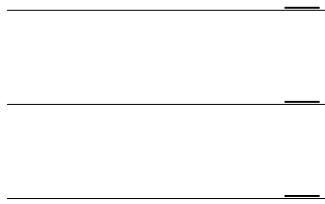


- 1998 .

- 1998 .

2001 12



2001 12

가

가

, 가

.....	
.....	
.....	
.....	vi

I.	.....	1
1.	.....	1
1.	.....	4
II.	.....	5
1.	.....	5
2.	.....	6
3.	.....	8
III.	.....	9
1.	.....	9
2.	.....	10
3.	.....	12
4.	.....	14
5.	.....	16

5.1.	.....	16
5.2.	.....	16
5.3.	.....	18
6.	.....	20
6.1.	.....	20
6.2.	.....	21
6.3.	.....	24
7.	.....	25
IV.	.....	35
V.	.....	40
	.....	42
	.....	46
ABSTRACT	.....	53

3.1	.....	9
3.2	.....	11
3.3	.....	13
3.4	()	14
3.5	()	15
3.6	.....	17
3.7	.....	18
3.8	.....	19
3.9	.....	21
3.10	.....	23
3.11	.....	24
3.12	-	26
3.13	()-	28
3.14	()-	30

2.1	.....	6
2.2	.....	8
3.1	()	15
3.2	()	15
3.3	.....	22
3.4	.....	22
3.5	-	25
3.6	()-	27
3.7	()-	29
3.8	(20-24)-	31
3.9	(25-34)-	32
3.10	(35-44)-	32
3.11	(45-54)-	33
3.12	(55-64)-	33
3.13	(65)-	34

1	(20-24)-	... 46
2	(25-34)-	... 47
3	(35-44 )-	..... 48
4	(45-54 )-	..... 49
5	(55-64 )-	..... 50
6	(65)-	.. 51
7	.....	52
8	.....	52

가

가 ,

1998

20

가

7,162

가 ,

, 20-54
 / 55
 가
 . 20-24
 / , 25 가
 .
 가 , 가
 , , 가
 , 가 , 126
 .
 , ,
 .
 . (illness) 가
 (causal relationship)
 가
 가 .

 : , ,

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1.

「1996」, 1 (23.4% (, 1997).) (, 1997). 가 , 가 가 가 , . 가 (, 1999), Trowell Burckitt . , , (, 1996). 가 가 Boydén 가 10 ,

(, 1996). ,

, (,
1995, , 1998). 가 ,
, 가 가
가, , 가,
, HbA1c 가
가 (Levi, 1992).

, ,
80% (Tayler ,
1982).

, (,
, 1995).

(illness)

가

(causal relationship)

가 (, 1998).

가 (Matthews , 1987, van Dijkhuizen , 1980, Aro, 1984),

가

(, 1997).

(Zelman, 1990).

가

2.

1998

(.)

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1998 11 1 12 31

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가 4,395가 가 ,

,

39,331 .

1.

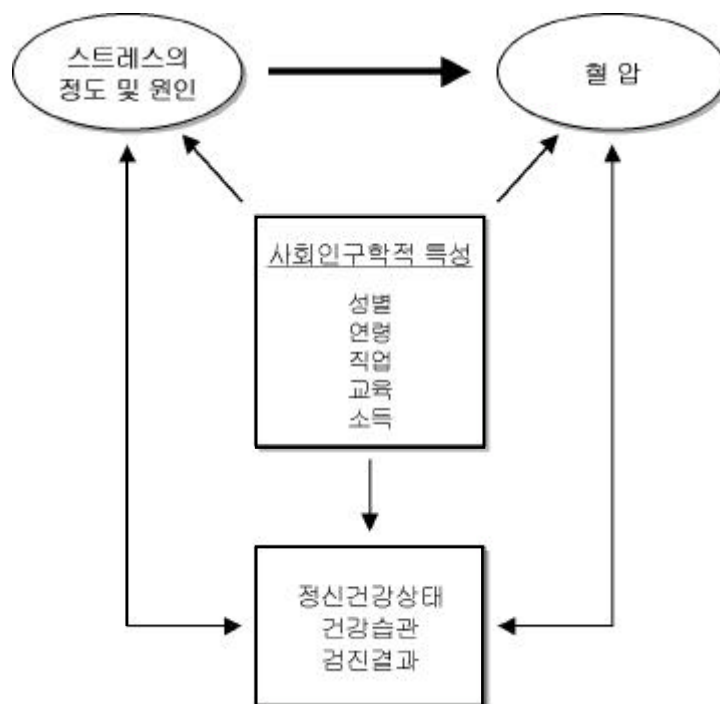
가 20

7,700

7,162

,

2.



2.1

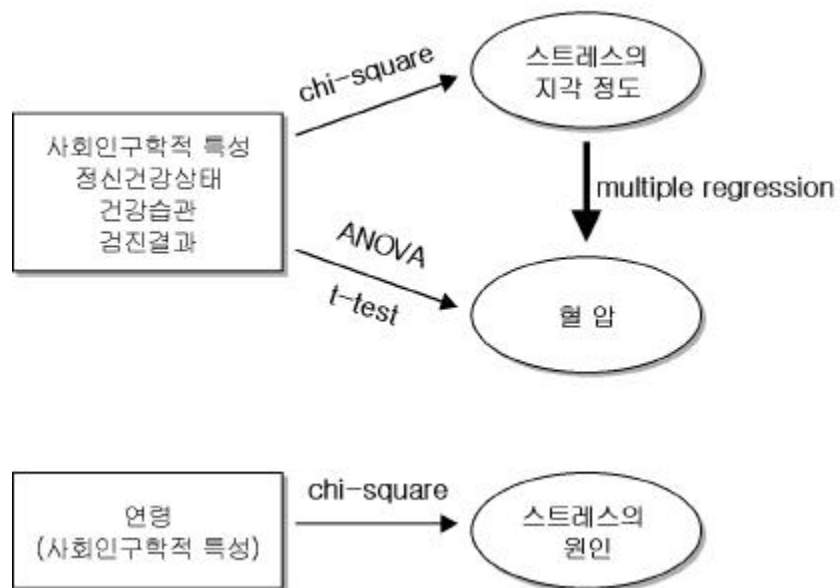
: , , , , ,
 : , , , , ,
 , , , , , ,
 ,
 : , , , , ,
 : (BMI), , , ,
 , .
 (kg) (m) 가
 .
 23kg/ m² , 23-24.9kg/ m² , 25kg/ m²
 (가 , 1997, , 2000).
 Joint of National Committee VI /
 가
 140mmHg
 90mmHg
 (, 2000).
 1997 6 57
 (ADA) 126mg
 (, 1998).
 200mg/ dl 240mg/ dl
 , 240mg/ dl .

3.

SAS package 8.0 version

t-

(multiple regression)



2.2

1.

20 3,261 3,951 7,162
 25-34 가 25.3% 가 ,
 27.2%, 가 37.1% 가 (

3.1).

