



## RESEARCH ARTICLE

### MEDICAL STUDENTS ATTITUDE TOWARD PSYCHIATRY IN UMM AL-QURA UNIVERSITY: A CROSS-SECTIONAL STUDY

Anas Sarhan<sup>1</sup>, Aqeel Alkhiri<sup>2</sup>, Ahmad Maqadmi<sup>2</sup>, Maher Alhazmi<sup>3</sup> and Mawaddah Bahuwyrith<sup>2</sup>.

1. Department of Internal Medicine, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia.
2. Internship, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia.
3. Research Center, King Abdullah Medical City, Makkah, Saudi Arabia.

#### Manuscript Info

##### Manuscript History

Received: 11 December 2016

Final Accepted: 16 January 2017

Published: February 2017

##### Key words:-

Attitude toward psychiatry, interns, medical students,

#### Abstract

**Background:** Several studies worldwide reported negative attitude toward psychiatry from medical students and interns. Despite the increasing demand for psychiatry and mental health services, psychiatrists' numbers are still low, and the field of psychiatry is still attracting a lower number of medical students.

**Objective:** This study aims to measure the attitude of medical students and interns toward psychiatry in Umm Al-Qura University medical college, Makkah, Saudi Arabia.

**Method:** A Cross-sectional study. A web-based Attitude Toward Psychiatry (ATP-30) questionnaire was distributed among randomly chosen interns and 6th-year medical students, who had completed their psychiatry course and rotation, and to fourth and 5th-year medical students, who did not have any previous exposure to psychiatry.

**Results:** A total of 335 participants completed the survey, of which 168 were males, and 167 were females. Among them, only 53 are considering psychiatry as a career, while 193 did not, and 89 are not sure. The participants showed an overall positive attitude with the mean scoring of  $98.09 \pm 12.22$  on the ATP-30 questionnaire, with male participants showing more positive attitude ( $99.65 \pm 11.48$ ) than female participants ( $96.44 \pm 12.79$ ). The most neutral responses were about how facts in psychiatry are just vague speculations, how their undergraduate training in psychiatry was valuable, and that psychiatry cannot be taught effectively because it is so amorphous. Negative attitude was observed in the areas concerning the choice of psychiatry as a future career and viewing psychiatric hospitals as little more than prisons. Positive attitude toward areas on the validity of psychotherapy, viewing psychiatry as a respected branch of medicine, attention toward mental illness, and the humanity of the mentally ill. Significant differences based on gender were observed in the areas measuring attitude toward psychiatric patients, psychiatric illness, psychiatry, and psychiatrists. The prior exposure to psychiatry teaching and practice did not seem to affect the attitude.

**Conclusions:** Interns and students overall showed neutral to positive ATP. Proper evaluation and subsequent modification to the current

medical curriculum, with more clinical exposure and engagement with psychiatrists working in the field, may be needed to improve the attitude of interns and students toward psychiatry and mental illness.

*Copy Right, IJAR, 2017,. All rights reserved.*

### **Previous publication:-**

The abstract for this study was published on the website of the Journal of Psychology & Psychotherapy as it was presented in the 3rd International Conference on Psychiatry & Psychosomatic Medicine held on December 05-06, 2016 Dubai, UAE.

### **Introduction:-**

Mental health is an important parameter in measuring the wellbeing and quality of life of human beings, and the World Health Organization (WHO) defines it as a "state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community"[1]. It's a common concern that psychiatry, psychiatrists, psychiatric illness and psychiatric patients are under a negative prejudice despite several facts including the increasing prevalence of mental illnesses in adult and pediatric population which is estimated to be around 10% [1], it will be the leading cause of disability by 2020 (exceeding AIDS and heart attack) [2], it will also be among the top causes of economic burden (especially depressive disorders) [3], as patients with mental health problems represent around 20% of all visits to primary health care centers [4].

Psychiatry is attracting fewer medical graduates, with an associated shortage of qualified doctors in some high-income countries [8,34]. Attitudes toward psychiatry and mental illness among undergraduate medical students seemed to be key factors in determining their choice of psychiatry as a career and willingness to treat psychiatric disorders in clinical practice. The traditional beliefs toward psychiatry and mental illness tend to be deeply imprinted and are therefore not easily erased by modern education [6].

In Saudi Arabia, even though psychiatry and mental health have experienced a significant development in the past decades, the number of psychiatrists is still low (3.0 per 100,000) [5], and amongst them, the number of Saudi psychiatrists is even lower [6]. Also, a scarce number of newly qualified physicians intend to choose psychiatry as a future career [6].

