

Subjective Health Complaints of Teachers From Primary and Secondary Schools in Hong Kong

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This study aimed to investigate the subjective health complaints (SHC) in the teaching profession of Hong Kong. On the basis of the SHC inventory, a questionnaire was prepared for data collection through a mail survey. A total of 1710 usable questionnaires were returned by the primary or secondary school teachers. The results showed that 99.5% (n = 1702) of respondents suffered at least one type of the 39 single health problems on the total SHC scale during the preceding 30 days. The 10 most frequently reported health complaints among the teachers were tiredness, eyestrain, anxiety, sleep problems, voice disorder, shoulder pain, neck pain, headache, cold/flu, and lower-back pain. With the exception of the category of pseudoneurological complaints, primary school teachers showed a statistically higher prevalence in reporting problems in 6 of 7 subscales. The 5 most severe complaints were tiredness, eyestrain, sleep problems, shoulder pain, and voice disorder.

teachers subjective health complaints occupational diseases

1. INTRODUCTION

At present, the duties of Hong Kong (HK) teachers are not limited to only teaching in classes. In addition, they have to prepare for lessons, assess students' exercises, carry out guidance work, perform nonteaching clerical duties, prepare for external school reviews, participate in continuing professional development, satisfy requests from management, etc. [1, 2, 3]. As a result, teachers may suffer mental and physical health problems due to the variety of job functions and frequent overtime work [4, 5]. Many overseas studies

showed that teachers were subjected to heavy occupational stress that could adversely affect their mental health status [5, 6, 7, 8]. In addition to occupational stress, teachers, in the course of their careers, faced physical health problems that were caused or worsened by their jobs as well as past work [9].

The three main types of occupational health problems of the teachers that had been investigated were voice problems, musculoskeletal disorders, and contact dermatitis. The issue teachers' vocal problems has been under investigation for a long time. Smith, Kirchner, Taylor, et al. [10] and

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Smith, Lemke, Taylor, et al. [11] found that 32% of the responding teachers thought that they had always had a voice problem, and that they were susceptible to voice problems due to their heavy and prolonged vocal loading partly caused by the nature of their job. There is always a necessity for them to speak and give verbal instructions in the presence of background noise, to project their voice over a distance, and to raise and strain their voice to overcome poor acoustic conditions [10, 11].

In addition to voice disorder, musculoskeletal complaints, especially of the lower back, neck and shoulders are also common among teachers. Shoulders and back pain for teachers may be caused by incorrect working posture during marking homework at a pupil's desk in primary schools and prolonged writing on the upper part of a blackboard [9]. Moreover, standing for a long time may lead to leg and lower-back pain as well. Physical education (PE) teachers may be at a higher risk of suffering from musculoskeletal problems. Sandmark investigated the extent of musculoskeletal dysfunction, especially symptomatic osteoarthritis of the knee and hip among PE teachers, and whether they differed from the general population in Sweden in this respect [12]. It was found that few PE teachers were able to work in their profession until the normal retirement due to the various physical dysfunctions, mostly musculoskeletal. However, Pihl, Matsin and Jurimae found that PE teachers were at a lower risk of musculoskeletal disorders in comparison with their sedentary fellow workers of the control group [13].

Contact dermatitis is also prevalent among school teachers. The National Occupational Research Agenda of the National Institute for Occupational Safety and Health (NIOSH) listed contact dermatitis after hearing loss as the second most common occupational disease in the USA [14]. Nickel appears to be one of the common agents causing occupational contact dermatitis due to its widespread use in chalks; Zanca, Nigro, Luciani, et al. expressed their belief that nickel content in blackboard chalks could cause contact dermatitis [15]. In their study, a 47-year-old teacher with no atopic diathesis had vesicular

dermatitis on both hands for ~4 years. Since the teacher recovered during her holidays, it was believed that contact with white chalks had caused the dermatitis problem.

Most past studies on teachers focused on work stress, mental health problems, or a single type of physical health problems. Focusing on school teachers' occupational health is important, but little recent research is available. Thus, the health threats confronted by school teachers in most countries are relatively unknown. In the present study, the authors therefore aimed at investigating the prevalence of a variety of health problems among the teachers with a questionnaire survey, so as to establish a reference database of subjective health complaints (SHC) among teachers of primary and secondary schools in HK. SHC are complaints with no objective findings [16]. The SHC inventory, previously called Ursin health inventory, consists of 29 questions on the severity and duration of subjective somatic and psychological complaints, but does not map any attributions or medical diagnoses [17]. It is a scoring system for recording SHC and yielded scores on single items and a total number of health complaints in 5 categories: musculoskeletal pain, pseudoneurology, gastrointestinal problems, allergy, and flu. The inventory has been used in different occupations such as hospital staff, bank employees, physicians, etc. [18, 19, 20].

2. METHODS

A questionnaire survey was conducted to investigate occupational health problems among teachers of primary and secondary schools in HK. Questionnaires were sent by mail to the respondents. A mail survey was suitable because it was less expensive than personal interviews or a telephone survey. Also, it allowed the respondents to answer at their leisure, rather than at an often inconvenient moment they were contacted for a phone or personal interview.

The HK Professional Teachers' Union (HKPTU) unites more than 90% of HK teachers, consisting of over 60000 teaching staff from universities, secondary schools, primary schools, kindergartens, and other educational institutes. It

was invited to jointly conduct the questionnaire survey, so as to enable an easier access to the target population and increase the response rate. The union was responsible for distributing and collecting the questionnaires by mail. There are ~23 000 and 25 000 primary and secondary school teachers in HK, respectively. Using a computer programme, 3 000 primary and 3 000 secondary school teachers were randomly selected from the HKPTU database. At the beginning of April 2005, a Chinese version of the cover letter, a self-administrated questionnaire, and a reply-paid envelope were sent to each of the randomly sampled teachers. They were asked to participate by anonymously completing and returning the questionnaire in the self-addressed envelope to the study investigator within 3 weeks. The cover letter included a broad outline of the survey, assurances about maintenance of individuals' confidentiality, and a contact telephone number for further information about the survey.

SHC inventory

The teachers' SHC were recorded with the SHC inventory with Eriksen, Ihlebæk, and Ursin's minor modifications [17]. The inventory is a fast, inexpensive, simple, and reliable way to score SHC in a 30-day look-back period without diagnoses, hypotheses, or attributions. The items cover a wide range of the most common health complaints, in words used and understood by the lay population [17]. The selection of items in the inventory is not based on any specific theory. Rather, the most frequent health concerns and reasons for seeing a general practitioner are covered. In this study, the modifications included the addition of five eye problems and three extra health problems, viz. contact dermatitis, voice disorder, and varicose veins of lower limbs. The 37 single health complaints included in the modified inventory can be categorized into seven subscales of factors: musculoskeletal pain, pseudoneurology, gastrointestinal problems, allergy, flu, eye problems, and teachers' common health problems. In the inventory, respondents rate the severity of each complaint on a 4-point scale (0—*none*, 1—*little*, 2—*some*, 3—*severe*). Zero meant the respondents did not suffer from

the corresponding health problem; 1, 2 and 3 that they suffered a little, some, and severe health problem, respectively. The severity of the health problems reported on a subscale was assessed with a score that was a simple sum of the raw severity scores for each single item. Since the numbers of single complaints on the seven subscales were different, the possible maximum severity scores for the subscales were not the same. The maximum score was 24 for the musculoskeletal subscale (8 items), 21 for the pseudoneurological subscale and gastrointestinal subscale, 15 for the allergic subscale and eye problems, 6 for flu and neuralgia, and 9 for the subscale of teachers' common health problems. The total severity score was a sum of the raw severity scores of all 37 complaints. In our study, for each single health problem, the respondents were asked if they perceived that their corresponding health problems were work-related, i.e., caused or worsened by their job.

