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Assessment of Saudi Public Knowledge and Attitudes Toward Mental Health Disorders and Its Demographic Correlation

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Abstract
Objectives: To assess Saudi citizen's level of knowledge, attitude and stigma toward mental disorders and its demographic correlations. **Methods:** A descriptive cross-sectional study carried out in 15 PHC centers in Hail City, Saudi Arabia; among 403 participants from Jan to May 2020 by using a questionnaire includes the MH Knowledge Scale (MAKS) to assess the levels of MH literacy and the perceived devaluation and discrimination scale (PDD) to evaluate the levels of MH stigma and among the Saudi populations attended the Primary health Care centers. **Results:** The findings revealed that only 16% of the participants had a high level of knowledge, and only 22 % had low stigma attitude toward MH illnesses. They expressed high familiarity and recognition of schizophrenia and depression. The higher level of MH knowledge was associated with young age, males, students, and those who had experience with mental disorders or had a relationship with MH patients. High stigma attitude was associated with older participants, those with only primary level education, and housewives. In addition, there was a significant positive correlation between high MH knowledge and a positive stigma attitude. **Conclusion:** working on enhancing community awareness, promoting education, and developing anti-stigma interventions are highly recommended to ameliorate the level of MH knowledge and attitude to improve MH care.
Keywords: mental health knowledge, stigma, mental disorders, MAKS, PDD, attitude, PHC, Saudi Arabia.
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1. Introduction

Mental health is a state of mental well-being that enables people to cope with the pressures of life, develop their skills, learn, work well, and contribute to their community (WHO, 2022).

Mental health disorders carry a strong social stigma, even though many people suffer from mental disorders, People with mental health problems can experience discrimination in all aspects of their lives (MHF, 2O15)

Previous research reports that a lack of knowledge and negative attitudes of the general population towards mental health are the main factors paving the way for stigma and discrimination against people with mental disorders (Kohls et al., 2017).

The stigma associated with mental illnesses acts as one of the biggest hurdles that prevents patients from getting mental care (Stuart, 2016). Stigmatization of people with mental illness can be a significant barrier to help-seeking behavior, health care accessibility or life chances (for example, good job opportunity, safe houses) (Corrigan et al., 2014).

Adequate knowledge and public perception help to identify these patients as members of the community with specific disorders and special needs (Abolfotouh et al., 2019).

Therefore, it is important to explore the public perception and attitudes regarding mental disorders and people affected by mental disorders. Decreasing the stigma toward mental health illnesses is considered as a critical task in the mental health field.

2. Objectives of the Study:

- To assess Saudi citizen's level of knowledge of mental disorders using the Mental Health Knowledge Schedule (MAKS) Scale and to assess their attitude towards mental disorders using the Perceived Devaluation and Discrimination Scale (PDD).
- To Examine the relationship between different Socio-demographic variables such as gender, age, level of education and occupation, and the Knowledge level and attitude towards mental disorders.
- To explore the relationship between Saudi citizens' knowledge of mental disorders as measured by the MAKS and their attitude to mental disorders as measured by the PDD and explore the relationship between personal experiences of having a history of mental health problems or having a relationship with a person with a mental disorder and the level of knowledge and attitude among participants with such experiences.

3. Methods

3.1 Study design and aim:

This is a descriptive cross-sectional study conducted to assess the knowledge and attitude toward mental health disorders among the Saudi population attending different clinics at Hail Primary Health Care Centres, aged 18 years old and above.

3.2 Study setting and sample size:

The study was carried out in Hail PHC centers in Saudi Arabia. Hail city has 31 PHC centers. Fifteen PHC centers (50%) were randomly selected by a simple randomized technique from January 2020 to May 2020.

3.3 Inclusion criteria:

Saudi Arabian adult male and female citizens aged 18 years and older who visited the PHC centers in Hail city.

3.4 Exclusion criteria:

Psychotic patients who lacked capacity, and Patients with dementia who lacked capacity.

