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The Prevalence and Clinical Characteristics of Borderline Personality Disorder in South Korea Using National Health Insurance Service Customized Database

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Purpose: The purpose of the present study was to identify the prevalence and clinical characteristics of borderline personality disorder (BPD) in South Korea using the Korean National Health Insurance database (DB).

Materials and Methods: We used the National Health Insurance Service (NHIS)'s research DB (NHIS-2021-1-790) from January 1, 2010 to December 31, 2019, to make customized DB including sociodemographic information and absence or presence of BPD and other psychiatric disorders. The prevalence and the age of onset of BPD was estimated. To compare medical service utilization between the BPD group and the control group, a 1:1:1 propensity score matching was employed, and the regression analysis was conducted.

Results: The prevalence of BPD per 10000 people was 0.96 in 2010 and 1.06 in 2019. The prevalence ratio of males to females was 1:1.38 in 2010 and 1:1.65 in 2019, showing that BPD was more prevalent in females. The patients' overall average age of onset was 33.19±14.6 years, with the highest prevalence shown in 8503 people in their 20s. By administrative district, the highest prevalence of BPD per 10000 people was shown in Seoul with 8.71 and the lowest in Jeollanam-do with 2.35. The BPD patients showed a pattern of extensive use of general and mental healthcare services.

Conclusion: This study identified the prevalence of BPD on a national DB set in South Korea. Although the prevalence of BPD in South Korea was relatively low compared to other countries, there was a steady increase in the number of BPD patients over a decade, which may be possibly due to an increased awareness of mental health and campaigns among healthcare providers and users in the country.

Key Words: Borderline personality disorder, prevalence, incidence, population study

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INTRODUCTION

Borderline personality disorder (BPD) is a complex, chronic mental disorder characterized by self-concept, interpersonal and emotional instability, a chronic feeling of emptiness, and poor impulse control. A significant number of patients with BPD have one or more psychiatric disorders with BPD–specifically, 38.1% with physical disabilities, 26.3% with mood disorders, 21.5% with substance abuse disorders, and 5.1% with psychotic disorders.[1]

The prevalence of BPD is reported to be 0.7%–5.9%,[2-6] with

10% of psychiatry outpatients and 15%–20% of inpatients being diagnosed with BPD.[7] The high prevalence of BPD is especially problematic due to the patients' frequent self-harm attempts and high suicide rate.[8] About 90% of patients with BPD report experience of inflicting self-harm in their lifetime,[9] and 60%–80% report suicide attempts; and 10% of this population die from suicide-a rate that is 10%–50% higher than the suicide rate of the general population.[10-12]

Patients with BPD also have high use of medical services due to their impulsiveness, difficulty in controlling emotions, and repeated self-destructive behavior, with 89.4% of patients visiting medical institutions more than once a year, and the average number of visits being 8.1 times.[1] Specifically, when demographic variables and axis I disorders were controlled, patients with BPD had a higher likelihood of having received various forms of psychotherapy and inpatient treatment compared to patients with major depressive disorder, with inpatient treatment being 4.95 times higher and individual therapy being 4.66 times higher.[13] Furthermore, BPD patients sought various modes of psychotherapy, inpatient treatment, and emergency room visits more frequently compared to patients diagnosed with other personality disorders and axis I disorders, and the treatment plan compliance rate was found to be lower for patients with BPD.[13-16]

These clinical features indicate that patients with BPD have significant functional impairments in interpersonal/social situations. Despite the large socioeconomic burdens of high suicide rate and increased usage of medical facilities, research on the prevalence of BPD in South Korea is still lacking. Studies using the national data set has been found to be beneficial in enhancing the quality of medical services while considering the associated costs.[17] In the current study, we investigated the distinctive attributes of individuals diagnosed with BPD in South Korea, including factors such as sex ratio, age of onset, income level, regional disparities, and utilization of healthcare services, and compared these findings with data from other countries. In this study, we were able to elucidate the trajectory of BPD incidence rates according to time and age groups, which can also serve as a valuable resource for informing future planning of public health services specifically tailored to meet the needs of BPD patients in South Korea.

