

## **An empirical study on job stress perceptions in Hong Kong with special reference to the contemporary systems thinking lens**

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### **Abstract:**

*The topic of job stress, mainly comprising four related core concepts (CCs), has been studied for a long time, resulting in a rich accumulated literature on it. Nevertheless, it remains useful to find out the status of jobs stress situation in a society from time to time. This is especially the case in Hong Kong where its citizens are very often overstressed. This paper reports on an empirical study of job stress perceptions in Hong Kong, based on a Facebook-based questionnaire survey and newspaper article study. The survey findings confirm the prevalence of the job stress concern in Hong Kong. A few factors have also been found to have some influence on the survey respondents' "feeling of persistent personal work stress now" and perception that "the respondents' organizations have primary responsibility to manage organizational stress". Finally, by acknowledging the widespread complex nature of job stress and the contexts of its occurrence, the writer argues for more adoption of the contemporary systems thinking lens in investigating the job stress topic both theoretically as well as in real-world case studies.*

**Key words:** contemporary systems thinking, Facebook-based survey, job stress, multiple regression analysis, newspaper article study, organizational stress

## Introduction

Job stress is a long-standing and seemingly worsening problem worldwide. For example, it has been reported that “half of working professionals worldwide are more stressed than they were 18 months ago” (Kao, 2012). Evidently, it has damaging impacts at the individual, organizational and societal levels. The topic has been studied and reported from time to time in both academic and non-academic media. In the academic literature, job stress articles can be found in the journals of *Stress and Health* (Wiley), *Human Relations* (Sage), *International Journal of Workplace Health Management* (Emerald), and *Journal of employment counseling* (Wiley). This reflects that the job stress topic is of interest to both business management and non-business management professionals and scholars alike. For the writer, the topic of work stress is associated with his research interest in career development of scholar-practitioners, work-life balance and managerial intellectual learning, as these research topics also need to address the work stress concern as an associated issue. In particular, this paper presents an analytical survey finding on job stress perceptions in Hong Kong as well as provides some newspaper articles in Hong Kong for illustration of stress-related ideas. The aim is to enrich and update our understanding on this topic in the context of Hong Kong. Besides, the paper also briefly explores the relevance of contemporary systems thinking to job stress study. The next two sections provide a concise review of the job stress literature with special reference to the systems thinking lens. This is followed by an account of findings from a newspaper article study and an analytical survey on job stress perceptions in Hong Kong conducted by the writer.

## The main ideas of the job stress topic

The mainstream academic literature on job stress primarily discerns three types of conception on job stress nature, namely, (i) the “engineering” approach<sup>1</sup>, (ii) the physiological approach<sup>2</sup>, and, finally, (iii) the psychological approach<sup>3</sup> (Mark and Smith, 2008). In this paper, the writer adopts the physiological approach as a starting point for discussion, while the issues raised by the other two approaches will also be taken up in the ensuing review. To begin with, job stress (or equivalent terms such as job-related stress and occupational stress) can be considered as “the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope” (World Health Organization, 2015). The job stress study comprises four related core concepts (CCs) (Occupational Safety & Health Council, 2006; Spurgeon *et al.*, 2012). They are elucidated on as follows:

*Core concept 1 – Stressors (CC1):* Stressors are the sources of stress, e.g., job insecurity, non-standard work schedules, violence/harassment, downsizing and work overload, etc.. They have also been described as “an event or set of conditions that causes a stress response (PEF Health and Safety Department, 2006). Stressors can be grouped into individual, group and organizational stressors (Tabaj *et al.*, 2015). From a risk management perspective, these stressors are conceived as stress-related hazards, which are divided work contents-related and work context-related ones (World Health Organization, 2015).

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<sup>1</sup> The “engineering” approach views stress as “a stimulus or characteristic of the environment in the form of level of demand” (Mark and Smith, 2008).

<sup>2</sup> The *physiological approach* views stress as “the physiological or biological changes that occur in the person when they are in a stress state” (Mark and Smith, 2008).

<sup>3</sup> The *psychological approach* considers stress as a dynamic process of an individual interacting with his/ her environment (Mark and Smith, 2008).

