

Supplementary table 1. Factor load matrix according to exploratory factor analysis

Manifest variables	Factor1	Factor2	Factor3
Domain factor 1 - Workplace infection control measures and prevention			
Q12 My employer/ management has established a disease system to monitor the health of the employees.	0.76	0.03	0.1
Q18 The public facilities, such as air-conditioners, are disinfected regularly.	0.76	0.08	0.11
Q11 My employer has provided guidelines and information on disease response in a timely and accurate manner.	0.71	0.12	0.15
Q17 The public items in the company are disinfected regularly.	0.69	0.13	0.11
Q20 My company provides enough surgical masks approved with protection standard for the employees.	0.66	0.09	0.11
Q2 I think the company's disease prevention measures are effective.	0.64	0.04	0.13
Q4 'Occupational Safety and Health Ordinance' ensures my safety and health while working in office.	0.62	-0.01	0.09
Q21 My company has installed physical barriers between employees or between employees and customers to reduce the risk of disease transmission.	0.62	-0.02	0.07
Q16 Our company reduced air-conditioning during the COVID-19 outbreak.	0.60	-0.18	0.04
Q13 My employer/ management adopts a flexible sick leave policy during the COVID-19 outbreak.	0.57	0.11	0.11
Q22 During the COVID-19 pandemic, our company suggests to have virtual meeting.	0.57	0.2	0.14
Q19 The company has introduced daily temperature screening to the employees before work.	0.56	0.14	0.05
Domain factor 2 - Worker's personal preventive behavior and awareness towards infectious diseases			
Q29 I try to avoid close contact with colleagues or clients.	0.27	0.63	0.02
Q23 I often clean my hands with soap/ alcohol-based handrub at work.	0.29	0.62	0.04
Q28 If my family members or I have been in contact with someone who has COVID-19, I will inform my supervisor immediately.	0.3	0.61	0.08
Q55 I usually clean my hands with alcohol-based handrub.	0.15	0.56	0.02
Q53 Social distancing is very important to prevent the outbreak of COVID-19 in the community.	0.13	0.51	0
Q51 After using toilet, I put the toilet lid down before flushing.	-0.05	0.51	-0.06
Q59 I keep a distance from someone who is coughing or sneezing	0.18	0.50	0.03
Domain factor 3 - Company occupational safety and health management and commitment			
Q7 Employees and management work together to ensure a safe working environment.	0.16	0.11	0.88
Q8 The management adopts appropriate control measures when the employees expose to health or safety risks.	0.22	0.12	0.88
Q9 The health and safety of the employees is the top priority of management.	0.17	0.14	0.80

Supplementary table 2 Demographic information of participants between exploratory factor analysis and confirmatory factor analysis

Demographic characteristics	Participants in EFA		Participants in CFA	
	n	%	n	%
Gender				
Male	2143	64.6	2131	64.6
Female	1177	35.5	1167	35.4
Age				
<30	873	26.3	865	26.1
30-39	865	26.0	899	27.1
40-49	928	27.9	920	27.7
50-59	594	17.9	565	17.0
≥60	66	2.0	67	2.0
Marital Status				
Married	1931	58.5	1900	57.6
Single	1180	35.8	1243	37.7
Cohabiting	77	2.3	47	1.4
Divorced / Widowed	111	3.4	109	3.3
Education attainment				
Middle School or below	545	16.3	544	16.3
High School	739	22.1	802	24.0
College Diploma	1494	44.7	1448	43.3
University or above	516	15.4	511	15.3
Refuse	48	1.4	37	1.1
Employment Status				
Full time workers	3017	90.3	3029	90.6
Part-time workers	149	4.5	147	4.4
Self-employed	100	3.0	97	2.9
Employer	25	0.8	30	0.9
Refuse	51	1.5	39	1.2
Industry types				
Agriculture, forestry and fishing	62	1.9	78	2.3
Manufacturing	583	17.4	571	17.1
Electricity and gas supply	57	1.7	76	2.3
Construction	107	3.2	120	3.6
Import/export, wholesale and retail trades	192	5.7	189	5.7
Accommodation and food service activities	196	5.9	200	6.0
Transportation, storage, postal and courier services	271	8.1	241	7.2
Information and communications	13	4.0	146	4.3
Financial and insurance activities	59	1.8	73	2.2
Real estate activities	110	3.3	103	3.1
Professional, scientific and technical activities	450	13.5	475	14.2

Administrative and support service activities	143	4.3	144	4.3
Public administration	282	8.4	277	8.3
Education	311	9.3	301	9.0
Human health and social work activities	84	2.5	80	2.4
Arts, entertainment and recreation	72	2.2	76	2.3
Other service activities	228	6.8	192	5.8
Years of working experience				
≤5	809	24.21	782	23.40
5-10	573	17.15	552	16.52
10-20	745	22.29	790	23.64
20-30	672	20.11	666	19.93
>30	508	15.20	509	15.23
Refuse	35	1.05	43	1.29
COVID-19 test				
No	2016	60.63	1989	59.77
Yes	1709	39.37	1339	40.23

Abbreviation: EFA, exploratory factor analysis; CFA, confirmatory factor analysis

¹ Other service activities including: Other service activities, Mining and quarrying, Water supply; sewerage, waste management and remediation activities, and Work activities within domestic households industries.

