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Mortality in a Moroccan psychiatric hospital

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Abstract

Background and objectives Even though the statistics have shown that patients with severe mental disorders such as schizophrenia and bipolar disorder are most likely to die 10 to 20 years earlier than the general population, the information on mortality in the Moroccan psychiatric setting is significantly limited. In the course of this study, we aim to describe the clinical characteristics and death-related data of the 18 patients who died over 10 years.

Methods It is a retrospective and descriptive study of deceased inpatients within the Department of Psychiatry of the University Hospital Center, Ibn Rochd. The study extended over a period of 10 years, from January 1, 2011, to January 1, 2021.

Results The study identified the death cases of 18 patients over 10 years, with a mortality rate of 1.99/1000, in which the average age of death is around 46,4 years. Men represented 55.6% of the deceased patients. 44.4% were diagnosed with schizophrenia, and 39% had medical comorbidity. The most common causes of death were cardiac causes (22.2%), followed by neuroleptic malignant syndrome (16.7%). Suicide, sudden death, and digestive diseases accounted for 11.1% of all causes.

Conclusion People with mental disorders experience a high mortality rate. In this study, cardiovascular diseases and the neuroleptic malignant syndrome were the main causes of death, which requires close monitoring of high-risk psychiatric patients with comorbid cardiac problems.

Keywords Mortality rate, Death cause, Serious mental illness, Prevention

Introduction

Researchers have consistently reported that people with mental disorders have a higher mortality risk compared to the general population. In the case of severe mental disorders (schizophrenia and other psychotic disorders, bipolar disorders, and moderate to severe depression), studies have shown premature mortality of 10 to 20 years [1, 2]. Life expectancy for those with severe mental illness is around 15 years lower for women and 20 years lower for men compared to the general population [3].

The excessive rate of mortality cannot only be related to the increased risk of death due to suicide or other

injuries; communicable and non-communicable diseases (NCDs) account for most premature mortality [4].

Non-communicable diseases are one of the most important public health challenges worldwide. As in 2016, an estimated 41 million death cases worldwide were caused by non-communicable diseases, most of which (23 million deaths) were specifically attributed to 3 prevalent conditions: cardiovascular diseases, chronic respiratory diseases, and diabetes [5]. However, in NCDs, cardiovascular diseases are the leading preventable cause of early death among people with severe mental illness [6]. A recent systemic review revealed that the mortality rate caused by cardiovascular diseases in Morocco has reached 38%, with ischemic heart disease and stroke being the main events causing death (31.0% and 22.5%, respectively) [7]. Researchers have recognized the importance of increasing the effectiveness of healthcare interventions to decrease the overall mortality rate among this susceptible population [8, 9].

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People suffering from mental disorders are more likely to adapt an adversative health behavior, such as tobacco smoking, substance use, physical inactivity, and poor diet. Which in return leads to the higher rates of chronic medical conditions among this category of patients [10, 11].

Our knowledge of the mortality of people with mental disorders in low- and middle-income countries is limited. The data above is drawn from studies from high-income countries, where there is greater awareness and regular screening of people with mental disorders. It would also be necessary to consider Morocco's reality with its cultural aspects but also to deal with the lack of human and material resources from which our health care system suffers.

The objective of this work is to describe the overall mortality, along with the characteristics related to the deceased patients in the psychiatry department of Ibn Rochd University Hospital in Casablanca over a period of 10 years. These characteristics could be as following identified: socio-demographic characteristics (age, sex, marital status, and the educational background), clinical characteristics (medical, surgical, substance use disorder, and judicial history), family history of mental disorders and/or suicide, psychiatric diagnoses, prescribed treatments such as pharmacological and somatic treatment (electroconvulsive therapy), causes of death, and time between admission and death.

Methods

This is a 10-year retrospective study with a descriptive aim, conducted in the Psychiatric Department of Casablanca University Hospital, Morocco. The department have a capacity of 104 beds. It is responsible for the treatment of patients in the Casablanca-settat region with an estimated population of 6.812 million citizens in 2014. Because of the shortage of psychiatric units in Morocco, the Ibn-Rochd University psychiatric center handle mostly extreme cases. More than 900 patients are admitted annually, and 30 to 40 patients are received every day at the emergency. The majority of patients who are admitted, suffer from schizophrenia, bipolar disorder, or depression.

