Article

Prevalence of diagnosis and treatment continuity predictors of new patients in a paediatric psychiatry clinic

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Abstract: This study analysed trends of first-time patients visiting the paediatric psychiatry clinic in a university hospital. The medical records from 2009 to 2016 of first-time patients visiting the Kyung Hee university hospital were reviewed, focusing on children in grades 1–12. We analysed the prevalence rate of psychiatric disorders per 100,000 general populations by gender and grade, and the characteristics of patients who sought outpatient care more than three times. The study included 1,467 participants, of which 931 were males (63.5%). The number of male patients per 100,000 populations significantly decreased from 4.14 in 2009 to 2.03 in 2016. While hyperkinetic disorders had the highest prevalence in males, neurotic disorders were most frequent in females. Prevalence of disruptive behaviour disorders in males and mental retardations in females decreased significantly during the study period. The factors affecting continuity were being female, studying in grades 7–12, and diagnosis of depressive, hyperkinetic, and tic disorders. Physicians should consider the new paediatric patients' gender, grade, and expected diagnosis from their first visit to improve treatment compliance.

Keywords: Treatment adherence; child; adolescent; trend; outpatient clinic; new patient

1. Introduction

There is a growing interest in mental health issues in children and adolescents [1]. In the U.S., 43,283 parents of children aged 3–17 years participated in a national survey, which revealed that 7.4% of the children had current behavioural/conduct problems, 7.1% had current anxiety problems, and 3.2% had current depression [2]. The national survey of children's health in the U.S., which relies on parent reports, estimated that the prevalence of anxiety or depression among children aged 6 to 17 years rose from 5.4% in 2003 to 8.4% in 2011-2012 [3]. Based on a meta-analysis report summarising the prevalence of common mental disorders among adolescents aged between 10 and 19 years, the global prevalence of common mental health disorders—which was measured using the 12-item General Health Questionnaire with cut-off points of 4 and 3—were 25.0% and 31.0%, respectively [4]. Suicide is the leading cause of death among teenagers since 2009 in the Republic of Korea and is also of concern to Korean mental health experts [5]. Although there are very few suicides among elementary school students, they adversely impact the people around them, including their families [6].

Interestingly, the prevalence rate estimated through epidemiological investigations and the prevalence rate of diagnosis observed in clinical practice may be different. A child and adolescent mental health survey in Seoul reported the estimated prevalence of full-syndrome and subthreshold Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) disorders as 16.2% and 28.1%, respectively [7]. However, the diagnosis prevalence rate of psychiatric disorders was 1.95–2.38% based on the Korean Health Insurance Review and Assessment Service (HIRA) sample data for children aged 0–18 years during 2010–2015 [8]. These gaps can also be identified in individual diagnoses. While attention-deficit/hyperactivity disorder (ADHD) is reported among 5-8% of

children worldwide, the average annual diagnosis prevalence of ADHD in Korean children is 0.357% and exposure to anti-ADHD medication is 0.248% [9]. The rate of exposure to anti-ADHD medication in Taiwan was 0.34% [10] and 0.48% in Germany [11]. Though the prevalence of disruptive mood dysregulation disorder is estimated as 2-5% in DSM-5 [12], the weighted prevalence was 0.3–0.76% in Taiwanese children as observed in a national epidemiological study [13].

Interest in psychiatric disorders among children and adolescents has heightened; however, there is not enough data based on recent clinical practice. Several studies have reported limited data for specific years and conditions on clinical aspects of first-time paediatric patients, but few studies have identified changes and long-term trends for the entire population. This study seeks to bridge the gap in existing research by analysing the epidemiological trends for an eight-year period of new patients in the paediatric psychiatry outpatient clinic of a university hospital compared to the total population.

2. Materials and methods

2.1 Participants

This study included children from grades 1–12 who were first-time patients at the outpatient clinic of paediatric psychiatry, Kyung Hee University Hospital during an eight-year period from January 2009 to December 2016. Infants and pre-schoolers between the ages of 0–6 years were excluded because they needed to be monitored for a certain period for an accurate diagnosis and were nevertheless difficult to diagnose definitely [8]. The study period was set to 2009–2016 because the hospital's electronic medical records system was changed before and after the study period, and there were no changes in the psychiatrists and clinical psychologists during that period, thereby ensuring consistency between the medical record system and the medical staff.