3.5 Sample size:

The sample size was calculated by the population size (p=63,500) of the individuals who were seen in the target centers; confidence level=95% and confidence interval (CI) = 5 were obtained. The sample size was equal to 415 patients.

3.6 Data collection and allocation:

At the Nurse Station in each selected PHC, the participants were randomly selected after ensuring that they matched the inclusion criteria. Written consent was obtained post which the administered questionnaires were filled out.

3.7 Data collection tool

The questionnaire consisted of the following three parts: sociodemographic data, history of MH experience, and Mental Health Knowledge Schedule (MAKS) to measure MH-related knowledge. Overall test–retest reliability of the MAKS was 0.71 (Lin's concordance statistic), and the overall internal consistency among the items was 0.65 (Cronbach's α) (Evans-Lacko et al., 2010). MAKS items were scored on an ordinal scale (1= strongly disagree to 5= strongly agree). Moreover, items 6, 8, and 12 were reverse coded to reflect the direction of the correct response.

The third part was the perceived devaluation and discrimination Scale (PDD) to assess the degree of stigmatizing attitudes toward people with mental health disorders. It contained 12 items and each item was rated on a 5-point scale, ranging from 1 (strongly agree) to 5 (strongl disagree). Items 1, 2, 3, 4, 8 and 10 required reverse scoring.

3.8 Data management and analysis:

The collected data were coded, and appropriate statistical tests were used to determine the correlation between the selected variables. SPSS version 27 was used. The MAKS and PDD, weighted proportions, and 95% confidence intervals were calculated.

3.9 Pilot study:

The questionnaire survey was tested on 25 participants who were not considered in the main study. Feedback was obtained from each participant regarding any difficulties in reading and understanding the questionnaire that might be encountered by the actual study participants, and the questionnaire was reworked accordingly.

3.10 Ethical considerations

Ethical approval was obtained from the Ethical Committee of NOVA Medical School in Lisbon and approval from Saudi Arabia. Formal written consent was obtained from the participants prior to their participation.

4. Results

4.1 Sociodemographic characteristics of the participants.

The demographic distribution is illustrated as shown in **table 1**.

Table 1: Sociodemographic characteristics frequencies, n=403

Sociodemographic Variables	Participants' Numbers and Percentages	
	n	%
Age:		
18–39 years	251	62.3
40–59 years	117	29.0
≥60 years	35	8.7
Gender:		
Male	192	47.6
Female	211	52.4
Educational level:		
Primary education or lower	44	10.9
Preparatory & secondary education	111	27.5
University education or higher	248	61.5
Marital status:		
Single	148	36.7
Married	221	54.8
Divorced	16	4.0
Widowed	18	4.5
Occupation:		
Employed	206	51.1
Housewife	48	11.9
Student	86	21.3
Retired	23	5.7
Unemployed	40	9.9
Previously diagnosed with mental disorder:		
None disclosed.	390	96.8
Depression	6	1.5
Anxiety	4	1.0
Post-traumatic stress disorder (PTSD)	2	0.5
Obsessive compulsive disorder (OCD)	1	0.2
Relationship with mental disorder patient:		
None disclosed.	331	82.1
Family member	26	6.5
Friend	18	4.5
College	14	3.5
Neighbor	11	2.7
Other	3	0.7

A total of 403 out of 415 participants responded to the questionnaire, and the response rate was 97%. Women formed 52.4% (211), and the majority of the study participants (251, 62.3%) were aged between 18–39 years.

