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Abstract

Effects of Sociodemographic Factors on the Stage of Behavior Change  
Among Employees of Small to Medium Sized Enterprises

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**Objectives:** This research attempts to investigate the relationship between health risk factors and workers' behavioral changes based on individual worker's characteristics to allow the development of more effective health promotion programs in businesses places.

**Methods:** A questionnaire survey was conducted with 282 workers employed in small to medium sized enterprises in the Kyong-in area of Korea. The questionnaire was composed of general characteristics, a health risk assessment and an evaluation of the stage of behavior change for health promotion strategy in the workplace.

**Results:** The health risk assessment revealed that 65.7 % of male workers smoke, 70.5% of male workers do not exercise on a regular basis, 86.1 % of female workers do not exercise at all, and 78.6 % of male workers and 50 % of female workers drink alcohol. In addition, the survey identified that 29.5% of male workers are addicted to excessive drinking, as are 11.1% of female workers.

Based on the four stages of behavioral changes that lead to health, the pre-contemplation stage, contemplation stage, action stage, and maintenance stage, 40.5 %, 23.7 %, 12.1 % and 23.7 % of workers are in these stages, respectively, with regards to quitting smoking. As for regular exercises, 18.4 %, 37.6 %, 17.7 %, and 26.3 % of workers belong to each stage, respectively. As for moderation in drinking, 20.9 %, 15.4 %, 10.0 %, and 53.7 % are in each stage, respectively.

The rate of health managers in the active stage of quitting smoking is significantly higher than that of general workers. Among the workers who do not exercise on a regular basis, workers over 50 years-old and blue color workers are more common in the pre-contemplation stage than any other worker groups.

**Conclusions :** The results of this study suggest that the stages of behavioral change vary with worker characteristics. An awareness of the effects of the high risk factors is essential for promoting workers' attendance in health promotion programs.

**Key Words :** Health risk factors, Pre-contemplation stage, Contemplation stage, Action stage, Maintenance stage, Small to medium sized enterprises

< : 2002 1 18 , : 2002 3 9 >  
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\* (2000)

(O'

Donnell, 1994).

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(Prochaska

DiClemente, 1992; King, 1996; Nguyen, 1997; Rhodes, 1997).

(O'Donnell,

Laforge (1999)

1994). 1985

(The National Survey of Worksite Health Promotion Activities)

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Cullen (1998)

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40-49

가 25.2 %, 50

13.8 %

가

210 ,

72 ,

33.0 %, 63.1 %  
 (B.M.I) 78.0 %, 25 22.0  
 % 가 65 , 가 217 20.9 %  
 가 190 , 92  
 100 27.7 % . 100-  
 149 39.7 %, 150 32.6 %  
 100-149 가 ' , ' )  
 52.1 % 가 ' , 45.0 % , ' )  
 ' 2.9 % . (p=0.001)  
 가 ' 가 74.5 % , ' 가 40.5 % 가  
 ' 25.5 % . 26.2 % , 21.4 %  
 ' 가 69.1 % 가 가 45.0 % 가  
 ' , 7.5 % , ' 가 23.4 % 가 9.2 % 가 . ,  
 ' 가 76.6 % 가 ' , 6.4 ( ) ,  
 % , ' 가 17.0 % (Table 1).

2. 가 (Table 3).  
 5.  
 65.7 %가  
 , 6 1 4  
 , 1 30 (p=0.032) 30  
 %, 70.5 %, (9.7 %)가 가 50  
 13.9 %, (5.1 %)가 가  
 86.1 % (26.1 %)가  
 . 78.6 % , (14.7%)  
 50 % , (18.5 %)가  
 70.5 % , 88.9 %가 (30.0 %) (p=0.021) , ,  
 가 (Table 1). ( ) , ,  
 가 (Table 4).

3. 가 (Table 2).  
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 (Table 2). 가 , , , , ( ) , ,  
 40.5 % , 6 가 23.7 % , , , , 가 (Table 5).  
 가 23.7 % . 가  
 가 37.6 % 가  
 가 18.4% , 가 26.3 %

