Longitudinal and Epidemiological Study for Nationally Insured Patients of Private Dental Clinic in Korea

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Abstract

This study want to draw conclusion based on data taken from national health insurance, determined the distribution and direction of patients treated at private clinics.The medical insurance system is a subdivision of the oral health sector pertaining to multiple treatments and deals with payment plans. It affects the production, distribution and use of treatment and medication both directly and indirectly, with the fallout reaching oral health standards and satisfaction of customers.

Methods, Statistical Analysis

Methods: The author's research spanned and compared the nationally insured patients by sexes, diagnoses, age groups and cases per year (2005, 2009, and 2013). Subjects were 3,536 patients of a private clinic in Seoul that were covered under national insurance.
Statistical Analysis: The author used PASW Statistics 18.0(IBM Co.Armonk,NY,USA) to analyze the statistical data, and the strategies included chi-squared test and one way/two way ANOVA (statistical significance level, $p<0.05$)

Results

There was no disparity across sexes nor cases, but both were on the decline. The most common dental conditions were pulpitis and dental caries at (38.4% and 16.4% respectively.) Both have decreased. Despite a drop in overall patients, the percentage of patients under 10 years old jumped substantially. Of overall age groups, teens were most prevalent at 33.5% second and third being those in their forties and fifties(14.2% and 12.0% respectively.) 1.There was no difference in cases between males and females, both decreased from 2005 to 2013.2.Pulpitis and dental caries had the highest concentration within gender-based diagnoses, though both fell substantially: pulpitis dropped more than caries.In comparison, gingivitis and periodontitis, oral medicine diseases, tooth abrasions and tooth fractures all increased. Females have had more caries than males, and males have shown a greater concentration of pulpitis(2013)than females.3.Despite the steady decrease in patients, there has been a sudden upsurge in younger patients(under 10).Of overall age groups, teens were most prevalent at 33.5% second and third being those in their forties and fifties with young males(teens) and elderly females(80 or above) at the increase.4.With the exception of children under 10 years old, pulpitis and caries have decreased steadily.Gingivitis and periodontitis have continued to rise, with those in their 50s and 60s at the forefront.Oral medicine diseases are a lesser presence, but continue to rise-especially in children under 10.

Conclusion

In conclusion, the major illnesses that plague patients are pulpitis, dental caries, eruption disorder, gingivitis and periodontitis:the wane of pulpitis cases(a considerable percentage) and the actual numbers of patients has contributed to the general decrease in cases.

Analysis

Table 1. Gender-based comparison of annual cases and patients and the results of χ^2 test

Gender & total	Year			Total
	2005	2009	2013	
Gender				
Male				
Frequency (n)	1,843	1,644	1,368	4,855
% of year	19.4	17.3	14.4	51.1
Adjusted residual	−2.5	1.9	0.8	
Female				
Frequency (n)	1,882	1,491	1,276	4,649
% of year	19.8	15.7	13.4	48.9
Adjusted residual	2.5	−1.9	−0.8	
Total				
Frequency (n)	3,725	3,135	2,644	9,504
% of year	39.2	33.0	27.8	100.0
Number of treatment visits	3,725	3,135	2,644	9,504
Number of patients	1,293	1,220	1,023	3,536

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Figure 1: Gender-based comparison of annual cases and patients and the results of Chi-squared test

Figure 1 shows the number of cases through 2005, 2009, and 2013 dropped from 3,725 to 3,135 to 2,644,respectively. Males tended to compromise slightly more than females, with the exception of 2005. There was no difference in cases between males and females, both decreased from 2005 to 2013.

Table 2. Three-year comparison of gender per diagnoses and the results of χ^2 test