4.2 Mental health knowledge (MAKS) scale.

Table 2: MAKS part A and B responses' frequencies, n=403

MAKS (Part A) Questions	Strongly agree. n (%)	Agree n (%)	Neither agree nor disagree. n (%)	Disagree n (%)	Strongly disagree. n (%)	Don't Know n (%)
1. Most people with mental health problems want to have paid employment.	56 (13.90%)	129 (32.0%)	137 (34.00%)	24 (5.96%)	6 (1.49%)	51 (12.65%)
2. If a friend had a mental health problem, I know what advice to give them to get professional help.	74 (18.36%)	156 (38.72%)	103 (25.56%)	20 (4.96%)	3 (0.74%)	47 (11.66%)

MAKS (Part A) Questions	Strongly agree. n (%)	Agree n (%)	Neither agree nor disagree. n (%)	Disagree n (%)	Strongly disagree. n (%)	Don't Know n (%)
3. Medication can be an effective treatment for people with mental health problems.	124 (30.76%)	174 (43.18%)	71 (17.62%)	13 (3.23%)	2 (0.50%)	19 (4.71%)
4. Psychotherapy (for example, talking therapy or counseling) can be an effective treatment for people with mental health problems.	124 (30.77%)	171 (42.43%)	38 (9.43%)	7 (1.74%)	0 0%	63 (15.63%)
5. People with severe mental health problems can fully recover.	91 (22.58%)	163 (40.45%)	90 (22.33%)	12 (2.98%)	6 (1.49%)	41 (10.17%)
6. Most people with mental health problems go to a health care professional to get help*	40 (9.92%)	131 (32.51%)	97 (24.07%)	82 (20.34%)	24 (5.96%)	29 (7.20%)
MAKS (Part B) Questions	Strongly agree. n (%)	Agree n (%)	Neither agree nor disagree n (%)	Disagree n (%)	Strongly disagree. n (%)	Don't Know n (%)
7. Depression	166 (41.20%)	123 (30.52%)	32 (7.94%)	63 (15.63%)	9 (2.23%)	10 (2.48%)
8. Stress*	67 (16.63%)	110 (27.30%)	72 (17.87%)	92 (22.82%)	33 (8.18%)	29 (7.20%)
9. Schizophrenia	212 (52.61%)	117 (29.03%)	38 (9.43%)	10 (2.48%)	0 (0.0%)	26 (6.45%)
10. Bipolar disorder (manic depression)	67 (16.63%)	98 (24.32%)	111 (27.54%)	43 (10.67%)	22 (5.46%)	62 (15.38%)
11. Drug addiction	65 (16.13%)	62 (15.38%)	92 (22.83%)	96 (23.83%)	57 (14.14%)	31 (7.69%)
12. Grief*	47 (11.66%)	67 (16.63%)	71 (17.62%)	129 (32.01%)	48 (11.91%)	41 (10.17%)

* Revised Question: Where strongly agree reflects the lowest knowledge level and strongly disagree reflects the highest knowledge level (Score=5).

This is a two-part scale. Responses to each statement included in Part A, which measures stigma-related mental health knowledge, and part B, which measures the familiarity and recognition of mental health conditions.

4.3 Levels of mental health knowledge

The mean and standard deviation of the total score were 21.8 ± 2.92, respectively. The minimum calculated score was 13 while the maximum score was 29.

For the purposes of this analysis, based on the total scores of the MAKS scales, the 25th, 50th, and 75th percentiles were considered as cut-off points for low, medium, and high scores, respectively.

