

Work versus Non-Work Predictors of Job Satisfaction among Japanese White-Collar Workers

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Abstract: Work versus Non-work Predictors of Job Satisfaction among Japanese White-collar Workers: Akihito HAGIHARA, *et al.* Department of Health Services Management and Policy, Kyushu University Graduate School of Medicine—In the present study, we conducted a cross-sectional study of male white-collar workers in Japan, and evaluated the relative importance of work and non-work factors in deciding the level of subject's job satisfaction. Survey data collected from white-collar workers at a large steel company in Osaka, Japan were analyzed. The results show that work factors play a more important role in predicting the subject's work satisfaction than do non-work factors. The majority of significant predictors of job satisfaction were related to company controlled working conditions rather than variables under the direct control of the individual. The results imply that the level of job satisfaction among the workers can be more effectively improved through the implementation of some basic policies by the company than through efforts of the workers.

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Key words: Job satisfaction, Work factor, Non-work factor, White-collar workers

Job satisfaction is multidimensional. According to Rousseau, three components of job satisfaction can be identified¹. These are (1) characteristics of the organization, (2) job task factors, and (3) personal characteristics. Numerous studies on job satisfaction have been performed. Based upon Rousseau's three dimensions of job satisfaction, we briefly summarize the literature concerning predictors of job satisfaction. First,

as for the characteristics of the organization, numerous studies have reported associations between various types of organizational factors and job satisfaction. Social support from colleagues has been shown to be positively associated with job satisfaction^{2–5}. Other studies report that trust among co-workers, supervisor support and adequacy of organizational resources are significant predictors of workers' job satisfaction^{6,7}. Satisfaction with leadership has also been shown to be a predictor of workers' job satisfaction⁸. Pay and promotion have also been shown to be related to job satisfaction among workers^{9,10}, but recent findings on salary and promotion are mixed. Although Glisson and Durick found that salary is not associated with job satisfaction⁸, Jayarante and Chess¹¹ and Vinokur-Kaplan¹² reported that pay is significantly related to workers' job satisfaction. Second, as for the job task factors, job autonomy, skill variety, feedback, task identity and role ambiguity have been consistently shown to be related to workers' job satisfaction in various types of workers^{6–8,13}.

Third, as for the personal characteristics, although sex, age, race and their relationship to job satisfaction have been examined, results have not been consistent or conclusive^{6,14–16}. Ability is another individual variable that has been researched. Schneider *et al.* have found a relationship between ability and job satisfaction¹⁷. Recently, Poulin and Walter reported that self-esteem is positively associated with job satisfaction⁷.

Using other criteria, the categorization of factors concerning job satisfaction by Rousseau can be classified differently. Generally speaking, the characterization of the organization and the job task factors can be regarded as work factors in job satisfaction, while personal characteristics can be regarded as non-work factors of job satisfaction. In past job satisfaction research, how work and non-work factors affect workers' job satisfaction has been studied. Liou *et al.* reported that non-work

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factors such as age and gender are important predictors of job satisfaction¹⁸). Bartol also reported that non-work factors are more important than work factors in job satisfaction among a random sample of 250 US computer specialists¹⁹). Nevertheless, Mottaz found that non-work variables have very little impact on job satisfaction among workers representing a variety of occupational group at 6 diverse organizations in a midwestern US metropolitan area²⁰).