2.2 Methods

During the study period, gender, grade, and diagnosis were retrospectively analysed using medical records of first-time patients by year. To analyse the factors influencing treatment continuity, participants with less than three outpatient visits were classified as the early dropout group, while those with three or more outpatient visits were considered the treatment continuity group; this was based on the study on early dropout factors by Pelkonen et al. [14]. For clinical diagnosis, we used the Korean Standard Classification of Diseases (KCD) [15], which is based on the International Classification of Diseases [16].

The age groups were analysed using three-year intervals (grade 1–3, 4–6, 7–9, 10–12) based on a previous study reporting the diagnosis prevalence of psychiatric disorders in the 0–18 years age group [8].

To compensate for the limitations of single hospital data, the diagnosis rate to the total population was calculated by reflecting the total population in the middle of the year [17]. In other words, diagnosis prevalence was analysed based on the total population aged 6–18 years per year.

The KCD codes for diagnosis were limited to psychiatric disorders (F codes), symptoms and signs and abnormal clinical and laboratory findings, not elsewhere classified (R codes), and factors influencing health status and contact with health services (Z codes) (Table S1). The psychiatrists are often unable to make a psychiatric diagnosis during a child's first visit to the psychiatric clinic. Therefore, a tentative diagnosis was attached with an R or Z code based on the primary symptom. If the psychiatric diagnosis was determined during the treatment, an F code was attached. Once an F code diagnosis was made, the R and Z codes were not included in the analysis. In cases where the treatment was discontinued before the F code diagnosis was made, either the R or Z code diagnosis was included in the analysis.

In the case of psychiatric disorders, six higher diagnostic groups were established in the order of frequency based on HIRA sample data research [8] and the preliminary

analysis of this data. Hyperkinetic disorders (F90) and tic disorders (F95) belonged to a single diagnostic code. The other four groups of diagnoses were classified together with similar disorders: neurotic disorders (F40-48), depressive disorders (F32, 33), disruptive behaviour disorders (F91-94), and mental retardations (F70-79). Disorders that affect a small number of patients were classified as 'others' which include the following diagnoses: psychotic disorders (F20-29), bipolar disorders (F30, 31), eating and sleep disorders (F50, 51), personality disorders (F60-65), psychological developmental problems (F80-84), and mental disorders, not otherwise specified (F99). The analysis of diagnosis per person allowed for redundancy.

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2.3 Statistical Analysis

The changes in the diagnosis prevalence of psychiatric disorders from 2009 to 2016 by gender, grade, and year were examined according to the rate of increase or decrease in the annual average and the significance of the trends was estimated using a trend test. The prevalence rate was converted to a percentage of the F code diagnosed by psychiatrists per 100,000 population included in each group as designated by the total mid-year population.

To investigate the factors affecting treatment continuity, the patients were divided into groups based on the number of outpatient visits, and the most effective logistic regression model was selected through the stepwise method based on gender, grade, estimated diagnosis, and the number of diagnosis redundancy. A generalised linear model with the interaction term of year and grade was estimated to compare the annual growth rate of each grade by gender.

The statistical significance was set at 0.05 for all analyses, and the data were analysed in SAS 9.4 (Statistical Analysis System version 9.4, SAS Institute, Cary, NC, USA) using R 4.0.2 (https://cran.r-project.org/).

3. Results

Of the 1467 participants, 931 (63.5%) were male and 536 (36.5%) were female. Between 2009 and 2016, the total number of cases per 100,000 population of the age group (6–18 years) decreased significantly from 3.24 to 1.88, and the number of male patients decreased significantly from 4.14 to 2.03 (Table 1). The number of female patients decreased from 2.24 to 1.72, which was not statistically significant. The overall ratio of male and female patients decreased from 1.87 to 1.29 during the study period, which was not statistically significant.

