A Telephone Survey On Self-reported Work-related Illness and Perceived Hazards in Occupational Safety and Health in Hong Kong

Hong Kong Occupational Safety and Health Council

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Executive Summary

**Objective:** To measure the prevalence of the working adults who are suffering from work-related illnesses and injuries in the previous 12 months and the medical expenses as a result of the work-related illness and to measure what are the occupational safety and health hazards as perceived by the subjects.

**Study design:** cross-sectional survey using random digit telephone interview with a standardised structured questionnaire.

**Subjects:** Hong Kong Cantonese speaking people who had a full-time paid job for more than six months in the previous 12 months.

**Results:** 10072 subjects were successfully interviewed and the response rate by household was about 65%. About 32% (95% C.I. 31%-33%) of the respondents had ever had work related injuries or illnesses in the past 12 months.

About 11% of the subjects had one type of work related illness and 19% had two types or more. The most prevalent work related illness was low back pain (15%). About 21% of the episodes of the work related illnesses were reportedly caused by the work. Sick leave was taken in 10% of the episodes of work related illnesses. Doctors were consulted in 37% of the episodes of work related illnesses. It is estimated that about 900,000 days of sick leave and about HK$513 million are paid for doctor consultation of work related illnesses each year among the 3 million working people in Hong Kong.

About 4 % of the subjects had at least one work related injury in the past 12 months. The most common work related injuries were bleeding with no fracture (47% of the 524 episodes), followed by straining of muscles (25%), and fracture (10%). The most common cause of injuries was cut (34% of the 524 episodes), followed by being hit by falling or flying objects (16%) and knocking on other objects (11%). The most common place of occurrence of the injuries was construction sites (25% of the 524 episodes), followed by factory workshops (22%) and restaurants (12%). It is estimated that about 2,400,000 days of sick leave are taken and about HK$40 million are paid for doctor consultation for work related injuries each year among the 3 million working people.

About 28%, 25% and 3% of the subjects perceived the air quality, quietness and the hygiene condition of their work environment as bad or very bad respectively, 9% perceived their work as stressful or very stressful. About 21%, 20%, 8% and 7% of
the subjects were exposed to noise, dust, chemicals and chemical gas at work respectively. Among the exposed subjects, the proportions of not using any safety measures for noise, dust, chemicals and chemical gas were 84%, 80%, 49%, and 54% respectively. The majority were not provided any safety measures or training by the employers. At work, 13% of the respondents needed to climb up and down, 25% needed to handle heavy load manually and 25% needed to keep the same posture or to perform repetitive movement for more than 4 hours per day. About three quarters of the subjects who needed climbing used safety measures, but less than half of those who needed to handle heavy load manually did so. About one third and two thirds were not provided safety measures or training by their employers. About 5% perceived their chance of being injured at work as quite big or very big and 1% perceived the fire safety measures in the workplace as bad or very bad. About 46% were exposed to passive smoking at work.

Conclusions: A substantial proportion of the working population have reported work related illnesses and injuries and the economic burden from sick leaves and doctor consultations is high. There is much dissatisfaction towards the work environment.

1. Introduction

Studies on occupational health and safety are usually carried out by the health and safety professions with the professionals' perspective, and most of these studies are confined to one specific occupation or one specific disease. Few studies have examined the occupational health and safety from the perspective of the working population in the community as a whole.

The lack of data on work-related illnesses and the need for supplementary sources of data in the UK was recognised and as a result, a survey on work-related illness was carried out in 1990\(^1\). In a national sample of 75,000 adults in England and Wales, 6% reported suffering from a work-related illness (defined as reportedly caused or made worse by the subject's work) in the previous 12 months and half of these were seen as caused by work. The most common was musculoskeletal conditions. Results of the survey were used extensively in occupational health programmes (such as the "Good Health is Good Business" of the UK Health and Safety Executive, HSE) and information sheets (such as the HSE Fact Sheets).

In Hong Kong, there are no reliable data on the extent of work-related illnesses in the working population as a whole. The data from notification or compensation of occupational diseases are incomplete. The data on work
injuries cover only the more serious cases. Similarly, the data on warnings and charges of occupational safety issued from the Labour Department show only the extent of the more extreme situations. Good local data to measure the extent of the problems, to arouse public awareness and interests, and to support policy and planning in occupational safety and health are needed.