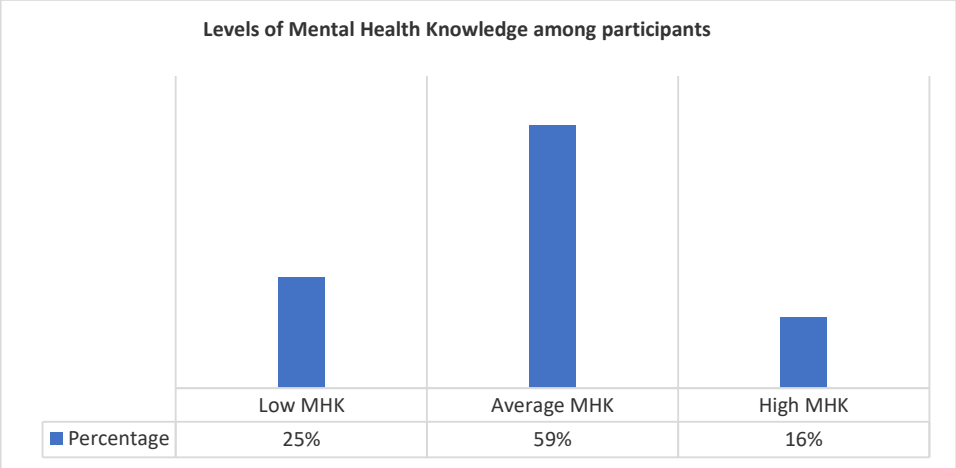

Fig. 1: Levels of Mental Health Knowledge among participants as assessed by MAKS.

A higher score of Mental Health Knowledge (MHK) toward mental health illness was found in 16% of the participants while 59% of the participants had a medium level of MHK, and 25% had a low level.

4.4 Perceived devaluation and discrimination scale.

Table 3: Perceived devaluation and discrimination scale (PDD) responses' frequencies, n=403

PDD Questions	Strongly agree. n (%)	Agree n (%)	Neither agree. nor disagree. n (%)	Disagree n (%)	Strongly disagree. n (%)	Don't Know n (%)
1. Most people would be close friends with a person who once had a severe mental illness. *	44 (10.9%)	110 (27.3%)	107 (26.6%)	44 (10.9%)	13 (3.2%)	85 (21.1%)
2. Most people believe that a person who has a severe mental illness is just as intelligent as anyone else. *	47 (11.7%)	105 (26.1%)	76 (18.8%)	59 (14.6%)	13 (3.2%)	103 (25.6%)
3. Most people believe that a person who has been treated for severe mental illness is just as trustworthy as anyone else. *	49 (12.2%)	138 (34.2%)	66 (16.4%)	57 (14.1%)	15 (3.7%)	78 (19.4%)
4. Most people would accept a person who has had severe mental illness as a teacher in a school. *	44 (10.9%)	112 (27.8%)	46 (11.4%)	81 (20.1%)	51 (12.7%)	69 (17.1%)
5. Most people believe that receiving treatment for severe mental illness is a sign of personal failure.	39 (9.7%)	87 (21.6%)	85 (21.1%)	107 (26.6%)	48 (11.9%)	37 (9.2%)
6. Most people will not hire a person who has been hospitalized for severe mental illness to take care of their children, even if he or she had been well for some time.	75 (18.6%)	131 (32.5%)	71 (17.6%)	56 (13.9%)	18 (4.5%)	52 (12.9%)
7. Most people think less of a person who has been treated for severe mental illness.	63 (15.6%)	141 (35.0%)	63 (15.6%)	80 (19.9%)	21 (5.2%)	35 (8.7%)
8. Most employers will hire a qualified person even if he or she has been treated for severe mental illness. *	52 (12.9%)	132 (32.8%)	83 (20.6%)	40 (9.9%)	15 (3.7%)	81 (20.1%)

PDD Questions	Strongly agree. n (%)	Agree n (%)	Neither agree. nor disagree. n (%)	Disagree n (%)	Strongly disagree. n (%)	Don't Know n (%)
9. Most employers would prefer to hire someone who does not have a history of severe mental illness.	49 (12.2%)	102 (25.3%)	67 (16.7%)	64 (15.9%)	27 (6.7%)	94 (23.3%)
10. Most people I know would treat a person who has been treated for severe mental illness the same way they treat everyone else. *	55 (13.6%)	116 (28.8%)	84 (20.8%)	72 (17.9%)	14 (3.5%)	62 (15.4%)
11. Most young women would be reluctant to date a man who has been treated for severe mental illness.	115 (28.5%)	133 (33.0%)	60 (14.9%)	55 (13.6%)	11 (2.7%)	29 (7.2%)
12. Most people think that a person who has been hospitalized for severe mental illness is dangerous and unpredictable.	85 (21.1%)	134 (33.3%)	39 (18.1%)	52 (12.9%)	20 (5.0%)	73 (9.7%)

* Revised Question: Where strongly agree reflects a high PDD score (5) and strongly disagree reflects a low PDD Score (1)

This is a 12-items scale that measures the stigmatizing attitudes toward people with mental disorders. A higher PDD score indicates lower stigmatizing attitudes.