Accordingly, investigating the prevalence of BPD in South Korea and other clinical characteristics may help us understand the patients with BPD in the country.

MATERIALS AND METHODS

This study used a customized data from the National Health Insurance Service (NHIS) database (DB) (NHIS-2021-1-790) from January 1, 2010 to December 31, 2019. These data include basic patient information, such as the patient's age, sex, residence, and income quantile, as well as the primary diagnosis, secondary diagnosis, and the institution where the patient received treatment. Customize data from the research DB refers to data that have been processed and provided according to the applicant's purpose so that health and insurance data collected, held, and managed by the NHIS can be used for policy and academic research purposes. The other health information data included in this study, except those mentioned, above include the subject's presence of diagnosis about BPD, and other psychiatric illnesses except for organic mental disorder.

The attestation of the diagnosis data was based on the International Classification of Diseases, 10th Revision (ICD-10). Subjects collected in this study consisted of patients diagnosed with BPD (ICD-10 code F60.3) among inpatients and outpatients from January 1, 2010 to December 31, 2019 (experimental group). For the control groups, age and sex were matched using 1:1:1 propensity score matching based on the 2019 NHIS data. Analysis was conducted by dividing the control group based on whether or not the patients were diagnosed with psychiatric illnesses.

This study was conducted after receiving review by Gangnam Severance Hospital's Institutional Ethics Committee (IRB Number: 3-2021-0081).

Data analysis

The prevalence of BPD per 10000 people was calculated by the year, administrative district, age, and sex based on the data obtained through examining the number of patients diagnosed with BPD for 10 years (ICD-10 Code F60.3) from 2010 to 2019. Annual prevalence was calculated as point prevalence. This was done by dividing the number of patients with BPD for a year by the total population of that year and multiplying the result by 10000 people. The number of BPD patients (numerator) were recognized through the NHIS data, while the total population (denominator) was identified using the National Statistics Portal (https://kosis.kr/). Prevalence by sex, age, and administrative district was calculated as period prevalence. This was done by dividing the number of patients with BPD from 2010 to 2019 by the average population in the same period and multiplying the result by 10000 people. The average population was derived by taking the total population for each year from 2010 to 2019 through the National Statistics Portal (https://kosis.kr/) and calculating the average of these values. When analyzing the data, age was calculated as of 2010 when tracking began. Age groups were divided at 10-year intervals based on the end of the year as follows: 20–29 years, 30–39 years, 40–49 years, 50–59 years, 60–69 years, and 70 years or older. The prevalence per 10000 people in each age group was calculated by dividing the number of patients with BPD from 2010 to 2019 in each age group by the average population in the same period for each age group and multiplying the result by 10000 people.

Classification according to administrative district divided South Korea into 17 regions: Seoul, Busan, Daegu, Incheon, Gwangju, Daejeon, Ulsan, Sejong, Gyeonggi-do, Gangwon-do,

Chungcheongbuk-do, Chungcheongnam-do, Gyeongsangbuk-do, Jeollabuk-do, Jeollanam-do, Gyeongsangnam-do, and Jeju-do. In order to illustrate the variation in prevalence by district, a map plot was utilized.

Classification by income distribution was divided into 5% quantiles, with the first quantile being the section with the lowest income and the 20th quantile being the section with the highest income.

To compare the utilization of medical use (health service, psychiatric service, hospitalization, outpatient clinic) among BPD and the control groups, 1:1:1 propensity score matching was performed for age and sex based on the 2019 NHIS data. The BPD patient group was determined based on individuals diagnosed with BPD using the ICD-10 code (F60.3) in the 2019 NHIS data. The control groups were identified as individuals diagnosed with other psychiatric disorders excluding organic mental disorder (coded with F), as well as individuals without any diagnosed psychiatric disorders (not coded with F), using the ICD-10 code in the 2019 NHIS data.