3. RESULTS

3.1. Subjects

In total, 1710 usable questionnaires were collected. The overall response rate was 28.5%; 907 respondents (53.0%) were primary school teachers and 803 (47.0%) secondary school ones; 477 respondents (27.9%) were men and 1233 (72.1%) were women. Most respondents had over 5 years of teaching experience (85.3%), taught in aided schools (87.0%), and were under permanent employment (94.9%). Details of the demographic and occupational characteristics are shown in Table 1.

3.2. Prevalence

Overall, 99.8 and 99.4% of respondents suffered at least one type of health problem among the seven subscales and the original five subscales of complaints, respectively. The prevalence of SHC was found very high: 99.5% of respondents ($n = 1702$) suffered at least one type of complaint (men: 99.4%, women: 99.6%). The 10 most frequently reported health complaints among the teachers were tiredness (93.4%), eyestrain

TABLE 1. Demographic and Occupational Characteristics of Primary ($n = 907$) and Secondary ($n = 803$) School Teachers

Variables	Primary School Teachers		Secondary School Teachers		Overall	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Gender						
male	167	18.4	310	38.6	477	27.9
female	740	81.6	493	61.4	1233	72.1
total	907	100	803	100	1710	100
Age (years)						
21–30	191	21.1	157	19.6	348	20.4
31–40	290	32.0	255	31.8	545	31.9
41–50	247	27.2	291	36.2	538	31.5
≥51	179	19.7	100	12.5	279	16.3
Teaching experience (years)						
>1	12	1.3	24	3.0	36	2.1
1–5	109	12.0	106	13.2	215	12.6
6–10	174	19.2	117	14.6	291	17.0
11–15	161	17.8	165	20.5	326	19.1
16–20	133	14.7	137	17.1	270	15.8
21–25	125	13.8	138	17.2	263	15.4
26–30	73	8.0	76	9.5	149	8.7
>30	120	13.2	40	5.0	160	9.4
Financing of school						
government	57	6.3	68	8.5	125	7.3
aided	812	89.5	676	84.2	1488	87.0
direct subsidy	3	0.3	48	6.0	51	3.0
private	33	3.6	7	0.9	40	2.3
others	2	0.2	4	0.5	6	0.4

(79.9%), anxiety (75.8%), sleep problems (74.4%), voice disorder (73.5%), shoulder pain (73.4%), neck pain (68.9%), headache (67.1%), cold/flu (66.1%), and lower-back pain (59.2%).

3.2.1. Difference by gender

Apart from diarrhoea, heartburn and watery eyes, the percentage of female teachers ($n = 1233$) reporting SHC was generally higher than that of male teachers ($n = 477$). Pearson χ^2 tests were used to test gender differences in the prevalence of health complaints. It appears that women were more likely to report musculoskeletal complaints (93.5 vs. 83.0%; $p < .001$). Of the single musculoskeletal complaints, women were more likely to complain about lower-back pain (52.6 vs. 45.1%; $p < .01$), neck pain (70.0 vs. 53.3%; $p < .001$), shoulder pain (75.3 vs. 53.5%; $p < .001$), upper-back pain (50.8 vs. 41.5%;

$p < .001$), leg pain during physical activity (51.4 vs. 40.0%; $p < .001$), arm pain (41.0 vs. 28.7%; $p < .001$), headache (63.3 vs. 50.5%; $p < .001$), and migraine (28.6 vs. 23.5%; $p < .05$). In addition, the percentage of women was higher than that of men in reporting gastrointestinal problems (59.9 vs. 48.9%; $p < .001$), in particular, in gas discomfort (29.0 vs. 22.9%; $p < .05$), stomach discomfort (34.2 vs. 27.9%; $p < .05$), stomach pain (30.7 vs. 23.1%; $p < .005$), and constipation (36.3 vs. 15.9%; $p < .001$). Furthermore, except for itchy and watery eyes, more women reported eye problems (81.4 vs. 75.3%; $p < .005$). Also, it was more likely for women to report common health problems (82.5 vs. 72.8%; $p < .001$), with the exception for contact dermatitis.

Women did not, however, show a higher percentage than men on the pseudoneurological

subscale although they had higher percentages of complaints in anxiety (76.3 vs. 69.4%; $p < .005$), sadness/depression (53.5 vs. 45.9%; $p < .005$), and dizziness (32.9 vs. 24.7%; $p < .001$). No difference was found between male and female teachers in the prevalence of allergy problems, except that women (13.5%) complained of asthma more often than men (9.6%) ($p < .05$). No significant difference was found on the prevalence of reporting flu between the two genders. Altogether, women showed a statistically higher prevalence of health problems than men in 4 of 7 categories: in musculoskeletal pain, gastrointestinal problems, eye problems, and teachers' common health problems, while in none of the categories did men show a significantly higher prevalence. No statistical difference was found between the two genders in reporting health problems in the categories of pseudoneurological complaints, allergic problems, or flu.

3.2.2. Difference by age groups

The respondents were divided into three age groups for analysis, including <31 ($n = 346$), 31–50 ($n = 1079$), and >50 ($n = 277$) years old. On the musculoskeletal subscale, significant age difference was found for upper-back pain ($p < .05$), headache ($p < .01$), and migraine ($p < .05$). The middle age group showed a higher prevalence of upper-back pain and headache than the oldest age group. Teachers aged <31 were more likely to have migraine than those aged 31–50.

Among the single pseudoneurological complaints, age difference was noted for sadness/depression ($p < .001$) and tiredness ($p < .05$). The teachers of the oldest age group were less likely to feel sadness/depression than younger teachers. The youngest teachers were more likely to feel tiredness than the older ones. For the gastrointestinal category, the oldest teachers were significantly more likely than the younger teachers to have diarrhoea ($p < .01$), gas discomfort ($p < .005$), heartburn ($p < .01$), and ulcer/nonulcer dyspepsia ($p < .01$). Significant age difference was found for four allergic problems. The teachers of oldest age group showed highest prevalence of allergy ($p < .01$),

asthma ($p < .01$), breathing difficulties ($p < .05$), and chest pain ($p < .005$). On the flu subscale, teachers under 31 were significantly more likely than older teachers to have cold/flu ($p < .001$), and to cough ($p < .005$). Among the single eye complaints, teachers of the oldest age group showed a significant higher level of prevalence of itchy eyes ($p < .005$) while those of middle age group showed significantly lower prevalence of eyestrain ($p < .05$) than other teachers. Age difference was also found on all the three single common health complaints for teachers. The oldest teacher showed a higher prevalence of contact dermatitis ($p < .001$) and varicose veins of the lower limbs ($p < .05$) than younger teachers, while teachers of the youngest age group showed higher prevalence of voice disorder ($p < .001$) than older teachers.