The mean and standard deviation of the total score were 35.52 ± 7.3. The minimum calculated score was 12 while the maximum score was 56.

For the purposes of this analysis, and based on the total scores of PDD scales, the 25th, 50th, and 75th percentile were considered as the cut off points for low, medium, and high scores, respectively.

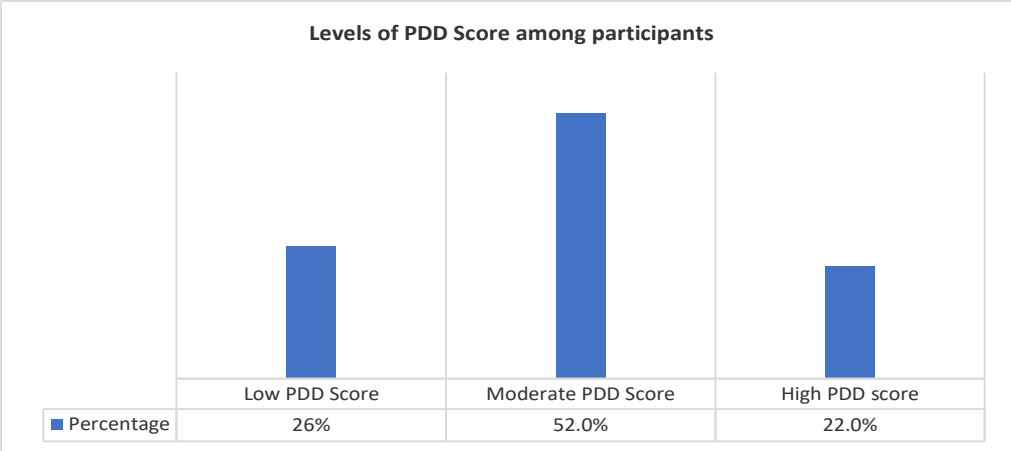

Fig. 2: Levels of PDD score among the participants.

A higher score on the PDD scale (low stigmatizing attitude against patients with mental illnesses) was found in 22% of the participants whereas, 52% of the participants had a medium level of PDD score (moderate stigma), and 26% had a low level of PDD score (high stigmatizing attitude).

4.5 Relationship between MAKS and PDD

Table 4: Correlation between MAKS and PDD mean total scores (n=403)

Variables	**Perceived Devaluation and Discrimination (PDD) Mean Score**	
	R	*p*
Mental health knowledge (MAKS) Mean Score	0.277	<0.001**

**Correlation is highly significant

Table 4 shows that there is a statistical highly significant positive correlation (0.277, p <0.001) between the PDD mean score and the MAKS mean score. Thus, high mental health knowledge has a significant positive correlation with low stigmatizing attitude.

5. Discussion

Out of the 403 participants, only 3.2% of them reported that they had been diagnosed with mental disorders. Comparing this percentage to the average prevalence of mental health disorders (15.54 %) in Saudi Arabia (GBD, 2016) this may reflect the reluctance in seeking professional help as they may they feel uneasy or ashamed or believe that seeking help is a sign of weakness or failure.