*Core concept 2 – Stress (CC2):* A stress is a negative psychological state which arises when an individual perceives that he/she has insufficient coping capability to deal with the pressures exerted on him/ her. Stress (i.e., overstraining pressure) is different from pressure, which is considered valuable to improve job performance (Anderson, 2003). Stress is thus “the body’s physiological response to the stressor” (PEF Health and Safety Department, 2006). For a “longer-term reaction to chronic stress”, it is known as strain (PEF Health and Safety Department, 2006). These responses become noticeable (i.e., *stress outcomes*) as “early symptoms of stress-related problems”; they are of two kinds, namely, physical symptoms (e.g., headaches, stomach problems) and psychological and behavioral symptoms (e.g., anxiety and low morale) (PEF Health and Safety Department, 2006).

*Core concept 3 - Stress coping strategies (CC3):* Stress coping strategies are typically grouped into two types in the job stress setting: (i) active coping strategies, e.g., social support, leisure, deep breathing exercise, and (ii) passive coping strategies, e.g. denial and compensation behaviours. (Occupational Safety & Health Council, 2006; Oaklander, 2015). Other ways to classify stress coping strategies are also available in the literature: problem-focused vs. emotion-focused and cognitive vs. behavioral ones (Skinner *et al.*, 2003), employee involvement practices (Mackie *et al.*, 2001), preventive stress management (Quick, Quick and Nelson, 1998; Hargrove *et al.*, 2011), complex collaborative intervention (McVicar *et al.*, 2013); primary intervention strategies [to remove the causes of stress], secondary intervention strategies [to improve employees’ ability to manage stress], and, tertiary intervention strategies [to facilitate employees’ rehabilitation from stress] (Hurrell and Murphy, 1996).

*Core concept 4 - Stress outcomes (CC4):* Stress outcomes can exist at the individual level, e.g., depression, physical ill health, burnout, etc., and the organizational level, e.g.,

increased accident rate, absenteeism, presenteeism<sup>4</sup>, staff turnover and customer complaints, etc.. Some writers would refer to them as individual stress and organizational stress<sup>5</sup>, (Tabaj *et al.*, 2015). This writer prefers to name them as *individual stress outcomes* and *organizational stress outcomes*, so as to underscore the *detectable outcome/ consequence attribute*<sup>6</sup> of them. These stress outcomes are recognized at two levels of perspective, i.e., an individual or an organizational level of perspective.

By studying these core concepts (CC1 to 4) in job stress study, the main considerations raised by the three job stress approaches identified by Mark and Smith (2008) are broadly covered in this brief review. Other than that, the job stress literature also provides empirical studies of job stress on different professions, firms with different sizes, e.g. teachers (Zulo *et al.*, 2014), healthcare professionals (Turk *et al.*, 2014), oncology employees (Dougherty *et al.*, 2009; Schwarzer and Hallum, 2008), firms with different sizes (Lai *et al.*, 2015). Additionally, a number of theoretical models have been developed to examine job stress. Some prominent ones are the Organisational Stress Measure (Spurgeon *et al.*, 2012), burnout theory of Maslach (1998), person-environment fit theory of Edwards, Caplan and van Harrison (1998), effort-reward imbalance theory of Siegrist (1998), job-demand-control model of Theorelli (1998) and theory of preventive stress management of Quick, Quick and Nelson (1998). Together, all these ideas and core concepts from the job stress literature convey the basic

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<sup>4</sup> *Presenteeism* occurs when “employee attends work although he or she is unwell and should be on a sick leave” (Tabaj *et al.*, 2015).

<sup>5</sup> Manning and Preston (2015) defines *organizational stress* as “the result of those factors in an organization that cause stress for the individual employee, and in turn, have negative organizational consequences”.

<sup>6</sup> *Outcome attributes* include physical as well as psychological and behavioural stress symptoms, plus other broader and longer-term consequences at the individual and organizational levels. In Research Methods parlance (see Bailey, 1994: 54), the notion of stress is located at the *conceptual level* while the notion of stress outcome is placed at the *empirical level*.

mainstream ideas and viewpoints on job stress, despite the fact that different writers sometimes offer diverse definitions on various concepts involved. The next section takes an unconventional look at job stress with the contemporary systems thinking lens.