Although little attention has been given to this dimension in the field of occupational health, evaluating the relative importance of work and non-work factors in job satisfaction is very important from the occupational health promotion and stress reduction perspective. This is because job satisfaction has been shown to be closely related to mental health^{21, 22}). If job satisfaction can be improved through a company's basic policies concerning work style or work environment, the first step is to evaluate how much workers' job dissatisfaction is due to non-work or work factors, or to identify potential sources of job dissatisfaction in working conditions, aspects of private life and employee characteristics. As for Japanese workers' job satisfaction, several studies have been undertaken to examine the relationship between job satisfaction and life satisfaction²³), the level of commitment to the job task²³), the level of job satisfaction²⁴) and effect of age on job satisfaction²⁵). But, to our knowledge, few studies have evaluated the relative importance of work and non-work factors in predicting Japanese workers' job satisfaction. The only related study was conducted by Baba *et al.*, who examined how work and non-work factors influenced mental health among Japanese workers²⁶). To extend this research, this paper had two purposes. First, we evaluated how much work and non-work factors influence white-collar workers' job satisfaction by focusing extensively on both organizational and personal characteristics, which are potential predictors of job satisfaction among white-collar workers in Japan. Second, we examined work and non-work predictors of workers' job satisfaction, respectively. The findings might be useful for occupational health purposes as well as for cross-cultural comparison of job satisfaction.

Methods

Subjects

The subjects of this study were male white-collar workers in one of Japan's leading manufacturing companies, who were working at the head office in Osaka (n=663). At the time of the annual health check-up (July, 1991), questionnaires were distributed to the workers, and 575 of them were returned within about two weeks (response rate 86.7%). The average age of the subjects was 40.91 years with a standard deviation of 8.53 years.

Job satisfaction scales

In the present study, two types of job satisfaction scales were used as dependent variables. First, we utilized a scale consisting of 7 questionnaire items, based on and extending previous work²⁷⁻³¹) (see Appendix). Since this company has adopted a Total Quality Control (TQC) system to control the quality of its work and products, opinions of personnel staff and company health workers were also taken into account so that the scale would accurately reflect the subjects' job satisfaction³²). The seven items can be seen as representing the following seven categories: (1) relations with the boss; (2) relations with work-mates; (3) general work motivation; (4) influence over one's own job; (5) tiredness/listlessness; (6) training opportunity; and (7) use of abilities. The elements in this scale are very similar to the scale developed by Wallin & Wright²⁸). Specifically, based upon opinions of personnel staff and company health workers, an item concerning the use of abilities was added to the Wallin & Wright scale. The reliability index of the scale (Cronbach's alpha) was 0.74. Each questionnaire item consisted of a multiple choice question with four possible answers (Agree completely, Agree, Disagree, Disagree completely). They were quantified as four values from 0 to 3, using the method proposed by Guttman^{33, 34}). Quantification of responses by Guttman were as follows. Briefly, respondents were categorized into a matrix consisting of questions (row) and responses (column). Then, values of rows and columns in the matrix were determined so that correlation coefficients were maximized. After quantifying responses to each question, respondents received a total quantified job satisfaction score ranging from 0 to 21. The higher the score, the greater the degree of satisfaction with the job.

Second, we utilized one item that measured overall job satisfaction, "Overall, is your present job fit for you?" Since the above seven-item job satisfaction scale and scales concerning work and non-work predictors are based upon respondents' subjective evaluation, findings concerning the association between job satisfaction measured by the seven-item scale and the work or non-work predictors was ascertained by analysis by means of this one-item job satisfaction scale and the same scales concerning work or non-work predictors. This item had only two response categories, yes and no. Unfortunately, Japanese tend to avoid replying yes or no even when their answer is positive or negative and choose a neutral response instead. Therefore, it is common practice among Japanese researchers to avoid neutral categories³⁵). For this reason, responses for this item and for the questions concerning private and working conditions were restricted in this analysis to yes and no.

Items concerning private aspects of life

Included in the analysis as independent variables are

questions concerning non-work factors or factors concerning respondent's private life that have been shown to be related to job satisfaction^{28, 36}. They include marital status (married or single), number of children (more than one or zero), manner of living (alone or with family members), type of housing (owned or rented), the length of commuting time [requiring short time (<90 min) or not (≥ 90 min)], enjoying shopping on holidays (yes or no), socialization out of work on holidays (yes or no) and age (see Table 1).