5.1 In terms of mental health knowledge (MAKS score) and its correlation with sociodemographic characteristics

The MAKS mean total score was 21.82 ± 2.92. This was similar to the findings of a study conducted in Jeddah city in the Kingdom of Saudi Arabia (KSA) in 2020 involving 600 participants (Ibrahim et al., 2020) which revealed that the MAKS mean total score was 22.34 ± 3.06. Other studies conducted in Ethiopia and, New Zealand had a MAKS mean total score of 21.43 and, 21.6, respectively (Abbay et al., 2018 ; Deverick et al., 2017). The current study found that participant s aged between 40–59 years are associated with lower mental health knowledge. This result is similar to the study in New Zealand which indicated similar results as it found that mental health knowledge is lower in older participants compared with younger participants (p = .01) (Deverick et al., 2017)**.**

The findings of this study revealed that "male participants have higher mental health knowledge score than female participants." This is congruent with the result of a study from Ethiopia (Girma et al., 2013) which suggested that male participants have significantly better mental health knowledge than female participants. Contradictory to this result, Swedish and Chinese studies (Björkman et al., 2007; Li et al., 2018) revealed that they didnot find any differences with respect to the participants' gender regarding mental health knowledge.

Around 59% of the participants had moderate knowledge and 16% had high knowledge, which indicates that about 75% of the participants have information and awareness about mental health. The percentage of the high mental health knowledge group in this study is less than the percentage in the study conducted at Lebanon (33.0%), which categorizes the levels of mental health knowledge according to the same cut-off points (Abi Doumit et al., 2019) and New Zealand where high MHK score was found in 21.0% of the participants. The difference in percentage may be due to the difference in the sample size in both studies.

In addition, the present study found that participants' with a history of mental health disorder or having a relationship with a person with a mental health disorder had significantly high mental health knowledge score. This result is congruent with the results of the research conducted in New Zealand in 2015 (Deverick et al., 2017) and Lebanon in 2019 (Abi Doumit et al., 2019). All these studies revealed that "respondents who indicated that they had a mental health problem themselves or knew someone with a mental health problem, were associated with a statistically significant higher total knowledge score on the MAKS."

Positive recognition of mental illnesses toward schizophrenia (81.63%) and depression (71.7%) was high among the participants. This is higher than the results of the study conducted in Riyadh in, 2016 (Dawood and Modayfer, 2016) where the results were 65.3% and 67.2% for schizophrenia and depression, respectively. About 43.9% of the participants falsely identified stress as a type of mental health illness. A higher result (48.5%) was reported by Ibrahim et al. In Jeddah in, 2020 (Ibrahim et al., 2020)**.**

5.2 Perceived devaluation and discrimination scale score and sociodemographic characteristics

The participants displayed negative attitudes toward patients with mental illnesses (PWMI). More than half of the participants (78 %) had negative attitudes toward PWMI, 26% of them had a high stigmatizing attitude, and about 52% had a moderate stigmatizing attitude. This is similar to the results of the study from Jeddah conducted in 2020, which stated that "a high percentage of the participants still showed negative attitudes toward PWMI. More than half of the participants still have pessimistic and autocratic attitudes toward them" (Ibrahim et al., 2020)**.**

The study found that participants aged above 60 years had significantly lower perceived devaluation and discrimination score (higher stigmatizing attitude) than the other participants. This finding is similar to the results from a study in Jeddah (Ibrahim et al., 2020), which revealed that younger participants had more positive attitudes toward mentally ill patients compared to older ones. Furthermore, this finding is identical to the results from other studies conducted in Singapore (Yuan et al., 2016), Slovakia (Letovancová et al., 2017), and with the results of Ethiopia (Reta et al., 2016)**.**

No significant correlation was revealed between gender and stigma attitude behavior in our study; this result is similar to the findings of a New Zealand study (Deverick et al., 2017) but it was contradictor to the studies from Indonesia (Hartini et al., 2018) and Kuwait (Al-Awadhi et al., 2017), which suggested that females are more empathetic, open-minded, positive and display less stigma (Buizza et al., 2017).