In the overall distribution of participants by grade, the largest proportion of students were in grades 1–3. In terms of year-over-year changes, changes in grades 1–3 were higher than those for other grades in 2009, 2011, and 2013 and changes in grades 10–12 were higher than those for the others in 2010, 2012, and 2014–2016. The number of males decreased significantly in grades 1–3, 7–9, and 10–12. The number of females showed a significant decline in grades 4–6 and 7–9, and increased in grades 10-12 with no statistical significance (Figure 1).

**Table 1.** Number of first-time patients according to the year, gender, and grades (per 10,000)

Sex	Grades	2009	2010	2011	2012	2013	2014	2015	2016	Estimate	CI		p-value
Total	Grades 1–3	4.03	4.04	4.01	3.19	3.42	2.17	2.70	2.15	-0.30	-0.43	-0.17	0.0015
	Grades 4–6	2.31	2.80	2.25	2.80	1.31	1.36	0.93	1.54	-0.23	-0.41	-0.04	0.0262
	Grades 7–9	3.74	2.93	2.16	2.61	2.19	1.83	1.24	1.60	-0.30	-0.43	-0.16	0.0017
	Grades 10–12	2.92	3.47	1.30	2.63	1.70	2.07	2.08	2.20	-0.13	-0.38	0.13	0.2649
	Subtotal	3.24	3.29	2.33	2.78	2.08	1.86	1.72	1.88	-0.23	-0.34	-0.12	0.0022
Male	Grades 1–3	5.66	5.45	5.09	4.60	5.78	3.49	3.95	2.64	-0.38	-0.64	-0.13	0.0106
	Grades 4–6	3.00	3.80	3.20	3.61	1.64	1.54	1.02	2.42	-0.30	-0.60	0.00	0.0525
	Grades 7–9	4.47	2.84	2.45	2.63	2.73	2.00	1.24	1.97	-0.32	-0.53	-0.11	0.0106
	Grades 10–12	3.54	3.90	1.40	2.73	1.95	1.82	1.90	1.38	-0.29	-0.55	-0.03	0.0324
	Subtotal	4.14	3.93	2.88	3.29	2.84	2.13	1.93	2.03	-0.33	-0.44	-0.21	0.0004
Female	Grades 1–3	2.25	2.50	2.84	1.66	0.87	0.75	1.36	1.63	-0.20	-0.43	0.02	0.0713
	Grades 4–6	1.55	1.71	1.20	1.92	0.95	1.16	0.83	0.58	-0.15	-0.26	-0.03	0.0220
	Grades 7–9	2.90	3.02	1.83	2.59	1.60	1.64	1.24	1.19	-0.27	-0.40	-0.13	0.0028
	Grades 10–12	2.22	2.99	1.19	2.52	1.41	2.34	2.29	3.10	0.06	-0.21	0.33	0.6088
	Subtotal	2.24	2.57	1.71	2.21	1.24	1.56	1.49	1.72	-0.12	-0.26	0.01	0.0650
Male/Female ratio		1.87	1.56	1.72	1.56	2.50	1.50	1.42	1.29	-0.05	-0.20	0.09	0.4005
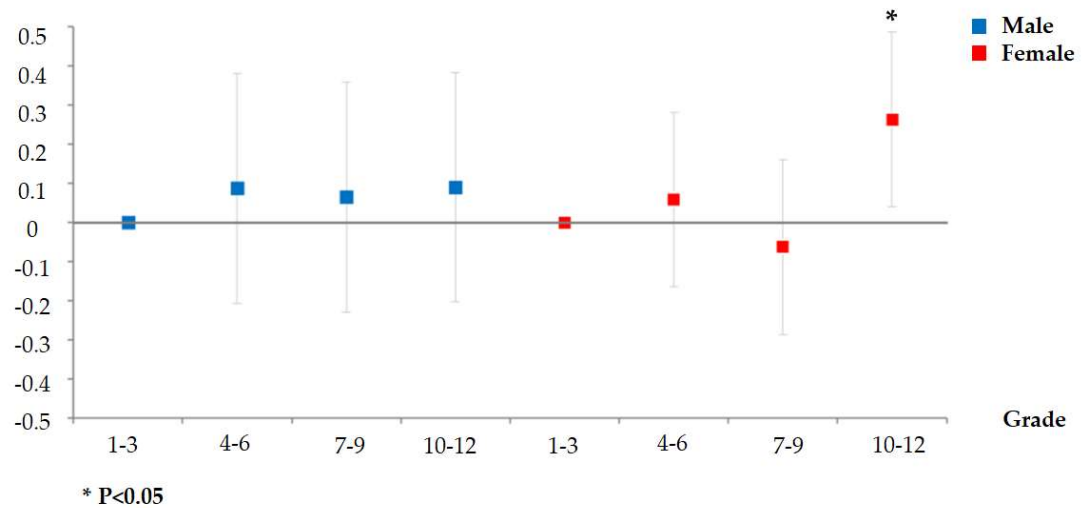
Figure 1. Distribution of new patients according to sex and grades (reference group: 1st graders).

