

Psychiatrists' Attitudes Toward Artificial Intelligence: Tasks, Job Security and Benefits

Ahmed Malalla Al-Ansari, MBCHB, FRCPC* Mohammed Khalid Al-Medfa, MD**

ABSTRACT

Background: Researchers have predicted that artificial intelligence (AI) and machine learning (ML) will affect the future practice of physicians and their job security including the mental health industry.

Objective: The objective of this study is to assess local psychiatrists' opinions regarding the future impact of AI/ML on their daily 10 key practice tasks in addition to determine the benefits and drawbacks of AI/ML.

Methods: The design was cross-sectional and included psychiatrists (n = 62) registered in Bahrain, who participated via a Google survey. Independence samples t-test or Pearson Chi² Statistics were computed to detect differences between groups.

Results: Out of 52 eligible participants, there were 43 survey respondents (81.3%). Only 4 (9.3%) of respondents felt it was likely that AI/ML will replace average physicians in providing empathetic care. Physicians speculated that AI/ML is likely to replace average physicians in tasks such as establishing prognosis 29 (67%), synthesizing information to reach diagnosis 31 (72.1%) and obtaining medical/psychiatric histories 22 (51.2%); however, they were uncertain regarding other tasks, such as performing medical and mental status examinations 32 (74.4%) and providing empathetic care 39 (81.4%). The main benefits of AI/ML were perceived to be facilitating a quicker diagnosis 30 (69.8%) and replacing the physician role 33 (76.7%). The study findings were not related to age group, gender, seniority or level of AI/ML knowledge.

Conclusions: Our findings provide useful data on the impact of AI/ML on job security as well as its benefits. Participants were worried that machines will replace human skills.

Keywords: Artificial intelligence, Attitude, Bahrain knowledge, Benefits, Psychiatrists

INTRODUCTION

Psychiatric disorders are among the leading causes of morbidity and mortality, while stigma, a shortage of trained professionals and the low budget allocated to mental health limit the provision of adequate care^{1,2}. The mental health industry is facing a challenge regarding the future increased use of AI, where AI is defined as "the science and engineering of making intelligent machines"³. The application of AI in medicine is forecasted through two main branches: one, also called machine or deep learning, is virtual and involves mathematical algorithms improving learning; the other is physical and involves the use of robots and medical devices⁴. People's rapid use of advanced technologies and the future challenges of deep learning could pose a threat to doctors' work⁵. Some AI experts, however, take a "between" stance—i.e., they feel the role of doctors will become a joint team effort between physicians and machines⁶. Despite the debate, little attention has been paid to the attitudes of physicians, including mental health professionals, regarding the future role of AI and how it will affect their job security and practices.

A global survey of 791 psychiatrists, mostly from the developed world, found that 83% of psychiatrists believed that it was unlikely that future

technology could provide empathetic care, and 3.8% felt it would make their jobs obsolete⁷. Of the studied radiologists, 77% reported favorable attitudes toward the adoption of AI, and 89% were not afraid of losing their jobs⁸. Another global survey of pathologists revealed a high percentage of acceptance of AI, with only 17.6% concerned about their future job security⁹. Blease conducted a study in the United Kingdom among general practice physicians (GPs) and found them doubtful about the ability of AI to provide empathetic care¹⁰. Another study found that 60% of neurosurgeons used AI for the purpose of predicting outcomes¹¹. Furthermore, 90% of contacted physicians from different specialties in Germany expected the future of medicine to include a mix of human intelligence and AI¹². A study from Malaysia evaluating physicians' attitudes toward AI found differences in the expectations and concerns regarding the legal aspects of AI application¹³. Only one study was detected in the Arabian region, and it targeted physicians, nurses and technologists in Riyadh's main hospitals. The study revealed a moderate degree of acceptance of AI, with 77.75% of respondents showing concern about their future jobs¹⁴. The present authors are aware of one recent local study that used mathematical assessment to determine clients' satisfaction with inpatient psychiatric services¹⁵.

* Professor, Department of Psychiatry
College of Medicine and Medical Sciences
Arabian Gulf University, Kingdom of Bahrain
E-mail: ahmedm.alansari@gmail.com

** Demonstrator, Department of Internal Medicine
College of Medicine and Medical Sciences,
Arabian Gulf University, Kingdom of Bahrain
E-mail: almedfa.95@gmail.com

In this study, we investigated the opinions of psychiatrists regarding the influence of AI on their daily clinical work, its benefits and its effects on job security. In Bahrain, the use of AI in the healthcare industry and specifically in psychiatry is in its earliest stage. It is the first time that the attitude of psychiatrists toward A.I was investigated in Bahrain and in the Arabic Region.

METHODS

Design and Participants: The study design was cross-sectional and adopted the survey technique. The sampling technique was self-selection convenient sampling. The survey was conducted between October and December 2021. The sample consisted of registered psychiatrists in Bahrain following a registry from the National Health Regulatory Authority and Psychiatric Hospital (n = 62). The inclusion criteria identified psychiatrists practicing medicine, from all sexes and nationalities, who currently had five years' experience following medical school graduation. Retired and academic psychiatrists were excluded. The sample size was not calculated, but the aim was to include 80% of psychiatrists who fit the criteria. Nine psychiatrists were excluded because of retirement or inactive practice, and the total number was reduced to 53. The number of psychiatrists who returned the survey was 43, yielding a response rate of 81%.