### **Comprehending the job stress topic with the contemporary systems thinking lens**

There has been some recognition of the systemic nature of job stress and its contexts of occurrence in the literature. For example, McVicar *et al.* (2013) state that "...vulnerability to job-related stress seems to relate to a complex mix of social gradient, job control, effort-reward imbalance, social support and health behaviours... while combinations appear to have a stronger effect than sources of stress alone...". This recognition leads these writers to recommend organizational-focused interventions to tame the systemic nature of job stress concerns in organizations. However, an attempt to find published works on job stress based explicitly on contemporary systems thinking via Google Scholar fails to spot one that is of this type, see *Appendix 1*. Here, the writer offers some ideas with the contemporary systems thinking lens. Inspired by Ackoff (1981)'s classification on types of problem-addressing, namely, (i) problem-resolving<sup>7</sup>, (ii) problem-solving<sup>8</sup> and (iii) problem-dissolving<sup>9</sup>, this writer proposes that, on addressing job stress problems, we also have three stress-problem-addressing approaches. They are: (i) job stress-resolving, (ii) job stress-solving and (iii) job stress-dissolving. Furthermore, one more

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<sup>7</sup> For Ackoff (1981), *to resolve* a problem is to select an outcome that is satisfactory, based on past experience as well as trial and error efforts.

<sup>8</sup> For Ackoff (1981), *to solve* a problem is to select a means to achieve the best outcome, based on scientific methods.

<sup>9</sup> For Ackoff (1981) *to dissolve* a problem is to remove the problem by changing nature of the problem-possessing entity or its environment, based on effort of idealization.

approach, based on post-modern systems thinking, is proposed by the writer, whose name is stress-demarginalizing approach<sup>10</sup>. It thus adds up to four proposed approaches. The first two approaches are in line with hard systems thinking; the third approach is affiliated with soft systems thinking. As to the fourth one, it is associated with emancipatory and post-modern systems thinking<sup>11</sup>. These four approaches are related to stress coping strategies (CC3). This writer also argues that the organizational-focused recommendation from McVicar *et al.* (2013) can advantageously be anchored theoretically on the soft systems thinking and related methodology of Ackoff (1981), known as the interactive planning process. Such an organizational-focused process amounts to a stress-dissolving exercise. Moreover, the messy context of jobs stress concerns at the organizational level can be explored with the rich-picture building technique from Checkland (1981)'s soft systems methodology or the cognitive mapping technique of Eden *et al.* (1983). For those researchers who perceive tremendous complexity involved in specific case studies on job stress, they will find the creative holism approach of Jackson (2003) useful as it encourages using multiple holistic modes of enquiries to examine a topic, e.g. job stress, in a highly complex problem-situation. So far, these contemporary systems thinking ideas have been neglected in the existing job stress literature, although, in the writer's view, they are able to widen substantially the imaginative space to study job stress. The next two section turns to the study of empirical findings on job stress status in Hong Kong. The findings offer another way to examine job stress.

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<sup>10</sup> The *stress-demarginalizing approach* aims at empowering the disadvantaged groups, whose voices are likely to be marginalized, to creatively, critically and fairly cope with a problem-situation that involves the concern of stress.

<sup>11</sup> Readers are referred to Jackson (2003) for an elaboration of the various strands of systems thinking.

## Job stress news and job stress study in Hong Kong

According to the public media in Hong Kong, e.g., the *South China Morning Post*, job stress is a chronic and deteriorating problem in Hong Kong. For example, it has been reported that “over 60 percent of workers feel that their work-life balance has worsened”, “industry employees had encountered... a number of issues... and this had led to greater stress..” and “Hongkongers had the worst work-life balance among working people in the Asia-Pacific region..” (Au-yeung, 2015). In particular, the job stress status and job stress study in Hong Kong can be gauged via newspaper article study (Ho, 2015a) and Google scholar search. For the newspaper article study exercise, the writer primarily relies on the online version of the *South China Morning Post* to access the relevant local news on job stress. The findings are summarized in Table 1 as follows.