In terms of the distribution of diagnostic codes, F90 was the highest, followed by F40–48, F95, others, F70–79, F32–33, and F91–94 (Figure 2). F90 had the highest diagnostic rate during the study period, but was on the decline. F91–94 diagnoses significantly decreased with year. In females, the diagnostic distribution was followed by F40–48, F90, F32–33, others, F70–79, F95, and F91–94 (Figure 3). F70–79 diagnoses significantly decreased with year. The most common single diagnosis in females was other anxiety disorders (F41), followed by depressive episodes (F32), somatoform disorders (F45), and F90.

The total number of R codes was 317 (males 62.8%), and that of Z codes was 98 (males 68.4%).

Figure 2. Distribution of psychiatric disorders in male students by year.
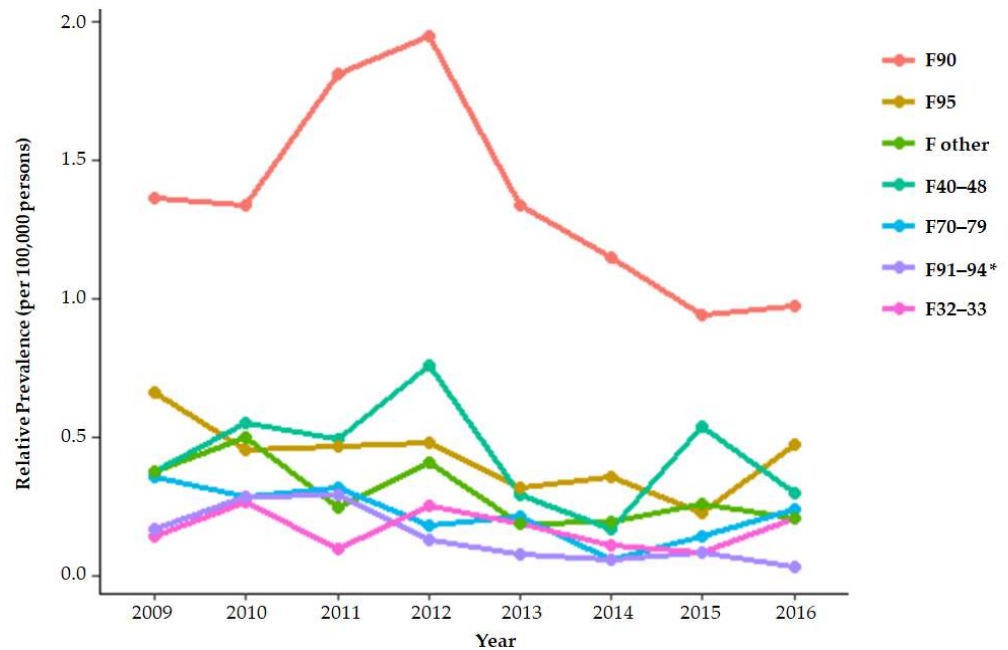
F32–33; Depressive disorder, F40–48; Personality disorder, F70–79; Mental and behavioural disorder, F90; Hyperkinetic disorders, F91–94; Disruptive behaviour disorder, F95; Tic disorders, Other; F07, F20–29, F30–31, F50–51, F60–69, F80, F81, F84, F99(F07; Personality and behavioural disorders due to brain disease, damage, and dysfunction, F20–29; Psychotic disorder, F30–31; Bipolar disorder, F50–51; Eating & Sleep disorder, Neurotic disorder, F60–69; Personality disorder, F80; Learning disorder, F81; Specific developmental disorders of scholastic skills, F84; Pervasive developmental disorders, F99; Unspecified mental disorder
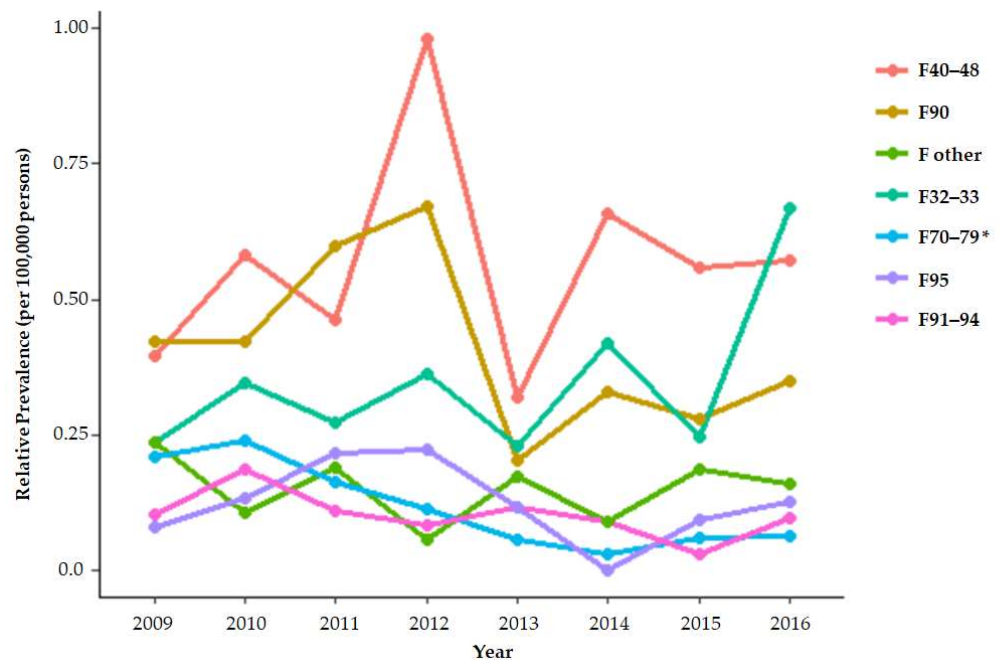**F91–94, sloop: -0.03(-0.06,-0.01)***

