A Survey of Home-Based Workers in Japan: Emerging Health Issues

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Abstract: A Survey of Home-Based Workers in Japan: Emerging Health Issues: Wendy A. SPINKS. Department of Management Science, Science University of Tokyo—Changes such as the greater diversification of work arrangements, either the result of or enabled by the rise of information communication technology, are testing many long-standing practices and assumptions in the workplace. The emergence of the virtual organization and telework raises serious management questions including work organization, worker evaluation and knowledge management. These changes, however, also have a growing but little understood impact on health management. The aim of this paper is to explore attitudes to health management and the incidence of illness for home-based teleworkers. After a brief outline of major changes in organizational and management practices as well as research trends in the area of health and telework, it presents a set of field data on home-based workers in Japan, and links the findings to a future research agenda. The survey data indicate that health management issues do exists for this group of workers and that a worrying proportion of respondents experienced health conditions detrimental to work performance that went untreated. Additionally, a somewhat cavalier attitude towards safe work practices indicated either low worker awareness of, or low priority for, minimizing health risks. This was often compounded by the lack of a traditional mitigating third party such as a regular employer. These findings suggest that conventional organizational criteria for sickness may be being replaced by more elastic concepts of health and sickness in the virtual workplace.
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In his seminal 1960 work, *The Human Side of Enterprise*, Douglas McGregor predicted that the second half of the twentieth century would bring the most dramatic social changes in human history. Moreover, he believed that "the industrial enterprise is a microcosm within which some of the most basic of these social changes will be invented and tested and refined"[1]. Indeed, the past quarter of a century has seen significant change in the operational environments of businesses. The first critical development has been the rise of the service industries and the resultant emergence of the office as the dominant work setting. In all advanced economies, manufacturing no longer counts for the majority of the workforce, and 'the shop floor' has been replaced by 'the office' as the most familiar workplace.

A second critical development is the diversification of work arrangements. Today's workplace is no longer a simple 9-to-5 world peopled by long-term employees. Different time schedules, work sites, and contractual relationships have created unprecedented complexity in the area of human resources management[2–4].

Both developments are either the result of, or enabled by, what popular use has dubbed the 'IT Revolution', the rise of Information Communication Technology (ICT) undeniably testing many long-standing practices in the workplace. Perhaps the most radical change here is the emergence of the virtual organization, where all members *perforce* work off-site at least some of the time. This trend towards telework has a growing but little understood impact on health norms. For example,

- How is illness perceived in office environments, where the demands of work predominantly involve 'brain' not 'brawn'?
- How is sickness absenteeism affected by the introduction of telework arrangements?

While much telework research focuses on work management processes, health management is arguably an even more important determinant of Quality of Work Life (QWL) and worker effectiveness, but much less explored. Home-based telework is usually differentiated from traditional piecework and other forms of

manufacturing homeworking, which are associated with exploiting the workers to the detriment of their health and well-being. There has been an extensive debate about the health effects and implications of teleworking, ranging from the positive to the negative. Positive factors frequently cited include the elimination of office stress, individual tailoring of work environments, greater accommodation of the disabled, and reduced rates of sickness absenteeism[5, 6]. Negative factors often raised are "cabin fever" (physical/mental debilitation from excessive overwork) and isolation-induced depression[7, 8].

Despite this debate and how little is known of the actual health experiences of home-based teleworkers, telework is often automatically assumed to be health promoting by switching the workplace from "a malign office to a benign home"[9]. Furthermore, this assumption is joined by a second assumption that low rates of sickness absence indicate low morbidity in the workforce. In the absence of definitive research, it is impossible to say whether such drops are the result of genuine health improvements or the mere "masking" of illness, which is possible when a worker's physical presence is not longer required at a central workplace. Interestingly, Steward[10] has shown changes in the definition of symptoms and the opportunities to claim sickness resulting from new forms of technological working.

Absenteeism, however, is not the only salient issue. In fact, studies such as Mirchandani[11] explore the implications of boundary disruption as well as health and safety, while official reports frequently raise health-related issues. Of particular note, workplace diversification raises many questions including how is illness defined in the absence of a regular commute, and how do workers manage illness if the home is no longer a 'refuge' but their main place or work?