3.1

		(%)	(%)	
20	25	244(7.5)	329(8.4)	573(8.0)
25	34	814(25.0)	997(25.6)	1811(25.3)
35	44	842(25.8)	963(24.7)	1805(25.2)
45	54	554(17.0)	614(15.7)	1168(16.3)
55	64	483(14.8)	549(14.1)	1032(14.4)
65		324(9.9)	449(11.5)	773(10.8)
		271(8.3)	174(4.5)	445(6.2)
		371(11.4)	232(6.0)	603(8.4)
		517(15.9)	584(15.0)	1101(15.4)
		525(16.1)	525(13.5)	1050(14.7)
		887(27.2)	384(9.8)	1271(17.8)
		1(0.03)	1446(37.1)	1447(20.2)
(,)		689(21.1)	556(14.3)	1245(17.4)
		43(1.3)	282(7.2)	325(4.5)
		627(19.2)	1059(27.2)	1686(23.5)
		454(13.9)	556(14.3)	1010(14.1)
		1237(37.9)	1315(33.7)	2552(35.6)
		900(27.6)	689(17.7)	1589(22.2)
50		626(19.2)	832(21.3)	1458(20.4)
51	150	1642(50.4)	1900(48.7)	3542(49.5)
151	300	849(26.0)	1011(25.9)	1860(26.0)
300		144(4.4)	158(4.1)	302(4.2)

2.

가 47% 38.3% . '가 22.9%, 17.1% , 1 '가 12.9%, 6.1% . '가 21.7%, 16.6% , '가 36.2%, 35.4% 가 29.8%가 ' 가 (3.2).

3.2

	(%)	(%)	
	538(16.5)	1066(27.3)	1604(22.4)
	1192(36.6)	1340(34.4)	2532(35.4)
	1294(39.7)	1343(34.4)	2637(36.8)
	237(7.3)	152(3.9)	389(5.4)
	558(17.1)	893(22.9)	1451(20.3)
가	1726(52.9)	1977(50.7)	3703(51.7)
	783(24.0)	834(21.4)	1617(22.6)
	194(6.0)	197(5.1)	391(5.5)
	200(6.1)	504(12.9)	704(9.8)
가	1566(48.0)	2291(58.7)	3857(53.9)
	1031(31.6)	718(18.4)	1749(24.4)
	464(14.2)	388(10.0)	852(11.9)
	542(16.6)	846(21.7)	1388(19.4)
	2109(64.7)	2427(62.2)	4536(63.3)
	521(16.0)	537(13.8)	1058(14.8)
	89(2.7)	91(2.3)	180(2.5)
	536(16.4)	632(16.2)	1168(16.3)
	1570(48.1)	1855(47.6)	3425(47.8)
	946(29.0)	1163(29.8)	2109(29.5)
	209(6.4)	251(6.4)	460(6.4)
	615(18.9)	1162(29.8)	1777(24.8)
	2646(81.1)	2739(70.2)	5385(75.2)
	31(0.95)	39(1.0)	70(0.98)
	584(17.9)	1123(28.8)	1707(23.8)
	536(16.4)	632(16.2)	1168(16.3)
	372(11.4)	482(12.4)	854(11.9)
	227(7.0)	338(8.7)	565(7.9)
가	277(8.5)	940(24.1)	1217(17.0)
,	1001(30.7)	399(10.2)	1400(19.6)
	718(22.0)	864(22.2)	1582(22.1)
	130(4.0)	246(6.3)	376(5.3)

3.

63.5%가 91.0%
69.1%
30.2%가
21.3%, 14.6%가
24.6%, 26.2%
7.5%, 8.5%
26.2%, 17.2%가
9.9%, 7.5%가 (3.3).

3.3

		(%)	(%)	
		2069(63.5)	227(5.8)	2296(32.1)
가		100(3.1)	30(0.8)	130(1.8)
		522(16.0)	95(2.4)	617(8.6)
		570(17.5)	3549(91.0)	4119(57.5)
		1041(31.9)	163(4.2)	1204(16.8)
가		1214(37.2)	1016(26.0)	2230(31.1)
		421(12.9)	942(24.2)	1363(19.0)
		233(7.2)	138(3.5)	371(5.2)
		352(10.8)	1642(42.1)	1994(27.8)
		695(21.3)	569(14.6)	1264(17.7)
		2566(78.7)	3332(85.4)	5898(82.4)
BMI	23	1677(51.4)	2065(52.9)	3742(52.3)
	23 - 25	783(24.0)	815(20.9)	1598(22.3)
	25	801(24.6)	1021(26.2)	1822(25.4)
	200	2201(67.5)	2601(66.7)	4802(67.1)
	200 - 240	816(24.6)	970(24.9)	1786(24.9)
	240	244(7.5)	330(8.5)	574(8.0)
		2408(73.8)	3229(82.8)	5637(78.7)
		853(26.2)	672(17.2)	1525(21.3)
	126	2938(90.1)	3607(92.5)	6545(91.4)
	126	323(9.9)	294(7.5)	617(8.6)

* BMI : Body Mass Index

4.

가 / 30.3%
 . 20-24 / , 가
 , 25-44 / ,
 , 45-54 가
 . 55
 가 , 55-64 ,
 , 65 , 가
 (3.4, 3.1).
 24.1%가 가 가 .
 20-24 가 / , 가
 , 25 가 , 가
 . 65 가
 가 가 ,
 (3.5, 3.2).

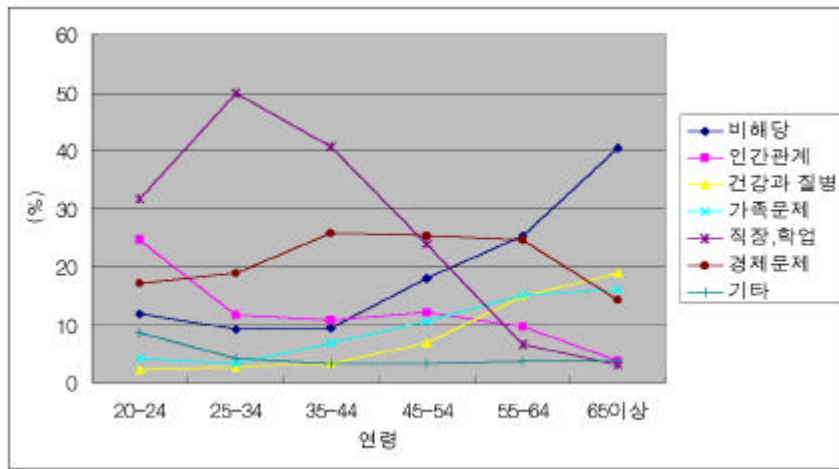
3.4 ()

	20-24	25-34	35-44	45-54	55-64	65	χ^2	p
가	29(11.9)	75(9.2)	79(9.4)	100(18.1)	122(25.3)	131(40.4)	830.38	<.0001
,	60(24.6)	95(11.7)	91(10.8)	67(12.1)	47(9.7)	12(3.7)		
	5(2.1)	22(2.7)	29(3.4)	38(6.9)	72(14.9)	61(18.8)		
가	10(4.1)	28(3.3)	57(6.8)	58(10.5)	73(15.1)	52(16.1)		
,	77(31.6)	407(50.0)	342(40.6)	133(24.0)	32(6.6)	10(3.1)		
	42(17.2)	154(18.9)	217(25.8)	140(25.3)	119(24.6)	46(14.2)		
	21(8.6)	34(4.2)	27(3.2)	18(3.3)	18(3.7)	12(3.7)		
	244(100)	814(100)	842(100)	554(100)	483(100)	324(100)		