The study includes data regarding patients being admitted from January 1, 2011, to January 1, 2021. This data was gathered from the files, the hospitalization registers of the departments, the death certificates, and the autopsy reports. Data collection was carried out using a data processing form, based on information in the clinical records.

We included in our study all patients who died during their hospitalization in the Psychiatry Department of the Ibn Rochd University Hospital of Casablanca, whose files were available and complete.

We recorded information regarding the following types charactetistics: socio-demographic, clinical (medical, surgical, toxic, and judicial history), family history of mental disorders and suicide, psychiatric diagnoses, prescribed treatments: pharmacological and somatic treatment (electroconvulsive therapy), causes of death, and time between admission and death.

The data entry and statistical analysis were performed using Google sheet software. The different parameters were calculated and subjected to univariate analysis. The qualitative variables are expressed as percentages. As for the results of the quantitative variables, these are expressed as mean with standard deviation.

The right to direct access to data from the medical records of patients who were hospitalized between January 2011 and January 2021 was granted to us after a request to the head of the Psychiatry Department at the University Hospital of Casablanca, respecting the rules of professional secrecy and anonymity.

Results

9038 patients were admitted from January 1, 2011, to January 1, 2021, into different psychiatric units of the Casablanca Psychiatric Hospital University, in which 18 patients died. The average number of deaths was 1.8 deaths per year with extremes ranging from 1 to 3 deaths per year. The death rate lies by 1.99/1000 admission, while 55.6% of the deceased patients were men. The mean age was 46.4 ± 13.5 sd (standard deviation) with extremes of 24 years and 80 years. 61.1% were aged between 41 and 60ans. 44.4% were married, and 77.8% were unemployed. Among the studied group, the level of education of only 14 patients was known, of which 27% have a high level of education (Table 1).

Fourteen patients had an associated physical illness, 3 patients had diabetes, and 2 patients had hypertension. Also, 15 patients had their surgical history noted. Substance use disorder was noted for 12 patients. The prevalence of drug use was 44.4%. Among them, 75% were polysubstance users. 38.8% of the patients were chronic smokers, 27.8% were alcohol users, and 27.8% were cannabis users. As for previous suicidal behavior, 33.3% of the patients had previous suicidal behavior, of which 83.4% of them had suicide attempts and the remaining 16.6% had only suicidal ideation, along with the family history of mental disorders, which 42.9% of the patients had (Table 2).

Most of the patients had three or more hospitalizations in a psychiatric ward (38.9%), and only 27.8% were hospitalized for the first time. Regarding the modality

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Table 1 Sociodemographic characteristics

Category	Sub-category	Number	Percentage (%)
Sex	Male	10	55.6%
	Female	8	44.4%
Age (years)	18–26	1	5.6%
	27–40	4	22.2%
	41–60	11	61.1%
	60+	2	11%
Marital status	Married	8	44.4%
	Single	5	27.8%
	Divorced	2	11.1%
	Data not available	3	16.7%
Educational background	Yes	13	72.1%
	No	1	5.6%
	Data not available	4	22.2%
Profession	Yes	4	12.3%
	No	14	77.8%

Table 2 Clinical characteristics

Category	Sub-category	Number	Percentage
Physical illness	Yes	6	33.4%
	No	11	61.1%
	Data not available	4	22.2%
Surgical history	Yes	1	5 .6%
	No	14	77.8%
	Data not available	3	16.7%
Substance use disorder	Alcool	5	27.8%
	Cannabis	5	27.8%
	Tobacco	7	38.8%
	Psychotropic drugs	1	5.6%
Suicidal behavior in the past	Yes	6	33.3%
	No	12	66.7%
Criminal record (incarceration)	Yes	3	16.7%
	No	15	83.3%
Psychiatric illness in the family	Yes	6	33.3%
	No	8	44.4%
	Data not available	4	22.2%

of hospitalization, 61.1% of the deceased patients were admitted at the request of a relative and 27.8% of hospitalizations were by police requisition. 44.4% of patients had schizophrenia, 33.3% had bipolar disorder, and 11% had drug induce psychosis. 94.4% of these patients were on antipsychotics. 38.9% of deaths happened in the first week of hospitalization. The causes of death recorded were diverse: 22.2% (4 patients) died because of circulatory disease and 16.7% (3 patients) died because of a neuroleptic malignant syndrome (Table 3).