In a telephone survey on the population's perception of working and living environment in Hong Kong in 1993, it was reported that many working people were not satisfied with their work environments; 39.8%, 38.2%, 22.1% and 19.7% were unsatisfied with the air quality, quietness, hygiene and stress. About one third (34.4%) had an illness related to the work environment in the past 1 year. Though this survey can provide some useful data on occupational health, the questions asked were brief and the sample size was relatively small (2189 subjects). Furthermore, the data gathered 5 years ago may not reflect the present situation as Hong Kong has been undergoing big changes in its industrial pattern and occupational safety and health legislation during these years.

2. Objectives

This study is aimed:

(1) To measure the percentage of the working adults (aged 15 or over) who are suffering from work-related illnesses (including injuries) in the previous 12 months;

(2) To measure the prevalence of each work-related illness;

(3) To measure the number of days of sick-leave and the medical expenses as a result of the work-related illness; and

(4) To measure what are the occupational safety and health hazards as perceived by the subjects.

3. Methods

3.1 Study design and questionnaire

The present survey was a cross-sectional survey using telephone interview with a standardised structured questionnaire.
The standardized questionnaire covered the following topics:

(a) Whether the respondents had heard of the new legislation on occupation safety and health.

a. Demographic variables: sex, age, education, type of housing, living district, place of birth, number of years living in Hong Kong, occupation (including nature of job and industry), duration of employment in the present job and income.

b. General working condition including number of working hours, needed to work night shift or not, number of years working in the present companies and having part-time job or not.

c. Had suffered from any work-related injuries or not in the past 12 months.

d. Had suffered from any work-related illness (any illness or physical problem that were caused or made worse by the job duties) or not in the past 12 months.

e. For the sufferers of work-related injuries or illnesses,

i. The nature of the work-related injuries or illnesses,

ii. The causes of the work-related injuries or illnesses,

iii. Sick leave taken for the work-related injuries or illnesses,

iv. Medical expense for the work-related injuries or illnesses.

a. Rating of the work environment, including air quality, quietness, hygiene, and work stress.

b. Potential hazards to health and safety in the work environment, including uncomfortable posture or movement, exposure to chemical, dust or noise, working at a height, handling heavy load manually, keeping the same posture or performing repetitive movement for a long time, and fire safety measures.

c. Passive smoking and banning of smoking at workplace.

d. Perceived general health and cigarette smoking habit.
3.2 Target population and sampling procedures

The target population included Cantonese speaking working people in Hong Kong who had ever had full-time paid jobs (i.e. working more than 15 hours a week) for more than six months in the previous 12 months and could be contacted through a residential telephone in Hong Kong. Non-Chinese (including Filipino maids) were excluded.

All the eligible working adults living in a sampled household were invited to be interviewed.

The method of random digit dialling was used (i.e. telephone numbers were randomly selected from the most recent editions of the residential telephone directories and the last one digit was replaced by a random digit generated by computer).

Each telephone number was dialled at least 3 times, each on different day and in different session (i.e. morning, afternoon, evening). When the telephone calls were answered, the interviewer explained the purpose of the survey and an eligible subject was invited to be interviewed. After the first eligible subject finished the interview, the second eligible subject was invited to be interviewed and so on. If one or more of the eligible subjects in the sampled household were not available during the successful contact, the subjects would be contacted again after consulting the one who answered the call the suitable time for another telephone call. Proxy respondent was not accepted.

3.3 Quality controls

All the interviewers were trained by the project coordinator before they started the job.

Samples of questionnaires were selected and read through by the project coordinator from time to time. Misunderstanding and ambiguous points were found and the interviewers were briefed on how to handle them.
When unclear or logically inconsistent answers were found during data entry, the respondents were phoned again by the project co-ordinator to clarify the answers.

A random sample of 100 subjects who had been successfully interviewed were contacted again to check the interviewers, and three questions were also asked for checking the reliability.

Data were entered using a programme designed to check for logical error.