Home-based Worker Survey

1 Survey Methodology

It is from the preceding perspective that a set of field data from Japan is considered in an attempt to identify the reality of off-site working in terms of health management. The data was collected in late 2,000 on independent, home-based workers living in Metropolitan Tokyo, and was part of a larger survey by the Tokyo Labor Welfare Association, in which the author was involved. Its goal was to ascertain the nature of theses home-based workers' work environment, including previous work experience, health issues, health insurance and pension support, and to identify appropriate welfare policies to support this growing group. Specifically, 13,000 workers were approached via five Tokyo-based outsourcing associations and online work placement cooperatives with 1,009 agreeing to cooperate. The same survey was posted to those belonging to the outsourcing association and e-mailed to members of the online cooperatives. The final

Table 1. Respondents' Demographic Profile (N=672)

	Males	Females
All (N-672)	91 (13.5%)	581 (86.5%)
20's (N=139)	19 (13.7%)	120 (86.3%)
30's (N=424)	45 (10.6%)	379 (89.4%)
40's (N=95)	21 (22.1%)	74 (77.9%)
50's (N=10)	4 (40.0%)	6 (60.0%)
60 and over (N=4)	2 (50.0%)	2 (50.0%)

response rate was 66.6% (672 respondents: 91 male; 581 female, Table 1). After briefly outlining the average respondent profile, the discussion concentrates on the survey items directly related to health management.

2 Survey Results

The basic profile of the respondent was a married woman in her twenties or thirties with at least one child under school age. 94.5% of the sample had previous work experience, but this experience was only relevant to current work for 50.1%. The main work activity for female respondents was data input (72.3%), followed by tape transcription (33.5%). For male respondents, data input and programming each accounted for 48.4%.

In terms of hours worked, just under half (46.6%) of the sample had averaged 20 h or less per week in the preceding three months and 25.9% had only averaged a maximum of five h per week with no marked gender difference noted. At the other end of the spectrum, however, 24.4% had averaged more than 40 h work. The most frequently cited annual income was 500,000 yen or less (48.2%), more than half of females concentrated at the lower income level, but only a quarter of males. This suggests a quite marginal engagement in the labour market.

Regarding health issues, 92.8% considered themselves to be healthy or more or less healthy. Nevertheless, 22.2% had taken time off sick in the past three months, the most frequent amount of time off being 2–3 d (10.1%). Common chronic conditions cited were stiff shoulders (31.3%), eyestrain (22.2%), stress (13.4%) and lower back pain (11.5%). These figures jump to 84.8%, 86.2%, 78.1% and 69.3% respectively when occasional sufferers are included. Similarly, of those suffering symptoms, the number who found that their condition impaired their job performance ability outnumbered those actually receiving treatment (See Table 2). This suggests a tendency for home-based workers to either downplay or neglect health issues.

Turning to safety measures used by the home-based workers, Table 3 shows that a regular rest break was the most frequently cited measure (62.9%), followed by correct lighting (24.4%), ergonomic desk/chair design (18.0%) and safe cabling (13.2%). A worrying 25.7%, however, said

Table 2. Incidence, Treatment & Impact of Medical Symptoms (N=672)

Symptom	Incidence (Often or Always)	Adverse Effect on Job Performance	Undergoing Treatment
Stiff shoulders	53.8%	13.4%	5.5%
Eye strain	53.2%	14.7%	3.7%
Lower back pain	33.5%	8.8%	4.0%
Stomach pain	10.4%	1.3%	1.0%
Tendonitis	10.3%	2.8%	0.9%
Stress	33.3%	4.5%	2.1%
Other	4.1%	1.2%	1.0%

Table 3. Safety Measures Adopted by Home-Based Workers (M.A.; N=672)

MEASURES	SHARE		REASON FOR NO MEASURES	SHARE
Regular rest breaks	62.9%		Feel no need	33.5%
Correct lighting	24.4%	➡	Lack of financial resources	20.8%
Ergonomic design	18.0%		Deadline pressures	18.5%
Safe cabling	13.2%		Family demands	14.5%
Other	2.5%		Home (office) too small	10.4%
No measures	25.7%		Other	2.3%