3.5

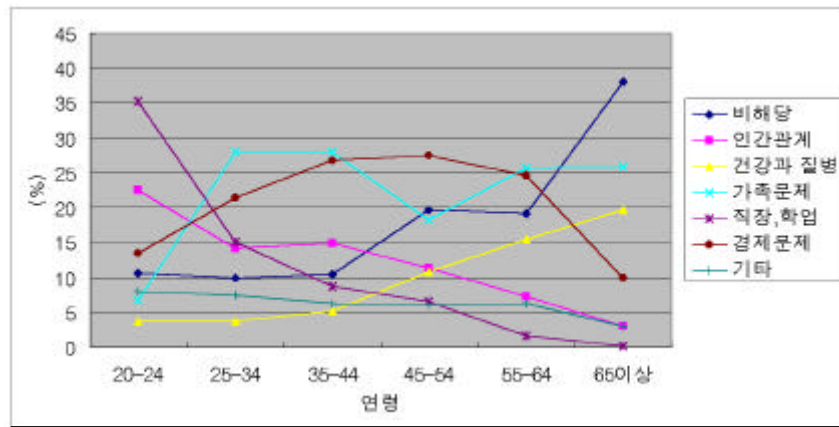
()

	20-24	25-34	35-44	45-54	55-64	65	χ^2	p
가	35(0.6)	100(10.0)	100(10.4)	121(19.7)	105(19.1)	171(38.1)	866.32	<.0001
	74(22.5)	142(14.2)	142(14.8)	70(11.4)	40(7.3)	14(3.1)		
	12(3.7)	37(3.7)	50(5.2)	66(10.8)	85(15.5)	88(19.6)		
	22(6.7)	279(28.0)	270(28.0)	112(18.2)	141(25.7)	116(25.8)		
	11635.3)	150(15.1)	83(8.6)	40(6.5)	9(1.6)	1(0.2)		
	45(13.4)	214(21.5)	258(26.8)	168(27.4)	135(24.6)	45(10.0)		
	26(7.9)	75(7.5)	60(6.2)	37(6.0)	34(6.2)	14(3.1)		
	329(100)	997(100)	963(100)	614(100)	549(100)	449(100)		



3.1

()



3.2

()

5.

5.1.

36.2%, 35.4%가
45-54
가
41.4%,
41.5%
36.3%가 가
50 41.4%가
(3.6).

5.2.

53.9%, 53.0%, 75.6%,
63.4%
가
(3.7).

3.6

					²	p
	536(16.4)	1570(48.1)	946(29.0)	209(6.4)	0.58	0.9005
	632(16.2)	1855(47.6)	1163(29.8)	251(6.4)		
20 - 24	64(11.2)	324(56.5)	157(27.4)	28(4.9)	496.42	<0.0001
25 - 34	175(9.7)	974(53.8)	553(30.5)	109(6.0)		
35 - 44	179(9.9)	973(53.9)	545(30.2)	108(6.0)		
45 - 54	221(18.9)	500(42.8)	358(30.7)	89(7.6)		
55 - 64	227(22.0)	424(41.1)	299(29.0)	82(7.6)		
65	302(39.1)	230(29.8)	197(25.5)	44(5.7)		
	49(11.0)	223(50.1)	146(32.8)	27(6.1)	241.41	<0.0001
	44(7.3)	309(51.2)	215(35.7)	35(5.8)		
	122(11.1)	529(48.1)	366(33.2)	84(7.6)		
	283(27.0)	424(40.4)	290(27.6)	53(5.1)		
	162(12.8)	636(50.0)	388(30.5)	85(6.7)		
	225(15.6)	777(53.7)	360(24.9)	85(5.9)		
(,)	283(22.7)	527(42.3)	344(27.6)	91(7.3)		
	112(34.5)	96(29.5)	92(28.3)	25(7.7)	285.27	<0.0001
	419(24.9)	655(38.9)	491(29.1)	121(7.2)		
	169(16.7)	478(47.3)	293(29.0)	70(6.9)		
	289(11.3)	1350(52.9)	756(29.6)	157(6.2)		
	179(11.3)	846(53.2)	477(30.0)	87(15.5)		
50	337(28.9)	517(35.5)	467(32.0)	137(9.4)	148.87	<0.0001
51 - 150	545(15.4)	1763(49.8)	1039(29.3)	195(5.5)		
151 - 300	244(13.1)	991(53.3)	513(27.6)	112(6.0)		
300	42(13.9)	154(51.0)	90(29.8)	16(5.3)		

3.7

				²	p
	190(11.9)	564(35.2)	645(40.2)	205(12.8)	442.31 <.0001
	291(11.5)	1349(53.3)	754(29.8)	138(5.5)	
	588(22.3)	1319(50.0)	628(23.8)	102(3.9)	
	99(25.5)	193(49.6)	82(21.1)	15(3.9)	
가	161(11.1)	509(35.1)	580(40.0)	201(13.9)	566.33 <.0001
	465(12.6)	1939(52.4)	1124(30.4)	175(4.7)	
	399(24.7)	811(50.2)	338(20.9)	69(4.3)	
	143(36.6)	166(42.5)	67(17.1)	15(3.8)	
가	42(6.0)	130(18.5)	343(48.7)	189(26.9)	1622.37 <.0001
	339(8.8)	1969(51.1)	1328(34.4)	221(5.7)	
	409(23.4)	973(55.6)	333(19.0)	34(1.9)	
	378(44.4)	353(41.4)	105(12.3)	16(1.9)	
	104(7.5)	404(29.1)	640(46.1)	240(17.3)	1242.78 <.0001
	579(12.8)	2485(54.8)	1287(28.4)	185(4.1)	
	383(36.2)	483(45.7)	161(15.2)	31(2.9)	
	102(56.7)	53(29.4)	21(11.7)	4(2.2)	
	105(5.9)	627(35.3)	792(44.6)	253(14.2)	642.67 <.0001
	1063(19.7)	2798(52.0)	1317(24.5)	207(3.8)	
	2(2.9)	24(34.3)	27(38.6)	17(24.3)	655.45 <.0001
	103(6.0)	603(35.3)	765(44.8)	236(13.8)	
가	1168(100)				7211.28 <.0001
		525(61.5)	260(30.4)	69(8.1)	
		296(52.4)	220(38.9)	49(8.7)	
		757(62.2)	369(30.3)	91(7.5)	
		779(55.6)	533(38.1)	88(6.3)	
		858(54.2)	595(35.1)	129(8.2)	
	210(55.9)	132(35.1)	34(9.0)		

5.3

가 41.6%

42.4%

가

. BMI

, , 가
(3.8).

3.8

						²	p
	가	348(15.2)	1042(45.4)	731(31.8)	175(7.6)	35.97	<.0001
		15(11.5)	61(46.9)	47(36.2)	7(5.4)		
		131(21.2)	291(47.2)	159(25.8)	36(5.8)		
		674(16.4)	2031(49.3)	1172(28.5)	242(5.9)		
	가	176(14.6)	518(43.0)	407(33.8)	103(8.6)	186.78	<.0001
		251(11.3)	1181(53.0)	667(29.9)	131(5.9)		
		191(14.0)	728(53.4)	371(27.2)	73(5.4)		
		104(28.0)	152(41.0)	89(24.0)	26(7.0)		
		446(22.4)	846(42.4)	575(28.8)	127(6.4)		
		233(18.4)	620(49.1)	343(27.1)	68(5.4)	10.12	0.0176
		935(15.9)	2805(47.6)	1766(29.9)	392(6.7)		
BMI	23	580(15.5)	1826(48.8)	1111(29.7)	225(6.0)	8.52	0.2025
	23 - 25	262(16.4)	759(47.5)	465(29.1)	112(7.0)		
	25	326(17.9)	840(46.1)	533(29.3)	123(6.8)		
	200	716(14.9)	2369(49.3)	1423(29.6)	294(6.1)	32.38	<.0001
	200 - 240	328(18.4)	820(45.9)	510(28.6)	128(7.2)		
	240	124(21.6)	236(41.1)	176(30.7)	38(6.6)		
		823(14.6)	2813(49.9)	1647(29.2)	354(6.3)	72.65	<.0001
		345(22.6)	612(40.1)	462(30.3)	106(7.0)		
	126	1042(15.9)	3182(48.6)	1919(29.3)	422(6.1)	26.79	<.0001
	126	126(20.4)	243(39.4)	190(30.8)	58(9.4)		

6.