**Table 1: Examples of newspaper articles on job stress in Hong Kong and related job stress core concepts**

<p>News 1: Lau, M. 2009. “Work-related stress led to teacher’s suicide, say friends” <i>South China Morning Post</i> February 28. [<b>Job stress core concepts</b>: stressors (CC1); stress outcomes (CC4)]</p> <p>“Difficulties at work drove teacher Leung Yuet-sheung to kill herself on Monday, friends of the woman say, in the second teacher suicide at the same Sham Shui Po school in the past four months. Police disagree, however, that Leung killed herself because of trouble at Sham Shui Po Government Primary School..”</p>
<p>News 2: Wu, A. 2015. “Why Hong Kong’s stressed workers need shorter working hours” <i>South China Morning Post</i> March 23. [<b>Job stress core concepts</b>: stressors (CC1); stress (CC2); stress outcomes (CC4)]</p> <p>“If anyone is still wondering why Hongkongers are an unhappy lot, look no further than the proposed new working hours laws.... That pretty much sums up the sad state for what researchers of a 2014 survey coined “Generation O” – “overworked, overstressed and the overwhelmed” people of Hong Kong..”</p>
<p>News 3: Chan, G. 2015. “Survey finds a quarter of Hong Kong’s working population shows signs of depression and anxiety” <i>South China Morning Post</i> October 5. [<b>Job stress core concepts</b>: stressors (CC1); stress (CC2); stress outcomes (CC4)]</p> <p>“Among the 377 workers jointly surveyed by the Occupational Safety and Health Council and the Whole Person Education Foundation, over 60 per cent said they felt</p>



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highly stressed due to their jobs and over half of them have sub-optimal mental and psychological health....”

News 4: Wong, B. 2005. “Job stress behind customs suicide, says union chief” *South China Morning Post* July 27.

[**Job stress core concepts:** stressors (CC1); stress outcomes (CC4)]

“Pressure at work was probably behind the suicide on Monday of a senior customs officer..... Despite being close to retirement, Chung Cheen-yeung, 53, was given the high-pressure job of overseeing investigations into illicit cigarettes and drugs, said Alfred Poon Cheuk-kwong, chairman of the Association of Customs and Excise Service Officers....”

News 5: Chan, R. 2014. “Work stress blamed for JPMorgan banker’s suicide in Hong Kong” *South China Morning Post* February 20.

[**Job stress core concepts:** stressors (CC1); stress outcomes (CC4)]

“The suicide of a JPMorgan employee in Central on Tuesday has been blamed on the stressful environment of investment banking, which insiders say has worsened since regulators tightened rules in the wake of the global financial crisis....”

News 6: Sun, A., C. Mak and V. Chan. 2010. “No relish but disgust as man under work stress butters bread by committing sin of Onan” *South China Morning Post* January 9.

[**Job stress core concepts:** stressors (CC1); stress (CC2); stress coping strategies (CC3)]

“A man claiming to be under intense pressure from work was sentenced to four weeks in jail for committing the sin of Onan on bread being sold by a shop girl....”

News 7: Benitez, M.A. 2005. “88pc of nurses suffer work stress” *South China Morning Post* September 29.

[**Job stress core concepts:** stressors (CC1); stress outcomes (CC4)]

“Most nurses at public hospitals not only suffer from heavy work pressure but enjoy hardly any job satisfaction, a survey found....”

News 8: Wan, B. 2009. “All work and no play is damaging to health” *South China Morning Post* September 5.

[**Job stress core concepts:** stressors (CC1); stress (CC2)]

“...Hongkongers are probably the most hard-working creatures, logging long hours under mounting stress. The situation has got even worse since the global financial crisis hit the local economy... Hong Kong employees in general were working under increasing stress with extra workloads as a result of company downsizing...”

News 9: Staff reporter. 2010. “More work and stress amid cost cuts” *South China Morning Post* February 22.