Table 4. Occupation by Absence of Safety Measures & Time Off Sick (N=672)

Main Occupation (M.A.)	No Safety Measures	Time off sick	1 day off sick	2–3 days off sick	4–5 days off sick
Word processing/tape transcription (N=225)	21.8%	24.9%	5.3%	10.2%	5.3%
Data input (N=486)	25.3%	20.2%	4.9%	9.5%	1.2%
System design (N=77)	27.3%	23.4%	3.9%	10.4%	3.9%
Programming (N=152)	16.4%	35.5%	5.3%	19.7%	7.9%
Statistical processing (N=63)	9.5%	22.2%	1.6%	15.9%	3.2%
Data Search (N=94)	10.6%	21.3%	–	9.6%	8.5%
Architectural Design (N=36)	25.0%	33.3%	5.6%	22.2%	2.8%
Graphic Design (N=62)	**27.4%**	**40.3%**	**6.5%**	**14.5%**	**17.7%**
Desk Top Publishing (N=39)	**33.3%**	**35.9%**	**7.7%**	**20.5%**	**5.1%**
Writing (N=44)	25.0%	15.9%	2.3%	9.1%	2.3%
Translation (N=34)	23.5%	29.4%	11.8%	11.8%	–
Survey/Research (N=79)	17.7%	21.5%	2.5%	7.6%	2.5%
HP design (N=168)	23.2%	33.3%	5.4%	15.5%	7.7%
Other (N=110)	34.5%	25.5%	10.0%	8.2%	0.9%

they took no such measures, the main reasons cited being "Feel no need for special measures" (33.5%); "Lack of financial resources" (20.8%); "Deadline pressures prevent regular breaks" (18.5%); "Family demands prevent regular breaks" (14.5%); and "Home (office) too small to introduce safety measures" (10.4%).

Moreover, when those taking no special safety measures are cross-tabulated with job types and incidence of health problems, a disturbing pattern emerges (Table 4). For example, desk top publishing workers form the single largest group of workers taking no special safety measures, their main reason being "lack of financial resources" (46.2%). 35.9% of the same occupational group cite at least one day off work due to illness in the last three months, the second highest of any occupational group. Additionally, 20.5% cite 2–3 d off, once again quite high compared to other groups. Graphic designers are the second single largest group with no special measures, feeling no need

Table 5. Occupation by Absence of Safety Measures, Low Pay & Missed Deadlines (N=672)

Main Occupation (M.A.)	No Safety Measures	Main Reason for No Measures	Low Pay	Missed Deadlines*
Word processing/tape transcription (N=225)	21.8%	Feel no need (32.7%)	68.9%	8.4%
Data input (N=486)	25.3%	Feel no need (35.8%)	66.5%	11.3%
System design (N=77)	27.3%	Feel no need (47.6%)	44.2%	14.3%
Programming (N=152)	16.4%	Feel no need (40.0%)	55.9%	12.5%
Statistical processing (N=63)	9.5%	Feel no need (33.3%)	65.1%	7.9%
Data Search (N=94)	10.6%	Feel no need (30.0%)	68.1%	7.4%
Architectural Design (N=36)	25.0%	Feel no need (22.2%)**	41.7%	16.7%
Graphic Design (N=62)	27.4%	Feel no need (41.2%)	61.3%	11.3%
Desk Top Publishing (N=39)	**33.3%**	**Lack of funds (46.2%)**	**76.9%**	**17.9%**
Writing (N=44)	25.0%	Feel no need (36.4%)	50.0%	11.4%
Translation (N=34)	23.5%	Lack of funds (25.0%)#	58.8%	11.8%
Survey/Research (N=79)	17.7%	Feel no need (35.7%)	59.5%	7.6%
HP design (N=168)	23.2%	Feel no need (38.5%)	57.7%	9.5%
Other (N=110)	34.5%	Lack of funds (31.6%)	59.1%	18.2%

* due to illness and other factors. ** Not enough space, Tight deadlines also 22.2%. # Family pressures, Tight deadlines also 25.0%.

