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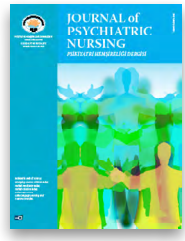

Original Article

The relationship between life expectancy and mental health systems in European countries

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Abstract

Objectives: This study was designed to evaluate the relationship between life expectancy at birth (LEAB) and national mental health systems.

Methods: Retrospective research was conducted using secondary data obtained from the World Health Organization Global Health Observatory database. The study sample consisted of annual data reported by numerous European countries. The secondary data of the independent variables used in the study represented the period of 2013 to 2017, while the secondary data of the dependent variable pertained to 2019.

Results: A greater number of psychiatric hospitals, mental health units, outpatient facilities for mental health, beds for mental health patients (in general hospitals), and mental health physicians and nurses was associated with a greater LEAP ($p<0.05$). The data varied greatly between countries.

Conclusion: These findings reinforce the necessity of conducting reform of mental health policies as needed to ensure that there is adequate provision of care.

Keywords: Health workforce; life expectancy; mental health; mental health services.

What is presently known on this subject?

- Individuals with mental illness have a reduced life expectancy at birth (LEAB) of as much as 10 to 25 years. There is a need to determine the precise causes of premature death and to develop appropriate prevention strategies.

What does this article add to the existing knowledge?

- An adequate number of hospitals, mental health units, outpatient facilities, beds for mental health patients (in general hospitals), and physicians and nurses trained to address mental health concerns can ensure greater access to quality care and increase the LEAB.

What are the implications for practice?

- The results of this study indicate the importance of developing strategies to strengthen the organization of mental health services and the mental health workforce. These efforts will prevent early mortality and increase the LEAB as well as contribute to the quality of life of individuals with mental illness and all of society.

LEAB (life expectancy at birth) is an important public health indicator. This statistic reflects the number of years a newborn may be expected to live if the patterns seen at the time of birth were to remain constant. The LEAB defines the overall mortality rate of a given population for a period of time.[1,2] It is also a demographic index that highlights the impact of deaths occurring in younger age groups,[1,2] and serves as a synthetic indicator used to evaluate the economic and social development and quality of life of a country or region. In its most essential form, it is the average life expectancy of a particular population.[2,3]

The LEAB varies greatly between developed and developing countries[2–4] due to differences in the infrastructure, efficiency, and accessibility of healthcare services, as well as other social and economic conditions, and the existing disease burden.[1,3–6] Population dynamics, social and economic effects, and factors related to the health system should be carefully considered in efforts to evaluate or improve the LEAB.[3]

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Governing bodies typically have goals that seek to reduce the death rate and increase life expectancy.[2] Studies have shown that individuals with mental illness are likely to die earlier than the general population.[1,7–12] The mortality rate has been reported to be 2 to 2.5 times higher in schizophrenia patients, 1.8 times higher in depression patients, and 30% to 50% higher in patients with bipolar disorder than in the general population.[8] A standardized mortality ratio of 4.2 has been reported for individuals with a diagnosis of personality disorder.[1] Mental health diseases have been shown to reduce the LEAB by as much as 10 to 25 years.[8,12] Awareness of the possibility of premature death can contribute to anxiety in individuals diagnosed with mental health disorders.[8,13,14] These facts reinforce the necessity of determining the causes of early mortality in those with mental health disease and developing prevention strategies.[7]

Strategies developed for individuals with mental illness should include identifying and changing individual risk factors and improving access to quality healthcare.[8] The LEAB for individuals with mental illness is closely associated with the effectiveness of social policies and health service delivery;[10] however, these individuals frequently do not receive the same quality of healthcare as the general population.[8] Limited access to quality mental health care, limited access to general health services, limited integration of physical and mental health services, stigma, and discrimination are among the obstacles to improving the LEAB for individuals with mental disorders.[8] It is important that healthcare services be comprehensive and accessible to all in order to meet the goals of improving the health of a population.[2] It has been well established that accessible healthcare services, appropriate standardized health policies, and health education can have a positive effect on the LEAB.[4] The World Health Organization (WHO) Health 21 goals, established as part of a common European Region framework, the Health in All policies, at the 48th European Regional Committee Meeting, includes a target to better serve individuals with mental disorders. The stated aim is "to improve the psychosocial status of people with mental illnesses and to make services more comprehensive and accessible."[15]