Multiple linear regression model was conducted to examine the associations of patient groups with the utilization of medical services (health service, psychiatric service, hospitalization, outpatient clinic), controlling for age and sex.

For all tests, p-values were two sided and $p<0.05$ was considered as statistically significant. All data management and statistical analysis used SAS (ver 9.4., SAS Inc., Cary, NC, USA), and R version 4.1.3 (R Foundation for Statistical Computing, Vienna, Austria).

RESULTS

Estimated prevalence of BPD in South Korea

From 2010 to 2019, the number of patients treated for BPD as primary and secondary diagnosis increased from 3756 patients in 2010 to 4538 patients in 2019. The prevalence of BPD per 10000 people calculated by using population data collected from the Korean Statistical Information Service as a parameter was 0.96 in 2010 and 1.06 in 2019. Here, the prevalence in male patients was 0.81 in 2010 and 0.80 in 2019, showing little change over the 10-year period, whereas the prevalence in female patients increased from 1.12 in 2010 to 1.32 in 2019 (Fig. 1). The prevalence ratio of males to females was 1:1.38 in 2010 and 1:1.65 in 2019, demonstrating that BPD was more prevalent in females. The age groups with the highest prevalence of BPD were the 20s and 30s, and there was a pattern of decreasing prevalence with an increase in age (Table 1).

Estimated age of BPD onset

In order to examine the age of onset of BPD, the number of patients diagnosed with BPD in 2013 was obtained after excluding subjects diagnosed with BPD in 2010 and 2011. Patients' overall average age of onset was 33.19±14.6 years, with the highest prevalence shown in 8503 people in their 20s. The incidence of BPD decreased with an increase in age (Fig. 2).

Prevalence of BPD by region and income quantile

The prevalence of BPD by administrative district from 2010 to 2019 per 10000 people, in the order of highest to lowest, was 8.71 in Seoul, 6.62 in Daejeon, 5.90 in Daegu, 5.43 in Gyeonggi-do, 5.36 in Gyeongsangbuk-do, 5.13 in Busan, 4.78 in Chun-

