (SD) age was 34.0 (12.00) years. Results revealed that one-third of the participants gave a history of contact with PWMI. About three-fifths (60.7%) of the participants agreed that there is a stigma against PWMI.

Results of AU subscale of CAMI revealed that about two-thirds (65.3%) of the participants believed that mental illness causes a lack of self-discipline & will-power. A similar percentage (62.2%) said that PWMI requires a similar control

and discipline as a young child. About half (50.3%) of the participants stated that: "immediately after a person shows manifestations of mental disturbance, he must be hospitalized". In the SR subscale, 64.7% of the participants agreed that any person with a history of a mental disorder must be excluded from public office work. Furthermore, 43.3% of them didn't trust the majority of females who were admitted once in a mental hospital to be baby sitters. In addition, 37.5% said that PWMI should not be given any responsibility, and 37.2% agreed that they would not want to live next door to someone who has been mentally ill. In the CMHI subscale, 58.1% of the participants agreed that PWMI living within the residential neighborhoods might have good therapy, but the risks to the residence are too great.

Table 1 shows the mean scores of CAMI sub-scales according to study variables. The participants obtained lower mean scores on the AU (26.14±4.71) and SR (26.28±5.17) sub-scales, and higher scores on BE (39.16±5.10) and CMHI (37.18±6.13). The table also shows that gender was significantly associated with all CAMI sub-scales ($P < 0.01$). Female participants reported a lower stigma towards PWMI, more so than males. They obtained lower scores on AU and SR sub-scales, and higher scores on the BE and CMHI. Furthermore, younger respondents (≤ 40 years) obtained a significantly lower score in SR sub-scale, and a higher score in BE subscale compared to the older participants ($P < 0.01$). Regarding marital status, married participants had a slightly more socially restrictive attitude towards PWMI compared to others ($P < 0.05$).

Concerning education, the table shows that participants who obtained a university degree or above reported less stigma towards PWMI. They obtained a significantly lower score on AU, and higher scores on BE and CMHI sub-scales.

The occupation was associated with SR subscale. Those with professional jobs had a significantly ($P < 0.05$) higher score in SR subscale than others, which indicates that those with the professional job had a more negative view of considering the mentally ill as a threat to the society. Furthermore, higher income was significantly associated with less stigma towards PWMI (AU & SR sub-scales). However, the same table reveals the absence of statistical association ($P > 0.05$) between stigma towards

PWMI and personal contact (family member or friend) with a patient diagnosed with such illness.

Grades of knowledge about mental illness were highly associated with all CAMI sub-scales and with the overall total CAMI score. Those who obtained a satisfactory knowledge score, about mental health, had a low view of AU and SR. On the other hand, they had a better view of BE and CMHI compared to those obtained fair or poor scores.

After controlling confounding factors in regression analyses, gender and knowledge about mental illness were the significant predictors of all CAMI sub-scales. Furthermore, age was a significant predictor of BE and SR & income is a predictor of AU and SR domains. Education is a predictor of AU and BE sub-scales Table 2.

Regarding MAKS, its mean total scores were 22.34 ± 3.06 . Table 3 shows the participants' responses to items of MAKS. The majority of the participants had good knowledge about mental illness. Most of the participants (860%) strongly agreed and agreed that psycho-therapy can be successful management of individuals with mental illness. A similar percentage (85.1%) agreed that schizophrenia is a type of mental illness. Furthermore, 64.2% identified bipolar disorder as a type of mental illness. On the other hand, 48.5% and 45.3% of the respondents falsely identified stress and grief as types of mental illness, respectively.

Concerning RIBS, the total mean score was 13.06 ± 3.97 . Table 4 illustrates that living with PWMI (30.2%) and having a neighbor who has a mental illness (28.8%) were the commonest reported experiences of the participants with such illness. Furthermore, 26.0% of the participants reported that they either currently or ever have worked with PWMI, and 21.3% stated that they have a close friend with a mental health problem.