The results of this study, which examined the LEAB observed in several different European mental health systems, could serve as useful guidance for policymakers and mental health professionals, particularly to determine priorities in the organization of mental health services and plan for appropriate staffing in this field. It has previously been noted that there is a need for additional scientific studies to provide relevant data in this area.[7,14,16] The present research provides findings that will contribute to the literature and the development of effective policy.

This study was designed to investigate the relationship between the LEAB and mental health systems. Two aspects of the mental health systems were evaluated: (i) characteristics of mental health services organization, and (ii) the size of the mental health workforce. The following research questions were examined:

1. Is there a statistically significant relationship between the LEAB and mental health services organization variables?
2. Is there a statistically significant relationship between the LEAB and mental health workforce variables?

Materials and Method

Ethical Considerations

Ethical approval was not required for this study because the data analyzed were obtained from an open access database.

Study Design

A retrospective research design was used to examine secondary data obtained from the WHO Global Health Observatory database.[17] The database was scanned on June 20, 2020.

Study Participants

The analyses performed included the countries in the WHO European Region group, 1 of 6 WHO regional classifications.[18] The group comprises 53 countries; however, the data for some independent variables of some countries were not available. The inclusion criterion was accessible country data for the relevant variable. Countries with missing data for the relevant variables were excluded from the analysis. Consequently, the number of countries used in the tables varied based on the available data.

Data Collection

The available annual data for each of the European countries included in the study was retrieved. Retzlaff-Roberts et al.[19] stated that when the values of the variables for a single year could not be obtained, previous values could be used in some instances, as in the study of Anderson et al.[20] Therefore, the secondary data of the independent variables used in the study represented the period of 2013 to 2017, whereas the secondary data of the dependent variable represented 2019.

Dependent and Independent Variables

The dependent variable used was the LEAB (years). The independent variables were characteristics of the organization of mental health services and the size of the mental health workforce.

The mental health services organizational variables examined were the number of a) psychiatric hospitals (per 100,000 population), b) mental health units in general hospitals (per 100,000 population), c) mental health outpatient facilities (per 100,000 population), d) beds in psychiatric hospitals (per 100,000 population), and e) beds for mental health patients in general hospitals (per 100,000 population).

The workforce variables analyzed were the number of a) psychiatrists working in the mental health sector (per 100,000 population) and b) nurses working in the mental health sector (per 100,000 population).

Table 1. Descriptive features of the study variables

	n	Median	SE	Min	Max
Mental health services organization					
Mental/psychiatric hospitals	34	0.16	0.02	0.01 (Turkey)	0.59 (Switzerland)
Mental health units in general hospitals	36	0.31	0.08	0.01 (Uzbekistan)	2.65 (Hungary)
Mental health outpatient facilities	33	1.31	0.81	0.05 (Ukraine)	20.48 (Latvia)
Beds in mental hospitals	35	36.72	4.71	5.16 (Turkey)	102.53 (Latvia)
Beds for mental health in general hospitals	35	9.62	3.82	0.37 (Uzbekistan)	85.67 (Hungary)
Mental health workforce					
Psychiatrists working in mental health sector	39	9.87	1.64	1.39 (Tajikistan)	48.04 (Norway)
Nurses working in mental health sector	31	22.83	6.48	1.50 (Tajikistan)	150.25 (Turkey)
Life expectancy at birth	40	78.15	0.62	69.50 (Tajikistan)	83.40 (Switzerland)

n: Number of countries included in the study; SE: Standard error.