Supplementary table 3 Summary of fit indices from confirmatory factor analysis by cities

	Fit Indices	Hong Kong	Nanjing	Wuhan
Absolute Index	Goodness of Fit Index (GFI)	0.9521	0.8846	0.8918
	Standardized RMR (SRMR)	0.0472	0.0555	0.0518
Parsimony Index	Adjusted GFI (AGFI)	0.9321	0.8363	0.8464
	RMSEA Estimate	0.0652	0.1067	0.1011
Incremental Index	Bentler Comparative Fit Index	0.9192	0.8967	0.9129
	Bentler-Bonett NFI	0.9123	0.8931	0.9092

Supplementary table 4 Distribution of “Workplace safety towards SARS-Cov-2 & COVID-19 index” by selected characteristics

Characteristics	“Workplace safety towards SARS-Cov-2 & COVID-19” index	“Workplace safety and infection control measures and prevention” sub-index	“Company’s occupational safety and health management and commitment” sub-index	“Worker’s personal exposure preventive on behavior and awareness towards infectious diseases” sub-index
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Sex				
Male	55.1 (8.8)	30.7 (6.1)	11.6 (3.4)	12.8 (1.9)
Female	53.9 (8.7)	28.8 (6.5)	11.8 (2.9)	13.3 (1.6)
p-value	<0.001	<0.001	0.002	<0.001
Age				
<30	55.3 (9.5)	30.5 (6.7)	11.8 (3.2)	13.0 (1.8)
30-39	54.0 (9.5)	29.4 (6.8)	11.6 (3.2)	13.0 (1.8)
40-49	54.9 (8.0)	30.3 (5.9)	11.6 (3.2)	13.0 (1.8)
50-59	54.3 (7.9)	30.0 (5.9)	11.5 (3.1)	12.8 (1.9)
≥60	53.4 (6.9)	28.7 (5.5)	12.1 (2.8)	12.6 (1.8)
p-value	<0.001	<0.001	0.023	0.001
Marital Status				
Married	55.4 (8.4)	30.8 (5.9)	11.6 (3.3)	13.0 (1.8)
Single	53.8 (9.3)	29.0 (6.8)	11.7 (2.9)	13.0 (1.8)
Cohabiting	53.6 (9.3)	29.1 (6.3)	11.5 (3.3)	13.1 (1.9)
Divorced / Widowed	53.6 (9.0)	29.3 (6.4)	11.4 (3.4)	12.9 (2.0)
p-value	<0.001	<0.001	0.245	0.524
Education attainment				
Middle School or below	56.6 (8.7)	32.2 (5.4)	11.7 (3.5)	12.8 (2.1)
High School	55.3 (9.1)	30.7 (6.3)	11.8 (3.2)	12.8 (1.9)
College Diploma	53.9 (8.9)	29.3 (6.6)	11.4 (3.2)	13.1 (1.7)
University or above	53.8 (7.7)	28.7 (5.6)	12.0 (2.5)	13.0 (1.6)
p-value	<0.001	<0.001	<0.001	<0.001
Employment status				
Full-time workers	54.8 (8.8)	30.2 (6.4)	11.6 (3.2)	13.0 (1.8)
Part-time workers	52.8 (9.2)	28.4 (6.3)	11.7 (2.8)	12.7 (1.9)
Self-employed	52.9 (8.4)	28.5 (6.2)	11.6 (2.7)	12.8 (1.8)