Diagnosis	2005			2009			2013			Total
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Pulpitis										
Frequency (n)	880	879	1,759	625	524	1,149	418	327	745	3,653
% of total	23.6	23.6	47.2	19.9	16.7	36.7	15.8	12.4	28.2	38.4
Adjusted residual	0.6	−0.6		1.7	−1.7		2.8	−2.8		
Caries										
Frequency (n)	266	332	598	240	292	532	195	232	427	1,557
% of total	7.1	8.9	16.1	7.7	9.3	17.0	7.4	8.8	16.1	16.4
Adjusted residual	−2.7	2.7		−3.7	3.7		−2.7	2.7		
Gingivitis and periodontitis										
Frequency (n)	209	188	397	253	219	472	227	237	464	1,333
% of total	5.6	5.0	10.7	8.1	7.0	15.1	8.6	9.0	17.5	14.0
Adjusted residual	1.3	−1.3		0.5	−0.5		−1.3	1.3		
Eruption disorder										
Frequency (n)	249	299	548	294	275	569	221	207	428	1,545
% of total	6.7	8.0	14.7	9.4	8.8	18.1	8.4	7.8	16.2	16.3
Adjusted residual	−2.0	2.0		−0.4	0.4		0.0	0.0		
Root rest										
Frequency (n)	78	65	143	98	45	143	36	20	56	342
% of total	2.1	1.7	3.8	3.1	1.4	4.6	1.4	0.8	2.1	3.6
Adjusted residual	1.2	−1.2		3.9	−3.9		1.9	−1.9		
Ill fitting prosthetics										
Frequency (n)	33	27	60	27	15	42	12	15	27	129
% of total	0.9	0.7	1.6	0.9	0.5	1.3	0.5	0.6	1.0	1.4
Adjusted residual	0.9	−0.9		1.5	−1.5		−0.8	0.8		
Tooth abrasion										
Frequency (n)	44	18	62	23	32	55	45	49	94	211
% of total	1.2	0.5	1.7	0.7	1.0	1.8	1.7	1.9	3.6	2.2
Adjusted residual	3.4	−3.4		−1.6	1.6		−0.8	0.8		
Tooth fractures										
Frequency (n)	18	15	33	22	17	39	33	28	61	133
% of total	0.5	0.4	0.9	0.7	0.5	1.2	1.2	1.1	2.3	1.4
Adjusted residual	0.6	−0.6		0.5	−0.5		0.4	−0.4		
Oral medicine disease										
Frequency (n)	13	16	29	18	25	43	32	38	70	142
% of total	0.3	0.4	0.8	0.6	0.8	1.4	1.2	1.4	2.6	1.5
Adjusted residual	−0.5	0.5		−1.4	1.4		−1.0	1.0		
Others										
Frequency (n)	53	43	96	44	47	91	149	123	272	459
% of total	1.4	1.2	2.6	1.4	1.5	2.9	5.6	4.7	10.3	4.8
Adjusted residual	1.1	−1.1		−0.8	0.8		1.1	−1.1		
Total										
Frequency (n)	1,843	1,882	3,725	1,644	1,491	3,135	1,368	1,276	2,644	9,504
% of total	49.5	50.5	100.0	52.4	47.6	100.0	51.7	48.3	100.0	100.0

Figure 2: Three-year comparison of gender per diagnoses and the Chi-squared test

Figure 2 shows Pulpitis and dental caries had the highest concentration within gender-based diagnoses, though both fell substantially: pulpitis dropped more than caries.In comparison, gingivitis and periodontitis, oral medicine diseases, tooth abrasions and tooth fractures all increased. Females have had more caries than males, and males have shown a greater concentration of pulpitis(2013)than females.

Analysis

Table 3. Three-year comparison of gender per age groups and the results of χ^2 test

Age (y)	Gender		Total	Year			Total
	Male	Female		2005	2009	2013	
≤9							
Frequency (n)	122	138	260	23	54	183	260
% of total	3.5	3.9	7.4	0.7	1.5	5.2	7.4
Adjusted residual	−0.9	0.9		−9.6	−4.8	15.3	
10-19							
Frequency (n)	607	576	1,183	457	430	296	1,183
% of total	17.2	16.3	33.5	12.9	12.2	8.4	33.5
Adjusted residual	1.3	−1.3		1.8	1.6	−3.6	
20-29							
Frequency (n)	148	177	325	130	124	71	325
% of total	4.2	5.0	9.2	3.7	3.5	2.0	9.2
Adjusted residual	−1.6	1.6		1.3	1.5	−3.0	
30-39							
Frequency (n)	132	219	351	142	123	86	351
% of total	3.7	6.2	9.9	4.0	3.5	2.4	9.9
Adjusted residual	−4.8	4.8		1.6	0.2	−1.9	
40-49							
Frequency (n)	262	239	501	191	185	125	501
% of total	7.4	6.8	14.2	5.4	5.2	3.5	14.2
Adjusted residual	1.2	−1.2		0.8	1.2	−2.1	
50-59							
Frequency (n)	242	183	425	153	144	128	425
% of total	6.8	5.2	12.0	4.3	4.1	3.6	12.0
Adjusted residual	3.2	−3.2		−0.3	−0.3	0.6	
60-69							
Frequency (n)	122	105	227	98	59	70	227
% of total	3.5	3.0	6.4	2.8	1.7	2.0	6.4
Adjusted residual	1.2	−1.2		2.1	−2.8	0.7	
70-79							
Frequency (n)	94	95	189	64	81	44	189
% of total	2.7	2.7	5.3	1.8	2.3	1.2	5.3
Adjusted residual	0.0	0.0		−0.8	2.5	−1.8	
≥80							
Frequency (n)	30	45	75	35	20	20	75
% of total	0.8	1.3	2.1	1.0	0.6	0.6	2.1
Adjusted residual	−1.7	1.7		1.8	−1.4	−0.4	
Total							
Frequency (n)	1,759	1,777	3,536	1,293	1,220	1,023	3,536
% of total	49.7	50.3	100.0	36.6	34.5	28.9	100.0

Figure 3: Three-year comparison of gender per age groups and the results of the Chi-squared test

According to Figure 3, despite the steady decrease in patients, there has been a sudden upsurge in younger patients(under 10).Of overall age groups, teens were most prevalent at 33.5% second and third being those in their forties and fifties with young males(teens) and elderly females(80 or above) at the increase.