Several articles explored the attitude of undergraduate medical students toward psychiatry, psychiatrists, and mental illness. In a systematic review done in 2013 by Lyons, in which 32 studies were selected and analyzed, only one of them is from Saudi Arabia; the results showed that overall medical students have a positive attitude toward psychiatry, but interest in psychiatry as a career is still low. Also, it revealed that the stigma toward mental illness had been raised as an influential factor in negative views that students have toward psychiatry [7].

The last published study from Saudi Arabia regarding this topic was by El-Gilany *et al.* in 2010 at Al-Hassa Medical College, where 56 of the fifth year male students during the 2007-2008 academic year were surveyed before and after psychiatry training. The study showed a favorable attitude expressed by students after they had some experience in the discipline. Also, the findings revealed that the common myths about psychiatry have significantly changed after the participants completed their training. This study was limited by a small sample size (54 medical students), and their focus on male students only.

The importance of conducting such studies that measure the attitude of medical students and interns toward psychiatry is that it well reflects, directly or indirectly, upon the quality of future health care as their beliefs and misconceptions will have an impact not only on future medical students but also on society as a whole.

### **The primary objectives of this study are to:-**

- Understand the attitude of medical students and interns toward psychiatry in general.
- To identify their attitude in major areas of psychiatry including psychiatric patients and illness, psychiatry as a career, psychiatric treatment and hospitals, and psychiatric knowledge and teaching.

**The secondary objective is to:-**

- Investigate gender differences, and to compare them if any.

**Material and Method:-**

This is a cross-sectional study, conducted at Umm Al-Qura University, college of medicine, Makkah, Saudi Arabia. A web-based Attitude Toward Psychiatry (ATP-30) questionnaire with basic sociodemographic information was distributed among randomly selected students. The randomization was insured by contacting the students whose serial numbers were obtained with the help of a web-based program at <https://www.randomizer.org>. A number of 418 medical students and interns were contacted. The population consisted of interns and 6<sup>th</sup>-year medical students, who had completed their psychiatry course and rotation, and 4<sup>th</sup> and 5<sup>th</sup>-year medical students, who did not have any previous exposure to psychiatry, from them a total of 335 completed the questionnaire (response rate 80.14 %). The ethical approval was sought from the Research Ethics Committee of the Faculty of Medicine, Umm Al-Qura University.

The ATP-30 is a five points Likert scale that records the responses of the subject (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree). The scale was originally designed and validated by Burra *et al.* [8], on a sample of Canadian medical students. Since that time, the scale has been used in multiple international studies to measure the attitude of medical students toward psychiatry worldwide, and it has proven to be a valid measure. Since the entire medical curriculum in Umm Al-Qura University was designed in English, and it's delivered to the students in English, it was safe to assume that there won't be a language barrier when we use the scale in its original English language as the students have had at least studied three years in English. The scale consisted of 30 statements, 15 of them were negatively stated with the other 15 were positively stated. The positively stated items (i.e., questions 4, 5, 9, 12, 14, 15, 18, 20, 23, 25, 27–29) were reversed by subtracting the score from 6. The instrument showed good internal consistency for this study (Cronbach's alpha = 0.810).

**Results:-**

The total responses received included 335 students and interns, from them 168 (50.14 %) were males, and 167 (49.85 %) were females. Among the respondents, 85 were interns, 84 were 6<sup>th</sup>-year medical students, 75 were 5<sup>th</sup>-years medical students, and 91 were 4<sup>th</sup>-year medical students.

The scores of the total sample are shown in Table 1, which are categorized based on subgroups and gender. The results show a significant difference when comparing males and females in the areas concerning psychiatric patient, psychiatric illness, and the areas measuring attitude towards psychiatrist and psychiatry. Overall, both males and females showed a positive attitude toward psychiatry; however, males showed a more positive attitude when compared to females. Although not shown in the table, no significant differences were found when the attitude of students from different years was compared ( $p$ -value = 0.122).

The responses to the statements that depict the ATP patients, psychiatric illness, psychiatrists, and psychiatry are shown in Table 2, in part 1: the first and third statements are indicative of a positive attitude, while the second and fourth statements are indicative of a neutral to a negative attitude. However, in part 2: all the statements are suggestive of a neutral to a negative attitude except statement number 6 and 11 which showed a positive attitude.

Table 3 statements are representing the responses of the ATP treatment, hospitals, psychiatric knowledge, and teaching, all of which showing a neutral to negative attitude, except statement number 3 and 8 in part 1 of this table. Table 4 shows the eleven statements having a significant difference based on gender, on which  $X^2$  with  $P < 0.05$  was applied for a statement to be significant.