3.2.3. Difference by teaching level

Other than upper-back pain, the percentage of primary school teachers ($n = 907$) reporting subjective health complaints was higher than that of secondary school teachers ($n = 803$). The results of Pearson χ^2 tests on the differences of health complaints expressed by primary and secondary school teachers showed that higher percentages of primary than secondary school teachers reported musculoskeletal pain (93.2 vs. 87.7%; $p < .001$). They complained more of neck pain (68.2 vs. 62.0%; $p < .01$), shoulder pain (72.8 vs. 65.1%; $p < .001$), leg pain during physical activity (54.6 vs. 41.1%; $p < .001$), arm pain (42.0 vs. 32.6%; $p < .001$), headache (63.1 vs. 55.9%; $p < .005$), and migraine (32.3 vs. 21.4%; $p < .001$). However, no difference was found between the two groups in reporting lower- and upper-back pain.

The percentage of primary school teachers reporting gastrointestinal problems was significantly higher than that of secondary teachers (61.3 vs. 51.8%; $p < .001$). Such a difference was also found in all the single complaints on this subscale, including diarrhoea (17.8 vs. 12.5%; $p < .005$), gas discomfort (32.0 vs. 21.9%; $p < .001$), heartburn (12.8 vs. 9.6%; $p < .05$), stomach discomfort (35.7 vs. 28.8%; $p < .005$), stomach pain (32.5 vs. 24.0%;

$p < .001$), ulcer/nonulcer dyspepsia (24.7 vs. 19.6%; $p < .05$), and constipation (35.1 vs. 25.5%; $p < .001$). Furthermore, the prevalence of reporting allergic problems was also higher for primary school teachers (37.0 vs. 32.5%; $p < .05$). However, only asthma (15.8 vs. 8.6%; $p < .001$) and breathing difficulties (13.9 vs. 8.5%; $p < .001$) among the single complaints showed significant differences between the two groups of teachers. Also, compared with secondary school teachers, there more primary school teachers reported flu (63.7 vs. 51.2%; $p < .001$). The prevalence of eye problems was higher for primary school teachers (83.6 vs. 75.3%; $p < .001$). Moreover, primary school teachers were more likely to report common health problems (86.3 vs. 72.4%; $p < .001$). Such a difference was also found for all single complaints on this subscale. In general, primary school teachers did not report higher a percentage of complaints on the pseudoneurological subscale than secondary school ones. However, most single complaints on this subscale showed higher percentages for primary school teachers, including anxiety (79.7 vs. 68.4%; $p < .001$), sadness/depression (55.3 vs. 46.9%; $p < .001$), dizziness (35.0 vs. 25.7%; $p < .001$), extra heartbeats (43.1 vs. 32.8%; $p < .001$), hot flushes (25.4 vs. 20.5%; $p < .05$), and sleep problems (75.9 vs. 65.6%; $p < .001$). Overall, except for the category of pseudoneurological complaints, primary school teachers showed a statistically higher prevalence in reporting problems in six of the seven subscales.

3.2.4. Difference by teaching experience

The respondents were divided into eight groups according to their teaching experience, including >1 year ($n = 12$), 1–5 ($n = 109$), 6–10 ($n = 174$), 11–15 ($n = 161$), 16–20 ($n = 133$), 21–25 ($n = 125$), 26–30 ($n = 73$), and >30 years ($n = 120$). Among the single musculoskeletal complaints, only shoulder pain showed a significant difference ($p < .005$). The prevalence of shoulder pain was significantly higher for teachers with 1–15 years of teaching experience and lower for those with 16–20 years of teaching experience ($p < .001$).

For the pseudoneurological category, a difference was noted for sadness/depression ($p < .005$) and tiredness ($p < .005$) only. Teachers with 6–15 years of teaching experience showed a significantly higher prevalence while those with >30 years of teaching experience showed a lower prevalence of sadness or depression. Also, the prevalence of tiredness was significantly lower for the teachers with more teaching experience (≥ 16 years). Among the single gastrointestinal complaints, a significant difference was found for gas discomfort ($p < .01$), heartburn ($p < .001$), stomach discomfort ($p < .001$), and ulcer/nonulcer dyspepsia ($p < .01$). Teachers with more teaching experience (≥ 26 years) were more likely to have gas discomfort and heartburn. Also the prevalence of stomach discomfort and ulcer/nonulcer dyspepsia was higher for teachers with ≥ 21 years teaching experience than for those with less teaching experience. For the allergic category, teachers with ≥ 26 years teaching experience showed a higher prevalence in asthma ($p < .001$), breathing difficulties ($p < .005$), and chest pain ($p < .005$) than teachers with less teaching experience. A significant difference was also found for the two single complaints on the flu subscale. Teachers with less teaching experience (<16 years) were more likely to have flu/cold ($p < .001$). Also, the prevalence of coughing was significantly higher for teachers with <11 years of teaching experience ($p < .01$). Itchy eyes was the only single eye complaint showing a significant difference ($p < .05$). The prevalence of itchy eye was higher among teachers with ≥ 26 years of teaching experience. Among the three common health problems of teachers, both voice disorder ($p < .001$) and varicose veins ($p < .05$) showed a significant difference. Teachers with 1–10 years of teaching experience were more likely to have a voice disorder. Also, the prevalence of varicose veins was significantly higher for teachers with ≥ 30 years teaching experience.

3.2.5. Difference between PE and non-PE teachers

The result of Pearson χ^2 test showed that PE teachers ($n = 200$) were more likely to have voice disorder than non-PE teachers ($n = 1510$;

79.0 vs. 72.0%; $p < .05$), which was in accord with Smith et al.'s finding that PE teachers were associated with an increased risk of developing voice problems [10, 11]. In addition to voice disorder, the prevalence of single musculoskeletal complaints was also tested for PE and non-PE teachers. No significant difference was found for lower-back pain. However, PE teachers were less likely than other teachers to report neck pain (57.0 vs. 66.4%; $p < .01$), shoulder pain (53.0 vs. 71.3%; $p < .001$), upper-back pain (40.5 vs. 49.2%; $p < .05$), leg pain (41.5 vs. 49.1%; $p < .05$), and arm pain (25.5 vs. 39.2%; $p < .001$). Among the other single health complaints, PE teachers were less likely to have chest pain

(11.0 vs. 16.8%; $p < .05$) and dry eyes (32.0 vs. 43.4%; $p < .005$). Among the seven subscales, a significant difference between PE and non-PE teachers was found on the allergic subscale only. PE teachers were found to be significantly less likely to have allergic problems (27.0 vs. 36.0%; $p < .05$).