Procedure: The survey was administered online using Google Forms. Prior to participation, the participants were informed about the aims, and informed consent was obtained. Participation was voluntary, and participants could withdraw from the study at any stage. The results were presented and discussed in-group to ensure confidentiality. The survey was pilot tested for clarity with six psychiatrists. Ethical approval was obtained from the Ethical and Research Committee, College of Medicine and Medical Sciences, Arabian Gulf University.

Instrument and Data Collection: A validated questionnaire from a global study was used after obtaining formal permission via e-mail from the original authors⁷. The online survey consisted of the following three parts: 1) demographic and AI knowledge, 2) attitudes toward the future use of AI and 3) AI benefits and drawbacks. The first part included questions regarding age group, gender, years of experience and the self-rating of AI knowledge. The second part dealt with future AI applications in ten tasks that psychiatrists practice in their daily clinical work. The responses to each task question involved a three-point response (likely, unlikely and cannot judge).

The second part included the following tasks: provide documentation, provide empathetic care to patients, interview psychiatric patients in a range of settings, analyze patient information to detect homicidal thoughts, analyze patient information to detect suicidal thoughts, synthesize patient information to reach diagnosis, formulate personalized medication and/or therapy treatment plans for patients, evaluate when to refer patients to outpatient versus inpatient treatments, analyze patient information to predict the course of mental health conditions (prognosis), and perform mental status examinations. The third part of the survey included the following items: affect life expectancy through easier access to health care, cut down the time needed for diagnosis, impact people with disability and mental health issues, affect employment rates in the healthcare industry, and perform with a lower error rate than human physicians.

Data Analysis: The Statistical Package for the Social Sciences (SPSS) version 28 was used for the data analysis. Categorical data were presented using frequency and percentages, while continuous data were analyzed using the mean and standard deviation. Pearson's chi-squared test or t-tests were used to assess the differences between the groups. A P-value < 0.05 was considered statistically significant.

RESULTS

Sample Demography: The number of female psychiatrists slightly exceeded that of males (55.8% vs. 44.2%). The main age group distribution was in the group aged 41–50 years (39.5%), followed by the group aged 31–40 years (23.3%); only 2% were under 30 years. Of the participants, 24 (44.2%) had 20 years or more of experience, and 23 (41.9%) reported an average level of AI knowledge (Table 1).

Table 1: Demographics of respondents

Item	N		
Gender	Male	19	44.2
	Female	24	55.8
Age	20–30	2	4.7
	31–40	10	23.3
	41–50	17	39.5
	51–60	6	14.0
	60+	8	18.6
Years of experience	6–10	8	18.6
	11–15	6	14.0
	16–20	10	23.3
	20+	19	44.2
Knowledge of AI (Self-reported)	Excellent	4	9.3
	Above average	9	20.9
	Average	18	41.9
	Below average	10	23.3
	Poor	2	4.7

The results of questions regarding the AI replacement of specific psychiatric task results are shown in Table 2. Most respondents 35 (81.4%) felt it was unlikely that AI would be able to provide empathetic care. Similarly, most psychiatrists considered it unlikely that AI could replace them in terms of mental status examination 32 (74.4%). Furthermore, respondents felt it was likely that AI would be able to replace human skills in tasks such as evaluating homicidal thoughts 15 (34.9%), evaluating suicidal thoughts 19 (44.1%), obtaining medical history 22 (51.2%), referring individuals to inpatient vs. outpatient services 18 (41%), formulating personalized medication and treatment plans 16 (37.2%), establishing prognoses 29 (67.4%), reaching diagnoses 31 (72.1%), performing medical/mental examinations 7 (16.3%) and providing documentation 12 (27%).

Table 2: A.I. replacement of a specific psychiatric task

Tasks	Answer	N	%
Provide documentation	Likely	21	48.8
	Unlikely	12	27.9
	Cannot judge	10	23.3
Provide empathetic care	Likely	4	9.3
	Unlikely	35	81.4
	Cannot judge	4	9.3
Formulate personalized medication and/or treatment	Likely	13	30.2
	Unlikely	16	37.2
	Cannot judge	14	32.6
Refer to inpatient vs. outpatient	Likely	14	32.6
	Unlikely	18	41.9
	Cannot judge	11	25.6
Establish prognosis	Likely	29	67.4
	Unlikely	8	18.6
	Cannot judge	6	14.0

Detect criminal behavior or assault	Likely	15	34.9
	Unlikely	19	44.2
	Cannot judge	9	20.9
Detect self-harmful behavior	Likely	19	44.2
	Unlikely	15	34.9
	Cannot judge	9	20.9
Synthesize information to reach diagnoses	Likely	31	72.1
	Unlikely	7	16.3
	Cannot judge	5	11.6
Perform physical/mental examination	Likely	7	16.3
	Unlikely	32	74.4
	Cannot judge	4	9.3
Obtain medical history	Likely	22	51.2
	Unlikely	15	34.9
	Cannot judge	6	14.0

The potential benefits and risks of future technologies/AI (Table 3).