**Table 1:-** Scores on ATP 30, its subgroups and its association with gender

	Total Sample			Male			Female			Significance	
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	$t$	$p$ -value
<b>Total</b>	98.09	12.22	67-129	99.65	11.48	71-129	96.44	12.79	67-125	2.393	0.017
<b>Subgroup1</b>	14.09	9.92	6-20	14.87	2.70	6-20	13.30	2.92	6-19	5.087	<0.001
<b>Subgroup2</b>	36.09	5.60	21-50	36.81	5.53	21-50	35.36	5.59	23-49	2.376	0.018
<b>Subgroup3</b>	25.40	3.58	15-36	26.69	3.35	19-34	25.10	3.79	15-36	1.508	0.132
<b>Subgroup4</b>	22.26	3.39	13-32	22.26	3.37	13-34	22.25	3.41	16-32	0.036	0.971

**Table 2:-**Scores in statements depicting ATP patients, psychiatric illness; psychiatrists and psychiatry of ATP 30 (Subgroup 1 and 2)

Statement	Total		Mean	SD
	Positive	Rest (neutral+negative)		
Part 1: Statements toward psychiatric patients and psychiatric illness (subgroup 1)				
Psychiatric illness deserves at least as much attention as physical illness.	221	114 (60+54)	2.14	1.216
It is interesting to try and unravel the cause of psychiatric illness	164	169 (124+45)	2.44	1.065
If we listen to them, psychiatric patients are just as human as other people.	202	133 (74+59)	2.27	1.190
Psychiatric patients are often more interesting to work with than other patients.	94	241 (132+109)	3.07	1.089
Part 2: Statements toward psychiatrists and psychiatry (Subgroup 2)				
Psychiatry is unappealing because it makes little use of medical training.	116	219 (159+60)	3.25	1.016
Psychiatrists talk a lot but do very little.	134	200 (113+87)	3.25	1.145
I would like to be a psychiatrist.	61	273 (91+182)	3.63	1.266
On the whole, people taking up psychiatric training are running away from participation in real medicine.	73	262 (130+132)	3.27	1.064
Psychiatrists seem to talk about nothing but sex.	132	203 (130+73)	4.06	1.115
Psychiatry is a respected branch of medicine.	203	131 (70+61)	2.28	1.234
Psychiatrists tend to be at least as stable as the average doctor.	100	235 (178+57)	2.80	0.830
Psychiatrists get less satisfaction from their work than other specialists.	102	233 (143+90)	3.06	0.987
If Iwere asked what I considered to be the three most exciting medical specialties, psychiatry would be excluded.	123	212 (79+133)	2.95	1.317
At times it is hard to think of psychiatrists as equal to other doctors.	135	200 (115+85)	3.28	0.930
The practice of psychiatry allows the development of really rewarding relationships with people.	192	143 (96+47)	2.36	1.093

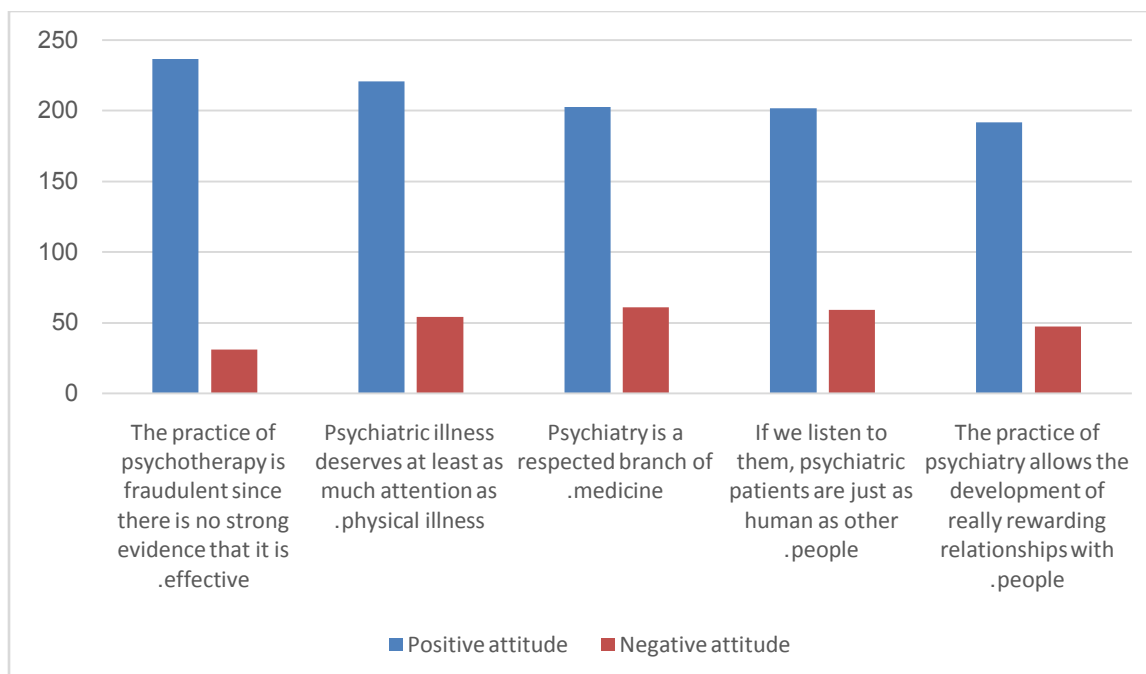
**Table 3:-**Scores in statements depicting ATP treatment, hospitals; psychiatric knowledge and teaching of ATP 30 (Subgroup 3 and 4)