Items related to working conditions

Also included as independent variables are questions related to work factors or working conditions. First, based on past literature and opinions of company health workers, we selected items that have previously been regarded as contributing to stressful working conditions³⁷⁻³⁹ and items relating to company management practices that might influence job satisfaction. Then, among these, we selected those variables that could be improved through company intervention. These items and the categories of answers to these items were: self-awareness of aptitude and ability ("Are you aware of your aptitude or ability?") (yes or no); working circumstances ["How are your working circumstances (ie., layout of work place, size of work area)"] (good or not good); quantity of work ("How is the quantity of your work?") (excessive or not); busy or not ("Are you busy?") (yes or no); feeling pressure of work ("Are you feeling pressure of work?") (yes or no); paid vacation ("How often do you take paid vacations in a year?") (once or more per year or not); utilizing company's welfare facilities ("Do you utilize company's welfare facilities?") (yes or no); participation in TQC activity ("Do you participate in TQC activity?") (yes or no); and position (managerial or not) (see Table 1).

Statistical techniques

First, frequency distributions of subjects for each independent variable were presented. Next, in order to specify independent variables significantly relating to the dependent variable, job satisfaction, stepwise multiple regression analysis was used. In trying to isolate the predictors of job satisfaction, an independent variable was seen as significant if (1) the overall F ratio for the equation was significant; and (2) the partial regression coefficient for the individual independent variable being added was at a statistically significant level ($p < 0.05$). Below this point not only was the coefficient insignificant, but also the amount of variance contributed by each additional variable (R^2 change) was very small.

In the present study, three types of stepwise multiple regression analyses with different sets of independent variables were performed: (1) stepwise multiple regression analysis of job satisfaction predicted by variables concerning non-work factors or the subjects'

private life (see Table 1), (2) stepwise multiple regression analysis of job satisfaction predicted by work factors or variables concerning working conditions (see Table 1) plus age, and (3) stepwise multiple regression analysis of job satisfaction predicted by work and non-work factors (all variables) in Table 1. The third regression analysis was performed to evaluate the relative importance of work and non-work factors in predicting the level of job satisfaction. Dummy variables were created for each variable except for age; 1 for a corresponding category, and 0 for an omitted category, of items shown in Table 1.

In order to validate the results of these analyses obtained with the seven-item job satisfaction scale, multiple logistic regression analysis was also performed with the one-item job satisfaction measure as the dependent variable. The independent variables remain the same.

Results

The mean and standard deviation for job satisfaction were 10.04 and 4.27, respectively. Table 1 shows the percentage distribution of respondents for each independent variable. As for items relating to private aspects of the respondents lives, more than 80 percent were married and living with their family. About 60 percent lived in their own homes and spent less than 90 minutes commuting to work. In addition, this particular company has a permanent employment system and promotion and then retirement is roughly preset at the ages of 35, 45 and 60 years of age. In the most speedy promotion case, a person can become a manager at the age of 35, and director at the age of 45. The majority of the employees retire at the age of 60. If we divide workers into these three age groups, the ratios of those who are between 20 and 34, between 35 and 44, and between 45 and 60 were 23.3 percent, 39.0 percent and 37.7 percent, respectively. As for items relating to working conditions, about 70 percent of the respondents were aware of their ability and aptitude, and took paid vacations once or more often per year. More than 40 percent of the respondents reported that their working conditions were good, the quantity of their work was excessive, and participated in TQC activities.

Table 2 shows the results of the first stepwise regression analysis. When variables concerning the subjects' private life were used, only 4.4 percent of the total variance was explained by the model, and only two variables (commuting time and manner of living) were significant predictors of job satisfaction. When variables concerning working conditions were added, 32.1 percent of the total variance was explained by the model. Among those variables, working circumstances was the most significant predictor of job satisfaction, accounting for 17 percent of the variance.