3.3. Severity

Table 2 shows the mean, 95% confidence interval (CI), *SD*, range, and skewness of the severity scores for the individuals who reported problems on the 37 single health complaint items and seven subscales. Other than the tiredness and eyestrain,

TABLE 2. Descriptive Statistics for the Severity Score for the Individuals (*n*) Who Reported Complaints on the Single Subjective Health Complaints (SHC) and the 7 Subscales

Complaints	<i>n</i>	<i>M</i>	95% CI	<i>SD</i>	Range	Possible	
						Max	Skewness
SHC total	1702	26.77	25.98–27.56	16.67	1–99	117	0.893
Musculoskeletal	1549	7.98	7.74–8.23	4.83	1–24	24	0.512
lower-back pain	863	1.74	1.71–1.79	0.66	1–3	3	0.342
neck pain	1117	1.83	1.79–1.87	0.68	1–3	3	0.224
shoulder pain	1183	1.92	1.88–1.96	0.69	1–3	3	0.099
upper-back pain	924	1.77	1.73–1.81	0.64	1–3	3	0.255
leg pain during physical activity	825	1.78	1.73–1.82	0.66	1–3	3	0.267
arm pain	643	1.64	1.59–1.69	0.64	1–3	3	0.477
headache	1021	1.69	1.65–1.73	0.66	1–3	3	0.445
migraine	465	1.80	1.74–1.86	0.68	1–3	3	0.272
Pseudoneurological	1649	7.67	7.47–7.87	4.22	1–21	21	0.463
anxiety	1272	1.89	1.86–1.93	0.67	1–3	3	0.125
sadness/depression	979	1.77	1.72–1.82	0.71	1–3	3	0.373
dizziness	523	1.54	1.48–1.59	0.63	1–3	3	0.771
extra heartbeats	654	1.57	1.52–1.62	0.63	1–3	3	0.646
hot flushes	395	1.57	1.51–1.63	0.61	1–3	3	0.581
sleep problems	1215	1.97	1.93–2.01	0.76	1–3	3	0.048
tiredness	1580	2.43	2.40–2.46	0.66	1–3	3	–0.737
Gastrointestinal	972	4.97	4.72–5.22	3.96	1–20	21	1.202
diarrhoea	261	1.64	1.56–1.71	0.65	1–3	3	0.534
gas discomfort	466	1.82	1.76–1.89	0.71	1–3	3	0.269
heartburn	193	1.59	1.50–1.68	0.64	1–3	3	0.619
stomach discomfort	555	1.65	1.59–1.70	0.65	1–3	3	0.514
stomach pain	488	1.63	1.57–1.69	0.66	1–3	3	0.578
ulcer/nonulcer dyspepsia	381	1.63	1.56–1.70	0.67	1–3	3	0.598
constipation	523	1.76	1.70–1.82	0.71	1–3	3	0.378
Allergic	596	3.14	2.97–3.31	2.12	1–3	15	1.375
allergy	233	1.78	1.69–1.88	0.71	1–3	3	0.332
asthma	212	1.42	1.34–1.50	0.59	1–3	3	1.059
breathing difficulties	194	1.38	1.30–1.46	0.55	1–3	3	1.059
chest pain	276	1.57	1.50–1.64	0.62	1–3	3	0.612
eczema	245	1.86	1.77–1.95	0.72	1–3	3	0.215

TABLE 2. (continued)

Complaints	n	M	95% CI	SD	Range	Possible	
						Max	Skewness
Flu	989	3.11	3.01–3.20	1.52	1–6	6	0.297
cold/flu	861	1.89	1.85–1.94	0.70	1–3	3	0.148
coughing	776	1.86	1.81–1.91	0.68	1–3	3	0.190
Eye	1363	4.15	4.00–4.29	2.73	1–3	15	1.071
itchy eyes	474	1.58	1.52–1.63	0.61	1–3	3	0.529
irritated eyes	365	1.61	1.54–1.68	0.67	1–3	3	0.640
watery eyes	212	1.54	1.46–1.62	0.61	1–3	3	0.674
dry eyes	720	1.83	1.77–1.88	0.71	1–3	3	0.266
eyestrain	1319	2.03	1.99–2.07	0.71	1–3	3	–0.042
Common health problems for teachers	1364	3.10	3.00–3.20	1.80	1–9	9	0.848
contact dermatitis	407	1.66	1.60–1.73	0.69	1–3	3	0.547
voice disorder	1245	1.91	1.87–1.96	0.74	1–3	3	0.139
varicose veins of lower limbs	665	1.76	1.70–1.81	0.72	1–3	3	0.404

Notes. CI—confidence interval.

all of the single health complaints and subscales were positively skewed with values between 0.048 and 1.375. Among the 37 single health complaints, the 11 most severe complaints with highest severity scores in the descending order were tiredness ($M = 2.43$, $SD = 0.66$), eyestrain ($M = 2.03$, $SD = 0.71$), sleep problems ($M = 1.97$, $SD = 0.76$), shoulder pain ($M = 1.92$, $SD = 0.69$), voice disorder ($M = 1.91$, $SD = 0.74$), cold/flu ($M = 1.89$, $SD = 0.70$), anxiety ($M = 1.89$, $SD = 0.67$), eczema ($M = 1.86$, $SD = 0.72$), coughing ($M = 1.86$, $SD = 0.68$), dry eyes ($M = 1.83$, $SD = 0.71$), and neck pain ($M = 1.83$, $SD = 0.68$).

3.3.1. Difference by gender

An independent-sample t test was used to examine if there was any difference of severity scores between the two genders. The corresponding p values in different health complaints from testing the gender difference are shown in Table 3. Significant gender differences were found on the subscales of musculoskeletal pain ($t = -4.63$, $p < .001$), pseudoneurological complaints ($t = -3.30$, $p < .001$), flu ($t = -1.98$, $p < .05$), eye problems ($t = -3.59$, $p < .001$), and common health problems for teachers ($t = -3.28$, $p < .001$). A comparison of the mean severity scores for male and female teachers indicated that women

showed significantly higher mean values on the subscales of musculoskeletal pain ($M = 8.32$ vs. 7.02), pseudoneurological complaints ($M = 7.88$ vs. 7.12), flu (3.16 vs. 2.95), eye problems ($M = 4.31$ vs. 3.70), and common health problems for teachers ($M = 3.19$ vs. 2.83).

Of the single musculoskeletal complaints, women showed significantly higher means on shoulder pain only ($p < .001$, $M = 1.96$ vs. 1.80). On the single pseudoneurological complaints, women had significantly higher means on anxiety ($p < .05$, $M = 1.92$ vs. 1.83), hot flushes ($p < .05$, $M = 1.61$ vs. 1.44), and tiredness ($p < .005$, $M = 2.46$ vs. 2.35). Of the single flu complaints, women had significantly higher means on cold/flu complaints ($p < .001$, $M = 1.94$ vs. 1.76). On the single eye problems, women had higher mean scores on dry eyes ($p < .001$, $M = 1.88$ vs. 1.65) and eyestrain ($p < .001$, $M = 2.08$ vs. 1.89). Lastly, of the three single common health problems of teachers, women had a higher mean severity score on voice disorder ($p < .05$, $M = 1.94$ vs. 1.84).

No significant gender difference was found on the gastrointestinal and allergic subscales. The single complaints on these two subscales also showed no gender difference, except for gas discomfort for which women showed a higher severity score ($p < .05$, $M = 1.86$ vs. 1.71).

