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A Cross-Sectional Study on Fatigue and Self-Reported Physical Symptoms of Vinylhouse Farmers

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= A B S T R A C T =

Objectives: This study was done to find out fatigue and self-reported physical symptoms of Vinylhouse farmers. The results of this study could be used as a basic data to develop health promotion program for Vinylhouse farmers who are suffering from fatigue and physical symptoms.

Methods: The 166 respondents, who were working in Vinylhouse and were living in a remoted area where the primary health post located, were participated in this study.

Thirty: 30 items of self-reported fatigue scale was used to evaluate the farmers fatigue level which made by Japanese industrial and hygenic association(1988).

Twenty four: 24 items of index used by researcher for self-reported physical symptoms was from Lee In Bae's(1999) modified Index which was originated from Cornell Medical Index(1949). Another questionnaires used in this study were developed by researcher through related documents.

Results: The results of this study were as follows;

Fatigue scores were high in accordance with women($t=2.212$, $p<0.05$), worse recognized health state($F=20.610$, $p<.001$), lack of sleeping hours($F=3.937$, $p<0.05$), eat irregularly($t=3.883$, $p<0.001$), don't take a bath after application of chemical($t=2.950$, $p<0.01$), working time per a day($F=5.633$, $p<0.01$) & working time per a day in Vinylhouse($F=5.247$, $p<0.01$) were long.

Subjective physical symptoms were high in accordance with women($t=3.176$, $p<0.01$), worse recognized health state($F=35.335$, $p<0.001$), and low education($F=3.467$, $p<0.05$). eat irregularly($t=3.384$, $p<0.01$), alcohol drinking($t=2.389$, $p<0.05$). When farmers don't take a bath after application of chemical show high($t=3.188$, $p<0.01$).

As a result, the factors affecting to Vinylhouse worker's health were irregular diet habit, scarce exercise, lack of proper rest, symptoms oriented from Vinylhouse work in contaminated environment with high temperature and humidity.

Conclusions: Based on this study, health promotion program is necessary for Vinylhouse workers. Also, the development of continuously practical strategy of healthy life style including exercise and comprehensive health promotion program considered the country's social and cultural background are needed.

KEY WORDS: Vinylhouse farmers, Fatigue scores, Subjective physical symptoms

가 , ,
 “Green House” , ,
 가 [4] ,
 가 [5].
 [1]. 가 ,
 가 , ,
 11 5 , ,
 가 가 [6, 7].
 가 가 , , ,
 가 가 ,
 가 가 [8].
 가 가
 가 [2, 3].
 1943 Kumakai가 [3, 9], [10],
 [11]가

가

[2]. 2003 5 25 6 25 30
166

가

3.
1)
가

[12]. [13]가 30
3
가 ' (2), ' (1), ' (0)
Cronbach's $\alpha=0.8593$

2)
Cornell Medical Index[14] Lee [7]
가

1. 5 4 5 3
4 3
24
'(1), ' (0)

2. 가 가
G 1 가
7 Cronbach's $\alpha=0.8065$

4

3) 6.1% .

[15- 17]

34.3%, 31.3%,

18.7% 15.7% .

34 (20.5%),

4) 64 (38.6%), 56 (33.7%),

12 (7.2%) (1).

[1, 10, 18, 19]

1 , 2.

88.6%가 1-2

가 7.2%, 24%

가 61.5% 가 38.5% .

5) 6-7 47.0%, 8

28.9%, 4-5 가 24.1% .

[4, 7, 11,

18, 19] 30.7%, 69.3%

1 가 38.6%, 2

가 , 17.5%, 27.7% (2).

4. 3.

SAS 30

1941 , 40 18.21 , 50 20.89 , 60 17.82 , 70

23.90 가

21.64 17.35

t-test, (t=-2.212, p<0.05) .

One-way ANOVA Scheffé 22.31 , 18.08

29.25 가 ,

1. 25.07 ,

11.29 가

48.8%, 51.2% , 30 (F=20.610, p<0.001) (1).

, 50-59 36.7% 가 12.25

60-69 29.5%, 40-49 17.5%, 30-39 10.2%, 70 , 1-2 17.50 , 19.89

1.