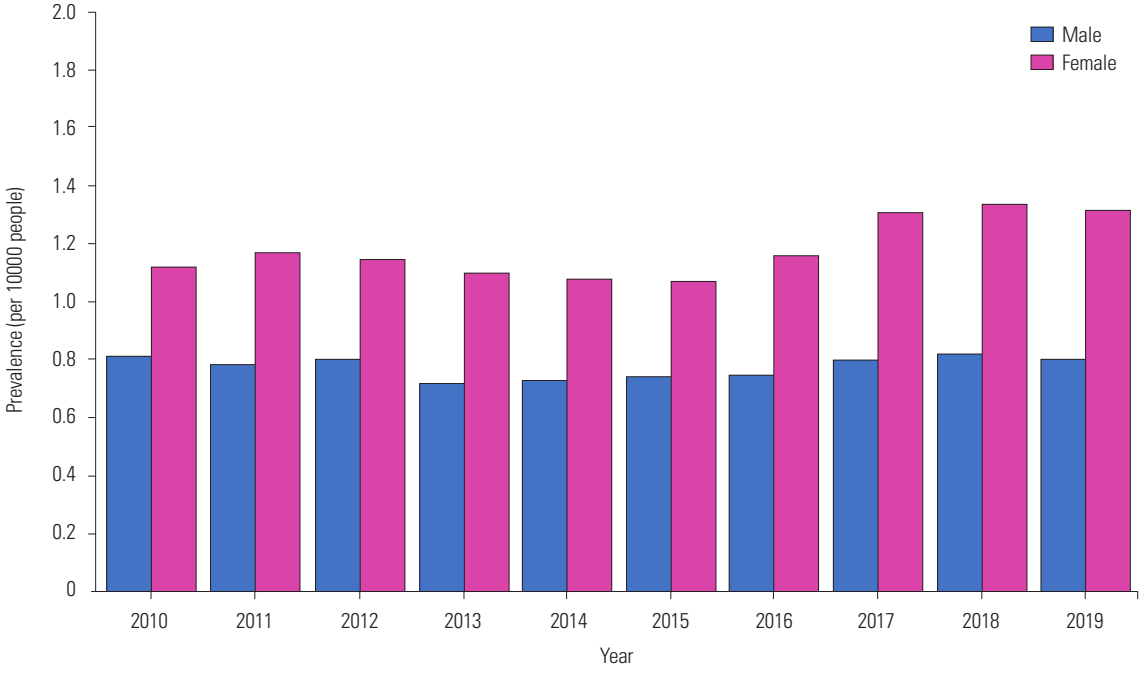

Fig. 1. Prevalence of borderline personality disorder according to sex.

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Table 1. Prevalence of Borderline Personality Disorder, 2010–2019 (Per 10000 of Population)

Year	2010 (n=3756)	2011 (n=3838)	2012 (n=3893)	2013 (n=3675)	2014 (n=3692)	2015 (n=3743)	2016 (n=3980)	2017 (n=4457)	2018 (n=4598)	2019 (n=4538)
Population										
Male	19248082	19471228	19704405	19938844	20175731	20411393	20630423	20820379	20995074	21157638
Female	19683185	19906082	20127877	20348970	20571907	20799168	21018587	21218542	21396770	21566299
Crude prevalent rate	0.96	0.97	0.98	0.91	0.91	0.91	0.96	1.06	1.08	1.06
Age group (yr)										
20–29	2.41	2.62	2.61	2.53	2.52	2.56	2.82	3.07	3.26	3.42
30–39	1.22	1.22	1.26	1.22	1.26	1.23	1.26	1.32	1.33	1.39
40–49	0.71	0.68	0.69	0.66	0.67	0.67	0.66	0.68	0.64	0.70
50–59	0.41	0.40	0.44	0.35	0.34	0.34	0.34	0.36	0.39	0.38
60–69	0.26	0.24	0.27	0.22	0.20	0.22	0.25	0.41	0.38	0.28
≥70	0.15	0.19	0.17	0.14	0.14	0.21	0.25	0.53	0.59	0.24
Sex										
Male	0.81	0.78	0.80	0.72	0.73	0.74	0.75	0.80	0.82	0.80
Female	1.12	1.17	1.15	1.10	1.08	1.07	1.16	1.31	1.34	1.32

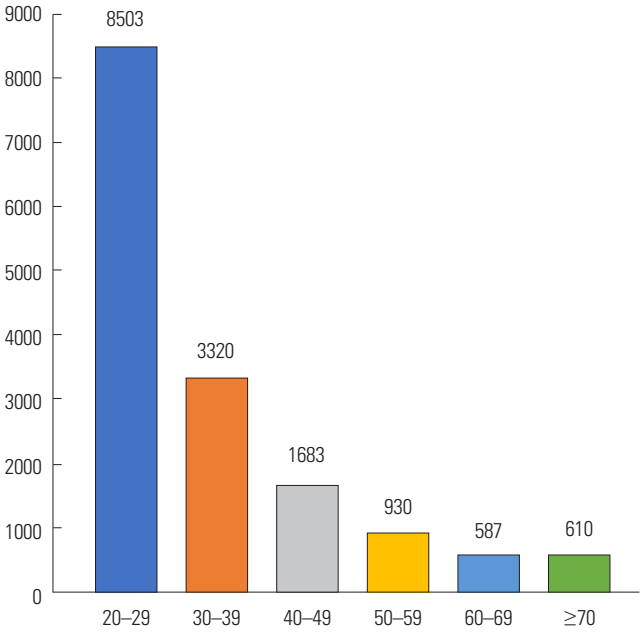

Fig. 2. Frequency of age of onset of borderline personality disorder.