TABLE 3. Mean, 95% Confidence Interval (CI) and *p* Values of the Severity Score Among Male and Female Teachers Who Reported Complaints on the Single Subjective Health Complaints (SHC) and the 7 Subscales

Complaints	Men			Women			<i>p</i> Value
	<i>n</i>	<i>M</i>	CI	<i>n</i>	<i>M</i>	CI	
SHC total	474	22.96	21.46–24.46	1228	28.24	27.32–29.17	.000****
Musculoskeletal	396	7.02	6.53–7.51	1153	8.32	8.04–8.59	.000****
lower-back pain	215	1.69	1.59–1.78	648	1.76	1.71–1.81	.193
neck pain	254	1.80	1.71–1.88	863	1.84	1.80–1.89	.333
shoulder pain	255	1.80	1.70–1.88	928	1.96	1.92–2.00	.001****
upper-back pain	198	1.75	1.65–1.84	626	1.78	1.73–1.83	.562
leg pain during physical activity	191	1.77	1.67–1.87	634	1.78	1.73–1.83	.815
arm pain	137	1.64	1.53–1.74	506	1.65	1.59–1.70	.855
headache	241	1.68	1.59–1.77	780	1.69	1.65–1.74	.830
migraine	112	1.71	1.58–1.83	353	1.83	1.76–1.90	.097
Pseudoneurological	456	7.12	6.73–7.50	1193	7.88	7.64–8.12	.001****
anxiety	331	1.83	1.76–1.90	941	1.92	1.87–1.96	.050*
sadness/depression	219	1.71	1.63–1.80	660	1.79	1.73–1.84	.160
dizziness	118	1.60	1.48–1.73	405	1.52	1.46–1.58	.197
extra heartbeats	165	1.53	1.44–1.62	489	1.58	1.53–1.64	.327
hot flushes	99	1.44	1.33–1.56	296	1.61	1.54–1.68	.021*
sleep problems	334	1.98	1.90–2.06	881	1.97	1.92–2.02	.759
tiredness	433	2.35	2.28–2.42	1147	2.46	2.43–2.50	.004****
Gastrointestinal	233	4.67	4.20–5.15	739	5.07	4.78–5.36	.185
diarrhoea	79	1.63	1.48–1.79	182	1.64	1.54–1.73	.960
gas discomfort	109	1.71	1.57–1.84	357	1.86	1.79–1.93	.049*
heartburn	59	1.51	1.35–1.66	134	1.63	1.51–1.74	.237
stomach discomfort	133	1.63	1.52–1.74	422	1.65	1.59–1.71	.758
stomach pain	110	1.60	1.48–1.72	378	1.63	1.57–1.70	.626
ulcer/nonulcer dyspepsia	98	1.64	1.51–1.78	283	1.63	1.55–1.71	.861
constipation	76	1.72	1.58–1.87	447	1.77	1.70–1.83	.636
Allergic	151	3.15	2.81–3.49	445	3.14	2.94–3.34	.948
allergy	60	1.81	1.64–1.98	173	1.77	1.67–1.88	.935
asthma	46	1.48	1.30–1.65	166	1.41	1.32–1.50	.487
breathing difficulties	48	1.40	1.25–1.54	146	1.38	1.28–1.47	.824
chest pain	71	1.66	1.52–1.80	205	1.54	1.45–1.62	.142
eczema	63	1.84	1.69–1.99	182	1.87	1.76–1.98	.777
Flu	258	2.95	2.76–3.13	731	3.16	3.05–3.27	.048*
cold/flu	223	1.76	1.67–1.85	638	1.94	1.89–2.00	.001****
coughing	199	1.84	1.75–1.94	577	1.86	1.80–1.92	.854
Eye	359	3.70	3.42–3.98	1004	4.31	4.14–4.47	.000****
itchy eyes	122	1.56	1.45–1.66	352	1.59	1.52–1.65	.662
irritated eyes	84	1.64	1.50–1.79	281	1.60	1.52–1.68	.587
watery eyes	66	1.48	1.33–1.64	146	1.56	1.46–1.66	.398
dry eyes	161	1.65	1.54–1.75	559	1.88	1.82–1.94	.000****
eyestrain	338	1.89	1.82–1.96	981	2.08	2.03–2.12	.000****
Common health problems for teachers	347	2.83	2.65–3.01	1017	3.19	3.08–3.30	.001****
contact dermatitis	112	1.74	1.62–1.86	295	1.63	1.55–1.71	.159
voice disorder	320	1.84	1.76–1.92	925	1.94	1.89–1.99	.033*
varicose veins of lower limbs	117	1.69	1.56–1.82	548	1.77	1.71–1.83	.291

Notes. *p* values for the independent-sample *t* tests on the gender factor: **p* < .05, ***p* < .01, ****p* < .005, *****p* < .001.

3.3.2. Difference by age groups

One-way analyses of variance (ANOVA) were used to investigate if there were significant differences in mean severity scores amongst subjects of the three age groups, viz. <31 ($n = 346$), 31–50 ($n = 1079$), and >50 ($n = 277$) years old. Post hoc analysis using least significant difference (LSD) tests were then conducted to find out which means differed. Table 4 shows the corresponding mean and 95% CI of the severity scores for different age groups and the p values of statistical testing for the health complaints.

On the musculoskeletal subscale, there was no significant difference in mean score amongst the age groups. There was, however, a significant difference in leg ($F = 6.02$, $p < .005$) and arm pain ($F = 5.89$, $p < .005$). The severity scores for the two single complaints increased with age. Moreover, no significant age difference was found on the pseudoneurological subscale and the single complaints except for sadness/depression ($F = 3.67$, $p < .05$). There was a significant age difference in severity score on the

gastrointestinal subscale ($F = 4.50$, $p < .05$). The oldest age group reported problems of the highest intensities. There was no significant difference in the intensity of any single gastrointestinal complaints. On the allergic subscale, there was a significant difference amongst the three age groups ($F = 5.22$, $p < .01$); the oldest age group had the highest severity score. There was no significant age difference in any of the single allergic complaints. On the flu subscale, there was an age difference ($F = 6.14$, $p < .005$). The youngest age group had the highest score. Of the single flu complaints, cold/flu showed significant age difference as well ($F = 3.56$, $p < .05$). Individuals aged <31 reported higher intensity than those aged 31–50. In addition, a significant age difference was found on the subscale of teachers' common health problems ($F = 6.25$, $p < .005$). The teachers in the oldest age group had a higher score than those aged 31–50. Of the single common health complaints for teachers, there was an age difference on voice disorder ($F = 7.91$, $p < .001$) and varicose veins of the lower limbs ($F = 4.24$, $p < .05$). The middle age

TABLE 4. Mean and 95% Confidence Interval (CI) of the Severity Score for Different Age Groups of Respondents (n) Who Reported Complaints on the Single Subjective Health Complaints (SHC) and the 7 Subscales. The p Values for the Independent-Sample t Tests on the Age Group Factor Are Shown in the Last Column