Concerning the intended behaviors of RIBS, Table 5 shows that 75% of the participants strongly agreed and agreed that they would be willing, in the future, to continuing their relationship with a friend who developed a mental health problem. Furthermore, 46.9%, 42.6%, and 35.7% of the participants agreed to live nearby, work, and live with PWMI in the future, respectively.

Table 1. Mean scores of CAMI according to personal & socio-demographic variables among attendees of outpatient clinics of King Abdulaziz University Hospital

CAMI sub-scales Variables	AU Mean ± SD	BE Mean ± SD	SR Mean ± SD	CMHI Mean ± SD	Over CAMI Mean ± SD
Total mean score	26.14±4.71	39.16±5.10	26.28±5.17	37.18±6.13	128.77±8.03
Gender					
Male (300)	26.67±4.03	38.34±5.21	27.02±4.74	35.84±6.1	127.88±8.04
Female (300)	25.61±5.26	39.98±4.86	25.55±5.48	38.51±5.87	129.66±7.94
t-test (P)	2.784 (0.006)	-3.983 (0.000)	3.493 (0.001)	-5.453 (0.000)	-2.721 (0.007)
Age					
≤ 40 (447)	25.98±4.73	39.54±5.06	25.81±5.02	37.39±6.11	128.73±7.8
> 40 (153)	26.59±4.66	38.05±5.06	27.66±5.38	36.56±6.17	128.88±8.72
t-test (P)	-1.38 (0.167)	3.135 (0.002)	-3.729 (0.00)	1.446 (0.149)	-0.191 (0.848)
Marital status					
Married (394)	26.21±4.66	38.94±5.21	26.58±5.26	37.33±5.91	129.08±8.24
Unmarried (206)	26.00±4.82	39.58±4.87	25.71±4.97	36.88±6.53	128.18±7.61
t-test (P)	0.53(0.600)	-1.44 (0.149)	2.01(0.049)	0.82(0.400)	1.30(0.193)
Education					
≥ University (296)	25.26±4.64	39.97±5.2	26.25±5.22	37.75±5.94	129.24±7.71
< University (304)	26.99±4.64	38.37±4.88	26.32±5.13	36.61±6.26	128.31±8.33
t-test (P)	- 4.56 (0.000)	3.88 (0.000)	- 0.18 (0.858)	2.28 (0.023)	1.42 (0.156)
Occupation					
Professional (164)	25.82±4.59	39.78±5.05	27.03±5.55	37.63±6.15	130.28±7.64
Non-professional (436)	26.25±4.76	38.93±5.11	26.01±5.01	36.01±6.11	128.21±8.11
t-test (P)	-1.01(0.31)	1.83(0.068)	2.08(0.03)	1.11(0.266)	2.91(0.005)
Monthly income					
Enough & exceeds a (53)	24.18±4.87	39.03±5.19	24.41±5.92	37.86±5.55	125.50±6.82
Enough only b (457)	26.08±4.67	39.18±5.15	26.29±5.10	37.18±6.29	128.74±8.09
Not enough c (90)	27.55±4.45	39.15±4.82	27.37±4.81	36.74±5.60	130.83±7.82
F-test (P)	8.84(0.000)	0.02 (0.981)	5.54 (0.004)	0.56 (0.571)	7.49 (0.001)
LSD	all categories significantly differed from others		a differs from b and c		all categories significantly differed from other

Table 1. Mean scores of CAMI according to personal & socio-demographic variables among attendees of outpatient clinics of King Abdulaziz University Hospital (Continue)

CAMI sub-scales variables	AU	SR	BE	CMHI	Total
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Know a person with mental illness					
Yes (163)	26.37±4.99	39.53±5.34	26.02±5.64	37.24±6.14	130.28±7.64
No (437)	26.05±4.62	39.03±5.01	26.39±4.99	37.16±6.14	128.21±8.11
t-test (P)	0.74 (0.45)	1.07 (0.28)	-0.77 (0.44)	1.4 (0.89)	2.91 (0.005)
Knowledge score (MAKS)					
Poor a (99)	28.14±4.22	37.44±4.89	28.49±4.45	34.53±5.05	128.62±7.55
Fair b (404)	26.25±4.47	38.65±4.87	26.26±5.05	37.06±6.16	128.62±8.03
Satisfactory c (97)	23.65±5.12	43.08±4.33	24.13±5.62	40.31±5.67	131.18±8.19
F-test (P)	24.28(0.000)	41.11 (0.000)	18.39(0.000)	23.55 (0.000)	5.32(0.005)
LSD	All categories significantly differ from others	All categories significantly differ from others	All categories significantly differ from others	All categories significantly differ from others	a & b differs from c