6.1.

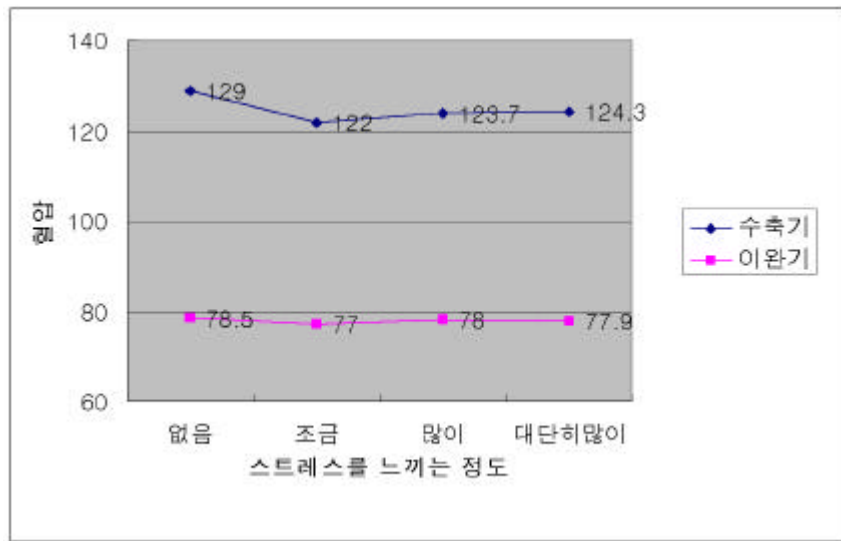
가 , ,
가 , 가 .
136.7 ± 22.6
, 50 129.9 ± 20.9
(3.9).

3.9

		f	p		f	p
	126.9 ± 17.1	178.27	<.0001	80.4 ± 11.5	363.8	<.0001
	121.2 ± 18.2			75.2 ± 11.2		
20 - 24	117.0 ± 11.7	255.45	<.0001	72.8 ± 9.8	77.89	<.0001
25 - 34	117.8 ± 12.7			74.9 ± 10.5		
35 - 44	119.9 ± 14.2			77.9 ± 11.1		
45 - 54	126.0 ± 17.9			80.8 ± 11.5		
55 - 64	132.0 ± 20.6			80.9 ± 11.8		
65	138.0 ± 22.9			77.3 ± 13.7		
	119.5 ± 13.7	59.30	<.0001	77.7 ± 11.3	22.48	<.0001
	120.5 ± 15.0			77.6 ± 10.9		
	122.1 ± 16.6			77.8 ± 11.4		
	128.4 ± 20.0			78.5 ± 11.8		
	125.1 ± 16.7			79.5 ± 12.0		
	118.9 ± 16.1			74.7 ± 10.5		
(,)	128.9 ± 20.5			77.9 ± 12.5		
	136.7 ± 22.6	155.58	<.0001	78.8 ± 13.2	14.25	<.0001
	130.3 ± 20.3			78.9 ± 12.1		
	123.9 ± 16.6			78.5 ± 11.3		
	120.5 ± 15.8			76.8 ± 11.5		
	119.4 ± 14.7			76.6 ± 11.1		
50	129.9 ± 20.9	76.18	<.0001	78.4 ± 12.4	3.42	0.0165
51 - 150	122.7 ± 16.9			77.4 ± 11.5		
151 - 300	121.7 ± 16.6			77.5 ± 11.3		
300	120.5 ± 15.6			76.7 ± 11.7		

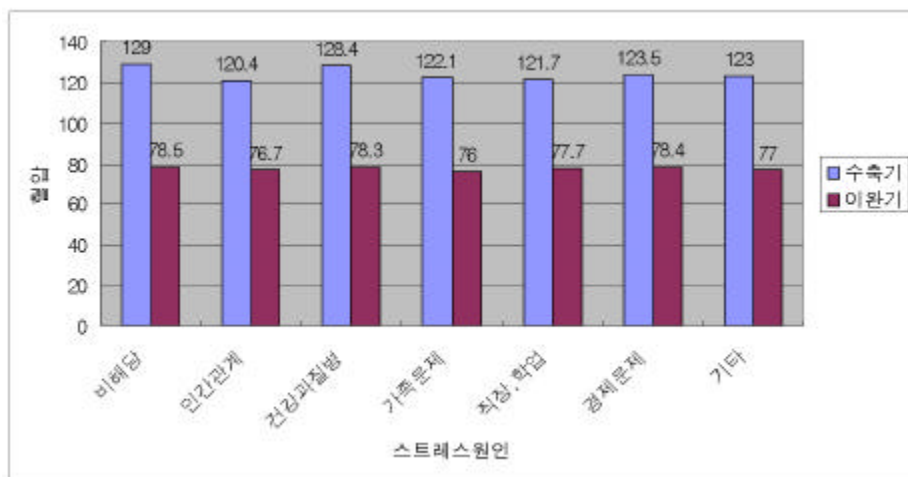
6-2.

가
 , 가 ,
 가 .
 가 (3.3).



3.3

가 (3.4, 3.10).



3.4

3.10

	mean ± SD	f	p	mean ± SD	f	p
	126.7 ± 19.8	28.16	<.0001	77.9 ± 11.7	2.31	0.0738
	121.6 ± 16.5			77.3 ± 11.5		
	123.9 ± 17.9			77.5 ± 11.7		
	125.4 ± 16.6			78.8 ± 11.4		
가	127.5 ± 19.6	34.26	<.0001	78.2 ± 11.9	2.0	0.1118
	122.1 ± 16.7			77.3 ± 11.4		
	123.8 ± 18.4			77.5 ± 11.8		
	126.0 ± 19.0			78.1 ± 12.2		
가	126.3 ± 20.7	32.4	<.0001	77.6 ± 12.8	8.96	<.0001
	122.2 ± 17.0			77.0 ± 11.3		
	124.3 ± 17.5			78.0 ± 11.6		
	128.1 ± 19.3			79.2 ± 12.1		
	123.5 ± 17.6	25.56	<.0001	77.7 ± 11.4	2.66	0.0464
	122.8 ± 17.2			77.3 ± 11.5		
	127.3 ± 19.6			78.3 ± 12.6		
	130.1 ± 23.8			78.7 ± 10.5		
	123.5 ± 18.5	0.77	0.3795	77.0 ± 11.7	6.38	0.0116
	123.9 ± 17.7			77.8 ± 11.6		
	119.6 ± 14.8	2.11	0.1216	75.5 ± 10.8	3.81	0.0222
	123.6 ± 18.6			77.0 ± 11.8		
	129.0 ± 20.3	44.82	<.0001	78.5 ± 12.6	6.40	0.0003
	122.0 ± 16.8			77.0 ± 11.3		
	123.7 ± 17.6			78.0 ± 11.4		
	124.3 ± 18.1			77.9 ± 12.5		
가	129.0 ± 20.3	33.67	<.0001	78.5 ± 12.6	7.65	<.0001
	120.4 ± 16.0			76.7 ± 11.2		
	128.4 ± 20.4			78.3 ± 11.8		
	122.1 ± 17.6			76.0 ± 11.6		
	121.7 ± 14.3			77.7 ± 10.8		
	123.5 ± 18.2			78.4 ± 11.9		
	123.0 ± 17.4			77.0 ± 10.9		

6.3.