Complaints	<31 years old			31–50 years old			>50 years old			p Value
	n	M	CI	n	M	CI	n	M	CI	
SHC total	346	26.56	24.91–28.21	1079	26.55	25.56–27.54	277	27.90	25.73–30.08	.467
Musculoskeletal	313	7.87	7.35–8.40	985	8.03	7.73–8.33	251	7.93	7.30–8.57	.431
lower-back pain	168	1.70	1.60–1.80	557	1.73	1.67–1.78	138	1.85	1.73–1.96	.111
neck pain	235	1.77	1.68–1.85	704	1.85	1.80–1.90	178	1.84	1.74–1.94	.242
shoulder pain	253	1.87	1.78–1.95	749	1.92	1.87–1.97	181	2.02	1.91–2.12	.076
upper-back pain	164	1.76	1.65–1.86	546	1.75	1.70–1.80	114	1.89	1.78–2.01	.085
leg pain during physical activity	163	1.65	1.56–1.74	519	1.78	1.73–1.84	143	1.91	1.80–2.02	.003***
arm pain	123	1.51	1.39–1.63	411	1.64	1.58–1.70	109	1.80	1.67–1.92	.003***
headache	215	1.60	1.52–1.69	663	1.72	1.67–1.77	143	1.68	1.57–1.79	.092
migraine	113	1.80	1.67–1.92	280	1.84	1.75–1.92	72	1.65	1.50–1.80	.124
Pseudoneurological	338	7.69	7.25–8.12	1045	7.74	7.48–8.00	266	7.37	6.84–7.89	.435
anxiety	267	1.88	1.80–1.96	808	1.90	1.85–1.95	197	1.89	1.80–1.98	.922
sadness/depression	193	1.68	1.57–1.78	576	1.77	1.71–1.83	110	1.91	1.78–2.04	.026*
dizziness	114	1.54	1.42–1.65	335	1.53	1.46–1.60	74	1.55	1.42–1.69	.962
extra heartbeats	126	1.51	1.40–1.62	420	1.58	1.52–1.64	108	1.58	1.46–1.71	.482
hot flushes	80	1.60	1.47–1.73	247	1.52	1.44–1.59	68	1.71	1.55–1.86	.069
sleep problems	239	1.91	1.82–2.01	781	1.98	1.93–2.04	195	2.01	1.90–2.11	.375
tiredness	333	2.47	2.40–2.54	994	2.45	2.41–2.49	253	2.31	2.23–2.40	.006**

TABLE 4. (continued)

Complaints	<31 years old			31–50 years old			>50 years old			p Value
	n	M	CI	n	M	CI	n	M	CI	
Gastrointestinal	196	4.48	3.92–5.05	610	4.93	4.62–5.23	166	5.72	5.07–6.36	.011*
diarrhoea	39	1.72	1.51–1.93	165	1.58	1.49–1.68	57	1.74	1.55–1.93	.210
gas discomfort	83	1.81	1.65–1.96	284	1.80	1.71–1.88	99	1.92	1.78–2.06	.323
heartburn	27	1.70	1.38–2.03	122	1.57	1.46–1.67	44	1.59	1.40–1.78	.600
stomach discomfort	114	1.59	1.46–1.72	345	1.65	1.58–1.72	96	1.70	1.57–1.82	.464
stomach pain	103	1.56	1.42–1.70	301	1.66	1.59–1.74	84	1.57	1.43–1.71	.283
ulcer/nonulcer dyspepsia	60	1.65	1.48–1.82	243	1.60	1.51–1.68	78	1.73	1.56–1.90	.304
constipation	106	1.65	1.53–1.77	327	1.79	1.71–1.87	90	1.78	1.62–1.93	.208
Allergic	108	2.69	2.35–3.02	371	3.13	2.92–3.35	117	3.59	3.16–4.02	.006**
allergy	30	1.73	1.46–2.01	157	1.77	1.66–1.88	46	1.83	1.63–2.03	.844
asthma	38	1.39	1.21–1.57	124	1.38	1.28–1.48	50	1.56	1.36–1.76	.178
breathing difficulties	30	1.27	1.10–1.43	121	1.36	1.27–1.45	43	1.51	1.30–1.73	.144
chest pain	49	1.49	1.32–1.66	162	1.53	1.43–1.63	65	1.72	1.57–1.88	.066
eczema	39	1.90	1.66–2.13	163	1.85	1.73–1.96	43	1.88	1.69–2.08	.903
Flu	221	3.39	3.18–3.60	627	3.06	2.95–3.18	141	2.85	2.61–3.09	.002***
cold/flu	199	2.01	1.90–2.12	546	1.86	1.80–1.92	116	1.86	1.73–1.99	.029*
coughing	181	1.93	1.82–2.04	488	1.86	1.80–1.92	107	1.74	1.61–1.87	.075
Eye	286	3.90	3.61–4.19	845	4.17	3.98–4.36	232	4.36	4.00–4.73	.149
itchy eyes	90	1.49	1.36–1.62	284	1.61	1.54–1.68	100	1.58	1.46–1.70	.282
irritated eyes	71	1.48	1.32–1.63	235	1.63	1.55–1.72	59	1.66	1.50–1.82	.182
watery eyes	35	1.43	1.20–1.65	132	1.55	1.44–1.65	45	1.60	1.44–1.76	.450
dry eyes	154	1.80	1.69–1.91	447	1.83	1.76–1.90	119	1.85	1.71–1.99	.835
eyestrain	283	1.94	1.86–2.03	811	2.05	2.00–2.10	225	2.06	1.97–2.15	.068
Common health problems for teachers	291	3.15	2.93–3.36	844	2.99	2.87–3.10	229	3.45	3.21–3.70	.002***
contact dermatitis	85	1.73	1.58–1.88	238	1.63	1.54–1.72	84	1.69	1.54–1.84	.479
voice disorder	280	2.02	1.93–2.11	761	1.85	1.80–1.90	204	2.02	1.92–2.12	.000****
varicose veins of lower limbs	119	1.71	1.59–1.84	423	1.72	1.65–1.79	123	1.93	1.80–2.06	.015*

Notes. * $p < .05$ ** $p < .01$ *** $p < .005$ **** $p < .001$.

group showed a lower severity score than both the youngest and oldest age groups on voice disorder, while the oldest age group showed a higher severity score on varicose veins than the two younger groups. There were no differences in severity scores on the eye subscale.

3.3.3. Difference by teaching level

Differences in severity scores between primary and secondary school teachers were examined with independent-sample t tests. Significant differences between the two groups of teachers were found in severity score of most subscales. Primary school teachers had a higher mean severity score than secondary school teachers

on the subscale of musculoskeletal pain (8.46 vs. 7.41, $t = 4.27$, $p < .005$), pseudoneurological complaints (8.30 vs. 6.94, $t = 6.61$, $p < .001$), gastrointestinal problems (5.31 vs. 4.52, $t = 3.11$, $p < .005$), allergic problems (3.35 vs. 2.88, $t = 2.81$, $p < .005$), eye problems (4.30 vs. 3.96, $t = 2.32$, $p < .05$), and common health problems of teachers (3.30 vs. 2.83, $t = 4.87$, $p < .001$).