AU: Authoritarianism; SR: Social Restrictiveness; BE: Benevolence; CMHI: Community Mental Health Ideology

Table 2. Multiple linear regression analyses of the predictors of CAMI sub-scales among the attendees of outpatient clinics at King Abdulaziz University Hospital, Jeddah

Variables	AU		BE		SR		CMHI		Overall CAMI	
	B	CI	B	CI	B	CI	B	CI	B	CI
Gender (Male)	-0.621	-1.34, 0.10	1.167	0.39, 1.94	-1.13	-1.93,- 0.33	2.193	1.25, 3.14	1.606	0.33,2.89
Age (Young)	----	----	-1.21	-2.09,-0.32	1.77	0.86,2.69	----	----	----	----
Education (≥ University)	1.161	4.21, 1.89	-1.16	-1.95,-0.37	----	----	----	----	-1.31	-2.62,-0.003
Income (≥ Enough)	1.329	0.58, 2.08	----	----	1.36	0.53,2.19	----	----	2.869	1.54,4.20
Knowledge (Poor)	-2.019	-2.65, 1.38	-2.50	1.82, 3.18	-2.02	-2.72,-1.31	2.50	1.67, 2.33	----	----
Constant	26.37	23.8, 28.91	34.77	32.04, 37.49	23.89	25.27- 30.88	31.10	27.77, 34.42	120.31	115.81,124.82

B: Standardized regression coefficient; CI: Confidence Interval; AU: Authoritarianism; SR: Social Restrictiveness; BE: Benevolence; CMHI: Community Mental Health Ideology

Table 3. Responses of the attendees of outpatient clinics at King Abdulaziz University Hospital to items of Mental Health Knowledge Schedule

Agreement	Strongly agree (No., %)	Agree (No., %)	No opinion (No., %)	Strongly disagree (No., %)	Disagree (No., %)
Part A: Stigma-related knowledge					
Most people with mental health problems want to have paid employment	162 (27.0)	190 (31.7)	145 (24.2)	27 (4.5)	76 (12.7)
If a friend had a mental health problem, I know what advice to give them to get professional help	226 (37.7)	223 (37.2)	72 (12.0)	15 (2.5)	64 (10.7)
Medication can be an effective treatment for people with mental health problems	130 (21.7)	231 (38.5)	103 (17.2)	43 (7.2)	93 (15.5)
Psychotherapy (e.g. talking therapy or counseling) can be an effective treatment for people with mental health problems	273 (45.5)	243 (40.5)	45 (7.5)	7 (1.2)	32 (5.3)
People with severe mental health problems can fully recover	155 (25.8)	212 (35.5)	110 (18.3)	26 (4.3)	97 (16.2)
Most people with mental health problems go to a healthcare professional to get help	71 (11.8)	134 (22.3)	61 (10.2)	155 (25.8)	179 (29.8)
Part B: Mental health condition					
Depression	241 (40.2)	211 (35.2)	54 (9.0)	27 (4.5)	67 (11.2)
Stress	130 (21.7)	161 (26.8)	79 (13.2)	74 (12.3)	156 (26.0)
Schizophrenia	305 (50.8)	206 (34.3)	50 (8.3)	17 (2.8)	22 (3.7)
Bipolar disorder	192 (32.0)	193 (32.2)	106 (17.7)	56 (9.3)	53 (8.8)
Drug addiction	240 (40.0)	154 (25.7)	46 (7.7)	64 (10.7)	96 (16.0)
Grief	107 (17.8)	165 (27.5)	90 (15.0)	98 (16.3)	140 (23.3)