128.8 ± 19.4 가

가

(3.11).

3.11

		mean ± SD	f	p	mean ± SD	f	p
가		126.6 ± 17.6	60.19	<.0001	79.7 ± 12.0	61.71	<.0001
		125.0 ± 18.5			79.7 ± 12.4		
		128.8 ± 19.4			80.0 ± 11.7		
		121.4 ± 17.5			76.0 ± 11.1		
가		128.8 ± 18.9	58.38	<.0001	81.6 ± 12.6	52.79	<.0001
		121.9 ± 16.5			77.3 ± 11.4		
		119.4 ± 15.0			75.2 ± 10.7		
		126.6 ± 19.9			77.3 ± 11.9		
		125.4 ± 19.2			77.1 ± 11.3		
		124.4 ± 17.8	1.84	.1749	78.6 ± 11.1	12.03	.0005
		123.7 ± 18.0			77.4 ± 11.7		
BMI	23	120.6 ± 17.2	156.17	<.0001	75.0 ± 11.3	226.51	<.0001
	23 - 25	125.0 ± 17.3			78.9 ± 11.0		
	25	129.3 ± 18.5			81.7 ± 11.5		
	200	121.8 ± 16.8	102.12	<.0001	76.5 ± 11.5	69.54	<.0001
	200 - 240	126.9 ± 19.1			79.4 ± 11.6		
	240	130.8 ± 19.9			81.0 ± 12.0		
	126	123.0 ± 17.5	163.4	<.0001	77.3 ± 11.5	41.85	<.0001
	126	132.5 ± 20.1			80.5 ± 12.8		

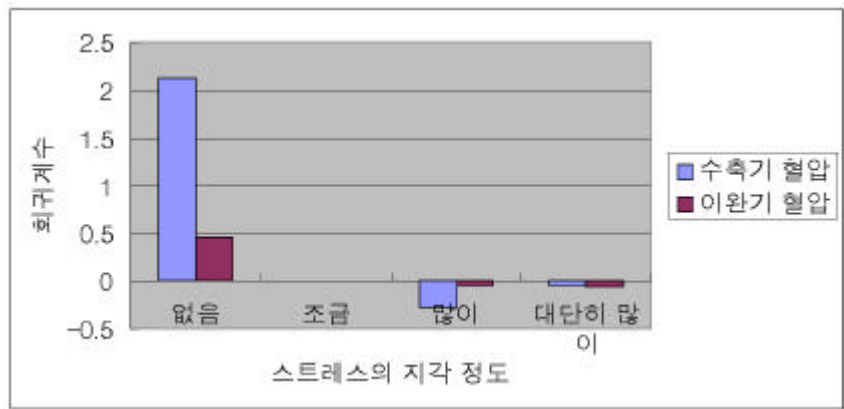
3.12

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		p		p	
		-4.75	<.0001	-4.42	<.0001
	20-25				
	25-34	-0.43	0.5744	1.12	0.0308
	35-44	0.28	0.7141	3.26	<.0001
	45-54	5.21	<.0001	5.49	<.0001
	55-64	11.06	<.0001	5.87	<.0001
	65	17.88	<.0001	3.14	<.0001
	50				
	51-150	-1.26	0.0184	-0.39	0.2801
	151-300	-1.49	0.0126	-0.12	0.7695
	301	-2.24	0.0291	-0.91	0.1921
		1.73	0.0019	0.47	0.2123
		0.48	0.2696	0.64	0.0330
		-0.16	0.8421	-0.03	0.9567
BMI	23				
	23-25	3.86	<.0001	2.86	<.0001
	25	7.6	<.0001	5.53	<.0001
	200				
	200-240	1.68	0.0002	1.44	<.0001
	240	3.33	<.0001	1.98	<.0001
		2.79	<.0001	1.98	<.0001
	가	0.31	0.5579	0.27	0.4469
		-1.72	0.0027	-0.95	0.0144
		-1.63	0.0753	-1.78	0.0589
FBS	126				
	126	4.33	<.0001	0.66	0.1515
		F	101.71	F	61.39
		Adj R ²	0.2280	Adj R ²	0.1505
		p	<.0001	p	<.0001

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(3.6, 3.13).



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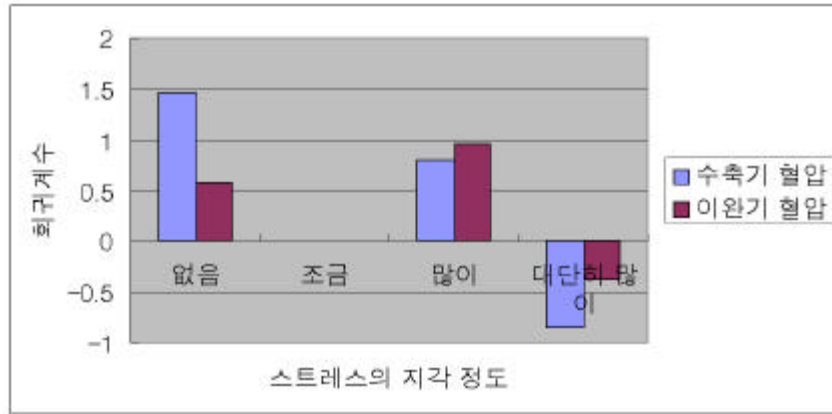
3.13

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		p		p	
	20-25				
	25-34	-1.59	0.1764	1.72	0.0333
	35-44	-2.58	0.0306	3.00	0.0002
	45-54	1.47	0.2459	4.88	<.0001
	55-64	6.71	<.0001	3.92	<.0001
	65	11.92	<.0001	1.55	<.0001
	50				
	51-150	-0.52	0.5197	0.11	0.8452
	151-300	-0.36	0.6932	0.95	0.1263
	300	0.08	0.9566	0.79	0.4485
		2.12	0.0107	0.45	0.4330
		-0.28	0.6720	-0.05	0.9091
		-0.04	0.9731	-0.07	0.9336
BMI	23				
	23-25	4.49	<.0001	3.51	<.0001
	25	7.82	<.0001	6.2	<.0001
	200				
	200-240	1.39	0.0371	1.25	0.0066
	240	1.69	0.1257	1.86	0.0141
		4.36	<.0001	2.42	0.0004
	가	2.52	0.0111	0.88	0.1932
		-1.49	0.1984	-1.45	0.0684
		-0.34	0.8008	-0.56	0.5452
FBS	126				
	126	4.29	<.0001	0.46	0.4819
		F	24.68	F	18.79
		Adj R ²	0.1268	Adj R ²	0.0984
		p	<.0001	p	<.0001

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(3.7, 3.14).