Statement	Total		Mean	SD
	Positive	Rest (neutral+negative)		
Part 1: Statements toward psychiatric treatment and hospitals (Subgroup 3)				
Psychiatric Hospitals are little more than prisons.	94	240 (107+133)	2.82	1.162
It is quite easy for me to accept the efficacy of psychotherapy	134	200 (132+68)	2.72	1.017
The practice of psychotherapy is fraudulent since there is no strong evidence that it is effective.	237	97 (66+31)	3.37	1.040
With the forms of therapy now available, most psychiatric patients improve.	130	205 (149+56)	2.75	0.868
Psychiatric treatment causes patients to worry too much about their symptoms.	81	254 (132+122)	2.85	0.990
There is very little that psychiatrists can do for their patients.	158	177 (95+82)	3.30	1.010
Psychiatric Hospitals have a specific contribution to make to the treatment of the mentally ill.	101	234 (177+57)	2.84	0.852
In recent years psychiatric treatment has become quite effective.	158	177 (117+60)	2.63	0.912

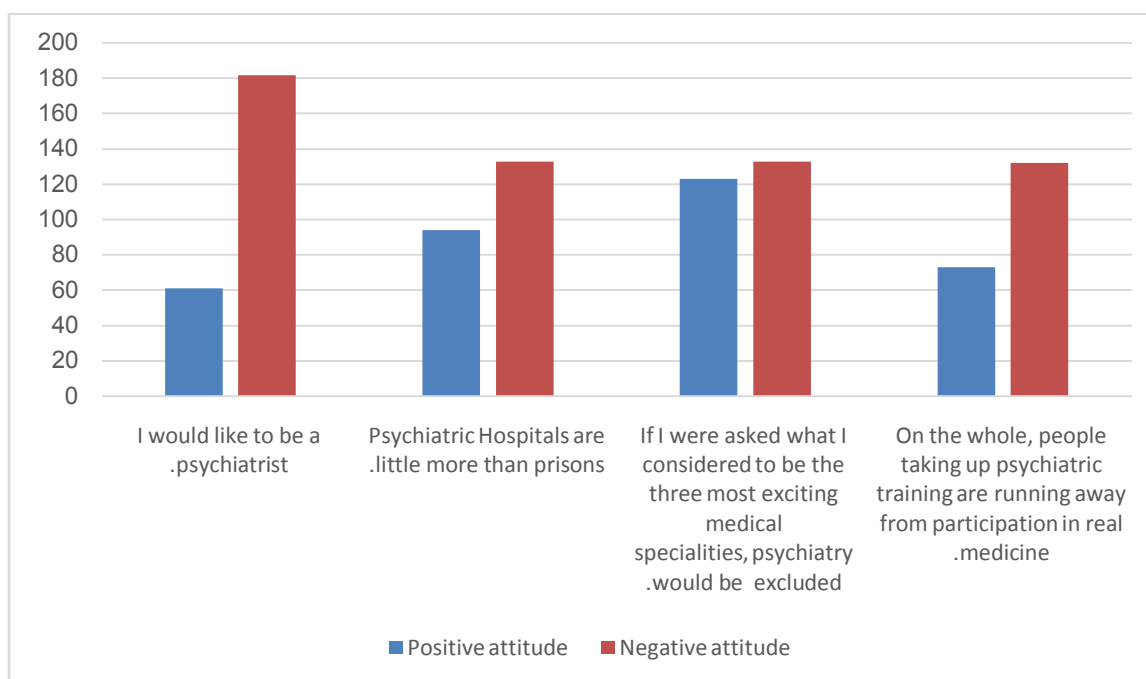
<i>Part 2: Statements toward psychiatry knowledge and teaching (Subgroup 4)</i>				
Psychiatric teaching increases our understanding of medical and surgical patients.	147	188 (109+79)	2.69	1.119
The majority of students report that their psychiatric undergraduate training has been valuable.	57	278 (184+94)	3.14	0.844
Psychiatry has very little scientific information to go on.	126	209 (125+84)	3.21	1.013
favorable	162	173 (99+74)	2.59	1.099
Psychiatry is so unscientific that even psychiatrists can't agree as to what it's basic applied sciences are.	119	216 (161+55)	3.28	0.930
Most of the so called facts in psychiatry are really just vague speculations.	55	279 (205+74)	3.07	0.738
Psychiatry is so amorphous (unstructured) that it cannot really be taught effectively.	84	250 (180+70)	3.09	0.819