Table 3 shows the result of the stepwise regression

Table 1. Items relating to subjects' private and working condition categories distribution

(Non-work factors: items related to private conditions)		
1. Marital status	married	85.4% (491/575)
	single	14.6% (84/575)
2. Number of children	1	68.8% (338/491)
	0	31.2% (153/491)
3. Manner of living	with family	82.6% (470/569)
	alone	17.4% (99/569)
4. Type of housing	owned	58.9% (338/574)
	rented	41.1% (236/574)
5. Commuting	requiring short time (<90 min)	64.3% (370/575)
	not (90 min)	35.7% (205/575)
6. Enjoying shopping on holidays	yes	12.3% (71/575)
	no	87.7% (504/575)
7. Socialization out of work on holidays	yes	19.9% (114/574)
	no	80.1% (460/574)
8. Age	20–34	23.3% (134/575)
	35–44	39.0% (224/575)
	45–60	37.7% (217/575)
(Work factors: items related to working conditions)		
1. Self-awareness of aptitude & ability	yes	69.7% (401/575)
	no	30.3% (174/575)
2. Working circumstances	good	44.8% (256/572)
	not good	55.2% (316/572)
3. Quantity of work	excessive	44.0% (253/575)
	not	56.0% (322/575)
4. Busy or not	busy	57.6% (331/575)
	not busy	42.4% (244/575)
5. Feeling pressure	yes	26.5% (152/573)
	no	73.5% (421/573)
6. Paid vacation	once or more per year	68.2% (392/575)
	none	31.8% (183/575)
7. Utilizing company's welfare facilities	yes	29.9% (172/575)
	no	70.1% (403/575)
8. Participation in TQC activity	yes	41.4% (237/572)
	no	58.6% (335/572)
9. Position	managerial	44.0% (253/575)
	staff member	56.0% (322/575)

a: This item applies only to married subjects.

analysis when all variables from Table 1 are used. There was only one significant predictor from the subjects' private life: length of commuting time. The remaining significant predictors were all related to working conditions. The variables explained 32 percent of the variance, and again working circumstances was the most significant predictor, explaining 17 percent of the total variance. Other variables such as being busy, self-awareness of aptitude, participation in TQC, commuting time and utilizing welfare facilities were also significant

predictors of job satisfaction.

Table 4 shows the results of multiple logistic regression analysis using the one-item job satisfaction measure as a dependent variable. Among the independent variables, working circumstances was the most significant predictor of job satisfaction ($p=0.00$). Compared with the referent, those whose working circumstances were good were 1.92 times more likely to be satisfied with their job. Self-awareness was the next most significant predictor of job satisfaction ($p=0.00$). Compared with those who were

Table 2. Results of stepwise multiple regression analysis of job satisfaction as predicted by non-work and work factors

Step	Variables	Multiple R	R ²	R ² change	F to Enter
(Non-work factors: factors concerning subjects' private life) (n=567)					
(1)	Length of commuting time	0.185	0.034	0.034	19.92
(2)	Manner of living	0.210	0.044	0.010	5.84
F=18.24*					
(Work factors: factors concerning working conditions) (n=571)					
(1)	Working circumstances	0.415	0.172	0.172	117.82
(2)	Self-awareness of aptitude	0.472	0.223	0.051	37.16
(3)	Being busy	0.520	0.271	0.048	37.05
(4)	Participation in TQC activity	0.553	0.306	0.035	28.34
(5)	Utilizing welfare facilities	0.558	0.311	0.005	4.64
(6)	Paid vacation	0.562	0.316	0.005	3.86
(7)	Position	0.567	0.321	0.005	4.01
F=37.89*					

*: p<0.0001

Table 3. Results of stepwise multiple regression analysis of job satisfaction as predicted by work and non-work variables in combination (n=563)

Step	Variables	Multiple R	R ²	R ² change	F to Enter
(1)	Working circumstances	0.412	0.170	0.170	114.45
(2)	Being busy	0.472	0.223	0.053	38.06
(3)	Self-awareness of aptitude	0.520	0.270	0.047	36.23
(4)	Participation in TQC activity	0.552	0.305	0.035	27.44
(5)	Length of commuting time	0.561	0.315	0.010	8.03
(6)	Utilizing welfare facilities	0.566	0.320	0.005	4.47
F=43.47*					