	(%)	Mean±SD	t, F	Mean±SD	t, F
30-39	17(10.2)	19.41±15.15		7.00±6.56	
40-49	29(17.5)	18.21±10.18		7.10±4.35	
50-59	61(36.7)	20.89±13.18	0.799	9.13±4.74	1.961
60-69	49(29.5)	17.82±11.48		8.53±4.26	
70	10(6.1)	23.90±16.67		10.90±5.40	
	81(48.8)	17.35±13.53	-2.212*	7.30±4.72	-3.176**
	85(51.2)	21.64±11.41		9.62±4.72	
	26(15.7)	22.31±11.44		10.85±4.13	
	57(34.3)	19.56±13.02	0.645	8.49±4.95	
	52(31.3)	18.08±12.25		8.31±4.54	3.467*
	31(18.7)	19.65±13.66		6.81±5.14	
	34(20.5)	11.29±7.97		5.50±3.60	
	64(38.6)	17.27±12.07		6.73±4.07	
	56(33.7)	25.07±11.75	20.610***	11.55±4.49	35.335***
	12(7.2)	29.25±13.44		12.00±3.33	
	166(100.0)	19.54±12.635		8.49±4.8	

* p<0.05, ** p<0.01, *** p<0.001.

가 가 44.6% 20.47 , 10-17 18.7% 22.48 , 9
 가 31.9% 16.58 .
 16.65 , 24.16 가 73.5% 17.84 , 26.5%
 (t=-3.883, p<0.001) . 24.25
 4 가 31.33 , 8 16.27 가 (t=-2.950, p<0.01).
 가 , 가 45.2% 20.73 ,
 (F=3.937, p<0.05) . 7.2% 24.0 .
 20.40 , 가 19.22 17.5% 22.14 ,
 가 . 1-2 20.35 , 4
 18.69 , 19.92 가 65.1% 18.73
 . 1 18.05 , 2 가
 18.79 , 21.76 . 가 92.2%
 가 (2). 19.10 ,
 23.58 가
 18 . 4

	(%)	Mean±SD	t, F	Mean±SD	t, F
	4(2.4)	12.25±6.13		6.75±4.35	
3-5 /	3(1.8)	20.33±22.28	0.586	10.67±7.64	0.494
1-2 /	12(7.2)	17.50±18.05		7.67±6.04	
	147(88.6)	19.89±12.10		8.56±4.73	
	102(61.5)	16.65±10.57	-3.883***	7.51±4.59	-3.384**
	64(38.5)	24.16±14.28		10.05±4.87	
4	9(5.4)	31.33±14.73		10.22±4.99	
4-5	31(18.7)	19.90±11.37	3.937*	8.97±4.53	1.316
6-7	78(47.0)	20.05±12.9		8.74±5.05	
8≤	48(28.9)	16.27±11.39		7.44±4.63	
	45(27.1)	20.40±14.27	0.532	7.78±4.74	-1.152
	121(72.9)	19.22±12.01		8.75±4.85	
	51(30.7)	18.69±15.52	-0.580	7.16±4.64	-2.389*
	115(69.3)	19.92±11.17		9.08±4.84	
1	64(38.6)	18.05±12.85		8.08±4.89	
2	29(17.5)	18.79±11.40	0.821	8.07±3.95	0.711
3	27(16.2)	20.11±8.80		9.59±5.53	
	46(27.7)	21.76±14.82		8.67±4.92	
		19.54±12.635		8.49±4.8	

* p<0.05, ** p<0.01, *** p<0.001.

가 72.9% 20.22 , 11 214 (28.9%), 30-39 19.89
 19.3% 17.17 (28.3%), 20-29 18.22 (22.3%)
 . 가 가 가
 51.2%, 18.00 , 48.8% 21.16 . 16-20
 가 28.3% 가 , 17.34 , 21
 가 23.20 (27.1%), 11-15 26.5%
 22.9%, 21.13 , 가 77.1% 19.05 . 7 가
 19.07 가 11.47 (9.0%) 가 . 8-9
 . 15.33 (23.5%), 10-11 21.26
 (3). (36.7%), 12 30.7%
 40 23.08 ,

3.

		(%)	Mean±SD	t, F	Mean±SD	t, F
()	≤9	53(31.9)	16.58±10.08		8.77±4.51	
	10-17	31(18.7)	22.48±15.01	1.686	9.19±5.29	0.568
	18≤	74(44.6)	20.47±12.97		8.11±4.66	
		8(4.8)	19.13±13.17		8.49±4.85	
		122(73.5)	17.84±12.34	-2.950**	7.79±4.58	-3.188**
		44(26.5)	24.25±12.38		10.43±5.08	
		12(7.2)	24.00±13.74		12.00±4.53	
		19(11.5)	15.95±14.84	1.647	6.63±4.13	3.975**
		20(12.0)	21.15±13.41		6.95±4.61	
	+	40(24.1)	16.43±12.27		7.50±5.16	
	+	75(45.2)	20.73±11.46		9.31±4.60	
		85(51.2)	18.00±13.28	-1.505	7.64±4.70	-2.312*
	81(48.8)	21.16±11.78		9.38±4.86		
	29(17.5)	22.14±11.83		9.79±4.59		
1-2	20(12.0)	20.35±11.88	0.713	8.00±4.04	1.380	
3-4	9(5.4)	16.89±13.35		6.33±5.00		
4	108(65.1)	18.73±12.88		8.38±5.02		
	153(92.2)	19.10±12.36	-1.191	8.37±4.88	-0.945	
	13(7.8)	23.58±15.10		9.75±4.61		
	11	32(19.3)	17.17±10.57		7.83±4.37	
	11- 2	3(1.8)	9.00±6.00	1.176	5.67±1.53	0.655
	2 -4	10(6.0)	19.60±10.93		8.00±4.97	
	4	121(72.9)	20.22±13.18		8.74±5.02	
		38(22.9)	21.13±13.12	0.883	9.24±4.58	1.085
		128(77.1)	19.07±12.50		8.27±4.92	
		166(100.0)	19.54±12.63		8.49±4.85	