3.4 Sampling error

To examine the sampling error for a proportion based on the total sample size of 10072 subjects, the maximum standard error can be calculated by using a proportion of 50% (0.5) as follows:

The 95% confidence interval (95% CI) for a proportion of 50%

\[ 0.5 \pm 1.96 \times \text{standard error} = 0.5 \pm 1.96 \times 0.00498 = 0.5 \pm 0.0098 = 49\% \text{ to } 51\%. \]

Thus, the error for an estimate of 50% is only 1%. For proportions greater or smaller than 50%, as the standard error will be smaller, the error will be less than 1%. It should be noted that when a proportion is based on a denominator of less than 10072, as in sub-group analysis, the standard error will be greater, and the 95% confidence interval will be wider (i.e. the precision will be lower).
1. Results

4.1 Contacts and response rate

From 10 August 1987 to 31 August 1998, about 20000 telephone numbers were dialled. Among these, 16797 were answered. Among these, 8149 had at least one eligible family member who was successfully interviewed; 4437 were refusals or had no working member who could be contacted after three or more calls; 2640 were not residential line; 240 did not have any working member who spoke Cantonese; and 1331 did not have working members. The response rate by household was 64.7% (8149/(8149+4437)).

Among those 8194 telephone numbers with at least one eligible family member who was being interviewed, a total of 10072 working subjects were successfully interviewed (i.e. mean=1.24 members) while the mean number of working members in these households was 2.02. Hence about 61.2% of the working members of these households were interviewed. (Table 1). In the Hong Kong 1996 By-Census, there was an average of 1.85 working members in the households with working members. Hence, less households with fewer members could be successfully interviewed. By using an average of 1.85, it is estimated that about 43.3% of the eligible subjects were successfully interviewed.

4.2 Reliability check

From the 10072 subjects who were interviewed, a random sample of 100 subjects were drawn for re-interview. A total of 82 subjects were successfully re-interviewed. Among those 18 subjects who could not be reinterviewed, the telephone was never answered after many trials in 5 subjects, 6 subjects refused the re-interview and 7 respondents of the calls claimed the household did not have the persons we looked for or refused to say whether the person we looked for existed in these households or not after several telephone calls. The agreement in the two answers for the three items were as follows:
a. had any work related illness in the past twelve months: 82.9% (kappa score=0.63)  
  
(b) air quality of the workplace: 79.9% (kappa score=0.41)  
  
(c) education attainment: 95.5% (kappa score=0.80)  

These good agreements as shown by the high kappa scores, showed that the data should be reliable.

4.3 Demographic characteristics

The distributions of gender, age, educational attainment, type of housing and living districts in this sample was fairly close to the Hong Kong population in 1996 as there were only difference of a few percentage points in a few categories (maximum 4.9 percentage points in secondary education level) (Table 2A-2E).

This sample consisted of more people who were not born in Hong Kong than the Hong Kong population in 1996(Table 2F). This difference might partly be explained by the large number of immigrants from Mainland China in the two years since 1996 and the large number of Hong Kong residents working outside Hong Kong.

The monthly salary of the sample was slightly higher than that of the By-Census 1996 (Table 2G). This difference could be explained be the increment of salary in these two years. This sample consisted of less people working in manufacturing industries, business services, and social & personal services and more people working in construction industries and transport, storage & communication industries than that of the By-Census 1996 (Table 2H). The difference was quite small (a maximum of 4.6 percentage points in construction) and the difference could be partly explained by the changing pattern of industries in these two years in Hong Kong.

The distribution of occupation in this sample was different from that of the By-Census 1996 (Table 2I). This sample
consisted of much less people working as managers & administrators and in elementary occupations and more people working as associate professionals, clerical workers and craft & related workers. Hence this sample consisted of more people in the middle of the occupational hierarchy and less people at the two ends. This difference could be partly due to that in the Census, people were asked to give full details of their jobs and their exact salaries, and hence it was easier to determine whether an individual was at the ends of the occupation hierarchy. In our interviews, the respondents were asked only to describe their job nature and job title briefly and to choose their salaries among three categories, and hence it was more difficult to classify an individual to the two ends of the occupation hierarchy. For example, in our interview, a number of individuals described their job nature as executive and they were coded as in the category of associate professionals but some of them might actually carry the title of managers; on the other hand, when the individuals described themselves as construction workers, they were coded as craft & related workers in this survey while some of them could be classified in the Census into elementary occupations by the respondents' description of the level of skill involved and their exact salaries in their job. For the jobs that the classification did not depend much on the job title and the level of the skills involved, such as service & shop sales workers, there was no difference between this sample and the By-Census 1996.

On the whole, this sample is therefore reasonably representative of the Hong Kong working population in 1997-8.

4.4 General working conditions

About 0.3% of the respondents also had part-time job, and in the 1996 By-Census, the proportion was 1.6%.