Table 1. General characteristics of study subjects ( ) : %

Item	Workers	Health risk factors			
		Smokers	Non exerciser	Drinkers	Heavy drinkers
Age					
30	14(19.4)	72(25.5)	23(31.9)	58(80.6)	51(70.8)
30-39	26(26.0)	100(35.5)	59(59.0)	74(74.0)	69(69.0)
40-49	25(35.2)	71(25.2)	46(64.8)	50(70.4)	55(77.5)
50	5(12.8)	39(13.8)	10(25.6)	28(71.8)	26(66.7)
Sex					
male	62(29.5)	210(74.5)	138(65.7)	148(70.5)	165(78.6)
female	8(11.1)	72(25.5)	0(0.0)	62(86.1)	36(50.0)
Marital status					
single	20(21.5)	93(33.0)	36(38.7)	69(74.2)	66(71.0)
coupled	49(27.5)	178(63.1)	98(55.1)	132(74.2)	131(73.6)
etc.	1(9.1)	11(3.9)	4(36.4)	9(81.8)	4(36.4)
B. M. I.					
normal	52(23.6)	220(78.0)	104(47.3)	167(75.9)	150(68.2)
25	18(29.0)	62(22.0)	34(54.8)	43(69.4)	51(82.3)
Type of job					
health manager	18(27.7)	65(23.1)	35(53.8)	45(69.2)	45(69.2)
workers	52(24.0)	217(76.9)	103(47.5)	165(76.0)	156(71.9)
Type of job					
blue workers	21(22.8)	92(32.6)	56(60.9)	72(78.3)	65(70.7)
white workers	49(25.8)	190(67.4)	82(43.2)	138(72.6)	136(71.6)
Monthly personal income(unit : 10,000 won)					
100	12(15.4)	78(27.7)	16(20.5)	69(88.5)	50(64.1)
100-149	32(28.6)	112(39.7)	63(56.3)	72(64.3)	80(71.4)
150	26(28.3)	92(32.6)	59(64.1)	69(75.0)	71(77.2)
Job satisfaction					
Satisfied	35(23.8)	147(52.1)	77(52.4)	105(71.4)	101(68.7)
Ordinary	32(25.2)	127(45.0)	58(45.7)	98(77.2)	92(72.4)
Dissatisfied	3(37.5)	8(2.9)	3(37.5)	7(87.5)	8(100.0)
Disease					
No	51(24.3)	210(74.5)	104(49.5)	159(75.7)	144(68.6)
Yes	19(26.4)	72(25.5)	34(47.2)	51(70.8)	57(79.2)
Need for health promotion program					
positive	44(22.6)	195(69.1)	97(49.7)	139(71.3)	137(70.3)
negative	5(23.8)	21(7.5)	9(42.9)	17(81.0)	15(71.4)
neutral	21(31.8)	66(23.4)	32(48.5)	54(81.8)	49(74.2)
Attedance on health promotion program					
positive	49(22.7)	216(76.6)	103(47.7)	157(72.7)	149(69.0)
negative	6(33.3)	18(6.4)	8(44.4)	15(83.3)	15(83.3)
neutral	15(31.3)	48(17.0)	27(56.3)	38(79.2)	37(77.1)



Table 3. The stage of behavior change according to worker's characteristics in workers who has been smoking or smoked ( ) : %

Classification	Stage of behavior change					P value
	Precontemplation	Contemplation	Action	Maintenance	Total	
<b>Age</b>						
30	14(50.0)	3(10.7)	5(17.9)	6(21.4)	28(100.0)	0.559
30-39	31(43.7)	17(23.9)	9(12.7)	14(19.7)	71(100.0)	
40-49	20(34.5)	17(29.3)	6(10.3)	15(25.9)	58(100.0)	
50	5(31.2)	4(25.0)	1(6.3)	6(37.5)	16(100.0)	
<b>Sex</b>						
male	69(40.8)	41(24.3)	21(12.4)	38(22.5)	169(100.0)	0.099
female	1(25.0)	0(0.0)	0(0.0)	3(75.0)	4(100.0)	
<b>Marital status</b>						
single	23(50.0)	7(15.2)	7(15.2)	9(19.6)	46(100.0)	0.535
coupled	46(37.4)	33(26.8)	13(10.6)	31(25.2)	123(100.0)	
etc.	1(25.0)	1(25.0)	1(25.0)	1(25.0)	4(100.0)	
<b>B.M.I</b>						
Normal	53(40.2)	30(22.7)	16(12.1)	33(25.0)	132(100.0)	0.889
25	17(41.5)	11(26.8)	5(12.2)	8(19.5)	41(100.0)	
<b>Type of job</b>						
health manager	11(26.2)	17(40.5)	9(21.4)	5(11.9)	42(100.0)	0.001
workers	59(45.0)	24(18.3)	12(9.2)	36(27.5)	131(100.0)	
<b>Type of job</b>						
blue workers	32(48.5)	13(19.7)	7(10.6)	14(21.2)	66(100.0)	0.407
white workers	38(35.5)	28(26.2)	14(13.1)	27(25.2)	107(100.0)	
<b>Monthly personal income(unit : 10,000 won)</b>						
100	8(40.0)	5(25.0)	4(20.0)	3(15.0)	20(100.0)	0.474
100-149	36(45.0)	14(17.5)	10(12.5)	20(25.0)	80(100.0)	
150	26(35.6)	22(30.1)	7(9.6)	18(24.7)	73(100.0)	
<b>Job satisfaction</b>						
Satisfied	32(35.6)	29(32.2)	11(12.2)	18(20.0)	90(100.0)	0.076
Ordinary	36(46.2)	12(15.4)	10(12.8)	20(25.6)	78(100.0)	
Dissatisfied	2(40.0)	0(0.0)	0(0.0)	3(60.0)	5(100.0)	
<b>Disease</b>						
No	50(38.2)	31(23.7)	18(13.7)	32(24.4)	131(100.0)	0.580
Yes	20(47.6)	10(23.8)	3(7.2)	9(21.4)	42(100.0)	
<b>Need for health promotion program</b>						
positive	44(37.0)	32(26.9)	17(14.3)	26(21.8)	119(100.0)	0.486
negative	6(50.0)	1(8.3)	1(8.3)	4(33.4)	12(100.0)	
neutral	20(47.6)	8(19.1)	3(7.1)	11(26.2)	42(100.0)	
<b>Attendance on health promotion program</b>						
positive	48(37.5)	33(25.8)	17(13.3)	30(23.4)	128(100.0)	0.692
negative	5(45.4)	1(9.1)	1(9.1)	4(36.4)	11(100.0)	
neutral	17(50.0)	7(20.6)	3(8.8)	7(20.6)	34(100.0)	
<b>Total</b>	<b>70(40.5)</b>	<b>41(23.7)</b>	<b>21(12.1)</b>	<b>41(23.7)</b>	<b>173(100.0)</b>	