[**Job stress core concepts:** stressors (CC1); stress (CC2); stress outcomes (CC4)]

“Workers had to work harder and faced more stress about their jobs, thanks to employers’ cost cuts during the last year, a survey has found.... More than 64 per cent of polled union members said work stress escalated under the poor economic conditions last year, 66 per cent said they became mentally stressed, and more than half said work pressure reduced their rest time....”

Overall, the newspaper articles provide illustrative examples that can be related to the various job stress core concepts. As to the local academic literature, some academic works on job stress in Hong Kong as identified via Google Scholar search can be found. They include: impact of stress on estimation performance by Hong Kong professional estimators in the construction sector (Leung *et al.*, 2005), a survey on Hong Kong teachers' sources of stress, burnout and job satisfaction (Tang and Yeung, 1999), a survey on work role stressors of Hong Kong professional clergy (Ngo *et al.*, 2005), and a survey on study stress and burnout of Hong Kong nursing students (Watson *et al.*, 2008). Among the Hong Kong job stress works, the writer finds the study on Hong Kong job stress conducted by the Department of Politics and Sociology of Lingnan University of Hong Kong, as sponsored by the Occupational Safety & Health Council (2006) most comprehensive and comprehensible. The Occupational Safety & Health Council (2006) report covers: the effects of occupational stress, sources of stress, stress audit, work stress management framework, stress management at organizational level and stress management at individual level. Overall, the job stress ideas, phenomena and research approaches reported in the news and academic literature in Hong Kong resonate with that of the mainstream literature on job stress, covering all the job stress core concepts. The next section presents empirical findings from a recent survey on job stress perceptions conducted by the writer in Hong Kong.

### **Empirical findings from a Facebook-based survey on job stress perceptions in Hong Kong**

A Facebook-based survey was conducted by the writer from October 22 to 25 with his Facebook friends. The survey form was constructed using kwiksurveys.com's tool which is free-of-charge. The strengths and weaknesses of Facebook-based survey has been reviewed by Ho (2014), thus not discussed in

this paper. Most of the writer’s Facebook friends are his present or former part-time university degree programme students in Hong Kong. For this present survey, there are 128 respondents. Appendixes 2 to 4 provide two sample screens about the survey and basic survey statistics for the survey exercise. There are altogether 17 survey questions covering the main profile attributes of the respondents and their perceptions on a number of issues as related to job stress in Hong Kong (re: *Appendix 4*). The main survey findings, seven in total, are presented as follows:

*Finding 1* (re: survey questions 7 and 8): The following table, Table 1, summarizes the responses on job stress perception status at the individual level:

**Table 1**

	<i>Perception on present persistent work stress level (re: question 7)</i>	<i>Perception on work stress increase over the last 2 years (re: question 8)</i>
<i>Yes, very much so</i>	25 (19.53%)	48 (37.5%)
<i>Yes, I have this feeling mildly</i>	75 (58.59%)	47 (36.72%)
<i>No, I do not feel this way</i>	26 (20.31%)	29 (22.66%)
<i>No idea/ no comments</i>	2 (1.56%)	4 (3.13%)

The statistics indicate that perception of persistent and deteriorating work stress is quite widespread among the respondents. Finding 1 is related to Stress (CC2).

*Finding 2* (re: survey questions 9 and 10): The following table, Table 2, summarizes the responses on job stress perception status at the organizational level:

**Table 2**

	<i>Perception on present work stress at the organizational level (re: question 9)</i>	<i>Perception on work stress increase over the last 2 years at the organizational level (re: question 10)</i>
<i>Yes, very much so</i>	41 (32.28%)	44 (34.65%)

<i>Yes, I have this feeling mildly</i>	57 (44.88%)	50 (39.37%)
<i>No, I do not feel this way</i>	23 (18.11%)	24 (18.9%)
<i>No idea/ no comments</i>	6 (4.72%)	9 (7.09%)

The statistics indicate that perception of persistent and deteriorating work stress at the organizational level is quite widespread. Finding 2 is related to Stress (CC2) and Stress outcomes (CC4).