About 70% of the respondents worked more than 39 hours in a week and 18.5% worked very long hours (55 hours or more) in a week (Table 3A). The mean and median working hours per week were 50 hours and 48 hours respectively.
About 13% of the respondents often or sometimes needed to work at night shift (Table 3B). Only about one third (32%) had been working in the present company for 10 years or more. The mean and median years of working in the present company were 7 and 5 respectively (Table 3C).

4.5 Knowledge of new legislation on occupational safety and health

With the effort of promoting the new legislation on occupational safety and health which was enacted in May 1997, more and more workers were aware of the presence of the new legislation. Among the respondents interviewed in August 1998, 38.3% had heard of the new legislation. However, only a small proportion (7.7%) knew the content of the legislation and among the respondents interviewed in August 1998, although there had been substantial improvement during the few months after May 1997 (Table 4).

4.6 Work related injuries and illnesses in the past 12 months

About 32% (95% C.I. 31.5%-33.3%) of the respondents had ever had work related injuries or illnesses in the past 12 months (Table 5A). Work related injuries were defined as the injuries that occurred during working hours and were reported to be related to work or work environment; work related illnesses were defined as the illnesses or health problems that were reportedly caused or made worse by job duties by the respondents.

4.7 Work related illnesses

About 11.2% (95% C.I. 10.6%-11.8%) of the respondents had one type of work related illness and 19.1% (95% C.I. 18.3%-19.8%) of the respondents had more than one type of work related illness. (Table 5B).
A total of 6760 episodes of work-related illnesses were reported. The most prevalent work related illness was low back pain with 14.6% of the respondents suffering from it. The other work related illnesses with a prevalence of more than 5% were headache (5.9%), upper limb & shoulder pain (5.5%), insomnia (5.5%) and anxiety (5.3%) (Table 5C).

About 21% of the episodes of the work related illnesses were reportedly caused by the work, and 79% were made worse by work. The most prevalent illness caused by work was stomach ache (2.7%), followed by low back pain (1.6%), allergic rhinitis (1.5%) and indigestion symptoms (1.0%). The most common illness made worse by work was low back pain (about 12% of the respondents), followed by upper limb and shoulder pain (4.8%) and headache (4.6%) (Table 5D).

Sick leave was taken in 10.4% of the episodes of work related illnesses in the past 12 months. The most prevalent work related illness with sick leave taken was low back pain (1.5% of 10072 respondents), followed by stomach ache (0.7%) and headache (0.7%) (Table 5E). A total of 429 (4.3%) respondents had taken sick leave for the work related illnesses in the past 12 months. The median and mean days of sick leave taken by these 429 respondents were 3 and 7.15 respectively. The total sick leave taken were 3070 days. Hence, on average, 0.3 day of sick leave was taken for each of the 10072 respondents (Table 5F). Based on this average, it is estimated that about 900,000 days of sick leave for work related illnesses are taken each year among the 3 million people in the working population in Hong Kong.

Doctors were consulted in 36.7% of the episodes of work related illnesses in the past 12 months. For specific problems, about 88% of those with frequent cough and phlegm consulted doctors, whereas on 13% of those with anxiety did so. The most prevalent work related illness with doctor consultation was also low back pain (5% of 10072 respondents), followed by frequent throat problem (3.2%), frequent cough and phlegm (2.3%), and stomach ache (1.9%) (Table 5G). A total of 1418
(14.1%) respondents had consulted doctors for the work related illnesses in the past 12 months. The median and mean amount of money paid for doctor consultation by these 1418 respondents were $700 and $1,587 respectively. A total amount of $1,719,605 was paid. On average, $171 was paid for each of the 10072 respondents (Table 5H). Based on this average, it is estimated that about 513 million dollars are paid for doctor consultation of work related illnesses each year among the 3 million people in the working population in Hong Kong. Of the $1,719,605 paid for doctor consultation of the work related illnesses in the 10072 respondents, about $398,830 (23%) were paid by the employers (Table 5I). On average, $40 was paid per respondent, and, in each year, the employers in Hong Kong have to pay about 120 million dollars for their employees' doctor consultation for work related illnesses.

Most respondents attributed their work related illnesses in the past 12 months to "stressful job" (11.1% of the 10072 respondents), followed by prolonged sitting (7.2%), uncomfortable or tiring movement or posture (6.5%), handling heavy load (5.8%) and unclean air (5.5%) (Table 5J).

