



The Influence of Chronic Illness on Overall Mortality in Individuals with Mental Health Conditions: An Examination through a Retrospective Cohort Study Utilizing National Health Insurance Corporation Health Evaluations in South Korea

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Abstract

The objective of this research was to compare mortality rates and the prevalence of chronic diseases between individuals with psychiatric disorders and the general population, and to identify which chronic illnesses pose a heightened risk of all-cause mortality, particularly among those with psychiatric conditions. The study analyzed data from a 2019 sample cohort derived from health assessments conducted by the Korean National Health Insurance Corporation in 2002. Findings revealed that individuals with mental health issues exhibited a higher overall mortality rate compared to those without such conditions (11.40% vs. 10.28%, $p=0.0022$). Moreover, several chronic diseases showed a greater prevalence and elevated risk of all-cause mortality among individuals with psychiatric disorders than in the general populace. Specifically, individuals with psychiatric disorders experiencing the same chronic illnesses demonstrated a heightened risk of all-cause mortality, notably in cases of cancer (adjusted hazard ratio [aHR] 2.55, 95% confidence interval [CI] 2.488-2.614), liver cirrhosis (aHR 2.198, 95% CI 2.086-2.316), and arrhythmias (aHR 1.427, 95% CI 1.383-1.472), which emerged as the top three chronic conditions associated with increased risk. These findings underscore the elevated all-cause mortality risk among individuals with mental illness compared to their counterparts without such conditions, highlighting the importance of addressing chronic illnesses in clinical practice among individuals with mental health issues to mitigate the impact on overall mortality.

Keywords: Mental illness; Chronic disease; Mortality; Health screening; Retrospective cohort study

Introduction

Individuals with mental illness face a significantly elevated mortality rate, often surpassing that of the general population. Numerous studies have indicated that the mortality risk among those with mental disorders is two to three times higher compared to individuals without such conditions. Research conducted in Nordic countries revealed that men and women with mental disorders tend to live 20 and 15 years less, respectively, than the general population, with much of this excess mortality attributed to physical illnesses rather than suicide or accidents [1]. Notably, a substantial portion (67.3%) of individuals with mental illness succumb to natural causes, including cardiovascular diseases, cancer, and respiratory ailments. Chronic diseases represent a preventable cause of mortality in this population, and their prevalence tends to be higher among individuals with mental illness than in the general populace. Comorbid chronic conditions not only exacerbate symptom burden but also diminish lifespan and quality of life for those with mental health issues. Research, including meta-analyses, has established a significant association between psychiatric disorders and various chronic ailments such as cancer, heart disease, stroke, diabetes, chronic obstructive pulmonary disease (COPD), and chronic liver disease [2]. However, there remains a dearth of large-scale cohort studies investigating the impact of different chronic conditions on mortality risk among individuals with mental illness compared to the general population. This study aimed to address this gap by utilizing data from the National Health Insurance of South Korea to examine mortality rates and chronic disease prevalence among individuals with mental illness, with a specific focus on identifying chronic diseases associated with heightened all-cause mortality risk in this population [3].

Description

This study utilized data from the KNHIS-HEALS cohort, which

draws from the Korean National Health Insurance Service (KNHIS), a provider of comprehensive health insurance covering nearly all Korean citizens. KNHIS offers a national screening program, conducted biannually, targeting individuals aged 40 and above. The KNHIS-HEALS database was constructed by sampling participants from the 2002 and 2003 National Screening Program cohorts, spanning from age 40 in 2002 to age 79 in 2019, and tracking their health status until 2019. This cohort comprised 513,655 individuals, representing a 10% random sample of all participants in the national screening program, with data collected from 2002 to 2019 [4].

Approval for this study was obtained from the Institutional Review Board of Hanyang University (IRB number: HYU-2021-097), adhering to the principles outlined in the Declaration of Helsinki (1975). The KNHIS database, anonymized and safeguarded under strict confidentiality measures, obviated the need for individual informed consent. From the initial cohort, 20,491 individuals who died between January 1, 2002, and December 31, 2009, were excluded. The identification of individuals with mental illness relied on the diagnostic criteria of ICD-10 code F00-F99. Those diagnosed with psychiatric illness, based on F-code diagnosis and having at least one instance of

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Received: 30-Jan-2024, Manuscript No. tpctj-24-127518; **Editor assigned:** 02-Feb-2024, PreQC No. tpctj-24-127518(PQ); **Reviewed:** 16-Feb-2024, QC No. tpctj-24-127518; **Revised:** 23-Feb-2024, Manuscript No. tpctj-24-127518(R); **Published:** 29-Feb-2024, DOI: 10.4172/tpctj.1000235

Citation: Suthar M (2024) The Influence of Chronic Illness on Overall Mortality in Individuals with Mental Health Conditions: An Examination through a Retrospective Cohort Study Utilizing National Health Insurance Corporation Health Evaluations in South Korea. Psych Clin Ther J 6: 235.