*Finding 3* (re: survey questions 11 and 12): The following table, Table 3, summarizes the responses on job stress management perceptions at the individual level:

**Table 3**

	<i>Perception on personal ability to manage work stress at the individual level (re: question 11)</i>	<i>Perception on personal responsibility to manage job stress at the individual level (re: question 12)</i>
<i>Yes, very much so</i>	21 (16.41%)	31 (24.41%)
<i>Yes, I have this feeling mildly</i>	87 (67.97%)	68 (53.54%)
<i>No, I do not feel this way</i>	18 (14.06%)	27 (21.26%)
<i>No idea/ no comments</i>	2 (1.56%)	1 (0.79%)

The statistics show that there is an extensive feeling that individuals are able and are personally responsible to manage job stress at the individual level. Finding 3 is related to Stress (CC2) and Stress coping strategies (CC3).

*Finding 4* (re: survey questions 13, 14 and 15): The following table, Table 4, summarizes on the responses on job stress management perceptions at the organizational level:

**Table 4**

	<i>Perception on organizational responsibility to manage work stress at the organizational level (re: question 13)</i>	<i>Perception on organizational ability to manage work stress at the organizational level (re: question 14)</i>	<i>Perception on organizational need to do more to manage work stress at the organizational level (re: question 15)</i>
<i>Yes, very much</i>	30 (23.62%)	12 (9.38%)	42 (32.81%)

<i>so</i>			
<i>Yes, I have this feeling mildly</i>	62 (48.82%)	43 (33.59%)	65 (50.78%)
<i>No, I do not feel this way</i>	30 (23.62%)	65 (50.78%)	10 (7.81%)
<i>No idea/ no comments</i>	5 (3.94%)	8 (6.25%)	11 (8.59%)

The statistics reveal that there is a pervasive feeling that organizations have responsibility, are able to, and need to do more to manage work stress at the organizational level. Finding 4 is related to Stress outcomes (CC4).

*Finding 5* (re: survey questions 16 and 17): The following table, Table 5, summarizes respondents' familiarity and interest in the job stress topic:

**Table 5**

	<i>Respondents' familiarity with the job stress topic (re: question 16)</i>	<i>Respondents' interest in the job stress topic (re: question 17)</i>
<i>Yes, very much so</i>	25 (19.53%)	45 (35.16%)
<i>Yes, I have this feeling mildly</i>	69 (53.91%)	57 (44.53%)
<i>No, I do not feel this way</i>	24 (18.75%)	18 (14.06%)
<i>No idea/ no comments</i>	10 (7.81%)	8 (6.25%)

The statistics show that the majority of the respondents are familiar with as well as interested in the job stress topic. Finding 5 is related indirectly to Stress outcomes (CC4).

The following findings, Findings 6 and 7, are derived from multiple regression analyses (Lind *et al.*, 2001; Ho, 2015b) on the survey data. To do so, the coding scheme below is employed:

***I. Age group***

18 to 27:	22.5
28 to 37:	32.5
38 to 47:	42.5
48 to 57:	52.5
58 to 67:	62.5
68 or above:	72.5

## **II. Gender**

Female: 1

Male: 2

## **III. Education background**

Not yet a degree-holder: 1

Finished University Undergraduate Degree study: 2

Finished Master Degree study: 3

Finished Ph.D. Degree study (or equivalent): 4

## **IV. Perceived own social class**

Lower class: 1

Middle class: 2

Upper class: 3

## **V. Size of organization**

Micro-enterprise: 1

Small and medium enterprise: 2

Large enterprise: 3

## **VI. Seniority in organization**

Junior management: 1

Middle management: 2

Senior management: 3

## **VII. Intensity of feeling**

No, I do not feel this way: 1

Yes, I have this feeling mildly: 2

Yes, very much so: 3

*Finding 6* (re: survey questions 1-6, 11): The following multiple regression formula is proposed and results are then derived from the Excel regression analysis exercise (see *Appendix 5*):

### **Formula 1**

***Feeling of persistent personal work stress now (y) = a + b1 x (x1: gender) + b2 x (x2: age group) + b3 x (x3: education background) + b4 x (x4: self-perceived social class) + b5 x (x5: organizational size) + b6 x (x6: seniority in organization) + b7 x (x7: perceived own ability to manage own job stress)***

Variable y (feeling of persistent personal work stress now) is based on survey question 7.