### 4.8 Work related injuries

A total of 437 (4.3%) respondents had at least one work related injuries in the past 12 months (Table 5A) and the total number of episodes of injuries in the past 12 months was 524 (Table 5K).

The most common type of work related injuries was bleeding with no fracture (46.6% of the 524 episodes), followed by straining of muscles (25.2%), and fracture (10.3%) (Table 5K).

The most common cause of injuries was cut (34.2% of the 524 episodes), followed by being hit by falling or flying objects (16.2%) and knocking on other objects (10.9%).

The most common place of occurrence of the injuries was construction sites (25.2% of the 524 episodes), followed by
factory workshops (22.1%), restaurants (12.2%) and offices (11.6%) (Table 5M).

Neither sick leave was taken nor doctors were consulted in 21.2% of the 524 episodes. Sick leave was not taken but doctors were consulted in 6.5% of the episodes. Sick leave was taken but doctors were not consulted in 3.2% of the episodes (Table 5N).

A total of 346 (3.4%) respondents had taken sick leave for work related injuries in the past 12 months. The median and mean days of sick leave taken by these 346 respondents were 7 and 23.3 respectively, and the total was 8050 days. Hence, on average, 0.8 day of sick leave had been taken for each of the 10072 respondents (Table 5O). Base on this average, it is estimated that about 2,400,000 days of sick leave for work related injuries are taken each year among the 3 million working people in Hong Kong.

Among the 10072 respondents, 362 (3.6%) had consulted doctors for the work related injuries in the past 12 months. The mean amount of money paid for doctor consultation in these 362 respondents was $461. A total of $135,995 was paid. Hence, on average, $13.5 was paid by each of the 10072 respondents (Table 5P). It is estimated that about 40 million dollars are paid for doctor consultation for work related injuries each year among the 3 million working people in Hong Kong.

Of the $135,995 paid for doctor consultation of the work related injuries in the 10072 respondents, about $128,233 (94.3%) were paid by the employers (Table 5Q). Hence, based on the average of $12.7, the employers in Hong Kong have to pay more than 38 million dollars for their employees' doctor consultation for work related injuries each year.

4.9 Perception of the work environment

Among the 10072 respondents, 27.7%, 25.4% and 2.9% of them perceived the air quality, the degree of quietness and the hygiene condition of their work environment as bad or very bad respectively (Table 6A).
The most prevalent perceived problems about air quality was "indoor ventilation" (reported by 8% of the 10072 respondents), followed by "work place near the highways" (5.5%) and "dusty air" (5.4%). The most prevalent perceived problem about quietness was "noise from heavy machine" (5.7%), followed by "noise from automobiles" (4.5%) and "unspecified noise related to construction site" (4.4%) (Table 6B).

About 9% of the respondents perceived their work as stressful or very stressful. The most prevalent perceived problems about work stress was "heavy workload" (2.4% of the 10072 respondents), followed by "demanding job" (2.1%) and "bad physical environment" (1.0%) (Table 6C).

4.10 Potential hazards to health and safety in the work environment

Among the 10072 respondents, about 25.1% reported that their work involved some uncomfortable or tiring posture or movement. The most prevalent perceived problems about posture was prolonged sitting (5.5% of the 10072 respondents), followed by prolonged standing (3.7%) and problems relating to the use of computer (3.8%) (Table 6D).

About 20.8%, 20.3%, 8.0% and 6.9% of the respondents were exposed to noise, dust, chemicals and chemical gas at work respectively (Table 7A). Among the exposed respondents, the proportions of not using any safety measures for noise, dust, chemicals and chemical gas were 83.6%, 79.4%, 48.8%, and 54.1% respectively. The majority were not provided any safety measures or training by the employers (Table 7B).

At work, 13.3% of the respondents needed to climb up and down, 25.4% needed to handle heavy load manually and 25.2% needed to keep the same posture or to perform repetitive movement for more than 4 hours per day (Table 7C). Most respondents who needed climbing used safety measures (75.9%) but less than half of the respondents who needed to handle heavy load manually did so (48.4%). About one third and two third, respectively, were not provided safety measures or
training by their employers (Table 7D). About 51.0% of the respondents who needed to keep the same posture or perform repetitive movement for more than 4 hours per day used some safety measures to minimize the adverse effect on health (Table 7E).