3.7

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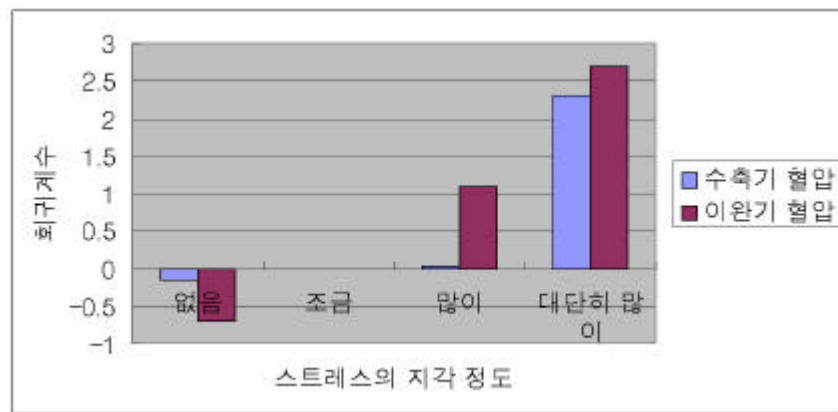
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		p		p	
	20-25				
	25-34	0.59	0.5501	0.72	0.2859
	35-44	2.95	0.0033	3.66	<.0001
	45-54	8.90	<.0001	6.49	<.0001
	55-64	15.21	<.0001	8.10	<.0001
	65	22.89	<.0001	4.86	<.0001
	50				
	51-150	-1.39	0.0481	-0.52	0.2787
	151-300	-2.13	0.0069	-0.84	0.1155
	300	-3.51	0.0112	-2.09	0.0268
		1.47	0.0457	0.59	0.2445
		0.79	0.1753	0.97	0.0147
		-0.85	0.4145	-0.37	0.6007
BMI	23				
	23-25	2.47	0.0001	1.80	<.0001
	25	6.58	<.0001	4.43	<.0001
	200				
	200-240	1.64	0.0061	1.31	0.0013
	240	3.83	<.0001	1.49	0.0197
		4.22	0.0009	2.44	0.0051
	가	-0.55	0.3987	0.14	0.7467
		-0.78	0.2355	-0.25	0.5695
		0.35	0.8002	-0.67	0.4716
FBS	126				
	126	4.65	<.0001	0.99	0.1262
		F	79.91	F	30.42
		Adj R ²	0.2881	Adj R ²	0.13
		p	<.0001	p	<.0001

20-24

(3.8).

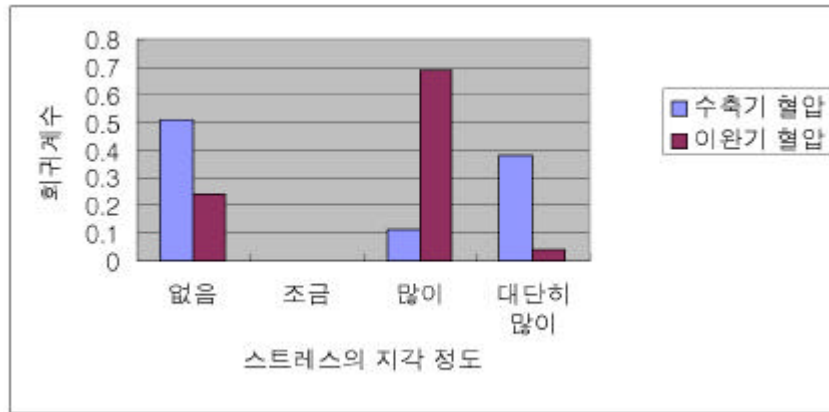


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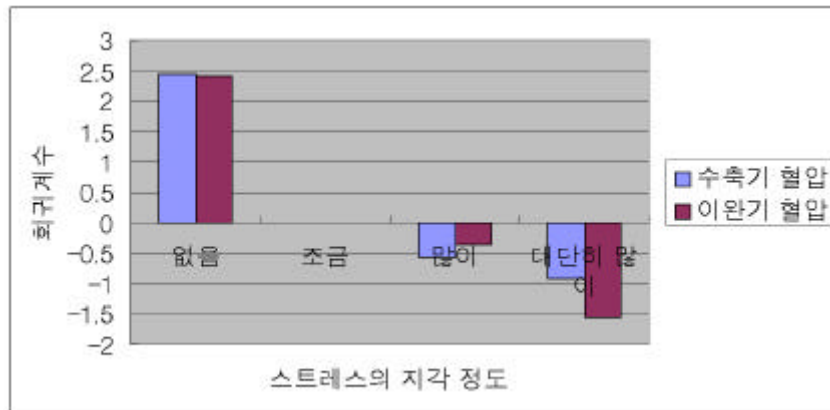
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25-34 , 35-44 , 45-54 , 55-64 , 65

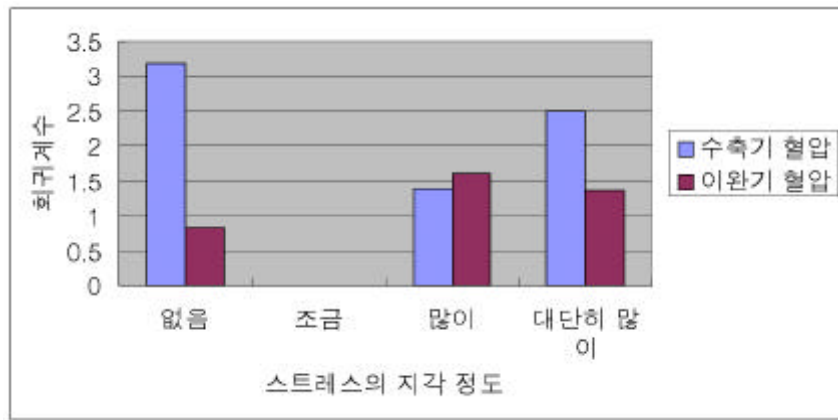
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3.9 (25-34)-

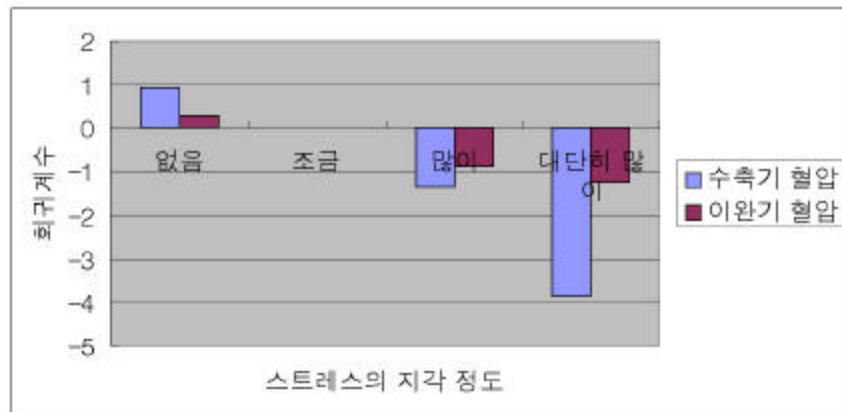


3.10 (35-44)-



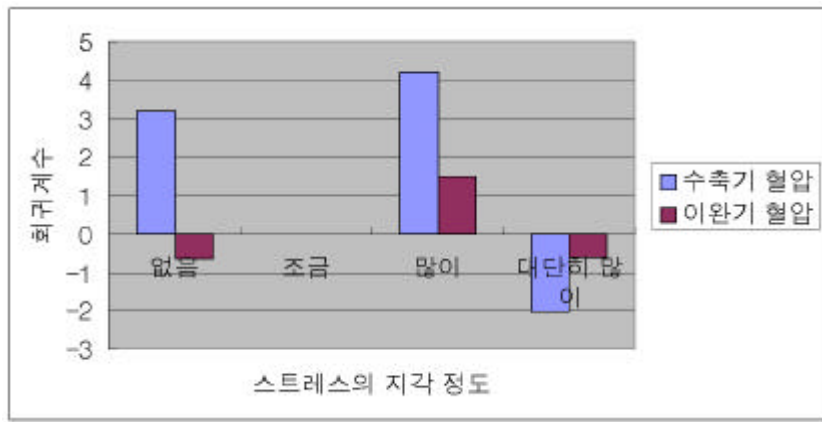
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6. , . 1998;63(9):
528-32
7. . , 1997
8. 가 , 가 . , 1997
9. . : - . :
, 2000
10. , , . . , 2000
11. , , , , .
. 가
1992;13:410-9
12. , . ,