Table 4. The stage of behavior change according to worker's characteristics in all workers

( ) : %

Classification	Stage of behavior change					P value
	Precontemplation	Contemplation	Action	Maintenance	Total	
Age						
30	7(9.7)	24(33.3)	22(30.6)	19(26.4)	72(100.0)	0.032
30-39	24(24.0)	35(35.0)	15(15.0)	26(26.0)	100(100.0)	
40-49	11(15.5)	31(43.7)	11(15.5)	18(25.4)	71(100.0)	
50	10(25.7)	16(41.0)	2(5.1)	11(28.2)	39(100.0)	
Sex						
male	39(18.6)	81(38.6)	33(15.7)	57(27.1)	210(100.0)	0.501
female	13(18.1)	25(34.7)	17(23.6)	17(23.6)	72(100.0)	
Marital status						
single	13(14.0)	30(32.2)	21(22.6)	29(31.2)	93(100.0)	0.117
coupled	36(20.2)	69(38.8)	29(16.3)	44(24.7)	178(100.0)	
etc.	3(27.3)	7(63.6)	0(0.0)	1(9.1)	11(100.0)	
B.M.I						
Normal	40(18.2)	89(40.5)	35(15.9)	56(25.4)	220(100.0)	0.228
25	12(19.4)	17(27.4)	15(24.2)	18(29.0)	62(100.0)	
Type of job						
health manager	9(13.9)	28(43.1)	13(20.0)	15(23.0)	65(100.0)	0.530
workers	43(19.8)	78(35.9)	37(17.1)	59(27.2)	217(100.0)	
Type of job						
blue workers	24(26.1)	42(45.6)	9(9.8)	17(18.5)	92(100.0)	0.021
white workers	28(14.7)	64(33.7)	41(21.6)	57(30.0)	190(100.0)	
Monthly personal income(unit : 10,000 won)						
100	14(17.9)	29(37.2)	17(21.8)	18(23.1)	78(100.0)	0.333
100-149	26(23.2)	36(32.1)	16(15.2)	33(29.5)	112(100.0)	
150	12(13.0)	41(44.6)	16(17.4)	23(25.0)	92(100.0)	
Job satisfaction						
Satisfied	27(18.4)	59(40.1)	24(16.3)	37(25.2)	147(100.0)	0.582
Ordinary	24(18.9)	42(33.1)	26(20.5)	35(27.5)	127(100.0)	
Dissatisfied	1(12.5)	5(62.5)	0(0.0)	2(25.0)	8(100.0)	
Disease						
No	35(16.7)	79(37.6)	42(20.0)	54(25.7)	210(100.0)	0.275
Yes	17(23.6)	27(37.5)	8(11.1)	20(27.8)	72(100.0)	
Need for health promotion program						
positive	28(14.3)	77(39.5)	37(19.0)	53(27.2)	195(100.0)	0.257
negative	7(33.3)	6(28.6)	3(14.3)	5(23.8)	21(100.0)	
neutral	17(25.8)	23(34.9)	10(15.1)	16(24.2)	66(100.0)	
Attendance on health promotion program						
positive	33(15.3)	82(38.0)	39(18.0)	62(28.7)	216(100.0)	0.049
negative	7(38.9)	7(38.9)	0(0.0)	4(22.2)	18(100.0)	
neutral	12(25.0)	17(35.4)	11(22.9)	8(16.7)	48(100.0)	
Total	52(18.5)	106(37.6)	50(17.7)	74(26.2)	282(100.0)	