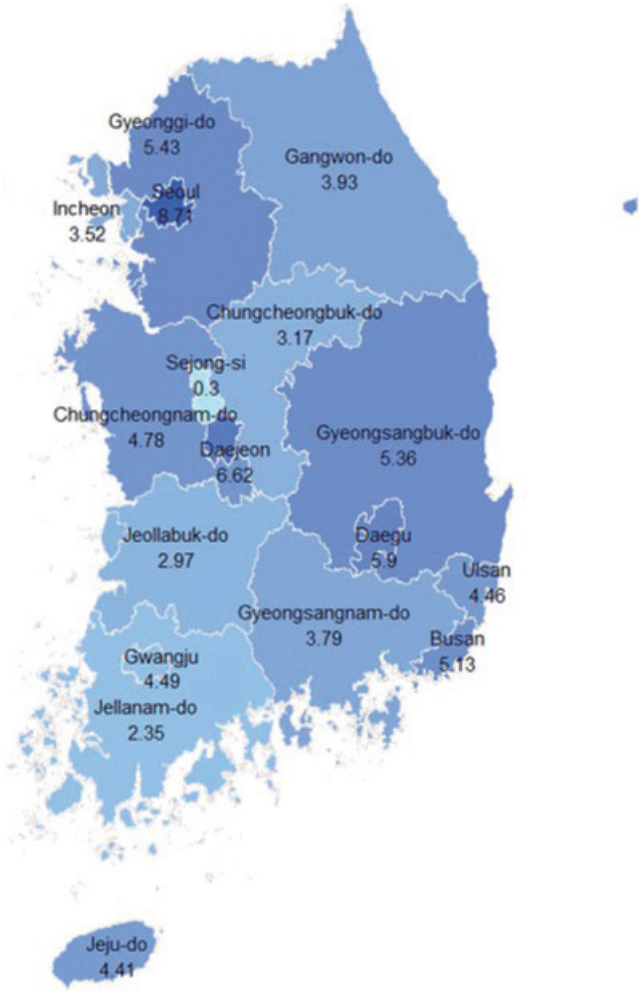

Fig. 3. Prevalence of borderline personality disorder according to region.

gcheongnam-do, 4.49 in Gwangju, 4.46 in Ulsan, 4.41 in Jeju-do, 3.93 in Gangwon-do, 3.79 in Gyeongsangnam-do, 3.52 in Incheon, 3.17 in Chungcheongbuk-do, 2.97 in Jeollabuk-do, and 2.35 in Jeollanam-do, as shown in Fig. 3.

The number of diagnoses by income distribution showed considerably high diagnosis rate in the 0 (medical benefit) and 1 quantiles, the quantiles with the lowest income, and the 19th and 20th quantiles, the quantiles with the highest income (Table 2).

Comparison of medical service use between BPD patient group and control group

Regression analysis was performed after adjusting for age and sex in order to compare the current status of medical service use in the BPD patient group and the control group. The BPD patient group showed a significantly higher utilization pattern compared to the non-psychiatric control group and the psy-

chiatric patient control group in the total number of health service use, number of psychiatric service use, number of hospitalizations, and number of outpatient clinic visits (Table 3).

DISCUSSION

To our best knowledge, this is the first study in South Korea that utilized the National Health Insurance Service data (2010–2019) to analyze the prevalence and related factors of BPD. In this study, the prevalence of BPD per 10000 in South Korea was aggregated from 0.96 in 2010 to 1.06 in 2019. The average prevalence rate over 10 years was 0.053%. The prevalence of BPD was inversely related to age, with no significant gender difference between men and women. Patients with BPD showed a higher rate of medical service use compared to the control group.