*: p<0.0001

not aware of their aptitude, those who knew their aptitude were 1.90 times more likely to be satisfied with their job. Being busy and feeling pressure of work were also significant predictors of job satisfaction ($p=0.01$ and 0.05). Those who felt busy were 1.42 times more likely to be satisfied with their job than those who did not feel busy. Those who felt pressure of work were 0.77 times less satisfied with their job than those who did not. Among predictors of job satisfaction in Table 3, three predictors (working circumstances, being busy and self-awareness of aptitude) were also shown to be significantly correlated with job satisfaction.

Discussion

In the present study, we evaluated the degree to which work and non-work factors are related to a workers' job satisfaction, and investigated predictors of job satisfaction among Japanese white-collar workers. There are several

major conclusions to be drawn from these results. Firstly, predictors of job satisfaction are shown to be primarily related to work factors or working conditions; only the length of commuting time concerns the subjects' private life (see Table 3). In other words, it is difficult for workers to control those areas most likely to affect overall job satisfaction. This is especially true for the current subjects with regard to working circumstances. They cannot change the circumstances such as the layout of the workplace or the size of the work area because all section members work in the same relatively small room. As for participation in TQC activity, participation is actually mandatory in the section which has adopted TQC activity because the company felt that the harmony of workers is important. As for utilizing welfare facilities and paid vacation, it is not easy for employees to control these because of the need to coordinate these things at the managerial level. Therefore, these results imply that there

Table 4. Odds ratio of factors relating to job satisfaction (n=563)

Variables		OR	95%CI	p
Marital status	single ^a	1.00		
	married	1.17	0.94–1.44	0.15
Manner of living	living alone ^a	1.00		
	living with family	1.09	0.78–1.54	0.61
Self-awareness of aptitude & ability	no ^a	1.00		
	yes	1.90	1.54–2.36	0.00
Participation in TQC activity	no ^a	1.00		
	yes	0.89	0.73–1.09	0.26
Enjoying shopping on holidays	no ^a	1.00		
	yes	1.16	0.94–1.43	0.16
Socialization out of work on holidays	no ^a	1.00		
	yes	1.12	0.92–1.37	0.25
Working circumstances	bad ^a	1.00		
	good	1.92	1.58–2.33	0.00
Being busy	no ^a	1.00		
	yes	1.42	1.10–1.83	0.01
Feeling pressure of work	no ^a	1.00		
	yes	0.77	0.59–1.00	0.05
Paid vacation	zero ^a	1.00		
	once or more often per year	1.13	0.92–1.38	0.25
Quantity of work	not excessive ^a	1.00		
	excessive	1.29	0.98–1.69	0.07
Utilizing welfare facilities	no ^a	1.00		
	yes	1.18	0.96–1.46	0.11
Position	staff member ^a	1.00		
	managerial	0.96	0.78–1.17	0.66
Type of housing	lented ^a	1.00		
	owned	0.91	0.75–1.12	0.38
Length of commuting time	long ^a	1.00		
	short	1.13	0.93–1.38	0.22

a: The reference group.

are few things workers can do themselves in order to improve their job satisfaction.