Table 4. Reported behaviors of attendees the outpatient clinics of King Abdulaziz University Hospital concerning people with mental illness

Response reported behavior	Yes (No. %)	No (No. %)	Don't know (No. %)
Are you currently living with, or have you ever lived with, someone with a mental health problem?	181 (30.2)	402 (67.0)	17 (2.8)
Are you currently working with, or have you ever worked with someone with a mental health problem?	156 (26)	425 (70.8)	19 (3.2)
Do you currently have, or have you ever had, a neighbor with a mental health problem?	173 (28.8)	390 (65)	37 (6.2)
Do you currently have, or have you ever had, a close friend with a mental health problem?	128 (21.3)	446 (74.3)	26 (4.3)

Table 5. The intended behaviors of attendees of the outpatient clinics at King Abdulaziz University Hospital concerning people with mental illness

Degree of agreement Intended Behavior	Strongly agree (No. %)	Agree (No. %)	No opinion (No. %)	Strongly disagree (No. %)	Disagree (No. %)	Don't know (No. %)
In the future, I would be willing to live with someone with a mental health problem.	88 (14.7)	126 (21.0)	104 (17.3)	103 (17.2)	146 (24.3)	33 (5.5)
In the future, I would be willing to work with someone with a mental health problem.	95 (15.8)	161 (26.8)	79 (13.2)	102 (17)	139 (23.2)	24 (4.0)
In the future, I would be willing to live nearby to someone with a mental health problem.	103 (17.2)	178 (29.7)	69 (11.5)	90 (15)	139 (23.2)	21 (3.5)
In the future, I would be willing to continue a relationship with a friend who developed a mental health problem	254 (42.3)	196 (32.7)	62 (10.3)	18 (3)	54 (9)	16 (2.7)

4. DISCUSSION

Up to the best of our knowledge the current study may be the first study done in Jeddah to determine the stigma of the general population towards PWMI. Younger participants from the current study had more positive attitudes towards mentally ill patients compared to older (SR, BE sub-scales). This may be due to the increasing use of information technology among younger. A similar percentage viewed that PWMI needs the same kind of control & discipline as young children. About half of them felt that PWMI needs to be hospitalized as soon as they show signs of mental disturbance. Such results agree with results from Ethiopia [16], India [20], and Ghana [21].

About two-thirds of the respondents agreed that anyone with a history of mental illness should be excluded from work, which coincides with the Ethiopian study [16]. Furthermore, more than two-fourths of the participants agreed that women who were once patients in a mental hospital could not be trusted as baby sitters, which agrees with a study from Nigeria [22]. More than one-third of our participants said that they didn't want to live very near to someone who has been mentally ill, and a similar percentage said that PWMI must not be given any responsibility. Results of the present study showed about three-fourths of the participants believed that PWMI who is living within their residential area carries too great risks to the residents. These findings coincide with the Indian study [20].

Our participants obtained the lowest mean score on the AU subscale of CAMI, indicating that the lowest stigma was for this subscale, which concurs with the results from Ethiopia [16].

Regarding gender, females had lower stigmatizing attitudes towards PWMI, compared to males. The maternal nature, empathetic, and open-minded attitudes of females may contribute to their caring and sympathetic tendencies. Similarly, the results of many other studies [15,16,23,24,25,26] agree with the current study. However, these results disagree with those from South Korea [27] and Ghana [21]. This discrepancy may be due to differences between target populations.

Younger participants from the current study had more positive attitudes towards mentally ill patients compared to older (SR, BE sub-scales). This may be due to increase use of information technology among younger; which makes knowledge about mental illnesses easily available to them. This finding coincides with results from Singapore [24], Slovakia [23], Ethiopia [16] and with results of Taylor & Dear [15]. On the other hand, findings from Kuwait [10], South Korea [27], Sweden [28] & Indonesia [29] disagree with our results. These discrepancies may be due to differences between the target populations, or the classification of age groups.

Our findings revealed that married participants had significantly more socially restrictive attitudes towards PWMI, which is in line with the

study from Singapore [24] and Sweden [28]. Similarly, the original study of Taylor & Dear [15] demonstrated that married individuals expressed less sympathetic attitudes towards PWMI. These findings may be because marital status is usually related to age, with younger adults being less likely to be married [25].