Table 2. The Number of (Per 10000 People) of BPD Patients by Income Distribution between 2010 and 2019

Health insurance, 20 quantiles	n
0 (medical care)	2116
1	1566
2	1348
3	1391
4	1455
5	1327
6	1360
7	1541
8	1384
9	1343
10	1314
11	1288
12	1229
13	1224
14	1274
15	1284
16	1302
17	1312
18	1534
19	1738
20	1811

To date, there have been some studies investigating the prevalence of BPD on community-based level, but no study has yet examined the prevalence of specific personality disorder, such as BPD, and its related factors based on a national DB set. The prevalence of BPD in South of Korea seems to be lower compared to other countries, which were reported to be 2.7%–5.9% in other studies.[2,4,18] However, there are several reasons for the low prevalence rate of our study. First, since the prevalence measured in this study was for the patients who were treated in medical settings by a general doctor and the rate was based on the ICD code, the prevalence of the entire BPD population could have been underestimated. Second, as the previous studies were performed on a community-based level using surveys or face-to-face interviews,[2,18] different sample sizes or difference in the assessment tools, diagnostic criteria, and methodological design could have produced different prevalence rates.[4,19-24] Third, the cultural reasons for reluctance to visit the psychiatric department may also have contributed to the low prevalence rate of BPD in South Korea.

In fact, only few clinical or epidemiologic studies have examined the relationship between race-ethnicity and BPD. The results of these studies were inconsistent.[2,19-21] Nevertheless, the steady increase of patients diagnosed with BPD may be possibly due to an increased awareness of the symptoms and diagnosis of BPD among patients and doctors.

According to the previous studies, the prevalence of BPD was reported higher in female than in male. This higher prevalence in female has also been found in the majority of American and European studies.[2,4,5] However, the higher proportion of females with BPD in clinical settings may reflect increased treatment seeking among women, as well as biological or sociocultural differences. In addition, the incidence of BPD was mainly shown in subjects in their 20s. This may signify the natural trajectory of the disorder, where symptoms of BPD often develop before 18 years of age[25] and reach the highest level in 20s–40s[26]; and by the time subjects reach their 50s and above, symptoms remit in most cases.[25,27]

This study also identified the prevalence of BPD by region and income quantile. When classified according to the province, the BPD prevalence was particularly high in Seoul, Daejeon, Daegu, and Gyeonggi-do. Since the data was based on the National Health Insurance dataset, only people who actually received medical services were included in the study population.

Table 3. The Association of Patient Groups with the Utilization of Medical Services

Variables	Health service		Psychiatric service		Hospitalization		Outpatient clinic	
	Beta (SE)	*p* value	Beta (SE)	*p* value	Beta (SE)	*p* value	Beta (SE)	*p* value
Group								
Control w/o F	Ref (0)		Ref (0)		Ref (0)		Ref (0)	
Control with F	16.494 (0.874)	<0.001	11.911 (0.778)	<0.001	0.488 (0.155)	0.003	15.947 (0.852)	<0.001
BPD patient	56.789 (0.874)	<0.001	50.82 (0.778)	<0.001	3.166 (0.155)	<0.001	53.572 (0.852)	<0.001

BPD, borderline personality disorder; control w/o F, control group without any psychiatric disorders; control with F, control group with psychiatric disorders other than BPD.

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In addition to individual factors, accessibility to medical resources may have also influenced the usage of medical services. In particular, rural regions tend to have fewer medical resources, which acts as a factor in lowering the medical utilization rate. Therefore, in order to explain the difference in prevalence between regions, it is necessary to conduct follow-up studies considering both the individual factor and medical resources within the region. The prevalence rates of BPD also were significantly higher among individuals with the highest (19th and 20th quantile) and the lowest income (0th and 1st quantile). This was in line with previous studies which demonstrated higher prevalence of BPD in the low-income group.[2,28] However, the reason for the increase in BPD prevalence in the high-income group may be due to higher socioeconomic status and better medical access compared to the low-income group. Furthermore, patients with high income showed relatively good compliance with medication, in that they were more willing to visit psychiatric departments at general hospitals compared to those in the low-income group.

Patients with BPD had access to considerable health resources compared to the control group. This was in line with previous studies reporting that BPD patients used more health services compared to patients with other personality disorders or depression.[28] This result may be due to the clinical characteristics of BPD, which involves impulsivity and self-destructed behavior.[26,29] Regarding the fact that BPD patients frequently use medical services, there is a need to review appropriate measures to increase access to cost-effective and appropriate treatment for BPD patients at the national level.