Figure 3. Distribution of psychiatric disorders in female students by year.

F32–33; Depressive disorder, F40–48; Personality disorder, F70–79; Mental and behavioural disorder, F90; Hyperkinetic disorders, F91–94; Disruptive behaviour disorder, F95; Tic disorders, Other; F07, F20–29, F30–31, F50–51, F60–69, F80, F81, F84, F99(F07; Personality and behavioural disorders due to brain disease, damage, and dysfunction, F20–29; Psychotic disorder, F30–31; Bipolar disorder, F50–51; Eating & Sleep disorder, Neurotic disorder, F60–69; Personality disorder, F80; Learning disorder, F81; Specific developmental disorders of scholastic skills, F84; Pervasive developmental disorders, F99; Unspecified mental disorder
F7079, sloop: -0.03(-0.04,-0.01)*

Of the 1,467 participants, 645 (45.0%) (423 males and 222 females) dropped out early (Table S3). The factors correlated with continuity of follow-up were patients who were female, in grades 7–12, with psychiatric disorders including F32-33, F90, and F95, and with one or more psychiatric diagnosis (Table 2).

Table 2. Factor analysis for the treatment continuity defined as more than three outpatient visits

Item		OR	CI		p-value*
Sex	Male	1.00	.	.	.
	Female	1.36	1.07	1.74	0.0125
Grades	Grades 1-3	1.00	.	.	.
	Grades 4-6	1.04	0.75	1.44	0.8261
	Grades 7-9	1.39	1.01	1.90	0.0422
	Grades 10-12	1.81	1.30	2.52	0.0005
Diagnosis	Depressive episode, Recurrent depressive disorder (F32-33)	1.65	1.08	2.51	0.0198
	Hyperkinetic disorder (F90)	3.14	2.32	4.26	<.0001
	Tic disorder (F95)	2.83	1.89	4.24	<.0001
Number of Psychiatric Diagnosis#	0	1.00			
	1	2.02	1.44	2.82	<.0001
	≥2	1.63	1.02	2.61	0.0416

*Multiple logistic regression test
#Number of psychiatric diagnosis was focused on F32-33, F40-48, F70-79, F90, F91-94, and F95.

4. Discussion

In this study, a significant decline in the total number of first-time patients and male patients is observed, even if the statistics are corrected to reflect the decline in the birth rate in the Republic of Korea. These results are consistent with decreased prevalence of diagnosis of psychiatric disorders in children and adolescents under 19 years of age in HIRA statistics [8]. Those trends are contrary to the increase in the prevalence of psychiatric disorders in children and adolescents in screening-oriented epidemiological studies [18]. While it may vary depending on the target disorders or research design, there is a clear gap between epidemiological prevalence and treatment rate, with only 25–35% of affected children and adolescents accessing treatment [19]. These differences suggest that there may be differences in estimated prevalence and diagnosis prevalence on clinical practice, depending on epidemiological investigation methods or national healthcare systems.

Gender ratio of psychiatric disorders changes during the transition from childhood to adulthood because of biological and environmental factors. Based on 2011 HIRA data, in a study of the population under the age of 19, the ratio of male to female patients with psychiatric disorders was 1.68:1 [20]. This study also showed that the percentage of male patients was higher than that of female patients. The sample data from the HIRA of 1,375,842 people in 2011 revealed that the male-to-female ratio for those aged 19–30 years was 48.1 to 51.9 [21]. A cross-national meta-analysis of mental disorders in the World Health Organisation World Mental Health Surveys also revealed that the prevalence of mental disorders is 1.1 times higher in women than in men [22]. What is noteworthy here is the cause of this reversal of the gender ratio. One of the reasons for this significant narrowing of gender differences was related to depressive disorders and the variation of gender role traditionality [22].

In this study, the number of male patients from grades 1 to 12 and female patients from grades 1 to 9 has decreased. Interestingly, the number of female patients in grades 10–12 has increased over the year, however, this increase was not statistically significant. Two factors could have contributed to this trend: first, the Adolescent Personality and Mental Health Screening Questionnaire, conducted annually for the 1st, 4th, 7th, and 10th graders across the whole country in the Republic of Korea since 2012 and the increased number of treatment-linked cases; second, parents' awareness of youth mental disorders through media or public education [1]. In Kim's study [23], the student number of grades 1-3 was more than any other grades from 2004 to 2009, and that of grades 10-12 was more than any other grades from 2010 to 2013. During that period, the incidence of de-

pressive disorders increased around grades 7 to 12. One of the reasons why the grades 1–3 group is larger than other grades in the psychiatric outpatient clinic may be because the group has a higher diagnosis and treatment rate of ADHD patients [8]. From three population-based cohorts and a meta-analysis, it is evident that children and adolescents who are relatively younger than their classmates have a higher risk of receiving an ADHD diagnosis [24].

The most common diagnosis in female patients in this study was F41, followed by F32, F45, and F90. The lifetime diagnosis of anxiety or depression among children aged 6 to 17 years increased based on the parent report in the US [3]. While current anxiety increased significantly, current depression did not change. In a study on the prevalence of paediatric mental disorders in Taiwan, the lifetime prevalence was the highest for anxiety disorder, followed by ADHD, sleep disorder, and tic disorder [25]. Concurrent comorbidity and homotypic and heterotypic continuity from age 9 through 16 years were more marked in girls than in boys, and girls had a higher incidence of depressive disorders as they grew [26].