**Table 4:-**Statements of ATP 30, depicting significant difference in responses of male and female interns

Statement	Total			Male			Female			t	p-value
	Agree	Neutral	Disagree	Agree	Neutral	Disagree	Agree	Neutral	Disagree		
I would like to be a psychiatrist.	61	91	182	27	41	100	34	50	82	2.294	.026
Psychiatrists seem to talk about nothing but sex.	73	130	132	1	34	133	30	32	104	5.137	<.001
Psychiatry is a respected branch of medicine.	203	70	61	114	40	14	89	30	47	-3.967-	.001
Psychiatric illness deserves at least as much attention as physical illness.	221	60	54	119	30	19	102	30	35	-2.914-	.006
Psychiatric treatment causes patients to worry too much about their symptoms.	122	132	81	70	67	31	52	65	50	-2.723-	.007
It is interesting to try and unravel the cause of psychiatric illness	164	124	45	96	59	13	68	65	32	-3.634-	<.001
These days psychiatry is one of the most important parts of the curriculum in medical schools.	162	99	74	89	49	30	73	50	44	-1.825-	.047
In recent years psychiatric treatment has become quite effective.	158	117	60	88	62	18	70	55	42	-3.322-	.002
If we listen to them, psychiatric patients are just as human as other people.	202	74	59	117	33	18	85	41	41	-4.297-	<.001
The practice of psychiatry allows the development of really rewarding relationships with people.	192	96	47	107	50	11	85	46	36	-2.898-	.011
Psychiatric patients are often more interesting to work with than other patients.	94	132	109	54	68	46	40	64	63	-2.121-	.030



**Figure 1:-** Statements having most negative responses.



**Figure 2:-** Statments having most negative responses.

### Discussion:-

The medical education in Saudi Arabia consist of 6 years of academic and clinical education, with the 1<sup>st</sup> year being part of the preparatory year of all health colleges, and 1-year mandatory medical internship after graduation. In Umm Al-Qura University, the exposure to psychiatry during this 6-years period is limited to only three weeks course in the 5<sup>th</sup> year, of which two weeks are devoted to classical teaching and one week only of clinical exposure for both inpatients and outpatients at psychiatric hospitals in the region. Regarding behavioral sciences, it has not been introduced formally as a separate subject -in contrast to other universities in Saudi Arabia- during the pre-

clinical years [6]. This lack of exposure to psychiatry and behavioral sciences may in part be a contributing factor to the low interest of medical students toward psychiatry as a career [10,7].

Table 1 shows the mean, SD, and range of scores, categorized based on subgroups and gender, which has shown a significant difference when comparing males and females in the areas concerning psychiatric patient, psychiatric illness, and the areas measuring attitude towards psychiatrist and psychiatry. Overall, both males and females showed a positive attitude toward psychiatry; however, males were more positive. In a systematic review done by Lyons published in 2013 [7], where 32 studies from 22 countries were reviewed, the majority of the studies found an overall positive students' attitude toward psychiatry; these results were comparable with ours, this was also noted in other studies conducted in other Arab countries. In two studies one done in Egypt by Shalaby in 2015 [9] and the other one in Bahrain by Al-Ansari and Al-Sadadi in 2002 [11], females showed more positive attitude than males, which is similar to the results found by Khan *et al.* in Pakistan in 2008 [12]. This is different from the results of this study, in which females were lagging behind males; Parikh *et al.* reported similar results in research done in India in 2014 [13].

Table 2 shows the responses to the statements that depict the ATP patients, psychiatric illness, psychiatrists, and psychiatry. In part 1: the first and third statements are indicative of a positive attitude (65.97 % feel that psychiatric illness deserves at least as much attention as physical illness, and 60.29 % feel that psychiatric patients are just as human as other people), while the second and fourth statements are indicative of a neutral to negative attitude (49.56 % feel that it is interesting to try and unravel the cause of psychiatric illness, and only 28.06 % feel that psychiatric patients are often more interesting to work with than other patients). Similar results were reported by some studies [13,14,15].