Furthermore, this study revealed that participants with primary education had significantly lower stigma score (high stigmatizing attitude) than the others. Our finding agreed with the results of a Jeddah study, which revealed that people with a university degree or above displayed a more positive attitude towards PWMI than

others (Ibrahim et al., 2020). The study conducted in Singapore (Yuan et al., 2016) also revealed that "lower education was also found to be consistently associated with more negative attitudes to mental illness."

The study revealed there was no significant association between stigma attitude and the marital status of participants. This is contradictory with the Jeddah (Ibrahim et al., 2020), and Singapore (Yuan et al., 2016) studies, which revealed that married participants had significantly more socially restrictive attitudes toward PWMI.

Participants diagnosed with mental health disorder or those who have a relationship with a person with mental health issues have significantly lower stigma (positive attitude) toward patients with mental disorders. This is similar to the findings of an other study conducted in Riyadh, KSA (Dawood and Modayfer, 2016), which stated that "having a family member diagnosed with mental illness and knowing any person diagnosed with mental illness were significantly correlated with the attitude towards mental illness and persons with mental illnesses" in addition to the other studies from Slovakia (Letovancová et al., 2017) and Taiwan (Song L-Y et al., 2005) which revealed the same results. In contrast, a Jeddah study (Ibrahim et al., 2020) suggested the absence of such a significant association.

5.3 Relationship between stigma as measured by the perceived devaluation and discrimination scale and mental health knowledge scores:

This finding indicated that there were statistically significant positive correlations between the PDD score and the MAKS score, where increasing the levels of awareness about mental health illness was associated with lower stigma toward patients with such issues. A similar result was reported from the Jeddah and Indonesia studies (Ibrahim et al., 2020; Hartini et al., 2018) as they revealed that an increase in knowledge was significantly associated with improving attitudes toward patients with mental illnesses.

6. Conclusion And Recommendations

6.1 Conclusion:

About 75% of the participants had information and knowledge about mental health. Nearly 59% of them had moderate knowledge whereas only 16% had a high level of knowledge. The participants had high familiarity and recognition of schizophrenia, depression, and grief while they showed low familiarity with drug addiction and stress, and they had a neutral response toward bipolar disorder. Higher level of mental health knowledge was associated with young age, male gender, students, and participants with mental disorders or having a relationship with mental health patients. A high percentage of the participants (78%) still exhibited negative attitudes toward patients with mental illnesses. Such a negative attitude was predominantly associated with older participants, those with only primary education, and housewives. In addition, participants who had experienced mental disorders or had a relationship with such patients are substantially associated with positive attitude toward patients with mental illnesses. There is a significant positive correlation between high mental health knowledge and positive stigma attitude.

6.2 Recommendations

A variety of events can be designed to promote public education and awareness on mental health disorders .
Anti-stigma intervention programs are needed to reduce the stigma toward PWMI.
Educational programs can be delivered through mass media to help the general population reduce stigma toward PWMI. Also, Future prospective studies are required.

7. Study Strengths and Limitations

7.1 Strengths

- This is a cross-sectional survey conducted in a randomly selected sample of 50% of the PHC centers located in the city of Hail, Saudi Arabia. The study is designed to provide an initial overview of the current knowledge and attitudes of adults in Saudi Arabia toward people with experience of mental health disorders and is not intended to be an exhaustive examination of all issues concerning discrimination related to mental distress in Saudi Arabia.
- This study assessed the public knowledge and attitudes toward mental health disorders and its demographic correlation among the Saudi population visiting the PHC centers using a validated Arabic version of the standardized tools.
- The study highlights certain important demographic correlations with mental health stigma and knowledge that can be targeted when designing future public mental health literacy campaigns in this population.

7.2 Limitations

Hail is a university town, and its population of Saudi citizens has above average levels of educational

achievement, which limits the generalizability to the general population of Saudi Arabia.

The study does not provide any insight into the extent to which those who experience mental distress are discriminated against (related to their mental health).

Conflict of interest

All authors declare that they have no conflicts of interest.

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