The most common diagnosis in male students in this study was F90. According to the Centre for Disease Control and Prevention in the U.S., ADHD was the most frequent psychiatric disorder among children under the age of 18 [27]. ADHD was the most common mental disorder in the population under the age of 19 based on the HIRA sample data, followed by other anxiety disorders (F41), depressive episodes (F32), somatoform disorders (F45), reaction to severe stress, and adjustment disorders (F43) [20]. A long-term comparison over a 26-year period (1980-2005) from a tertiary care centre for child and adolescent psychiatric service in India revealed the increase in registration with affective illnesses in the ages 10-15, which is reflective of a worldwide trend towards an earlier onset and increased prevalence of affective illnesses [28]. In a study of the prevalence rate for adolescents across three consecutive years for overall psychiatric disorders in Taiwan, the rates for ADHD and phobia decreased and the rates for major depression and substance use disorders increased [29]. Conduct disorder and ADHD were more prevalent among boys, and major depression and phobia were higher among girls.

In this study, a significant decrease in F91–94 was observed among male patients over the years, while F70–79 showed a decreasing trend in female patients. A comparison of the clinical profiles of patients in child psychiatry in Bahrain between 1981–1982 and 2011–2012 showed that the prevalence rate of conduct disorders and anxiety disorders were lower [30]. The reason for this drop in prevalence is more likely to be due to other reasons than due to a real decrease, such as in those diagnosed with ADHD or learning disorders instead of conduct disorders. In this study, if conduct disorder and ADHD coexist in the same patient, they may have been diagnosed with ADHD. The prevalence of conduct disorders also declined between 1998 and 2013–2014 among younger males according to a study in Australia, primarily due to a decline in the prevalence among males living in two-parent families [31]. A significant reduction in F70–79 may be due to early detection and early intervention among individuals with mental retardation during their preschool period compared to the past, resulting in improved adaptability [20]. However, the reason for the significant decline in females alone in this study should be identified in future studies.

From this study, significant factors for treatment continuity were female students, higher grades, one or more psychiatric diagnosis, and disorders such as depressive disorders, hyperkinetic disorders, and tic disorders. One of the causes that affect the duration of treatment among those in higher grades and in females may be associated with increased anxiety and depressive disorders in the concerned gender and age group [8]. A study based on inpatient adolescents found that being female was a predictor of change in global functioning [32]. Pelkonen et al. [14] also reported that not having a mood disorder and not using psychotropic medication were associated with early dropout of ad-

olescents from outpatient psychiatric treatment. The younger the patients, the more likely they were to drop out early without commencement of pharmacotherapy in ADHD [33]. Younger children are at higher risk of receiving suboptimal care with psychotropic medications [34], and their medication adherence may reduce depending on their parents' adherence [35]. These results suggest that the factors of treatment compliance may vary depending on the target disorders, culture, age, and gender of the subjects, or the research design.

This study has several limitations. First, as the participants of this study are outpatients at one university hospital, one should be careful while applying the findings of this study to the entire general population. However, since it is based on medical records of the same medical staff in a single institution, consistency in care can be an advantage. Second, this study is a retrospective review of medical records and does not apply the planned diagnostic tools as in prospective studies. The fact that the same clinical psychologists conducted psychological evaluations also provides the advantage of increasing accuracy and consistency in diagnosis. Despite these limitations, this is the first study in Korea wherein the trends in outpatients have been verified by reflecting changes in the overall population. The identification of treatment continuity predictors in first-time patients is also the strength of this study.

5. Conclusion

While the number of first-time patients in a university hospital's paediatric psychiatry department significantly declined over eight years, the number of older female students did not decrease. Furthermore, while hyperkinetic disorder was commonly found in male students, anxiety and depressive disorders were observed in females. The analysis of treatment continuity factors suggests that being female, in a higher grade, and having several psychiatric disorders are important predictors.

Supplementary Materials:

Table S1. Diagnoses with F, R, and Z codes.