Data Analysis

Skewness and kurtosis values and normality tests were employed to evaluate the distribution of the data and revealed that a normal distribution was not present. Therefore, the relationship between the dependent and independent variables was assessed using Spearman correlation analysis. IBM SPSS Statistics for Windows software (IBM Corp., Armonk, NY, USA) was used to perform the analysis of the data. A $p<0.05$ value was accepted as significant.

Results

Descriptive features of the variables used in the study are presented in Table 1. While the number of psychiatric hospitals and mental health units in general hospitals per 100,000 members of the population was similar in the European Region, the number of mental health outpatient facilities varied substantially (0.05-20.48). There were also consequential differences between countries in the number of beds in both types of hospitals. The number of physicians per 100,000 residents varied between 1.39 and 48.04 and the number of nurses ranged between 1.50 and 150.25. The LEAB in the regional group ranged from 69.50 to 83.40 years (Table 1).

Table 2. Relationship between the variables of mental health services organization and the LEAB

		Life expectancy
Mental/psychiatric hospitals	n	34
	r	0.417*
	p	0.014
Mental health units in general hospitals	n	36
	r	0.493**
	p	0.002
Mental health outpatient facilities	n	33
	r	0.457**
	p	0.007
Beds in mental hospitals	n	35
	r	-0.044
	p	0.801
Beds for mental health in general hospitals	n	35
	r	0.444**
	p	0.008

*Correlation is significant at 0.05 (2-tailed); **Correlation is significant at 0.01 (2-tailed). LEAB: Life expectancy at birth.

Mental Health Systems

The results were grouped under 2 headings: (i) mental health services organization and (ii) mental health workforce

Mental Health Services Organization

The relationship between the mental health services organization variables and the LEAB is provided in Table 2. There was a statistically significant and positive relationship between the LEAB and the variables of the number of psychiatric hospitals, mental health units in general hospitals, mental health outpatient facilities, and beds for mental health patients in general hospitals (Table 2).

Table 3. Relationship between the mental health workforce variables and the LEAB

		Life expectancy
Psychiatrists working in mental health sector	n	39
	r	0.591*
	p	0.000
Nurses working in mental health sector	n	31
	r	0.618*
	p	0.000

*Correlation is significant at 0.01 (2-tailed). LEAB: Life expectancy at birth.

Mental Health Workforce

The relationship between mental health workforce variables and the LEAB is displayed in Table 3. There was a statistically significant and positive relationship between the LEAB and the number of psychiatrists and nurses working in the mental health sector (Table 2).

Discussion

The life expectancy of individuals with a mental illness is significantly lower than that of the general population.[1,7–12] Therefore, a thorough evaluation of factors such as adverse drug effects and poor lifestyle, as well as the diagnostic and therapeutic efficacy specific to medical conditions needed to increase life expectancy in this patient group is warranted.[12] This study examined individuals with mental illness according to the LEAB, mental health system characteristics, and mental health workforce variables. The findings indicated that a greater number of institutions providing mental health services, beds for mental health patients, and professionals providing mental health services was associated with a higher LEAB.

A study conducted in England suggested that true universal access to healthcare through the national health service remains an unattained goal. Services are not equally available due to factors including the provision and use of services, which likely affects the LEAB.[21] The persistent health inequalities between individuals with a mental illness and the rest of the population, and the higher mortality rate in this group[10] has not been sufficiently studied.[7,16] A literature review indicated that the present study appears to be the first to examine the LEAB in individuals with mental illness in terms of mental health service organization and workforce variables.

LEAB is associated with the better health standards of developed and developing countries.[4,5,7] The analysis of country data used in this study indicated that the difference between the minimum and maximum values of the independent variables (mental health outpatient facilities, beds in psychiatric hospitals, beds for mental health patients in general hospitals, psychiatrists and nurses working in the mental health sector) was very high (Table 1). Equality in the provision of and access to health services[22] is necessary to increase the LEAB of individuals with mental illness, and improved conditions are required to meet this goal in many locations,[10] which is an important indicator of the need for policy reform.