The greatest strength of the present study is that it was the first to investigate the prevalence of BPD in South Korea with the F60.3 code for the past 10 years using data from national health insurance, which reflects the majority of the Korean population.

However, this study still had a few potential limitations. First, information regarding physical and psychiatric comorbidity was not included in our data, all of which may be associated with the prevalence of BPD. Second, how diagnostic classification was conducted is unclear. Therefore, the diagnostic accuracy cannot be ascertained. Third, the duration of the observational period of this study might have been insufficient. Therefore, futures studies with longer observational period are required.

Still, it is important to note that the prevalence rate we found in this study will help researchers and clinicians to further understand BPD patients in South Korea. In future studies, it will be necessary to study the genetic and environmental factors of BPD, along with individual characteristics, using the national health insurance data.

AVAILABILITY OF DATA AND MATERIAL

The raw data supporting the conclusions of this article will be made available by the authors without undue reservation.

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AUTHOR CONTRIBUTIONS

Conceptualization: Jeong-Ho Seok and Boung Chul Lee. Data curation: Hye Sun Lee and Goeun Park. Formal analysis: Jeong-Ho Seok, Hye Sun Lee, and Goeun Park. Funding acquisition: Jeong-Ho Seok. Investigation: Jeong-Ho Seok, Boung Chul Lee, Hyunkyung Shin, and Minhyeong Yun. Methodology: Jeong-Ho Seok, Boung Chul Lee, Hye Sun Lee, and Goeun Park. Project administration: Jeong-Ho Seok. Resources: Jeong-Ho Seok. Software: Jeong-Ho Seok and Hye Sun Lee. Supervision: Jeong-Ho Seok. Validation: Jeong-Ho Seok, Hye Sun Lee, and Boung Chul Lee. Visualization: Hyunkyung Shin and Hye Sun Lee. Writing—original draft: Hyunkyung Shin, Yoon Park, and Khishigbayar Uranbileg. Writing—review & editing: Jeong-Ho Seok. Approval of final manuscript: all authors.

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REFERENCES

1. Aragonès E, Salvador-Carulla L, López-Muntaner J, Ferrer M, Piñol JL. Registered prevalence of borderline personality disorder in primary care databases. Gac Sanit 2013;27:171-4.
2. Grant BF, Chou SP, Goldstein RB, Huang B, Stinson FS, Saha TD, et al. Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the wave 2 national epidemiologic survey on alcohol and related conditions. J Clin Psychiatry 2008;69:533-45.
3. Gross R, Olfson M, Gameroff M, Shea S, Feder A, Fuentes M, et al. Borderline personality disorder in primary care. Arch Intern Med 2002;162:53-60.
4. Lenzenweger MF, Lane MC, Loranger AW, Kessler RC. DSM-IV personality disorders in the national comorbidity survey replication. Biol Psychiatry 2007;62:553-64.
5. Torgersen S, Kringlen E, Cramer V. The prevalence of personality disorders in a community sample. Arch Gen Psychiatry 2001;58:590-6.
6. Trull TJ, Jahng S, Tomko RL, Wood PK, Sher KJ. Revised NESARC personality disorder diagnoses: gender, prevalence, and comorbidity with substance dependence disorders. J Pers Disord 2010;24:412-26.
7. Lieb K, Zanarini MC, Schmahl C, Linehan MM, Bohus M. Borderline personality disorder. Lancet 2004;364:453-61.
8. Oldham JM. Borderline personality disorder and suicidality. Am J Psychiatry 2006;163:20-6.
9. Zanarini MC, Frankenburg FR, Reich DB, Fitzmaurice G, Wein-