3.3.4. Difference by teaching experience

With the eight groupings of teaching experience from section 3.2.4., one-way ANOVAs were performed to test if the length of teaching experience affected the teachers' severity scores. It was found that severity scores for

pseudoneurological complaints ($F = 2.20$, $p < .05$), gastrointestinal problems ($F = 4.38$, $p < .001$), allergic problems ($F = 4.33$, $p < .001$), and flu ($F = 2.55$, $p < .05$) showed significant differences among teachers with different length of teaching experience. Teachers with 26–30 years of teaching experience were more likely to have a higher score on the pseudoneurological complaints subscale than teachers with <1 year of experience (LSD test, $p < .05$). Also, teachers with 6–10 years of experience had a higher score on the pseudoneurological complaints subscale than teachers with <1 (LSD test, $p < .01$), 21–25 (LSD test, $p < .005$), or >30 years of teaching experience (LSD test, $p < .05$). Moreover, teachers with 1–5 and 11–15 years of teaching experience were more likely to have lower scores on the subscale of gastrointestinal problems than teachers with 6–10, 16–20, 26–30, or >30 years of experience (LSD test, $p < .05$). Also, teachers with 21–25 years of experience were more likely to have lower scores on the subscale of gastrointestinal problems than teachers with 16–20 (LSD test, $p < .05$) and 26–30 (LSD test, $p < .001$) years of experience.

3.3.5. Difference between PE and non-PE teachers

Independent-sample t tests were performed to test if the mean severity scores were the same for both PE and non-PE teachers. The result showed

that the intensity of musculoskeletal pain for PE teachers was significantly lower than that for the other teachers ($M = 6.83$ vs. 8.13 ; $p < .001$). No other difference was found on the other subscales.

4. DISCUSSION

4.1. Prevalence

As there had not been any similar study conducted with the SHC inventory on other professions or the general public in HK, the results could only be compared with those for other countries. Table 5 shows the percentages of respondents reporting any health complaints in the past 30 days for the HK teacher sample and a control sample of population in Norway [16], which was the only study providing similar statistics in the original five scales for references and comparisons. Among the first five subscales of complaints, 99.4% of respondents reported that they had experienced at least one type of complaint during the 30 days prior to the survey, which was higher than the corresponding percentage (96.2%) for the general population in Norway [16]. HK teachers showed a higher prevalence for most single health complaints other than gas discomfort, heartburn, and breathing difficulties. It is worth noting that the teacher sample showed significantly higher prevalence in all single musculoskeletal and pseudoneurological complaints than the Norway sample.

TABLE 5. Comparison of Percentages of Respondents Reporting Any (score above 0) Subjective Health Complaints (SHC) in the Past 30 Days and the Related Severity Scores for the Teacher Sample of Hong Kong ($n = 1710$) and the Sample of Control Population in Norway ($n = 1240$) [16]

Complaints	Teachers		Control Population	
	Respondents (%)	Severity Scores	Respondents (%)	Severity Scores
SHC total	99.4	—	96.2	—
Musculoskeletal	95.1	8.28	80.4	4.70
lower-back pain	59.2	1.70	39.7	1.59
neck pain	68.9	1.82	37.8	1.63
shoulder pain	73.4	1.91	42.4	1.70
upper-back pain	52.5	1.75	18.3	1.68
leg pain during physical activity	54.6	1.73	28.4	1.58
arm pain	43.9	1.62	23.4	1.65
headache	67.1	1.65	50.6	1.48
migraine	29.9	1.78	7.6	1.83

TABLE 5. (continued)

Complaints	Teachers		Control Population	
	Respondents (%)	Severity Scores	Respondents (%)	Severity Scores
Pseudoneurological	96.9	7.98	65.1	3.43
anxiety	75.8	1.88	14.2	1.46
sadness/depression	54.7	1.74	26.8	1.43
dizziness	37.5	1.47	20.5	1.37
extra heartbeats	42.5	1.54	19.7	1.49
hot flushes	28.3	1.54	13.0	1.45
sleep problems	74.4	1.95	30.3	1.49
tiredness	93.4	2.43	52.8	1.52
Gastrointestinal	69.6	4.89	59.8	3.19
diarrhoea	29.2	1.48	23.7	1.45
gas discomfort	35.3	1.73	38.9	1.47
heartburn	12.9	1.55	30.5	1.43
stomach discomfort	37.3	1.60	23.3	1.42
stomach pain	32.6	1.57	24.0	1.37
ulcer/nonulcer dyspepsia	24.7	1.59	10.3	1.79
constipation	39.3	1.68	12.6	1.35
Allergic	46.8	3.05	33.9	2.36
allergy	19.0	1.70	14.8	1.55
asthma	16.1	1.38	11.0	1.65
breathing difficulties	13.9	1.34	15.5	1.47
chest pain	20.5	1.48	20.0	1.38
eczema	23.2	1.68	17.6	1.47
Flu	73.5	2.99	54.0	2.30
cold/flu	66.1	1.80	53.1	1.58
coughing	57.8	1.74	33.1	1.46
Eye	83.1	4.37	—	—
itchy eyes	36.8	1.51	—	—
irritated eyes	24.4	1.58	—	—
watery eyes	15.1	1.48	—	—
dry eyes	48.3	1.78	—	—
eyestrain	79.9	2.01	—	—
Common health problems for teachers	80.2	3.12	—	—
contact dermatitis	24.4	1.65	—	—
voice disorder	73.5	1.91	—	—
varicose veins of lower limbs	39.8	1.75	—	—

In our sample of teachers, females showed a higher prevalence than males for most subjective health complaints. A similar gender difference was found in previous studies which used the SHC inventory [16, 17, 21]. Also, women were significantly more vulnerable to musculoskeletal pain, headache, migraine, and stomach pain. Eriksen et al. also reported that phenomenon [17]. Contrary to Eriksen, Svendsrod, Ursin, et al.'s findings [21], but consistent with Ihlebæk Eriksen, and Ursin's findings [16], women also had a higher prevalence of lower-back pain.

According to Eriksen et al., women showed a higher prevalence of anxiety here [17]. However, Ihlebæk et al. did not find such a gender difference [16]. They suggested that the higher prevalence of health problems for females could be due to their lower physical strength, higher pressure from their family or career prospects, higher workload, or simply the fact that men and women have different traditions and thresholds for when and how to complain. In addition, the gender difference may also be due to the embarrassment or reluctance of men

to report their health problems even though they experienced them, or the overstatement or exaggeration of the female respondents.

4.2. Severity

Table 5 also shows a comparison of mean severity scores for the individuals who had reported complaints in the HK and Norway studies [16]. Compared with the Norway sample, the HK teacher sample showed significantly higher intensity in most single complaints. It was quite obvious that the pseudoneurological problems of the HK teachers were very serious as teachers showed higher intensity for the pseudoneurological subscale and all single pseudoneurological complaints. Also, the three largest differences in intensity between the two samples were pseudoneurological complaints, including tiredness, sleep problems, and anxiety. Their work seemed to exhaust and fatigue the teachers. This outcome could be mainly due to their heavy workload. In a previous study, it was found that 70% of the responding HK teachers worked overtime every working day and 30% of subjects worked 6.5 or 7 days per week and did not have a day off at all [22]. It reflected that the problem of excess workload was very serious in the teaching profession of HK. Therefore, it is not surprising that both the prevalence and intensity of tiredness were found to be so high for the teachers in the current study.

As expected, teachers of the oldest age group had the highest severity score for the subscales of gastrointestinal, allergic, and common health problems. Although no significant age difference was found for the musculoskeletal subscale, the intensity of leg pain and arm pain increased with age. However, an unexpected result was found for the flu subscale, with the youngest age group showing the highest severity score. It may be due to the infirmity, low resistance against diseases, or different perceptions or standards on the severity of flu for the youngest teachers.