Table 5. The stage of behavior change according to worker's characteristics in workers who had drunk-  
en in recent 6 months ( ) : %

Classification	Stage of behavior change					P value
	Precontemplation	Contemplation	Action	Maintenance	Total	
<b>Age</b>						
30	10(19.6)	4(7.8)	8(15.7)	29(56.9)	51(100.0)	0.337
30-39	17(24.7)	11(15.9)	8(11.6)	33(47.8)	69(100.0)	
40-49	9(16.4)	12(21.8)	4(7.3)	30(54.5)	55(100.0)	
50	6(23.1)	4(15.4)	0(0.0)	16(61.5)	26(100.0)	
<b>Sex</b>						
male	37(22.4)	28(17.0)	16(9.7)	84(50.9)	165(100.0)	0.274
female	5(13.9)	3(8.3)	4(11.1)	24(66.7)	36(100.0)	
<b>Marital status</b>						
single	17(25.8)	6(9.1)	9(13.6)	34(51.5)	66(100.0)	0.229
coupled	23(17.6)	24(18.3)	11(8.4)	73(55.7)	131(100.0)	
etc.	2(50.0)	1(25.0)	0(0.0)	1(25.0)	4(100.0)	
<b>B.M.I</b>						
Normal	30(20.0)	21(14.0)	15(10.0)	84(56.0)	150(100.0)	0.666
25	12(23.5)	10(19.6)	5(9.8)	24(47.1)	51(100.0)	
<b>Type of job</b>						
health manager	5(11.1)	10(22.2)	6(13.3)	24(53.4)	45(100.0)	0.167
workers	37(23.7)	21(13.5)	14(9.0)	84(53.8)	156(100.0)	
<b>Type of job</b>						
blue workers	15(23.1)	14(21.5)	6(9.2)	30(46.2)	65(100.0)	0.305
white workers	27(19.9)	17(12.5)	14(10.3)	78(57.3)	136(100.0)	
<b>Monthly personal income(unit : 10,000 won)</b>						
100	8(16.0)	6(12.0)	5(10.0)	31(62.0)	50(100.0)	0.705
100-149	21(26.2)	12(15.0)	7(8.8)	40(50.0)	80(100.0)	
150	13(18.3)	13(18.3)	8(11.3)	37(52.1)	71(100.0)	
<b>Job satisfaction</b>						
Satisfied	22(21.8)	19(18.8)	11(10.9)	49(48.5)	101(100.0)	0.274
Ordinary	19(20.7)	9(9.8)	9(9.8)	55(59.7)	92(100.0)	
Dissatisfied	1(12.5)	3(37.5)	0(0.0)	4(50.0)	8(100.0)	
<b>Disease</b>						
No	33(22.9)	19(13.2)	16(11.1)	76(52.8)	144(100.0)	0.334
Yes	9(15.8)	12(21.1)	4(7.0)	32(56.1)	57(100.0)	
<b>Need for health promotion program</b>						
positive	24(17.5)	23(16.8)	11(8.0)	79(57.7)	137(100.0)	0.133
negative	5(33.3)	0(0.0)	1(6.7)	9(60.0)	15(100.0)	
neutral	13(26.6)	8(16.3)	8(16.3)	20(40.8)	49(100.0)	
<b>Attendance on health promotion program</b>						
positive	27(18.1)	23(15.5)	16(10.7)	83(55.7)	149(100.0)	0.272
negative	4(26.7)	0(0.0)	1(6.7)	10(66.6)	15(100.0)	
neutral	11(29.7)	8(21.6)	3(8.1)	15(40.6)	37(100.0)	
<b>Total</b>	<b>42(20.9)</b>	<b>31(15.4)</b>	<b>20(10.0)</b>	<b>108(53.7)</b>	<b>201(100.0)</b>	

50 % , 20 % , ) ( Dishman , 1985 )  
(DHHS, 1988).

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78.6 % ,  
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가 74.5 % (1998) 72.2 % , 70.0 %가  
76.1 %가 (1995) 70.5 % (1998)

86.1 %가 (1998) 60.3 % , 50.2 %가 1-2  
79.0 % 6 1.9 % 1  
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(1998) 가 37.3  
% 가 31.0 % , 20. 45.7 % , 74.3 %가  
6% , 가 37. 6%  
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18.4 % 17.7 %  
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65.7 %, 70.5 %, 78.6 %, 86.1 %

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23.7 %, 12.1 %, 23.7 %, 37.6 %, 17.7 %, 26.3 %, 20.9 %, 15.4 %, 10.0 %

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