Barriers to health service delivery negatively affect the quality of healthcare and decrease the LEAB.[11] The number of mental hospital beds in a country is a representation of the capacity of the mental health system to provide mental health services for those who need help most.[23] In this study, mental health services were evaluated using the number of psychiatric hospitals and beds for mental health patients. It was observed that a larger number of institutions and beds providing mental health services was associated with an increased LEAB (Table 2). Improving health standards and equitable access to health services are among the principles of the WHO Health 21 goals.[15] A recent study also noted that a low number of beds allocated to mental health was associated with economic inequality and reduced levels of national welfare and investment in mental hospitals.[23] A notable finding of the study was the lack of a relationship between the number of beds in mental health hospitals and the LEAB. This may be explained by the growing pattern of transitioning mental healthcare services from hospital-centered models to community-based models in most high-income countries, which has resulted in changes in the number of beds in mental health hospitals.[10,23,24] Metcalfe and Drake[23] pointed out that the number of mental health hospital beds in a given country is not a suitable indication of the capacity of a mental health system to care for those most in need of assistance. Several factors, including the annual number of inpatients, should be taken into account in addition to a simple count of the number of beds.

Our analysis also demonstrated that an increase in the number of professionals providing mental health services was associated with an increase in the LEAB (Table 3). A large workforce of trained professionals with the capacity to provide optimal healthcare services, including support for healthy lifestyle choices, such as diet and appropriate medication administration,[11] as well as public efforts to improve physical health[22] are needed to increase the LEAB of individuals with mental illness. Support for healthcare professionals and policies guided by research can help to ensure that the right to a high standard of health is met.

Reflections on Nursing

Quality health service delivery could prevent some 3 million deaths each year.[25] Conditions that support excellence in nursing care services and an increase in the number of qualified nurses have become a basic need in order to increase the LEAB.[26] At the same time, an increase in the LEAB will also increase the need for nurses.[27] Nurses will play a key role in improving health outcomes and meeting the rapidly increasing demand for health services. The positive relationship between a greater number of nurses and increased LEAB seen in our study supports results reported the literature.[25–27] It will be increasingly important to increase the number of qualified nurses and to ensure equal distribution of their services. Studies examining the role of nurses in raising the LEAB, a basic indicator of health, are limited.[27] The results obtained from this study could provide valuable guidance to mental health professionals and policymakers on priority initiatives and policies that could be implemented to increase the LEAB.

Limitations

This study has some limitations and the results should be interpreted with caution. The first of the limitations is the number of independent variables. The analyses were completed using 5 variables to evaluate the mental health system and 2 variables to assess the workforce. Sharing more diverse and

measurable data specific to mental health on official databases that can be used for comprehensive assessments will contribute to further studies. The second limitation is that we were not able to assess data related to community-based mental health services. When interpreting these results, it should be kept in mind that there may be differences in the number of hospitals and beds and patient hospitalization rates based on the varied mental health policies of different countries. The identification and sharing of indicators related to community-based mental health service delivery would be of great value in a complete assessment of mental health services. A third limitation is that data were not available for some countries. The data shared with the WHO and the year of reporting differs from country to country. In this study, the most up-to-date data for each country were used. However, when the data sets are updated in the coming years, new studies will contribute to research in this field. A fourth limitation is that only correlational tests were used according to the nature of the variables. It is recommended that future studies using different statistical analyses be performed when the content of the data sets shared by the WHO is revised.

Conclusion

The results of this study revealed a relationship between the LEAB and the mental health services organization and workforce variables. It was observed a greater number of hospitals, units, outpatient facilities, beds (in general hospitals), physicians, and nurses with expertise in the field of mental health increased the LEAB. These results reinforce the necessity of developing strategies to strengthen these 2 areas, as they increase the LEAB for healthy individuals as well as those with mental illness, who are among the most vulnerable groups in society, yet often remain neglected. The findings also demonstrated significant differences in the number of outpatient facilities, beds (in mental health and general hospitals), and healthcare professionals in the field of mental health in European countries. These results point to the need for a careful examination of national mental health policies (in areas such as human rights, and the budget, organization, quality, access, and workforce, in mental health services) and appropriate reform as needed.

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