4.3. Common Health Complaints for Teachers

In addition to the original five subscales in the SHC inventory, the common health problems of teachers and eye problems were added in the survey in this study. In the following paragraphs, the problems related to the profession of teaching are further discussed.

As expected, the prevalence of contact dermatitis was not low. About one fourth (24.4%) of the responding teachers suffered from contact dermatitis, and almost all of them (97.4%) claimed that their dermatitis problem was caused or worsened by their work. The males and females had the same likelihood of having contact dermatitis. However, primary school teachers were significantly more prone to dermatitis. One of the reasons could be that secondary school teachers were more careful about taking necessary precautions against dermatitis, such as holding the stick of chalk in a plastics stopper or simply wrapping the chalk in paper tissue to prevent direct contact with the chalk. Another possible reason could be that primary school teachers wrote more frequently on the blackboard. Nickel appeared to be a common agent causing occupational contact dermatitis due to its widespread use. In schools, the chinks used by the teachers also contained nickel [23]. Almost all teachers of primary and secondary schools had to write on the blackboard using chinks and prolonged contact with chinks should be the major cause of contact dermatitis for them [15].

Teachers are susceptible to suffering voice problems partly due to the heavy vocal loading of their job nature. As discussed in previous sections, teaching requires a prolonged use of the voice because of verbal instructions issued in different work circumstances. It is not surprising that the prevalence of voice disorder was high for the HK teachers. About three fourths (73.5%) of teachers had voice disorder in the past 30 days. Actually, the issue of vocal problems of teachers was also examined in several studies in the USA [10, 11, 24, 25], Sweden [26], and Australia [27]. The results of those studies showed clearly that voice problems were prevalent in the teaching

profession. Smith et al., e.g., reported that 32% of the 554 teachers in the U.S. studies reported that they had had a voice problem [11]. In another study, Russell, Oates, and Greenwood found that 16% of the 877 teachers studied in South Australia had voice problems on the day of the survey, 20% had problems during the current teaching year, and 19% had problems at some time during their career [27]. According to Sapir, Keidar, and Marthers-Schmidt's questionnaire survey, 73% of 237 female teacher subjects reported one or more symptoms of vocal attrition [24].

For the HK teachers, females were significantly more likely to report voice disorders than males (75.0 vs. 67.1%; $p < .001$). A similar gender difference was also reported [10, 11, 27]. In Smith et al.'s study, 38% of female teachers reported having a voice problem, while only 26% male teachers claimed to have a vocal problem [10]. Moreover, Russell et al. revealed that females were twice as likely as males to report voice problems [27]. In the study of new voice patients from different occupations in Sweden, a similar gender difference was also reported [26]. In addition, the subject taught could also have an impact on the teachers' voice problems. Smith et al. reported that compared with other courses, the PE teachers were associated with an increased risk of developing a voice problem independent of gender, age, hours/day, or years taught [10]. For the HK teachers, a similar result was found. PE teachers were significantly more likely to have a voice disorder than other teachers. The higher prevalence of voice disorder for PE teachers could be mainly due to the lack of equipment like voice amplifiers during teaching outdoors. It is worth noting that the prevalence of voice problem of HK teachers did not increase with years of teaching. In our study, teachers with 1–10 years of teaching experience (79.7%) were found to be more likely to have voice disorder than more experienced teachers (71.5%). Maybe some of the more experienced teachers were promoted to a higher job position and had relatively fewer teaching duties, or simply they took necessary precautions against voice problems.

The results of the current study showed that female teachers were more likely than male ones to report all single musculoskeletal complaints, which is consistent with Jensen, Ryholt, Burr, et al.'s findings [28]. In their study, musculoskeletal symptoms in Danish computer users were investigated and women seemed more likely to report symptoms than men. In the current study, the prevalence of shoulder pain of HK teachers did not increase with years of teaching. It was significantly higher for teachers with 1–15 years of teaching experience and lower for those with 16–20 years of teaching experience.

Although the PE teachers of the current study comprised a higher percentage of respondents over 40 (56.0 vs. 46.7%) than those teaching other subjects, they were found to be less likely than other teachers to report musculoskeletal disorder like neck pain, shoulder pain, upper-back pain, leg pain, and arm pain. Pihl et al. reported similar findings [13]. They found that PE teachers in Tartu, Estonia, were at lower risk of musculoskeletal disorders in comparison with their sedentary fellow workers of the control group. The lower prevalence of musculoskeletal pain for PE teachers should be mainly due to their long-term physical activity, spending less time in formal teaching in the classroom, and comparatively less sedentary work.

However, a different result was reported in another study. Sandmark reported that PE teachers could be at a higher risk than other teachers for musculoskeletal problems [12]. In that study, the extent of musculoskeletal dysfunction was investigated, especially symptomatic OA of the knee and hip among PE teachers, and whether they differed from the general population in Sweden in this aspect. It was found that few PE teachers were able to work in their profession until the normal time of retirement due to various physical dysfunctions, mostly musculoskeletal. The results also showed evidence of more frequent injuries and symptomatic OA of the knees in both female and male PE teachers, and more symptomatic OA of the hip among the female PE teachers than the general population. In addition, PE teachers more often suffered from knee disorders. The author believed that PE

teachers' high participation in sports and their occupational exposure were highly correlated on the development of knee disorders.

Generally, varicose vein for teachers should be mainly caused by prolonged standing when teaching classes. It was reported that women were far more apt to suffer from varicose veins, although both men and women could have them [29, 30]. Stearn stated that varicose veins in general were six times more prevalent among women [31]. It is not surprising that such a gender difference was also found in the HK teachers. The prevalence of self-reported varicose veins of the lower limbs was shown to be significantly higher for female than male teachers in this study (44.4 vs. 24.5%). However, in a recent comprehensive physical examination of 699 male and 867 female subjects throughout Edinburgh [32], it was found that there was a slightly higher prevalence of varicose veins in men than in women (39.7 vs. 32.2%).

5. CONCLUSIONS

In recent years, the problem of teacher stress and the related issues of redundant teachers, education reforms, language proficiency assessment for teachers, and reduction in the size and number of classes and schools has already drawn public attention and was frequently the subject of newspaper headlines. Also, many existing studies on the teaching profession of HK can be found, but most of them investigated teacher stress only. It seems that the public only focuses on the problem of stress and passes over the prevalence of somatic health problems in the teaching profession. This research, therefore, is the first single study that comprehensively covers a variety of health problems in the teaching profession.

In this study, a reference database for the prevalence of SHC in the teaching profession was established. The release of the results of this study can arouse the awareness of the public that in addition to stress, teachers' health problems are also worth paying close attention to. Also, the findings of this research could serve as a useful reference for the government and

related organizations such as the Education and Manpower Bureau and Professional Teachers' Union when formulating the policies and strategies to help the teachers relieve and cope with their health problems. Moreover, with the information on the common sources of teacher stress found in this research as reference, the government could be more considerate of the teachers while establishing new education policies or reforms. Finally, this research study can inspire other researchers to conduct further in-depth studies to investigate teacher's occupation health problems.

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