Table 6. Health Insurance Coverage by Gender & Income

	National Health	Dependent Coverage	Employer Health	Other
All (N=672)	47.3%	47.8%	3.7%	0.9%
Males (N=91)	**72.5%**	**14.3%**	**13.2%**	**0.0%**
0–0.5 mil (N=25)	(8.8%)	(8.8%)	(9.9%)	(0.0%)
0.5–1 mil (N=8)	(7.7%)	(0.0%)	(1.1%)	(0.0%)
1–2 mil (N=11)	(7.7%)	(3.3%)	(1.1%)	(0.0%)
2 mil + (N=47)	(48.4%)	(2.2%)	(1.1%)	(0.0%)
Females (N=581)	**43.4%**	**53.0%**	**2.2%**	**1.0%**
0–0.5 mil (N=299)	(13.9%)	(35.5%)	(1.4%)	(0.5%)
0.5–1 mil (N=135)	(11.7%)	(10.7%)	(0.5%)	(0.2%)
1–2 mil (N=85)	(9.1%)	(5.3%)	(0.0%)	(0.2%)
2 mil + (N=61)	(8.6%)	(1.5%)	(0.3%)	(0.0%)

N.B. Breakdowns subject to rounding error.

for them, and yet their incidence of time off sick is higher than any other group (40.3%). High incidence of time off sick is also seen with programmers, architectural design, HP design and translators, although the link with safety measures is not as clear.

In order to further examine the relationship between occupation and health, absence of safety measures was cross-tabulated with missed deadlines and dissatisfaction with low pay, this last variable included because DTP workers cited lack of financial resources as the main reason for not taking special measures (Table 5). While no direct causal relationship can be confirmed, it is interesting to note that once again, the DTP group is not only the single largest group to express dissatisfaction with pay rates (76.9%), they also have the highest incidence of missed deadlines (17.9%).

Looking at health insurance coverage, 47.8% were covered as dependents by spouse programs (either government or union), 47.3% by the national health scheme and 3.7% by employer schemes (this latter response was not included as a choice but was later reclassified from the "Other" category). Table 6 breaks these figures down by gender. Affected by the Japanese tax ruling that spouses with income in excess of 1.28 million yen cannot be claimed as dependents, the incidence of female dependent coverage rises neatly in

Table 7. Incidence of Medical Check-ups (N=672)

	% Share
Undergone Medical Check-up (N=181)	26.9%
National Health Insurance (N=318)	(10.3%)
Dependent Coverage (N=321)	(13.1%)
Employer Health Scheme (N=25)	(2.5%)
Other (N=6)	(0.7%)

N.B. Breakdowns subject to rounding error.

line with lower income (1.5% for income of 2 million yen or more; 5.3% for 1–2 million yen; 10.7% for 0.5–1 million yen; and 35.5% for income less than 500,000 yen).

Concerning health management, only 26.9% had had some form of medical check-up since they started working at home, irrespective of the source of health coverage (Table 7). Bearing in mind that the Japanese health insurance system penalizes those seeking regular check-ups by not covering the fees for such tests, this low incidence of medical check-ups is most likely a general trend for workers outside employer health schemes and not merely confined to home-based workers.

When queried on the type of check-up they had undergone, 88.4% had had a general medical check-up but only 2.2% a Video Display Terminal (VDT) check-up despite the fact that all the workers surveyed were *by definition* using computers and, therefore, required under the 1985 Government VDT Operators Health Guidelines to undergo regular medical check-ups, including ophthalmologic tests (eyesight, intraocular pressure, etc.) and muscular tests (VDT Guidelines 1985). Moreover, while 72.9% had undergone check-ups at their own behest, only 4.4% had done so at the insistence of their work contractor.

In terms of income fluctuation either due to sickness or work volume changes, 44.6% said they cut back on spending and/or used savings to tide them over, followed by 43.6% who said they were able to maintain their usual work and lifestyle. A further 11.0% said they were forced to borrow money to tide them over. Table 8 provides the specific responses regarding income fluctuation caused by sudden illness or injury. Here, the responses were

fairly evenly split between "use existing savings" (46.3%) and "use life or non-life insurance policy saving instruments" (42.3%). This split remained reasonably consistent even when broken down by income level.