Table 4. Three-year comparison of diagnoses per age groups and the results of χ^2 test

Age (y)	Diagnosis										Total
	Pulpitis	Caries	Periodontitis	Eruption disorder	Root rest	Ill fitting prosthetics	Tooth abrasion	Tooth fractures	Oral medicine disease	Others	
≤9											
Frequency (n)	98	127	20	88	0	2	0	5	30	59	429
% of diagnosis	1.0	1.3	0.2	0.9	0.0	0.0	0.0	0.1	0.3	0.6	4.5
Adjusted residual	−6.8	7.6	−5.7	2.4	−4.1	−1.6	−3.2	−0.4	9.6	8.8	
10-19											
Frequency (n)	556	458	125	1,435	13	44	0	8	31	208	2,878
% of diagnosis	5.9	4.8	1.3	15.1	0.1	0.5	0.0	0.1	0.3	2.2	30.3
Adjusted residual	−25.3	−0.8	−17.9	58.5	−10.9	1.0	−9.7	−6.1	−2.2	7.2	
20-29											
Frequency (n)	332	236	115	15	9	7	6	15	10	27	772
% of diagnosis	3.5	2.5	1.2	0.2	0.1	0.1	0.1	0.2	0.1	0.3	8.1
Adjusted residual	2.7	11.1	0.7	−11.2	−3.8	−1.1	−2.8	1.3	−0.5	−1.8	
30-39											
Frequency (n)	331	179	145	4	46	13	13	13	5	37	786
% of diagnosis	3.5	1.9	1.5	0.0	0.5	0.1	0.1	0.1	0.1	0.4	8.3
Adjusted residual	2.2	5.1	3.7	−12.5	3.5	0.8	−1.1	0.6	−2.1	−0.2	
40-49											
Frequency (n)	811	258	261	2	83	35	49	29	14	49	1,591
% of diagnosis	8.5	2.7	2.7	0.0	0.9	0.4	0.5	0.3	0.1	0.5	16.7
Adjusted residual	11.3	−0.2	3.0	−19.1	3.8	3.2	2.6	1.6	−2.2	−3.6	
50-59											
Frequency (n)	538	150	315	1	59	12	63	20	15	27	1,200
% of diagnosis	5.7	1.6	3.3	0.0	0.6	0.1	0.7	0.2	0.2	0.3	12.6
Adjusted residual	4.9	−3.9	13.0	−16.2	2.6	−1.1	7.6	0.8	−0.7	−4.5	
60-69											
Frequency (n)	494	74	183	0.0	43	11	38	14	11	15	883
% of diagnosis	5.2	0.8	1.9	0.0	0.5	0.1	0.4	0.1	0.1	0.2	9.3
Adjusted residual	11.2	−6.7	6.0	−13.7	2.1	−0.3	4.4	0.5	−0.6	−4.6	
70-79											
Frequency (n)	349	59	121	0	55	2	40	15	11	22	674
% of diagnosis	3.7	0.6	1.3	0.0	0.6	0.0	0.4	0.2	0.1	0.2	7.1
Adjusted residual	7.4	−5.6	3.0	−11.9	6.6	−2.5	6.8	1.9	0.3	−2.0	
≥80											
Frequency (n)	144	16	48	0	34	3	2	14	15	15	291
% of diagnosis	1.5	0.2	0.5	0.0	0.4	0.0	0.0	0.1	0.2	0.2	3.1
Adjusted residual	3.9	−5.1	1.2	−7.6	7.5	−0.5	−1.8	5.0	5.2	0.3	
Total											
Frequency (n)	3,653	1,557	1,333	1,545	342	129	211	133	142	459	9,504
% of diagnosis	38.4	16.4	14.0	16.3	3.6	1.4	2.2	1.4	1.5	4.8	100.0

Figure 4: Three-year comparison of diagnoses per age groups and the results of the Chi-squared test

Figure 4 shows that the exception of children under 10 years old, pulpitis and caries have decreased steadily.Gingivitis and periodontitis have continued to rise, with those in their 50s and 60s at the forefront.Oral medicine diseases are a lesser presence, but continue to rise-especially in children under 10.