On the other hand, there appears to be much that a company can do to increase workers' job satisfaction. Table 2 supports this conclusion. As this table shows, the model with variables concerning private life accounted for only 4.4 percent of the total variance, and length of commuting time and manner of living explained only 3.4 percent and 1.0 percent additional variance, respectively. Although short commuting time (<90 min) and getting married lead to higher degrees of job satisfaction, the effects of these items are shown to be small, but working circumstances and self-awareness of aptitude and ability appear to be especially significant predictors of job satisfaction (see Tables 2, 3 and 4) and well within the

control of the company. Especially, as for self-awareness of aptitude and ability, it is very difficult for an employee to recognize his/her aptitude objectively so far as he/she is totally involved with a daily hectic work, so this is also well within the control of the company. In addition, the results shown in Tables 2, 3 and 4 suggest a causal relationship as well as the link between the two (i.e., self-awareness of aptitude and ability or working circumstances and job satisfaction) even though these results were based upon cross-sectional data. That is, it seems likely that self-awareness of aptitude and ability and working circumstances might be factors significantly attributable to the state of job satisfaction, but to ascertain the relationship between these variables and job satisfaction, and the degree to which job satisfaction can be improved

by altering these variables, intervention studies are necessary. This will be a topic in a future study. Although being busy, participation in TQC activity and utilizing welfare facilities are significant predictors of job satisfaction (Tables 3 and 4), based upon the cross-sectional data, we could not judge the type of link (causal or not) between these independent variables and the dependent variable in job satisfaction.

In practice, accurate assessment of the job, organizational stressors, and employees' characteristics is important in any effort to minimize job dissatisfaction; a mere documentation of the extent of risk is not useful. Kasl points out that stressful working conditions tend to be chronic, that habituation or adaptation to this chronic situation is difficult, and that the daily impact of a demanding job situation becomes cumulative and health-threatening⁴⁰. Since job satisfaction has been shown to be a significant predictor of occupational stress^{21, 22}, the information in the present study can potentially contribute to the creation of improved working conditions, thus having a positive effect on mental health. Improving job satisfaction is very important from the viewpoint of preventive and occupational medicine because it can have the practical benefit of lowering the employees' stress level.

Finally, it should be noted that the present study has several limitations. First, the operational definition of job satisfaction varies with the researcher. There is no job satisfaction scale widely applicable to all types of workplaces and in all types of societies, whose reliability and validity have been ascertained⁴¹. In the present study, two types of job satisfaction scales were employed. Powerful predictors of job satisfaction revealed by two types of analyses (i.e., regression analysis and logistic regression analysis) with different dependent variables measuring job satisfaction yielded the same results: working circumstances, being busy and self-awareness of aptitude (see Tables 3 and 4) were all significant correlates. Therefore, the seven-item scale seems to be trustworthy, but in comparing the findings obtained in the present study with other findings based on different job satisfaction scales, we need to be very careful.

Second, this study used cross-sectional data. Given the nature of many of the items, the causal relationship with respect to length of commuting time, manner of living, working circumstances and self-awareness of aptitude are obvious (see Tables 3 and 4), but to ascertain if these variables can be manipulated to affect one's actual job satisfaction, a more elaborate study, such as an intervention program, is necessary.

In conclusion, we have demonstrated the following points in the present study. (1) The results show that work factors play a more important role in deciding the level of subjects' work satisfaction than do non-work factors. These findings indicate the possibility that the

company can significantly improve job satisfaction among white-collar workers by improving of working conditions. All other changes, including changes made by the individual, will likely have only a minimal impact on job satisfaction. (2) Many predictors of job satisfaction are related to work factors or working conditions. Specifically, working circumstances and self-awareness of aptitude and ability were closely correlated with job satisfaction among white-collar workers. This implies that well designed working circumstances or educational measures taken by companies to help white-collar workers realize their full potential might be appropriate steps for a company to take to improve the levels of job satisfaction among its workers.

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Appendix.

Questions for assessment of job satisfaction

1. (relations with the boss)
Is the relationship with your bosses good?
2. (relations with work-mates)
Is the relationship with your colleagues good?
3. (general work motivation)
Is your work duly evaluated?
4. (influence over one's own job)
Are you given sufficient control over the performance of your job?
5. (tiredness/listlessness)
Is your work monotonous?
6. (training opportunity)
Do you receive ample training opportunities?
7. (use of capabilities)
Does your work require specialized skills or professional knowledge?