However, in part 2: 9 out of 11 statements showed neutral to negative attitude (65.37 % had neutral to negative attitude about the use of medical training in psychiatric practice, 81.49 % don't consider psychiatry as a future career (Figure 2), 69.55 % believe that psychiatry is less satisfactory than other branches of medicine, 63.28 % don't consider psychiatry to be an exciting speciality, 70.14 % think that psychiatrists are not as stable as other doctors, 78.20 % believe that psychiatrists are running away from real medicine, 59.70 % felt that psychiatrists talk too much and do little, and 59.70 % don't always think of psychiatrists as equal doctors), only two statements had positive attitude (60.59 % believe that psychiatry is a respected branch of medicine, and 57.31 % believe that practice psychiatry allows a rewarding relationship with people). These results point out toward a clear inconsistency between the overall positive attitude toward psychiatry and the possible choice of psychiatry as a future career. This pattern of disharmony has also been reported by other studies from different countries [16,17,18], while Shalaby's study has reported fewer inconsistencies among the Egyptian students' sample [9]. This indicates that students and interns do not view psychiatry as an intellectually challenging specialty and that psychiatrists are having low fulfillment rates and less rewarding and satisfactory outcomes since they are not able to provide a big help to the mentally ill as compared to the other medical specialties [18]. A number of possibilities could point to the reason behind this attitude; some studies have raised the stigma toward mental illness to be an influential factor in these negative views [19,20,21,22,23]. Other studies are pinning it on the poor-quality teaching of psychiatric curriculum and the limited exposure to clinical psychiatric settings [10,17].

Table 3 statements are representing the responses of the ATP treatment and hospitals in part 1, while psychiatric knowledge and teaching are in part 2. In part 1; the students and interns showed a neutral-to-negative attitude toward psychiatric hospitals (71.64%), with the majority (39.70%) agreeing that psychiatric hospitals are little more than prisons, while 31.94% were indecisive and only 28.05% disagreeing with this statement. On the other hand, the majority (52.80) were undetermined when it came to the psychiatric hospitals' specific contribution to the treatment of the mentally ill, while 30.15% had a favorable attitude in this matter and 17.05% did not think positively about it. In the statements that are concerned with psychiatric treatment, a generally-positive attitude (47.16%) was observed regarding the psychiatrists' ability to help their patients. When asked about psychotherapy, the majority (70.74%) looked at psychotherapy as an evidence-based practice rather than a fraudulent one (Figure 1), but only 40% felt that it is easy for them to accept the efficacy of psychotherapy. When it came to the other forms of psychiatric treatments, most of the students and interns (44.47%) were not determined about psychiatric patients' improvement with the now available forms of therapy, while 38.80% thought positively about it, and the majority (75.82%) had a neutral to negative attitude about psychiatric treatment causing the patients to worry more about their symptoms. However, the majority (47.16%) thought that psychiatric treatment had become more efficient in recent years. Two other studies by Melhiet *al.* have reported similar results [25,26]. In part 2: The majority of students and intern had a

neutral attitude toward psychiatric knowledge, 62.38%, and 83.28% showed a neutral to negative attitude toward the scientific knowledge of psychiatry, and that most facts in psychiatry are just vague speculations, respectively. These results show that medical students and interns have a negative perception of psychiatry as an unscientific discipline and somehow different from other medical disciplines in terms of training and outcome [24], similar results were reported in an Australian study [25]. The emphasis on the biological aspects of psychiatric disorders has been proposed to play a positive role to enhance the attitude toward psychiatry [9,32], as well as the integration of psychiatry into the general hospital settings [33]. Similarly, the attitude toward psychiatric teaching was neutral to negative as well, 56.11 % do not think that psychiatric teaching increases their understanding of medical or surgical patients. Only 48.35 % acknowledged psychiatry as an important part of the curriculum, with the majority (62.38 %) didn't consider their undergraduate psychiatric training to be valuable, which may be due to the fact that 74.62 % believe that psychiatry is so amorphous that it cannot be taught effectively. Although not examined in this study, several studies have pointed to the positive effect of psychiatric clerkship or attachment among medical students and interns [27,28,29]. In a study done in Saudi Arabia [6], the students showed a favorable attitude after they have had some experience in psychiatry. A recent study conducted by Reddy *et al.* [30] in India, to investigate the effect of increasing the duration of psychiatry posting by 15 days, the students showed more favorable attitude when they had more exposure to psychiatric posting. However, psychiatry rotations influence on medical students might be limited when it comes to choosing psychiatry as a future career as evident by Shen *et al.* study [31].