About 5.4% of the respondents perceived their chance of being injured at work as quite big or very big (Table 7F) and 1.4% perceived the fire safety measures in the workplace as bad or very bad (Table 7G).

4.11 Passive smoking and banning of smoking in the workplace

About 45.8% of the respondents were exposed to passive smoking (defined as having at least one person, other than the respondent, who smoked within about 10 feet around the respondents) in the workplace (Table 8A). Only 35.9% of the respondents’ workplace had a ban on smoking (Table 8B).

4.12 Perceived general health and cigarette smoking habit

About 93.6% of the respondents perceived their health in general as good or very good in the past 12 months (Table 8C).

About 21.5% of the respondents were current smokers (20.3% daily smokers) and 5.0% were ex-smokers (Table 8D).

4.13 Work related injuries and illnesses in the past 12 months in different industries and occupation

Workers in the construction industry had the highest prevalence of work related injuries or illnesses in the past 12 months (45.7%), followed by restaurant & hotel workers (38.2%), while workers in the wholesale & retail industry had the lowest prevalence (19.4%) (Table 9A).

Plant & machine operators had the highest prevalence of work related injuries or illnesses in the past 12 months (47.8%), followed by craft & related workers (43.2%), while managers
& administrators, clerical workers and associate professionals had low prevalence (24.9%, 25.5% and 26.8% respectively) (Table 9B).

4.14 Work environment in different industries and occupations

The work environment was considered as bad if either the air quality or quietness or hygiene was perceived as bad or very bad, otherwise it was considered as not bad.

The work environment in the construction industry was most often perceived as bad (71.9%), followed by manufacturing (50.3%) and restaurants and hotels (45.9%). The industries perceived by least workers as bad were business services (11.2%) and import/export trade (11.5%) (Table 9C).

Most of the craft & related workers and plant & machine operators perceived their work environment as bad (66.7% and 64.2% respectively) while only 15.0% of the clerical workers perceived so. (Table 9D).

4.15 Work stress in different industries and occupations

About 14.0% of the workers in business services perceived their work as stressful or very stressful while the proportions of workers perceived their work as stressful or very stressful in the other seven industries were quite similar (from 5.6% to 10.3%) (Table 9E).

About 15.6% of the managers & administrators and 14.8% of the professionals perceived their work as stressful while only 6.6% of the workers in elementary occupations perceived so. (Table 9F).

4.16 Unhealthy posture and movement at work in different industries and occupation
Unhealthy posture and movement included uncomfortable and tiring posture and movement, repetitive movement and keeping the same posture for more than 4 hours at work.

About 41.8% of the workers in import/export trade and 37.2% in business service were involved in unhealthy posture and movement at work while 13.4% in wholesale & retail and 15.0% in construction were so involved (Table 9G).

More than half (50.7%) of the plant & machine operators were involved in unhealthy posture and movement at work while only 9.9% of the workers in elementary occupations were so involved (Table 9H).

5. Discussions

This is the first comprehensive survey on self-reported work related injuries and illnesses based on a reasonably representative sample of the working population in Hong Kong. The telephone interviewing method is cheap, and the working people can be directly approached and interviewed at their home. There is no need to obtain permission from employers as in surveys based on the workplaces. Workplace surveys have another difficulty in sampling, as a full list of all workplaces is not available, and selecting the workplaces is based on the method of cluster sampling which is subject to bias due to clustering. Telephone interviewing is totally anonymous and voluntary. As the respondents are interviewed at home, they are not subject to any influences from their employers or peers as compared with interviewing in the workplaces, and are more likely to give the true answers.

The major limitation is that there is no validation of the information reported by the respondents. The illnesses and injuries, as well as their relationship with work, are based on self-reporting. Such "subjective" informations are not (and cannot) be confirmed or otherwise by medical examination or other documentation (such as sick leave certificate) in telephone interview.