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inpatient, outpatient, or day admission between January 1, 2002, and December 31, 2009, were classified as individuals with mental illness. The observation period extended from January 1, 2010, to December 31, 2019, encompassing 7,199 psychiatric patients and 485,965 non-psychiatric patients.

Data Analysis

Independent t-tests were employed to compare normally distributed variables, while Wilcoxon's rank sum test was utilized for non-normally distributed variables. Categorical variables were assessed using the chi-square test and Fisher's exact test. Kaplan-Meier survival curves were constructed to compare survival rates between individuals with and without mental illness. Cox's proportional hazards model was applied to investigate the association between chronic diseases and the risk of all-cause mortality, with results presented as adjusted hazard ratios (aHR) along with 95% confidence intervals (95% CI). All Cox proportional hazards models were adjusted for age, sex, income level, number of physical examinations, physical activity level, smoking, alcohol consumption, BMI, blood pressure, fasting blood glucose, total cholesterol, LDL, and chronic disease [5]. Statistical analyses were conducted using SAS software (version 9.4; SAS Institute, Cary, NC, USA), with significance determined at a two-tailed p-value threshold of 0.05.

The objective of this study was to compare mortality rates and chronic disease prevalence between individuals with psychiatric disorders and the general population, with a focus on identifying chronic diseases associated with an increased risk of all-cause mortality, particularly among those with psychiatric disorders. The findings revealed higher all-cause mortality among individuals with mental illness compared to those without [6]. Moreover, individuals with mental illness exhibited a higher prevalence of hypertension, coronary artery disease, cardiac arrhythmias, hyperlipidemia, stroke, arthritis, asthma, COPD, and osteoporosis compared to their counterparts without mental illness. Notably, cancer, cirrhosis, and cardiac arrhythmias emerged as the three most prevalent chronic diseases associated with increased all-cause mortality in individuals with mental illness compared to those without. Distinctions were observed between individuals with a history of psychiatric hospitalization and those without [7].

To the best of our knowledge, this is the first study to demonstrate the link between multiple chronic diseases and the risk of all-cause mortality in a national sample, both with and without psychiatric illness. Unlike previous studies, which reported more pronounced disparities in mortality rates between individuals with mental illness and the general population, this study, drawing from diverse psychiatric disorders, included individuals with milder symptoms. Nonetheless, elevated mortality rates were still evident among individuals with various mental disorders compared to the general population. The heightened prevalence of cardiovascular diseases among individuals with mental illness aligns with findings from previous population-based studies globally [8]. Specifically, arrhythmia, congestive heart failure, and hypertension were identified as chronic diseases associated with increased all-cause mortality in individuals with mental illness. Additionally, individuals with psychiatric disorders and comorbid hypertension, congestive heart failure, or arrhythmias faced a higher risk of all-cause mortality compared to those with each condition but without psychiatric disorders. These findings underscore the impact of cardiovascular disease risk factors, inadequate treatment rates, and

antipsychotic medication use among individuals with mental illness [9].

While no significant difference in cancer prevalence was observed between individuals with and without mental illness, those with psychiatric disorders and cancer faced more than double the risk of all-cause mortality compared to those with cancer but without psychiatric disorders. This highlights potential shortcomings in cancer diagnosis and treatment among individuals with mental illness, indicating the need for enhanced screening and intervention strategies to mitigate cancer-related mortality in this population [10].

Conclusion

Individuals with mental illness exhibited elevated all-cause mortality rates compared to those without such conditions. Moreover, psychiatric patients displayed a higher prevalence of certain chronic diseases compared to the general population. Importantly, individuals with mental illness faced an increased risk of all-cause mortality for certain chronic diseases compared to their counterparts without mental illness. Notably, cancer, cirrhosis, and cardiac arrhythmias emerged as the three most prevalent chronic diseases associated with heightened all-cause mortality risk in individuals with mental illness. These findings underscore the importance of addressing chronic illness in psychiatric patients within clinical practice, emphasizing the impact of chronic conditions on all-cause mortality in this population.

Acknowledgement

None

Conflict of Interest

None

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