* p<.005, ** p<.001.

가 (F=5.633, p<.001).

10 가 29.5%
23.39 , 6-7 15.98 (27.7%), 5
14.90 (18.7%) ,

가 (F=5.247, p<.001).

6 17.35 (27.7%), 7-8
19.72 (34.3%), 9-10 19.88 (24.1%), 11
22.91 (13.9%)

4.

		(%)	Mean±SD	t, F	Mean±SD	t, F
()	≤9	14(8.4)	17.29±11.85		7.71±6.38	
	10- 19	20(12.0)	18.30±13.34	0.523	6.65±4.38	3.071*
	20- 29	37(22.3)	18.22±12.95		7.68±4.31	
	30- 39	47(28.3)	19.89±11.68		8.21±4.40	
	40≤	48(28.9)	21.40±13.43		10.38±4.95	
()	≤5	5(3.0)	12.20±11.80		2.80±3.70	
	6- 10	25(15.1)	19.44±12.68	1.772	8.68±5.15	2.597*
	11- 15	44(26.5)	19.05±12.15		8.23±4.74	
	16- 20	47(28.3)	17.34±11.28		8.11±4.97	
	21≤	45(27.1)	23.20±13.98		9.67±4.40	
()	≤7	15(9.0)	11.47±8.88		6.87±4.85	
	8- 9	39(23.5)	15.33±9.48	5.633**	6.87±4.53	3.215*
	10- 11	61(36.7)	21.26±14.88		9.02±5.21	
	12≤	51(30.7)	23.08±10.99		9.57±4.29	
	()	≤5	31(18.7)	14.90±9.73		6.81±3.78
6- 7		46(27.7)	15.98±12.65	5.247**	7.17±5.23	4.730**
8- 9		40(24.1)	22.53±12.79		9.95±4.59	
10≤		49(29.5)	23.39±12.56		9.59±4.75	
()		≤6	46(27.7)	17.35±12.25		8.26±4.63
	7- 8	57(34.3)	19.72±13.31	1.022	8.68±5.26	0.126
	9- 10	40(24.1)	19.88±11.56		8.28±4.67	
	11≤	23(13.9)	22.91±13.42		8.83±4.79	
()	≤999	35(21.1)	17.43±14.04		8.63±4.98	
	1000- 1999	67(40.4)	20.09±13.15	0.482	8.75±5.15	0.952
	2000- 2999	43(25.9)	21.40±11.49		8.23±4.45	
	3000- 3999	13(7.8)	19.62±11.60		8.23±4.75	
	4000≤	8(4.8)	14.13±8.32		7.50±4.84	
()		27(16.3)	15.67±11.37		7.67±4.67	
		94(56.6)	19.81±11.43	1.748	8.99±4.49	1.188
		45(27.1)	21.31±15.27		7.93±5.61	
가 ()	1	4(2.4)	13.75±12.50		6.25±4.92	
	2	120(72.3)	19.53±11.66	2.061	8.64±4.60	2.118
	3	38(22.9)	18.71±14.54		7.71±5.41	
	4	4(2.4)	33.75±17.35		13.50±4.36	
		166(100.0)	19.54±12.63		8.49±4.85	

* p<0.05, ** p<0.01.

19.81 (56.6%), 가 21.31 (27.1%), 15.67 (16.3%) 가 8.75 (t=2.389, p<0.05). 7.78, 7.16, 9.08 가 1 8.08

2,000-3,000 (25.9%) 21.40 가 , 2 8.07 , 8.67 (2).

, 1,000-2,000 (40.4%) 20.09 , 3,000-4,000 (7.8%) 19.62 , 4,000 (4.8%) 14.13 가 10-17 9.19 , 8.49

가 72.3% 가 19.53 7.79 가 가 (t=-3.188, p<0.01)

(4).