Employer	54.7 (7.6)	29.5 (5.1)	12.2 (2.8)	13.1 (1.9)
p-value	<0.001	<0.001	0.639	0.007
Industry type				
Agriculture, forestry and fishing	57.0 (9.0)	32.2 (5.4)	12.7 (2.4)	12.1 (2.5)
Manufacturing	56.2 (8.0)	32.2 (5.2)	11.2 (3.7)	12.8 (1.8)
Electricity and gas supply	57.5 (8.5)	32.4 (5.4)	12.5 (2.7)	12.5 (1.9)
Construction	53.1 (8.3)	29.9 (6.6)	10.3 (4.1)	13.0 (1.9)
Import/export, wholesale and retail trades	54.0 (9.3)	29.1 (6.9)	11.9 (3.0)	13.0 (1.9)
Accommodation and food service activities	58.3 (9.7)	32.8 (6.0)	12.3 (3.4)	13.2 (2.0)
Transportation, storage, postal and courier services	54.4 (9.1)	30.6 (5.8)	11.2 (3.6)	12.6 (2.0)
Information and communications	50.9 (8.1)	26.7 (6.2)	11.2 (2.9)	13.0 (1.7)
Financial and insurance activities	50.9 (7.5)	26.4 (5.5)	11.3 (2.7)	13.2 (1.5)
Real estate activities	54.4 (8.8)	30.3 (6.6)	11.1 (3.5)	13.0 (1.8)
Professional, scientific and technical activities	53.4 (8.8)	28.5 (6.7)	11.8 (2.8)	13.1 (1.7)
Administrative and support service activities	55.0 (8.6)	30.5 (6.4)	11.4 (3.2)	13.1 (1.7)
Public administration	52.2 (8.7)	27.7 (6.5)	11.4 (2.9)	13.1 (1.7)
Education	54.7 (7.6)	29.5 (5.5)	12.2 (2.4)	13.0 (1.6)
Human health and social work activities	53.9 (7.3)	28.7 (5.5)	11.8 (2.5)	13.4 (1.6)
Arts, entertainment and recreation	54.5 (9.4)	29.1 (6.9)	12.3 (2.3)	13.1 (1.8)
Other service activities	57.5 (9.5)	31.7 (6.3)	12.7 (2.7)	13.1 (2.0)
p-value	<0.001	<0.001	<0.001	<0.001
History of uptake COVID-19 test				
No	52.8 (8.4)	28.6 (6.5)	11.2 (3.2)	13.0 (1.7)
Yes	57.6 (8.6)	32.3 (5.3)	12.4 (3.1)	12.9 (1.9)
p-value	<0.001	<0.001	<0.001	0.026

Abbreviation: EFA, exploratory factor analysis; CFA, confirmatory factor analysis

¹ Other service activities including: Other service activities, Mining and quarrying, Water supply; sewerage, waste management and remediation activities, and Work activities within domestic households industries.

Supplementary table 5 Demographic characteristics of participants with and without complete data

Demographic characteristics	Participants with complete data		Participants with incomplete data	
	n	%	n	%
Gender				
Male	4274	64.6	683	81.0
Female	2344	35.4	160	19.0
Age				
<30	1738	26.2	303	36.68
30-39	1764	26.6	247	29.90
40-49	1848	27.8	163	19.73
50-59	1159	17.5	85	10.29
≥60	133	2.0	28	3.39
Marital Status				
Married	3831	58.1	515	59.06
Single	2423	36.7	322	36.93
Cohabiting	124	1.9	13	1.49
Divorced / Widowed	220	3.3	22	2.52
Education Level				
Middle School or below	1089	16.3	334	36.62
High School	1541	23.1	323	35.42
College Diploma	2942	44.0	151	16.56
Undergraduates or above	1027	15.4	41	4.50
Refuse	85	1.3	63	6.91
Employment Status				
Full-time workers	6046	90.5	759	83.22
Part-time workers	296	4.4	86	9.43
Self-employed	197	3.0	29	3.18
Employer	55	0.8	0	0.00
Refuse	90	1.4	38	4.17
Industry type				
Agriculture, forestry and fishing	140	2.1	89	9.8
Mining and quarrying	6	0.1	0	0.0
Manufacturing	1154	17.3	284	31.1
Electricity and gas supply	133	2.0	49	5.4
Water supply; sewerage, waste management and remediation activities	36	0.5	1	0.1
Construction	227	3.4	37	4.1
Import/export, wholesale and retail trades	381	5.7	45	4.9
Accommodation and food service activities	396	5.9	11	1.2
Transportation, storage, postal and courier services	512	7.7	65	7.1
Information and communications	281	4.2	8	0.9
Financial and insurance activities	132	2.0	2	0.2
Real estate activities	213	3.2	10	1.1

Professional, scientific and technical activities	925	13.8	87	9.5
Administrative and support service activities	287	4.3	3	0.3
Public administration	559	8.4	21	2.3
Education	612	9.2	40	4.4
Human health and social work activities	164	2.5	7	0.8
Arts, entertainment and recreation	148	2.2	18	2.0
Other service activities	420	6.2	136	14.9
Work activities within domestic households	2	0.0	0	0.0
Others	29	0.4	9	1.0
Years of working experience				
≤5	1591	23.80	257	28.18
5-10	1125	16.83	199	21.82
10-20	1535	22.97	216	23.68
20-30	1338	20.02	137	15.02
>30	1017	15.22	64	7.02
Refuse	78	1.17	39	4.28
COVID-19 test				
No	4005	60.20	161	18.38
Yes	2648	39.80	715	81.62
