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†

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I.

, 1984   2   1987   2

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136   (

37.9%)   69

1).

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.   3)   1994   1998

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131

23   (18%)

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4- 7), Blomqvist   8)

.   1990   2   (1 :1973 1989
                                                             , 2 :1990 1999)   (
                                                           1).

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       II.   2)
                                                   3)
  1.   .

                                          .

             1973   1999
                              662   III.

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	1	2
( )	1973(1), 1977(1), 1978(1)	1990(1,2), 1991(1,2)
	1979(1), 1980(1), 1982(1)	1992(1,3), 1993(1,3)
	1983(1), 1984(1), 1985(1)	1 9 9 5 (1 , 2 , 3) , 1996(1,2,3,4)
	1986(1), 1987(1), 1988(1,2)	1 9 9 7 (1 , 2 , 3 , 4) , 1998(1,2,3,4)
	1989(1,2)	1999(1,2,3,4)

2.

1	40(19.3%)	207
2	223(49.0%)	455
	263	662

3.

1		170(64.6%)
2		73(27.8%)
3		18(6.8%)
4		2(0.8%)
		263(100%)

(Correlation) 36 ,
1. Mann- Whitney U 21
.

662 1
263 (39.7%) . ANOVA, Correlation, Student t- test
1 207 , 2 455 15 , Paired t- test 14 , Regression 3
, 1 , 2 ANOVA 104 ,
40 (19.3%), 2 223 (49.0%) Student t- test 57 , Paired t- test 49 ,
(2). Correlation Mann- Whitney U
2. 21 , Kruskal- Wallis 17 , Wilcoxon
14 ( )(4).
1 **4.**
170 (64.6%)
, 2 73 (27.8%), 3 18 (6.8%), 263 87 (33.1%)
4 2 (0.8%) (3).
18 . 1 9 (55%)
3. Paired t- test
Student t- test
5 , 4
14 , (ANOVA) 119 , . 2 16 (29.1%)
Student t- test 72 , Paired t- test 63 , Paired t- test

4.

	1	2	
ANOVA	15	104	119(32.2%)
Student - t	15	57	72(19.5%)
Paried - t	14	49	63(17.1%)
Correlation	15	21	36(9.8%)
Mann- Whitney U	0	21	21(5.7%)
Kruskal- Wallis	0	17	17(4.6%)
Wilcoxon	0	14	14(3.8%)
Chi- square - test	2	11	13(3.5%)
Regression	3	4	7(1.9%)
Fisher exact test	0	2	2(0.5%)
MANOVA	1	1	2(0.5%)
Fridman	0	1	1(0.3%)
Kendell	1	0	0(0.3%)
Mc Nemar test	0	1	1(0.3%)
(263)	66	303	369(100%)

		1	2	
ANOVA	ANOVA	2	7	9(3.4%)
Student t- test	Paired t- test	5	22	27(10.3%)
Student t- test	ANOVA	3	6	9(3.4%)
ANOVA	Paired t- test	0	5	5(1.9%)
Paired t- test	Student t- test	1	3	4(1.5%)
Paired t- test	ANOVA	2	1	3(1.1%)
ANOVA+	ANOVA+	0	3	3(1.1%)
ANOVA	Student t- test	0	2	2(0.8%)
Mann- Whitney U	Student t- test	0	2	2(0.8%)
Paired t- test	ANOVA	0	2	2(0.8%)
Fisher exact test		0	1	1(0.4%)
Spearman correlation	Pearson correlation	1	0	1(0.4%)
Student t- test		0	1	1(0.4%)
Wilcoxon rank sum test	Wilcoxon rank order test	0	1	1(0.4%)
Student t- test	ANOVA + Paired t- test	1	0	1(0.4%)
Chi- square - test	Student t- test	0	1	1(0.4%)
		3	6	9(3.4%)
		4	2	6(2.3%)
		22/40 (55%)	65/223 (29.1%)	87/263 (33.1%)

Student t- test 22 , , , , ,
ANOVA , ,

7 , ANOVA

Student t- test 6
, 6 , Paired t- [2,3,9].
test ANOVA

5 (5). . ,

IV. ,

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[10-12].

[1]. Blomqvist [8] Haffajjee

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computa-　　　　　　　　　　　　　　　　　　　　(　　　　, t-
tional unit　　　　　　　　　　　　　　, 　　　, 　　　　　　　, F-　　),
computational unit

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.　　　Sterne　[12)　　　　　　　　　　　　　　　, 　　　　　　3　　　　　[3)
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　　　(263　, 39.7%),　　　　　　　　　　Moores[13)
(1　4　)　　　　　　　　(14　)　　　　　　　　　　　　　　,
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87 (33.1%)
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　　　18　　　　(1　:9　,
2　:16　)　　　　　　70
　Paired t- test, Student t- test, ANOVA,
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V.

1973   1999

662

263

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2   (1 : 1973 1989 ,

2 : 1990 1999)

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1.   263

(39.7%)   1   40 (19.3%), 2

223 (49.0%)

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2.   1

170 (64.6%)

, 2   73 (27.8%), 3

18 (6.8%),   4   2 (0.8%)

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3.   14   ,

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263   ANOVA

119 (45.2%), Student t- test 72

(27.4%), Paired t- test 63 (24.0%),

Correlation 36   (13.7%),

Mann- Whitney U   21 (8.0%)

.

4.   263   87 (33.1%)

18   . 1   9 (55%)

Paired t- test

Student t- test

5 ,

4   . 2   16

(29.1%)   Paired

t- test   Student

t- test   22 , ANOVA

7 , ANOVA

Student t- test

6 ,   6 ,

Paired t- test

ANOVA   5   .

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V.

1.   ·   ·   ."

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2.   ·   ·   . SPSS/PC+

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3. ."

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1998.

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- Abstract-

Evaluation of Statistical Analysis of Articles in Journal of Korean Academy of Periodontology

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Dentisry, Chosun University
*Oral Biology Research Institute, Chosun
University

The purpose of this study was to analyze the statistical errors of articles in the Journal of Korean Academy of Periodontology from 1973 to 1999. Of the 662 articles examined, 263 were included which analyzed the data. They were classified into 2 groups with time lapse; group 1: 1973 1989, group 2: 1990 1999.

Authors made checklists for analyzing the data and detecting the errors and analyzed them with professional statistician. The results were as follows:

1. Of 263 atricles which applied statistical method, 40(19.3%) was in group 1, 223(49.0%) in group2.
2. In the number of statistical method applied, 170(64.6%) were analyzed with 1 statistical method, 73(27.8%) with 2 methods, 18(6.8%) with 3 methods, and 2(0.8%) with 4 methods
3. The number of statistical methods applied was 14, and they were applied in order of 119 of ANOVA, 72 of Student t- test, 63 of Paired t- test, 36 of CORRELATION, and 21 of Mann- Whitney U test.
4. In 87(33.1%) of 263 articles and in 18 error items, statistical errors were found out. In group I, 9 items (55%) of error were found out, and were in order of 5 of Student t- test instead of Paired t- test, and 4 of unnecessary statistical analysis. In group II, 16 items (29.1%) of error were found out, and were in order of 22 of Student t- test instead of Paired t- test, 7 of no multiple comparison test after ANOVA, 6 of Student t- test instead of ANOVA, 6 of unnecessary statistical analysis, and 5 of ANOVA instead of Paired t- test.

In conclusion, the results noted that statistical analyses were increased, but statistical errors were decreased with time. But authors suggest that researchers should refer to standard statistical texts and seek advice from professional statisticians to avoid the statistical errors.

Key words: statistical analysis, Journal of Korean Academy of Periodontology