Results of the present study revealed that people with a university degree or above held a more positive attitude towards PWMI than others. Taylor and Dear [15] showed that education is a significant variable which affects the attitude towards PWMI. These findings also agree with other studies [23,25,30,31]. On the other hand, a study from Indonesia implies that attitude towards PWMI is not associated with an individual's educational level [29].

The results of the current study showed that participants who had professional jobs hold a slightly higher view of considering the mentally ill person as a threat to society (more SR attitude). On the other hand, researches from Slovakia [23] and Taiwan [30] reported that persons with professional jobs held less negative attitudes towards PWMI than others.

Our results illustrated that higher income was associated with less stigma towards PWMI (AU, SR), which agrees with results from Riyadh [26] & Singapore [24]. Another study from Ethiopia also found that participants with higher income were found to be less socially restrictive towards PWMI than others [32].

Some studies [23,30] revealed the presence of significant associations between stigma against PWMI and personal contact with such cases. On the other hand, our study revealed the absence of such significant association. This could be due to the small percentage of respondents who had previous contact with PWMI.

Our results found that increasing the levels of knowledge about mental illness was associated with lower stigma towards PWMI. Similarly, a recent intervention study from Italy revealed that an increase in knowledge was significantly associated with improving attitudes towards PWMI. A similar result was reported from the Indonesian study [29]. These results encourage the use of anti-stigma interventions to decrease the negative attitudes towards PWMI [33].

Concerning MAKS, a large number of our participants were able to identify the types of

mental illness correctly with percentages of (64.2% - 85.1%). These findings are similar to those reported among the public from England [34]. A higher result was found among community mental health staff in Guangzhou, China, with percentages of 81.7% - 96.2% [35]. The cause of such discrepancy may be related to the differences between types of the target population; as the Chinese study was done among community mental health staff not among the general population.

About half of our respondents (48.5%) falsely identified stress as a type of mental illness. A slightly better result (43.0%) was reported by the staff of Guangzhou [35]. On the other hand, a higher rate of incorrect answers (62.0%) was reported among the public from England, 2014 [34]. Similarly, 45.3% of our participants agreed, incorrectly, that grief is a type of mental illness. The corresponding rate from England, 2014, was 53.0%. The cause of discrepancy may be due to the time of the studies [34]. Such rates imply the need for mental health education.

A high level of agreement that mental health problems can be treated prevailed from the present study (60.2% and 86.0% of the participants believed that it can be treated by medication and psychotherapy, respectively). Results from England revealed the corresponding rates were 80% and 83% for both types, respectively [34].

Regarding RIBS, our results showed that 46.9% of the participants would be willing to continue living nearby to PWMI, and 42.6% of them were willing to work with PWMI. These findings are considered positive compared to some older studies. A study done in Uganda showed that only 14% of nurses intended to be work nearby PWMI [36]. Another study done among Turkish physicians showed that more than 70% were not willing to welcome a person diagnosed with schizophrenia as a neighbor [37]. Health workers from an older study from Kenya were also not comfortable or willing to admit PWMI in the general facilities [38]. This behavioral difference may be because the public doesn't have much knowledge about the essential facts about mental illness during this time.

5. CONCLUSION

A high percentage of the participants still accepted negative attitudes towards PWMI. More than half of the participants still have

pessimistic and autocratic attitudes toward them. Negative attitudes towards PWMI prevailed from the study. Stigma against PWMI was higher among males, older people, low educators, having lower income, and those with a poor knowledge score (MAKS). Participants had a moderate intention to accept PWMI. A variety of events can be designed to promote public education and awareness. Anti-stigma intervention programs are needed to reduce stigma towards PWMI. Educational programs can be delivered through mass media to help the general population to decrease stigma towards mental PWMI. Future prospective studies are also required.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

The ethical approval of the study was obtained from the Unit of Biomedical Ethics (UBE) of KAUH, with a Reference Number: 11-17 on 24 January 2017.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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