The survey concludes with a series of items asking what specific support the home-based workers would like to see from the public sector and what existing welfare schemes provided by the Tokyo Worker Welfare Association they would like to use. Response categories did not specifically cite health-related issues, nor did any of the respondents cite any in free responses. Similarly, the single somewhat related response category in the existing services item—elder care/pension seminars/enquiries—was selected by only 14.6% of the sample.

Discussion

What do these results suggest about health management for home-based workers? First, unsurprisingly the state of health insurance coverage and medical check-ups for the survey's mostly marginally engaged home-based workers mirrors that of on-site part-time workers in general. Nevertheless, it is clear that health management issues exist for this group of off-site, and therefore organizationally isolated, workers. While due caution should be exercised in interpreting the survey results, an immediate concern is the gap between those with health conditions that affect their work performance and those actually undergoing treatment (Table 2). While no data is available on the degree of debilitation, it may be argued that the inherent instability of their work arrangements, at least compared to organizationally employed full- and part-time employees, fosters a climate where work deadlines take priority over health care management. The fact, however, that illness is a major source of missed deadlines (Table 5) suggests that relegating health issues to the back seat can be counter-productive in all senses.

The somewhat cavalier attitude towards safe work practices (Table 3) also suggests either low awareness of or low priority for health management, which would tend to be reinforced by the absence of the kind of organizational support expected and enjoyed by full- and part-time employees. In other words, potential neglect of health issues goes unmitigated by a responsible third party (usually the employer in conventional work

Table 8. Response to Income Fluctuation due to Illness/Injury

	All (N=672)	Under 0.5 mil yen (N=324)	0.5–1 mil (N=143)	1–2 mil (N=96)	Over 2 mil (N=108)
Existing savings	46.3%	47.8%	44.8%	38.5%	50.9%
Insurance policies	42.3%	41.4%	42.0%	49.0%	39.8%
Risk-sharing mutual schemes	8.3%	7.4%	10.5%	9.4%	6.5%
Other	3.1%	3.4%	2.8%	3.1%	2.8%

arrangements). Awareness, however, is not the only issue. Work pressure, family demands and financial constraints all play a part, hinting at the diverse demands that confront independent home-based workers. It is clear from this brief analysis that health management issues for off-site workers exist but are largely unexplored.

As mentioned earlier in this paper, Steward has shown that teleworking changes perceptions of health and well-being and alters patterns of sickness leave taking from work in UK workers. Absence from the office and invisibility from colleagues encourages the redefinition of illnesses previously considered incompatible with going to work as minor periods of malaise, which permit work to be carried out at home. Rates of illness reporting to employers and visits for medical consultation appear to decrease, which erroneously creates an image of healthy workers.

In a similar vein, the Japanese survey indicates a propensity for home-based workers to work through illness. Health care/safe practices do not appear high on their list of concerns even though this neglect apparently affects their ability to meet deadlines. Nor do business partners act as a tempering influence, although this is not surprising given a) their independent worker status and b) the relatively small workloads of the majority. However, the presence of chronic conditions, which affect work performance ability, does not augur well for the health management of such workers if they begin to work for more sustained periods of time on a long-term basis.

The sample presented here consists mainly of independent workers and the findings point to the limited understanding and appreciation of health in home-based settings on both the part of business partners and the workers themselves. While it is impossible to extrapolate directly to full- and part-time employees, the propensity of home-based workers to work through illness suggests that conventional organizational criteria for sickness, such as the inability to commute or do a full day's work, or face-to-face interaction at work ("You look terrible. Shouldn't you go home?"), are being replaced by much more elastic, personal criteria that are not as yet well understood. Clearly, there is a need to examine what exactly happens to health management in virtual work environments.

It is in order to explore the occupational health and health-related behaviour of home-based employees, as opposed to the independent workers studied here, that a comparative Anglo-Japanese study is planned. The study will focus on gender, occupational status within organizations, and organizational management of off-site employees' health in matched workplaces in the two countries. It will form a unique research purposive sample to investigate the personal and culture related changes associated with virtual work nationally or globally and will begin to identify the possible health and occupational health issues that affect workers in non-traditional work settings in two distinct working cultures.

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