Discussion

This population-based study provides detailed estimates of mortality associated with mental disorders, and the overall mortality in this study was 1.99 deaths per 1000 admissions. The overall mortality is variable in literature, the highest mortality rate is observed in a study by Khamker et al. who observed a mortality rate of 14.7/1000 patients [12], and infectious causes (30.2%) could explain part of the difference in mortality rate compared to our study. The lowest mortality rate was observed in a study conducted in Tunisia in which the rate was similar to ours (2/1000 admissions) [13].

In our departement, and like most Moroccan psychiatric hospitals, we are very strict with the admission of patients with organic causes of mental disease, and that is because of the lack of resources of which our health system suffers, and this could explains in part the low mortality rate in our study.

In this study, there was a slight male predominance (52.9%), which is in line with other studies [12, 14, 15]. Also, 61.1% of the patients had no medical history, and comparable results were found in Ali and colleague's study where 56.5% of patients had no medical history [16]. Indeed, patients with psychotic disorders often have a limited ability to recognize and communicate the symptoms they suffer from, contributing to a lower detection of illness, along with other factors such as exclusion from screening programs and self-neglect [17]. Meanwhile, in Tunisia, in a study by Zgueb et al., 54% of the patients had a medical history; among them, 80% had cardiovascular risk diseases (hypertension, diabetes, dyslipidemia, coronary artery disease, chronic obstructive pulmonary disease) [13].

According to another study by Fulga et al., 17.2% of the patients had hypertension, 15% had heart failure, 8.6% had diabetes, and 4.3% had chronic obstructive pulmonary disease (COPD) [18]. Our base had 3 patients with diabetes and 2 patients with hypertension which are both major cardiovascular factors [19]. Also, inpatients with mental illnesses have been found to have a higher prevalence of diabetes and abnormal glucose metabolism in comparison to the general population. This outcome may be influenced by the utilization of antipsychotic medication [20].

This high prevalence of substance use among deceased patients may be related to the high substance use among patients with mental health issues. Indeed, a study done in the psychiatry department of the Ibn Rochd Hospital showed similar results with a smoking rate of 68%, which reaches 83% in men hospitalized in the mental health care department [21]. People with severe mental illness have higher cardiovascular disease risk factors, such as high smoking rate, sedentary

Table 3 Mortality characteristics in our example

Category	Sub-category	Number	Percentage
Number of hospitalizations	First	5	27.8%
	Second	1	5.6%
	Third or more	7	38.9%
	Data not available	5	27.8%
Method of hospitalization	Voluntary hospitalization	2	11.1%
	Hospitalization at the request of family	11	61.1%
	Hospitalization on police request	5	27.8%
Psychiatric diagnosis	Schizophrenia	8	44.4%
	Bipolar disorder	6	33.3%
	Drug-induced psychosis	2	11.1%
	Dépression	1	5.6%
	Dementia	1	5,6%
Drugs used for the psychiatric disorder before death	Typical antipsychotics	17	94.4%
	Atypical antipsychotics	6	33.3%
	Mood stabilizer	6	33.3%
	Anxiolytics	9	50%
	Antidepressants	2	11.1%
Causes of death	Cardiovascular disease	4	22.2%
	Neuroleptic malignant syndrome	3	16.7%
	Digestive tract disease	2	11.1%
	Suicide	2	11.1%
	Sudden death	2	11.1%
	Choking	2	11.1%
	Unknown	2	11.1%
	Cocaine intoxication	1	5.6%
Length of stay in hospital before death	Less than 7 days	7	38.9%
	7 to 14 days	1	5.6%
	15 to 21 days	4	22.2%
	22 to 28 days	2	11.1%
	29 days or more	4	22.2%

lifestyle, and obesity, as well as metabolic side effects of antipsychotic treatment [4, 22]. Many researchers have observed that people with severe mental illness might have difficulty in reducing or removing modifiable risk factors because of a lack of motivation, poor communication skills, and poor medication compliance, making it challenging to achieve better outcomes [4, 22].

In our study, 44.4% of the deceased patients had a schizophrenic disorder and 33.3% had a bipolar disorder. Similar diagnostic categories have been found in other studies done in Egypt, Nigeria, and India [14, 16, 23]. This result may be due to the profile of the patients hospitalized in the department. Indeed, a study done in the same department to determine the profile of the patients hospitalized showed that 55.4% of the patients had a schizophrenic disorder and 25.2% had bipolar disorder [21]. We also note that alcohol and drug-related disorders are not managed in our department

which explains the absence of those diagnoses in our study.