Table 3: Potential benefits and risks of future technologies

Item	Answer	N	%
Affect life expectancy through easier access to healthcare	Likely	27	62.8
	Unlikely	7	16.3
	Cannot judge	7	16.3
Cut down the time needed for diagnosis	Likely	30	69.8
	Unlikely	5	11.6
	Cannot Judge	8	18.6
Positive impact on people with disability and mental health issues	Likely	19	44.2
	Unlikely	11	25.6
	Cannot judge	13	30.2
Affect employment rates in healthcare industry	Likely	33	76.7
	Unlikely	8	18.6
	Cannot judge	2	4.7
Perform with a lower error rate than human physicians	Likely	11	25.6
	Unlikely	16	37.2
	Cannot judge	16	37.2

Most respondents 27 (62.8%) were certain that future AI application is likely to affect life expectancy through easier access to healthcare, 30 (69.8%) indicated that AI will cut down the time needed for diagnosis and 33 (76.7%) replied that it will affect employment rates in the healthcare industry. Fewer respondents 11 (26.5%) believed that AI will perform with a lower error rate than human physicians, and 19 (44.2%) mentioned that AI is likely to have a positive impact on people with disabilities and mental health problems. Only 10 (25.6%) believed that the healthcare system in Bahrain is equipped to deal with the future implementation of AI.

The analysis of data by gender, age (< 40 years and > 40 years), experience (> 20 years vs. < 20 years) and AI knowledge (poor and below average vs. average, above average, and excellent) with regard to tasks, benefits and drawbacks yielded no statistical differences.

DISCUSSION

A survey of psychiatrists' attitudes toward and knowledge of AI in terms of clinical practice tasks and benefits revealed mostly positive

attitudes; however, almost three-quarters of respondents showed their concern that AI will affect employment in the mental healthcare industry, and almost 70% mentioned that AI will cut down the time needed for diagnosis. One-third said that AI is likely to affect life expectancy through easier access to healthcare, while another quarter believed that machines will perform with a lower rate than average human physicians. These findings were not related to the participants' gender, age groups, seniority or level of AI knowledge. In reviewing the literature, two studies were found that examined psychiatrists' attitudes toward AI: a study reported by Dorwaiswamy⁷ that included 791 psychiatrists from 22 countries, mostly in the developed world, excluding the Middle East, and a second by Reffien¹³. In Malaysia, another developed country. In comparison to global psychiatrists, the local psychiatrists reported similar attitudes in tasks such as providing empathic care, detecting homicidal behavior and referral to outpatient vs. inpatient services; however, local psychiatrists showed more positive attitudes toward tasks, formulating personalized treatment, detecting self-harm and establish prognosis, but less positive attitudes regarding providing documentation and performing mental status examinations. The Malaysian study targeted several clinical and technical physicians, including psychiatrists, from a tertiary medical facility. The study was not national, and the findings were not reported separately by psychiatrists. The attitudes toward AI varied in favor of technical-oriented physicians.

Local psychiatrists in the present study revealed similar concerns to those in a study by Abdulla in Saudi Arabia about future job security, in spite of the fact that the comparison study included nurses and technicians in addition to physicians¹⁴. A minority of local psychiatrists (25%) felt that the country's infrastructure is equipped to deal with the application of AI at present. There is a deficiency of studies on AI in psychiatry, both locally and in the region, to attempt a fruitful comparison. Only one study used AI in psychiatry locally, measuring the satisfaction of hospital clients in an in-patient setup¹⁵.

Study Strengths and Limitations

The main strength of the study comes from the novelty of the topic, with this being the first time that the attitudes of psychiatrists toward AI have been examined locally and in the Arabic region. In addition, the survey was characterized by a high response rate of psychiatrists from the national registry (81.3%). However, the survey depended on the participants' cooperation and for the discussion is sharpened by comparing our research with the research of others and existing theories honesty in completing the survey, which could affect its accuracy. Similarly, some participants may have frequently selected "Cannot judge" when in doubt.

CONCLUSIONS

A survey of local practicing psychiatrists in Bahrain showed mostly favorable attitudes toward AI when compared to a similar study among psychiatrists from developed countries. The respondents were uncertain that AI is likely to provide empathetic care, provide documentation, allow doctors to obtain mental status history and perform examinations. Most respondents believed that AI is likely to affect their job security in the future. Many psychiatrists felt AI will cut down the time needed for diagnosis and will affect patients' life expectancy through easier access to information. A minority reported that the health system is ready for the implementation of AI now and in the near future. The study should be coupled with another study or focus group to understand the reasons behind participants' opinions regarding the tasks, benefits and drawbacks identified in the study.

This study provides a foundation for more in-depth studies regarding each task and may encourage health workers to investigate possible applications of AI in health administration, clinical practice and continued quality improvement for e.g., which patient requires admission to the hospital judging from his profile, which patient will be considered a high risk for suicide and choosing the correct medication for each diagnosis.

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Competing Interest: None.

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