- . 가 1988;41:77-83
13. , , , . ,
. 가 1994;15(12):1147-55
14. , , , , , 가 , . 1
. 가 1999;
20(6):787-97
15. . , .
1993. 121-59
16. , , , .
. 가 1998;19(2):205-15
17. , . .
1993;1(1):103-10
18. , , . .
1987;26(5):25-8
19. , , , .
. 가 1999;20(2):167-75
20. , , , , , .
. 가
2001;22(7):1034-42
21. . - -. 1995;3(1)
:58-63
22. , 田中正敏. . , 1991

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1. Levi L. Stress in Industry : Causes, Effects and prevention. Geneva : International Labour office, 1984, Fletcher B. Models of stress and disease. In:Wiley J ed. Work, Stress, Disease and Life Expectancy. England ; 1992:1-31
2. Tayler PB, Ureda JR, Denham JW. Health Promotion : Principles and clinical Applications. Norwalk : Appletion-Century-Croft, 1982:339-71
3. Matthews KA, Cottington EM, Talbott E, Kuller LH, Siegel JM. Stressful work conditions and diastolic blood pressure among blue collar factory workers. Am J Epidemiol 1987;126(2):280-91
4. van Dijkhuizen N, Reiche H. Psychosocial stress in industry:a heartache for middle management? Psychother Psychosom 1980;34:124-34
5. Aro S. Occupational stress, health-related behavior, and blood pressure:a 5-year follow-up. Prev Med 1984;13:333-48
6. Zelman S Freeman. Stress and hypertension - a critical review. The Med J Aus, 1990;153:621-5
7. Lin MW. A global assessment of recent stress scale(GARS). Int J Psychiatry Med, 1985;5:47-59
8. Epstein FH, Francis T, Hayner NS. Prevalence of chronic disease and distribution of selected physiologic variables in al total community, Tecumseh, Michigan. Am J Epidemiol 1965;81:307-22
9. Gracia MJ, Mcnamara PM, Gordon T, Kannell WB. Morbidity and

- mortality in diabetics in the framingham population. *Diabetes* 1974;23:105-11
10. National Institute of Health Development Conference Statement. Health implication of obesity. *Ann Intern Med* 1985;104:147-51
 11. Elliott P, Rogers S, Scally G, Beevers DG, Lichtenstein MJ, Keenan G, et al. Sodium, potassium, body mass, alcohol and blood pressure in three United Kingdom centers(the INTERSALT Study). *Eur J Clin Nutrition* 1990;44:637-45
 12. Forhlich ED. Mechanisms contribution to high blood pressure. *Annals Int Med* 1983;98:709-14
 13. Soucek M, Kara T. Stress-induced hypertension and diabetes mellitus. *Vnitri Lekarstvi* 2001;47(5):315-9
 14. Selye H. The stress coccept today. In Kutash IL, Schlesinger LB(ed), *Handbook on Stress and Anxiety*, Sanfrancisco, Jossey-Bass 1988:127)
 15. Hinkle LE. Stress and disease : The concept after 50 years. *Soc Sci Med* 1987;25(6):561-6

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(20-24)-

		p		p	
		-11.41	<.0001	-5.77	<.0001
	50				
	51-150	-0.54	0.6787	1.44	0.2483
	151-300	-1.09	0.4441	0.93	0.4909
	300	-0.02	0.9940	1.96	0.3803
		-0.15	0.9106	-0.71	0.5835
		0.03	0.9719	1.08	0.2451
		2.29	0.2486	2.69	0.1518
BMI	23				
	23-25	3.49	0.0052	1.56	0.1880
	25	7.62	<.0001	3.77	0.0027
	200				
	200-240	2.17	0.0997	0.72	0.5642
	240	-0.29	0.9045	-0.94	0.6851
		-0.35	0.8423	1.02	0.5392
	가	-2.74	0.0400	0.19	0.8816
		-0.68	0.6431	0.35	0.8035
		-1.34	0.5967	-0.06	0.9803
FBS	126				
	126	4.95	0.0378	-0.19	0.9335
		F	15.73	F	4.88
		Adj R ²	0.2918	Adj R ²	0.0979
		p	<.0001	p	<.0001

		p		p	
		-8.72	<.0001	-6.61	<.0001
	50				
	51-150	-0.35	0.7149	-0.69	0.3879
	151-300	0.12	0.9028	0.39	0.6390
	300	0.29	0.8420	-0.59	0.6424
		0.51	0.5842	0.24	0.7635
		0.11	0.8546	0.69	0.1738
		2.38	0.7408	0.04	0.9669
BMI	23				
	23-25	3.33	<.0001	2.75	<.0001
	25	6.75	<.0001	4.31	<.0001
	200				
	200-240	1.02	0.1345	1.72	0.0030
	240	4.66	0.0006	2.97	0.0104
		1.84	0.0769	1.31	0.1385
	가	0.76	0.3400	0.38	0.5748
		-0.68	0.4204	-1.19	0.0947
		-0.82	0.6077	-0.92	0.4978
FBS	126				
	126	3.62	0.0050	1.59	0.1446
		F	33.68	F	26.34
		Adj R ²	0.2241	Adj R ²	0.1839
		p	<.0001	p	<.0001

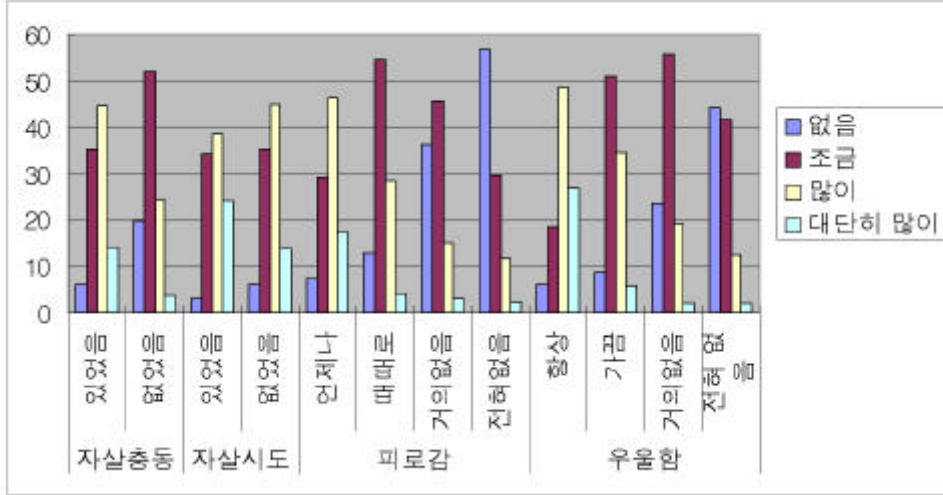
		p		p	
		-4.62	<.0001	-4.67	<.0001
	50				
	51-150	-2.35	0.0286	-2.03	0.0146
	151-300	-4.17	0.0002	-2.35	0.0073
	300	-4.19	0.0083	-2.98	0.0157
		2.44	0.0237	2.41	0.0040
		-0.57	0.4208	-0.38	0.4948
		-0.92	0.4901	-1.57	0.1290
BMI	23				
	23-25	2.71	0.0004	2.03	0.0006
	25	6.92	<.0001	5.37	<.0001
	200				
	200-240	1.53	0.0420	1.05	0.0725
	240	3.38	0.0065	2.37	0.0137
		4.62	<.0001	3.99	<.0001
	가	0.58	0.5098	0.59	0.3835
		-0.82	0.3852	0.12	0.8723
		1.02	0.5708	0.06	0.9671
FBS	126				
	126	5.02	<.0001	1.94	0.0452
		F	21.18	F	22.75
		Adj R ²	0.1518	Adj R ²	0.1618
		p	<.0001	p	<.0001