Data on self-reported work-related illnesses and injuries can supplement those based on official records and doctor diagnosis, the latter often provide under-estimates of the extent of the problems. Many doctors do not have time
to ask for a detailed occupational history and to give a diagnosis of occupational disease. They are also slow in notifying the authority. Some workers are also reluctant to report their health problems to their employers, their doctors or the authority. All these problems are long-standing, and there are as yet no better methods to collect "objective" and complete information on "definitive" occupational diseases or injuries. Special projects have been used but they are focussed on specific diseases only, such as the UK project on occupational respiratory diseases (the SWORD project) (Meredith and McDonald 1994). Hence, the only practicable method for a more comprehensive surveillance of the extent of occupational illnesses has to be based on self-reported information from a population survey (such as the UK survey). The present study followed the principle of the UK survey. It should be noted that the UK survey was not a telephone survey and it had a much bigger sample (about 75,000 adults), whereas the present study included only 10,000. Although the sample size is adequate for estimates based on the total sample, it may not be adequate for detailed sub-group analysis. The present survey is therefore a small step towards a new approach of surveillance of work-related injuries and illnesses. To the best of our knowledge, this is the largest telephone survey in Hong Kong.

In the present survey the prevalence of work related injuries and illnesses in the past 12 months is 32.4%, which is quite similar to the prevalence of 34.4% in another survey in 1993. Although the latter was based on a different telephone survey with different methods, the similarity is striking. On the other hand, our prevalence was much higher than the prevalence of only 6% in the UK survey in 1990. The reasons for such difference are not clear. It should be noted that there are many differences in the methodology of the present and the UK survey, the latter was based on a labour force survey with face-to-face interview. If the observed difference in prevalence is real, this could mean that Hong Kong people do report or actually have more work-related problems.

There was also a big difference in the prevalence of work related injuries and illnesses which resulted in sick leave in Hong Kong and in the UK. The prevalence was about 7.5% in Hong Kong and about 3% in the UK. The difference in prevalence of doctor consultation is even bigger. In the UK, most people take sick leave for doctor consultation as most clinics business hours are the same as the people's working hours. The prevalence of doctor consultation in the UK, which was not reported, can be assumed to be about
In Hong Kong, many clinics open after the people's working hours so that the working people can see the doctor after work. In this study, 1268 (12.6\%) respondents had consulted doctors for work related injuries and illnesses in the past 12 months.

Similar to the UK study, it is found in the present survey that low back pain is the most common work-related problems and about one sixth of the episodes of illnesses belonged to this category. In both places, musculo-skeletal disorders were the most common work-related problems, followed by stress related symptoms, and injuries.

The percentages of respondents who were dissatisfied with the air quality, quietness, hygiene and stress were 39.8, 38.2, 22.1 and 19.7 respectively in 1993\(^2\), while the corresponding percentages were 27.7, 25.4, 2.9 and 9.0 respectively in the present survey. Bearing in mind the differences in methodology, part of the difference can be explained by the change in the occupational pattern. Real improvement in the work environment is quite possible as many measures such as legislation and education had been carried out to improve the environment and occupational health and safety.

Nearly half of the respondents were exposed to passive smoking at work and this proportion is bigger than the percentages of dissatisfied subjects with regard to other aspects of the work environment. These results show clearly that environmental tobacco smoke (ETS) is a very important indoor air pollutant in the workplace in Hong Kong. Promotion of smokefree workplaces is needed urgently to prevent ETS exposure.

Finally, the data of the present survey should be very useful in the planning of occupational health and safety programmes and can provide useful baseline data for the monitoring of the occupational health and safety status and for evaluation of the effectiveness of legislation, education and other preventive measures. The dissemination of the results would increase public awareness and improve knowledge, attitudes and behaviour in occupational safety and health. Such cross-sectional surveys should be repeated regularly, say once every three to five years, using similar methods, so as to measure changes. A follow-up study of the respondents in this survey will be extremely useful to examine whether baseline characteristics can predict future health outcomes. It should also be noted that the follow-up study the more powerful study design than a repeated cross-sectional study on a different sample as the former can
measure changes within the same individuals. However, follow-up of the respondents is a very difficult task because of the great mobility of the Hong Kong population.

6. Conclusions

A substantial proportion of the working population have reported work related illnesses and injuries. For both the workers and the employers, the economic burden from sick leaves and doctor consultations is high. There is much dissatisfaction towards the work environment. About half of the working population is exposed to passive smoking at work.

Occupational safety and health professionals should take into account the perspective and concern of the working population in planning their education and prevention programmes. A smoke-free policy is needed to protect workers from exposure to passive smoking. A system of regular surveillance of the problems in terms of the quality of the work environment and the prevalence of work-related illnesses and injuries is needed. The effectiveness of such programmes should be and can be properly monitored.

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8. References