The high mortality in the first week, as shown in our study, join the result of a study conducted by Osman et al. and another conducted by Shinde et al. which showed respectively that 66.7% and 59.7% of patients die in the first week. This period is crucial because patients are often in the acute phase of their diseases or have new drugs introduced [14, 24].

Natural causes were the leading cause of death in our study, with 22.2% (4 patients) dying due to circulatory disease. This is supported by a meta-analysis of cohort studies conducted on causes of death in patients with mental disorders [25]. Nevertheless, historical data have always been focusing on an overestimation of the rate of non-natural deaths in psychiatric inpatients (suicides, accidents, and homicides). The difference in mortality cannot be attributed to this factor alone [26].

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The most frequent causes of death are different according to the studies. Cardiovascular disease, suicide, and sudden death are frequent causes in several studies [13, 15]. Although cardiovascular disease is the most common cause of death in patients with mental disorders [26], they are less likely to receive specialized interventions [27]. In many cases, people with schizophrenia are not adequately screened and treated for diabetes, dyslipidemia, and high blood pressure [28]. The lack of seeking medical care, even during acute cardiovascular syndromes, represents another significant obstacle [29]. Finally, when patients with severe mental illness develop cardiovascular disease, they experience earlier mortality than patients without mental illness. Indeed, a population-based cohort study of 4.6 million people in Denmark showed that 8.26% of people with severe mental illness died 5 years after their first contact with the healthcare system for heart disease, compared with 2.86% for patients without severe mental illness [29].

Even though neither of our patients had cancer, it seems necessary to remind that cancer is described as a cause of mortality in several studies, perhaps due to the high age of the sample. Thus, the study by CL Charrel showed 12.7% of patients who died from cancer and had an average age at death of 54 years [15]. Another study conducted by Catherine Ha found that 18% of deaths were accountable to cancer and had a mean age at death of 75 years [30]. Screening and diagnostic efforts may also have an impact on these outcomes.

Other studies have shown that infections account for a significant percentage of deaths [24, 31]. This can be explained by self-neglect, apathy, cognitive impairment, drug and alcohol problems, lack of hygiene, homelessness, and poverty, which leads to malnutrition and vitamin deficiencies and increases the risk of infection.

Another factor contributing to the higher mortality rates in this patient group is the intake of some antipsychotic and antidepressant medications which have metabolic side effects [32–35].

Psychiatrists frequently focus on the mental rather than physical health of their patients, rarely undertake physical examinations, and often have poor communication and collaboration with primary care physicians or other clinicians, partly due to the long-standing separation of psychiatric departments from other medical wards or hospitals [36–38]. Conversely, non-psychiatric clinicians frequently have a negative attitude towards people with mental disorders, underestimating the seriousness of their complaints of signs of physical illness.

Conclusion

Mortality is an indicator of health system performance. Thus, the analysis of the causes of death and the risk factors associated with death would make it possible to target primary and secondary prevention and reduce adverse events that could have been avoided by applying prevention measures.

The WHO (World Health Organization) has recently developed international guidelines on how to improve physical health in people with severe mental disorders [39]. According to the WHO, premature mortality is a complex phenomenon resulting from the interaction of several risk factors; therefore, a multilevel approach is needed, in which the different stakeholders involved in health care provision establishes a plan for the long-term management of physical and mental health conditions [40, 41]. The results of this study indicate the need to remove barriers to the integration of medical and mental health care for patients with severe mental illness to reduce excess mortality, which is our long waiting hope, and the beginning of the path.

Limitations

This study was based on the medical files of patients, so it has some lacking information, and it was not possible to contact their families.

Most causes of death were recorded based on the clinic alone, and no further investigations were done. The autopsy was not always performed.

Other studies may be, if conducted prospectively, better at identifying the causes and risk factors of mortality in this vulnerable and specific population.

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Declarations

Ethics approval and consent to participate
The right to direct access to data from the medical records of patients who were hospitalized between January 2011 and January 2021 was granted to us after a request to the head of the Psychiatry Department at the University Hospital of Casablanca, respecting the rules of professional secrecy and anonymity.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

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