berg I, Gunderson JG. The 10-year course of physically self-destructive acts reported by borderline patients and axis II comparison subjects. Acta Psychiatr Scand 2008;117:177-84.
10. McGlashan TH, Grilo CM, Skodol AE, Gunderson JG, Shea MT, Morey LC, et al. The collaborative longitudinal personality disorders study: baseline axis I/II and II/II diagnostic co-occurrence. Acta Psychiatr Scand 2000;102:256-64.
11. Sansone RA. Chronic suicidality and borderline personality. J Pers Disord 2004;18:215-25.
12. Skodol AE, Gunderson JG, Pfohl B, Widiger TA, Livesley WJ, Siever LJ. The borderline diagnosis I: psychopathology, comorbidity, and personality structure. Biol Psychiatry 2002;51:936-50.
13. Bender DS, Dolan RT, Skodol AE, Sanislow CA, Dyck IR, McGlashan TH, et al. Treatment utilization by patients with personality disorders. Am J Psychiatry 2001;158:295-302.
14. Clarke M, Hafner RJ, Holme G. Borderline personality disorder: a challenge for mental health services. Aust N Z J Psychiatry 1995; 29:409-14.
15. Soloff PH. Symptom-oriented psychopharmacology for personality disorders. J Pract Psychiatry Behav Health 1998;4:3-11.
16. Skodol AE, Buckley P, Charles E. Is there a characteristic pattern to the treatment history of clinic outpatients with borderline personality? J Nerv Ment Dis 1983;171:405-10.
17. Jencks SF, Huff ED, Cuerdon T. Change in the quality of care delivered to medicare beneficiaries, 1998-1999 to 2000-2001. JAMA 2003;289:305-12.
18. Tomko RL, Trull TJ, Wood PK, Sher KJ. Characteristics of borderline personality disorder in a community sample: comorbidity, treatment utilization, and general functioning. J Pers Disord 2014;28: 734-50.
19. Crawford MJ, Rushwaya T, Bajaj P, Tyrer P, Yang M. The prevalence of personality disorder among ethnic minorities: findings from a national household survey. Pers Ment Health 2012;6:175-82.
20. de Bernier GL, Kim YR, Sen P. A systematic review of the global prevalence of personality disorders in adult Asian populations. Personal Ment Health 2014;8:264-75.
21. McGilloway A, Hall RE, Lee T, Bhui KS. A systematic review of personality disorder, race and ethnicity: prevalence, aetiology and treatment. BMC Psychiatry 2010;10:33.
22. Coid J, Yang M, Tyrer P, Roberts A, Ullrich S. Prevalence and correlates of personality disorder in Great Britain. Br J Psychiatry 2006; 188:423-31.
23. Lenzenweger MF, Loranger AW, Korfine L, Neff C. Detecting personality disorders in a nonclinical population. Application of a 2-stage procedure for case identification. Arch Gen Psychiatry 1994;54:345-51.
24. Samuels JF, Nestadt G, Romanoski AJ, Folstein MF, McHugh PR. DSM-III personality disorders in the community. Am J Psychiatry 1994;151:1055-62.
25. Zanarini MC, Frankenburg FR, Hennen J, Reich DB, Silk KR. Prediction of the 10-year course of borderline personality disorder. Am J Psychiatry 2006;163:827-32.
26. Swartz M, Blazer D, George L, Winfield I. Estimating the prevalence of borderline personality disorder in the community. J Pers Disord 1990;4:257-72.
27. Paris J, Zweig-Frank H. A 27-year follow-up of patients with borderline personality disorder. Compr Psychiatry 2001;42:482-7.
28. Newton-Howes G, Cunningham R, Atkinson J. Personality disorder prevalence and correlates in a whole of nation dataset. Soc Psychiatry Psychiatr Epidemiol 2021;56:679-85.
29. Korzekwa MI, Dell PF, Links PS, Thabane L, Webb SP. Estimating the prevalence of borderline personality disorder in psychiatric outpatients using a two-phase procedure. Compr Psychiatry 2008; 49:380-6.

https://doi.org/10.3349/ymj.2023.0071