Table 4 shows the eleven statements having a significant difference based on gender. Males had a more positive attitude in most of the statements especially considering psychiatry as a respected branch of medicine, the growing efficacy of psychiatric treatment in recent years, and with their attitude toward psychiatric patient and illness. However, females expressed a more positive attitude regarding choosing psychiatry as a future career, and that psychiatric treatment causes patients to worry too much about their symptoms.

Many studies have been conducted worldwide investigating the attitude of medical students and interns toward psychiatry. The results of these studies showed a lacuna in the knowledge and attitude toward the main psychiatric areas. However, this issue has not been addressed properly in Saudi Arabia with only limited number of studies. Therefore, it is suggested that a nationwide study with a larger sample size from different medical colleges and regions be conducted with the primary focus being the influencing factors for such attitude, with more elaborate and open-ended questions. Furthermore, more studies of the efficacy of the current psychiatric curriculum should be implemented to improve the existing teaching structure and subsequently the attitude toward psychiatry.

### **Conclusion:-**

Overall interns and students showed a neutral to a positive attitude toward psychiatry. However, a general lack of interest in psychiatry as a future career was observed. This lack of interest may be attributed to many factors, but a potential culprit is the poor-quality teaching of psychiatric curriculum and the lack of exposure to clinical psychiatric settings, in addition to the already existing stigma toward mental illness. Thus, undergraduate programs should focus on re-evaluating and subsequently modifying the current medical curricula, with more clinical exposure and engagement with psychiatrists and psychiatric patients to improve the attitude of interns and students toward psychiatry and mental illnesses.

### **Acknowledgments:-**

The authors would like to thank Abdulaziz Marhoomi, Abdullah Zain Aldeen, Khawla Al-Hazmi, Nizar Almghrabi, Dania Jei, Ghufra Merza and Abdulrahman Mashhor for their facilitation in data collection.

### **Conflict of interest:-**

The authors have no conflict of interest to declare.