4. 120 가

30-39 7.00 , 40-49 , 6.63 가 ,

7.10 , 50-59 9.13 , 60-69 8.53 , 70 9.31 .

10.90 . 7.30 , (p<0.01)

9.62 가 가 .

(t=3.176, p<0.01) 가 .

10.85 , 8.49 , 7.64 , 9.38

8.31 , 6.81 가 (t=2.312, p<0.05) .

가 , 가 9.79 , 1-2

(F=3.467, p<0.05) . 8.00 , 3-4 6.33

120 ,

11.55 , 6.73 , 8.37 ,

5.50 가 9.75 가

가 가 .

(F=35.335, p<0.001) (1). 9.24 , 8.27

가

6.75 , 3-5 10.67 , 1-2 7.67 , (3).

8.56 .

7.51 , 10.05 40 10.38 가

가 가 , 30-39 8.21 , 20-29 7.68 가 가

(t=3.384, p<0.01) .

4 가 10.22 , 6-7 (p<0.05)

8.74 , 8 7.44 가 (F=3.071).

가 21 9.67 , 6-10 8.68

, 11-15 8.23 . 50 .
 (p<0.05) 가 가
 가 . 7 6.87 12 가 ,
 9.57 가 가
 . 5 , ,
 6.81 10 9.59 ,
 가 가
 (p<0.01). F 가 가 가
 가 , 가
 6 8.26 , 7-8 8.68 , 9-10 [9, 22].
 8.28 , 11 8.83 ,
 가 8.99 가 가
 7.67 . 가 가4 .
 13.50 가 , 1 6.25 , , 가 ,
 , 2 8.64 , 3 7.71 (4). 14% ,
 18%
 [23].
 40-50 가 60%
 19.54 ,
 , 8.49 .
 Lee [7] 9.1 가
 . Hwang[21] 19.17 .
 가 . 가 가
 Lee [7] 70 Nam [24], Kim[3], Lee [7]
 24.6 , 60-69 20.7 .
 23.90 , 17.82 30-40 ,
 30 16.1 , 40 17.8 가 ,
 30 19.41 , 40 18.21 [3].
 가 .
 88.6% 58.8%,
 가 Cho[25] 9.6% ,
 Hwang[21], Kim[3] 3-4
 10%,

75% , 가 [31]. 가 , 가

2 , 가 51.2% (90.6%)

40 , 가 (96.5%)

가 . 가 . 가

가 . 가 . 가

가 [32]. 가

가 . 가

[26].

Pavlou [27] , 가

가 , 가

가 , Arnheim[28] 가가 , 8

가 24.1% , 4

가 . Jung[29] 10.22 6-7 , 31.33

70 20.05 , 8.74

19.3 kg 18.3 kg , 18.6 kg

17.4 kg 1.2 kg . Park[30] 10

가 , 가

Lymphocyte T-Lymphocyte가 가 T , 7

가 , Th/Ts 가 가

[33] , 가

가

가

48.8%, (F=3.937, p<0.05) 가 .
51.2% 50-59 가 36.7% 가 , (19.92)가 (18.69) 가
가 50.0%, 가 79.5% . (19.22) 가 (20.40)
가 88.6%, 61.5%가 , 21.76 , 1 18.05
8 가 28.9%, 5 가
24.1% , 27.1%, 30.7%, 1 .
38.6% 가 (t= 2.950, p<0.01).
가 18
44.6% .
가 73.5%, 가 (F=5.633, p<0.01),
45.2%, 51.2%, (F=5.247, p<0.01) 가 .
65.1%가 4 , 30 가 7.00 , 70
가 17.5% 10.90 ,
. 92.2%가 , 가 가 (t= 3.176, p<
4 0.01). 가 가
(72.9%). 77.1%가 . (F=3.467, p<0.05), 가
(F=35.335, p<0.001).
28.9%, 20 20.4%, 16 가
55.4%, 10 67.4%, (t= 3.384, p<0.01).
10 29.5% 가 가
, 9 38.0%, (t= 3.188, p<0.01)
61.5%가 2,000 . (t= 2.312, p<0.05)
(56.6%), 가 가 가 ,
가 72.3% .
, 70 23.90 가
가 , 50 가 20.89 가 .
(21.64)가 (17.35) 가 가
(t= 2.212, p<0.05).
. 가 가 가 (p<0.05), F
(F=20.610, p<0.001). 가
. 가 (t= 3.883, p<0.001), (p<0.05), F

- 가 .
($F=3.215$, $p<0.05$),
($F=4.730$, $p<0.01$) 가
가
가 .
1
가 ,
가 .
가 .
가 .
가 .
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