Groups		KCD-7 codes	Diagnosis
Depressive symptom (F32–33)		F32	Depressive episode
		F33	Recurrent depressive disorder
Neurotic symptom (F40–48)		F40	Phobic anxiety disorders
		F41	Other anxiety disorders
		F42	Obsessive-compulsive disorder
		F43	Reaction to severe stress, and adjustment disorders
		F44	Dissociative [conversion] disorders
		F45	Somatoform disorders
		F48	Other neurotic disorders
Low intelligence (F70–79)		F70–79	Mental retardation
Hyperkinetic problems (F90)		F90	Hyperkinetic disorders
Disruptive behaviors (F91–94)		F91	Conduct disorders
		F92	Mixed disorders of conduct and emotions,
		F93	Emotional disorders with onset specific to childhood,
		F94	Disorders of social functioning with onset specific to childhood and adolescence
Tic symptoms (F95)		F95	Tic disorders
Others	Psychotic symptoms (F20–29)	F20–29	Schizophrenia, schizotypal and delusional disorders
	Mood-bipolarity (F30–	F30	Manic episode
		F31	Bipolar affective disorder

	31)		
	Eating and sleep prob-lems (F50–51)	F50	Eating disorders
		F51	Nonorganic sleep disorders
	Personality problem (F60–69)	F60–69	Personality disorders
	Learing and develop-mental problem (F80–84)	F80	Specific developmental disorders of speech and language
		F81	Specific developmental disorders of scholastic skills
		F84	Pervasive developmental disorders
Symptoms, signs and abnormal clinical and laboratory findings, NEC (R40–R94)		R40–R46	Symptoms and signs involving cognition, perception, emotional state and behaviour
		R47–R49	Symptoms and signs involving speech and voice
		R50–R69	General symptoms and signs
		R90–R94	Abnormal findings on diagnostic imaging and in function studies, without diagnosis
Factors influencing health status and contact with health services (Z30–Z76)		Z30–Z39	Persons encountering health services in circumstances related to reproduction
		Z40–Z54	Persons encountering health services for specific procedures and health care
		Z55–Z65	Persons with potential health hazards related to socioeco-nomic and psychosocial circumstances
		Z70–Z76	Persons encountering health services in other circumstances

KCD-7: Korean Standard Classification of Diseases-7

Table S2. Number of first-time patients with psychiatric diagnosis by year.

Diagnosis	2009	2010	2011	2012	2013	2014	2015	2016	estimate	CI		p-value
F32–33	15	24	14	23	15	18	11	28	0.014	-0.020	0.047	0.3655
F40–48	31	45	37	65	22	28	37	28	-0.007	-0.077	0.063	0.8214
F70–79	23	21	19	11	10	3	7	10	-0.028	-0.048	-0.007	0.0155
F90	74	72	96	101	58	53	42	44	-0.061	-0.147	0.025	0.1355
F91–94	11	19	16	8	7	5	4	4	-0.022	-0.039	-0.005	0.0187
F95	31	24	27	27	16	13	11	20	-0.022	-0.048	0.004	0.0805
Other	25	25	17	18	13	10	15	12	-0.019	-0.035	-0.004	0.0220

F32–33; Depressive disorder, F40—48; Neurotic disorder, F70–79; Mental retardation, F90;Hyperkinetic disorders, F91–94; Disruptive behavior dis-order, F95; Tic disorders, Other; (F20–29; Psychotic disorder, F30–31; Bipolar disorder, F50–51; Eating & Sleep disorder, Neurotic disorder, F60–69; Personality disorder, F80–89; Disorders of psychological development, F99; Unspecified mental disorder)

Table S3. Clinical characteristics of early dropout group and treatment continuity group by gender and grade.(%)

		Total (n=1432)		Male (n=911)		Female (n=521)		p-value*	p-value*
Early dropout group		645	(45.0)	423	(46.4)	222	(42.6)	<0.0017	
Grade	1–3	191	(29.6)	143	(33.8)	48	(21.6)		
	4–6	136	(21.1)	94	(22.2)	42	(18.9)		
	7–9	167	(25.9)	98	(23.2)	69	(31.1)		
	10–12	151	(23.4)	88	(20.8)	63	(28.4)		<0.0001
Treatment continuity group		787	(55.0)	488	(53.6)	299	(57.4)	<.0001	
Grade	1–3	214	(27.2)	156	(32.0)	58	(19.4)		
	4–6	142	(18.0)	98	(20.1)	44	(14.7)		
	7–9	202	(25.7)	118	(24.2)	84	(28.1)		
	10–12	229	(29.1)	116	(23.8)	113	(37.8)		

*chi-square test

**Cochran-Mantel-Haenszeltest

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