**References:-**

1. World Health Organization. World Health Report 2001—Mental health: New understanding, new hope. Geneva: World Health Organization. World Health Organization (2009) Mental health resilience and inequalities. World Health. 2001.
2. Mathers C, Fat DM, Boerma JT. The global burden of disease: 2004 update. World Health Organization; 2008.
3. World Health Organization. Investing in Mental Health. Geneva: WHO; 2003.
4. Murthy RS, Khandelwal S. Undergraduate training in Psychiatry: World perspective. Indian journal of psychiatry. 2007 Jul 1;49(3):169.
5. Koenig HG, Al Zaben F, Sehlo MG, Khalifa DA, Al Ahwal MS, Qureshi NA, Al-Habeeb AA. Mental health care in Saudi Arabia: Past, present and future. Open Journal of Psychiatry. 2014 Apr 15;4(02):113.
6. El-Gilany AH, Amr M, Iqbal R. Students' attitudes toward psychiatry at Al-Hassa medical college, Saudi Arabia. Academic Psychiatry. 2010 Jan 1;34(1):71-4.
7. Lyons Z. Attitudes of medical students toward psychiatry and psychiatry as a career: a systematic review. Academic Psychiatry. 2013 May 1;37(3):150-7.
8. Burra P, Kalin R, Leichner PW, Waldron JJ, Handforth JR, Jarrett FJ, Amara IB. The ATP 30—a scale for measuring medical students' attitudes to psychiatry. Medical education. 1982 Jan 1;16(1):31-8.
9. Shalaby AS. Attitude of an Egyptian Sample of Medical Students Toward Psychiatry in Comparison to Previous Studies Using the Attitudes Towards Psychiatry (ATP-30) Questionnaire. Academic Psychiatry. 2016 Apr 1;40(2):213-7.
10. Lingeswaran A. Psychiatric curriculum and its impact on the attitude of Indian undergraduate medical students and interns. Indian journal of psychological medicine. 2010 Jul 1;32(2):119.
11. Al-Ansari A, Alsadadi AA. Attitude of Arabian Gulf University medical students towards psychiatry. Education for health (Abingdon, England). 2001 Dec;15(2):180-8.
12. Khan SA, Yousafzai AU, Mehra RK. Attitude of medical students towards psychiatry in NWFP. Journal of Ayub Medical College, Abbottabad: JAMC. 2007 Dec;20(3):44-6.
13. Parikh NC, Sharma PS, Chaudhary PJ, Gandhi HA, Banwari GH. Study of attitude of interns toward psychiatry: A survey of a tertiary level hospital in Ahmedabad. Industrial psychiatry journal. 2014 Jul;23(2):143.
14. Yadav T, Arya K, Kataria D, Balhara YP. Impact of psychiatric education and training on attitude of medical students towards mentally ill: A comparative analysis. Industrial psychiatry journal. 2012 Jan 1;21(1):22.
15. PRATHAPATHY TJ, ANNATHATHY D. Attitudes of tomorrow's doctors' towards psychiatry and mental illness. Natl Med J India. 2001;14:355-9.
16. Ndeti DM, Khasakhala L, Ongecha-Owuor F, Kuria M, Mutiso MV, Syanda MJ, Kokonya D. Attitudes toward psychiatry: a survey of medical students at the University of Nairobi, Kenya. Academic Psychiatry. 2008 Mar 1;32(2):154-9.
17. Pailhez G, Bulbena A, Coll J, Ros S, Balon R. Attitudes and views on psychiatry: a comparison between Spanish and US medical students. Academic Psychiatry. 2005 Mar 1;29(1):82-91.
18. Kuhnigk O, Strebel B, Schilauke J, Jueptner M. Attitudes of medical students towards psychiatry. Advances in health sciences education. 2007 Feb 1;12(1):87-101.
19. Balon R, Franchini GR, Freeman PS, Hassenfeld IN, Keshavan MS, Yoder E. Medical students' attitudes and views of psychiatry. Academic Psychiatry. 1999 Mar 1;23(1):30-6.
20. Laugharne R, Appiah-Poku J, Laugharne J, Shankar R. Attitudes toward psychiatry among final-year medical students in Kumasi, Ghana. Academic Psychiatry. 2009 Jan 1;33(1):71-5.
21. Ogunsemi OO, Odusan O, Olatawura MO. Stigmatising attitude of medical students towards a psychiatry label. Annals of General Psychiatry. 2008 Aug 25;7(1):15.
22. Dixon RP, Roberts LM, Lawrie S, Jones LA, Humphreys MS. Medical students' attitudes to psychiatric illness in primary care. Medical education. 2008 Nov 1;42(11):1080-7.
23. Mukherjee R, Fialho A, Wijetunge A, Checinski K, Surgenor T. The stigmatisation of psychiatric illness. The Psychiatrist. 2002 May 1;26(5):178-81.
24. Lunn B. Recruitment into psychiatry: an international challenge.
25. Malhi GS, Coulston CM, Parker GB, Cashman E, Walter G, Lampe LA, Vollmer-Conna U. Who picks psychiatry? Perceptions, preferences and personality of medical students. Australian and New Zealand Journal of Psychiatry. 2011 Oct 1;45(10):861-70.
26. Malhi GS, Parker GB, Parker K, Kirkby KC, Boyce P, Yellowlees P, Hornabrook C, Jones K. Shrinking away from psychiatry? A survey of Australian medical students' interest in psychiatry. Australian and New Zealand Journal of Psychiatry. 2002 Jun 1;36(3):416-23.

27. Holm-Petersen C, Vinge S, Hansen J, Gyrd-Hansen D. The impact of contact with psychiatry on senior medical students' attitudes toward psychiatry. *Acta Psychiatrica Scandinavica*. 2007 Oct 1;116(4):308-11.
28. Xavier M, Almeida JC. Impact of clerkship in the attitudes toward psychiatry among Portuguese medical students. *BMC medical education*. 2010 Aug 2;10(1):56.
29. Johnson N, Lyons D. Psychiatrists: an endangered species? A study to observe attitude of fifth year medical students to psychiatry and to compare change in same after a psychiatry posting during medical school. *Irish Journal of Psychological Medicine*. 2012;29(02):91-5.
30. Reddy S, Reddy P, Mishra K. Impact of duration of psychiatry rotation on medical interns' attitude towards psychiatry. *Open Journal of Psychiatry & Allied Sciences*. 2017;8(1):18-23.
31. Shen Y, Dong H, Fan X, Zhang Z, Li L, Lv H, Xue Z, Guo X. What Can the Medical Education Do for Eliminating Stigma and Discrimination Associated with Mental Illness among Future Doctors? Effect of Clerkship Training on Chinese Students' Attitudes. *The International Journal of Psychiatry in Medicine*. 2014 Apr;47(3):241-54.
32. Baldessarini RJ. The impact of psychopharmacology on contemporary psychiatry.
33. Wig NN. Psychiatric units in general hospitals-right time for evaluation. *Indian J Psychiatry*. 1978;20:1-5.
34. Thornicroft, G., Rose, D., & Mehta, N. (2010). Discrimination against people with mental illness: what can psychiatrists do?. *Advances in psychiatric treatment*, 16(1), 53-59.