		p		p	
		-2.84	0.0218	-4.21	<.0001
	50				
	51-150	-0.84	0.5678	0.39	0.6684
	151-300	-0.59	0.7212	0.57	0.5828
	300	-1.01	0.7241	0.19	0.9156
		3.19	0.0244	0.82	0.3606
		1.39	0.2516	1.61	0.0353
		2.49	0.2195	1.37	0.2828
BMI	23				
	23-25	2.65	0.0394	2.41	0.0029
	25	7.24	<.0001	5.87	<.0001
	200				
	200-240	0.45	0.6941	0.84	0.2441
	240	2.57	0.1488	2.35	0.0358
		3.29	0.0550	2.07	0.0554
	가	2.03	0.1592	-0.01	0.9880
		0.65	0.6730	-0.22	0.8177
		-2.48	0.3601	-0.37	0.8286
FBS	126				
	126	6.33	0.0001	2.15	0.0368
		F	5.61	F	8.72
		Adj R ²	0.0594	Adj R ²	0.0957
		p	<.0001	p	<.0001

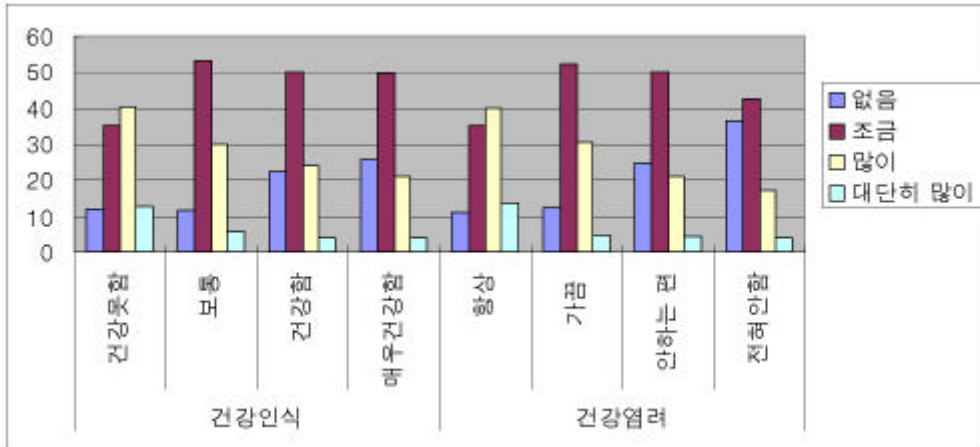
		p		p	
		0.29	0.8540	-0.14	0.8793
	50				
	51-150	-0.53	0.7120	0.69	0.3950
	151-300	-0.82	0.6604	0.75	0.4846
	300	-2.18	0.5287	-0.03	0.9913
		0.93	0.5765	0.31	0.7487
		-1.33	0.3950	-0.89	0.3204
		-3.88	0.12	-1.22	0.3900
BMI	23				
	23-25	5.23	0.0012	3.65	<.0001
	25	5.68	0.0002	4.78	<.0001
	200				
	200-240	1.49	0.2904	0.72	0.3699
	240	2.44	0.2067	0.43	0.6980
		5.44	0.0102	3.22	0.0078
	가	1.72	0.3741	1.71	0.1232
		-4.47	0.0249	-1.27	0.2660
		-3.35	0.2113	-1.49	0.3296
FBS	126				
	126	5.01	0.0052	-1.54	0.1331
		F	3.5	F	3.78
		Adj R ²	0.0374	Adj R ²	0.0414
		p	<.0001	p	<.0001

		p		p	
		1.39	0.4814	-2.08	0.0794
	50				
	51-150	-2.26	0.2258	-0.89	0.4203
	151-300	1.24	0.6439	0.56	0.7285
	300	-7.48	0.2997	-5.97	0.6676
		3.19	0.1061	-0.64	0.5862
		4.21	0.0560	1.47	0.2662
		-2.02	0.5897	-0.60	0.7879
BMI	23				
	23-25	4.92	0.0269	4.20	0.0016
	25	9.56	<.0001	6.34	<.0001
	200				
	200-240	4.06	0.0267	2.65	0.0160
	240	3.14	0.2505	0.85	0.6034
		4.78	0.0742	1.11	0.4882
	가	0.59	0.8242	1.18	0.4674
		-4.82	0.0714	-1.53	0.3396
		1.89	0.4803	-0.31	0.8489
FBS	126				
	126	0.57	0.8091	-0.69	0.6230
		F	3.28	F	2.82
		Adj R ²	0.0450	Adj R ²	0.0365
		p	<.0001	p	0.0002

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ABSTRACT

Association between stress and blood pressure

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In our modern society most death are caused by cerebrovascular disease and cardiovascular disease which all link to the most dangerous factor, hypertension. Today, the number of hypertension has been increased sharply. One of the reason for hypertension is the stress caused by complicated society and environmental changes. We all know the close relationship between stress and the illness. However, we could not prove the causal relationship and still arguing about their relationship. Also there is a limit to the research object.

The research was done with 7,162 participants who never had hypertension treatment. Participants were among the age of twenties

and over who went through 「Korea Health and Nutrition Survey」 in 1998. These participants were tested in statistic analysis of the association between stress perception and blood pressure. Demographical characteristic, condition of mental health, health habit, and result of medial examination were determined as variables. After the association between stress, blood pressure and the above variables was analyzed, a multiple regression analysis was performed to understand the association between stress perception and blood pressure for each gender and age group. The cause of stress for each age group was also analyzed.

The research result as follow;

The research analyzed the stress level of each variable. Participants were feeling less stress when participant's age increase, low education background and with less income. Participants who were feeling more stressed were the ones who are more thinking of their unhealthiness, more concerned with their health, often feeling depressed, thinking of suicide and have tried to suicide, smoking and drinking, not exercising, high cholesterol, fasting blood sugar and blood pressure.

During research, they broke down into different age group and gender to find out the cause of major stress. The major stress for male age group between twenties and fifty-four was work, education and economy problems. Most participants who were getting less stress are mostly from male age group fifty-five and over. They were stressed

over economy problems, health and illness. For female age group between twenties and twenty-four, their major stress causing factors were by getting along at work and human relationship. female age group of twenty-five and over were getting stressed from family problems and economy problems.

They analyzed blood pressure by each variable. Men's average blood pressure was higher than women. Also as age increase, low education background, with low income, experienced smoking, often drinking, who weigh more, with high cholesterol, high fasting blood sugar measured higher blood pressure.

As a result of the research they've done, there wasn't any significant association between blood pressure and different level of stress. There are many other reasons effecting blood pressure and therefore result concluded as it is. Even if we accept as a fact that there is a relationship between stress and illness, there's still adverse criticism to objectively prove the causal relationship. There should be more comprising, wide scope and converting research to follow in the future to prove the significant association between stress and illness.