Variable x1 (gender) is based on survey question 1.

Variable x2 (age group) is based on survey question 2.

Variable x3 (education background) is based on survey question 3.

Variable x4 (self-perceived social class) is based on survey question 4.

Variable x5 (organizational size) is based on survey question 5.

Variable x6 (seniority in organization) is based on survey question 6.

Variable x7 (perceived own ability to manage own job stress) is based on survey question 11.

### **Formula 1 based on Appendix 5 Excel report**

***Feeling of persistent personal work stress now (y) = 0.8161 + 0.3180 x (x1: gender) + 0.0240 x (x2: age group) - 0.0372 x (x3: education background) + 0.0042 x (x4: self-perceived social class) - 0.0028 x (x5: organizational size) + 0.3315 x (x6: seniority in organization) - 0.2757 x (x7: perceived own ability to manage own job stress)***

*Interpretation:* Among all the x variables, the null hypotheses that the b values of x1 (gender), x2 (age group), x6 (seniority in organization) and x7 (perceived own ability to manage own job stress) be zero are rejected. The Excel statistics also reveal that the independent variables x1 (gender) and x6 (seniority in organization) have some positive correlation with the dependent variable y (feeling of persistent personal work stress now) while variable x7 (perceived own ability to manage own job stress) has some negative correlation with the dependent variable y (feeling of persistent personal work stress now). The influences of the rest of the variables are insignificant. Finding 6 is related to Stressors (CC1) and Stress (CC2).

*Finding 7* (re: survey questions 1-7, 9, 11, 13, 16): The following multiple regression formula is proposed and results are obtained from the Excel regression analysis exercise (see *Appendix 6*):

### **Formula 2**

***Perception that your organization has primary responsibility to manage organizational stress (y) = a + b1 x (x1: gender) + b2 x (x2: age group) + b3 x (x3:***

***education background) + b4 x (x4: self-perceived social class) + b5 x (x5: organizational size) + b6 x (x6: seniority in organization) + b7 x (x7: perceived own ability to manage own job stress) + b8 x (x8: feeling of persistent organizational work stress now) + b9 x (x9: feeling of persistent personal work stress now) + b10 x (x10: your familiarity with the job stress topic)***

Variable y (perception that your organization has primary responsibility to manage organizational stress) is based on survey question 13.

Variable x1 (gender) is based on survey question 1.

Variable x2 (age group) is based on survey question 2.

Variable x3 (education background) is based on survey question 3.

Variable x4 (self-perceived social class) is based on survey question 4.

Variable x5 (organizational size) is based on survey question 5.

Variable x6 (seniority in organization) is based on survey question 6.

Variable x7 (perceived own ability to manage own job stress) is based on survey question 11.

Variable x8 (feeling of persistent organizational work stress now) is based on survey question 9.

Variable x9 (feeling of persistent personal work stress now) is based on survey question 7.

Variable x10 (your familiarity with the job stress topic) is based on survey question 16.

### **Formula 2 based on Appendix 6 Excel report**

***Perception that your organization has primary responsibility to manage organizational stress (y) = 0.5227 + 0.1154 x (x1: gender) + 0.0101 x (x2: age group) – 0.0714 x (x3: education background) – 0.2449 x (x4: self-perceived social class) + 0.0615 x (x5: organizational size) + 0.1524 x (x6: seniority in organization) + 0.1848 x (x7: perceived own ability to manage own job stress) + 0.3024 x (x8: feeling of persistent organizational work stress now) – 0.0293 x (x9: feeling of persistent personal work stress now) + 0.0781 x (x10: your familiarity with the job stress topic)***

*Interpretation:* The p-values of all the x variables are larger than 2.5% (the critical value), thus the null hypotheses that the



b values of them being zero are not rejected. Independent variables x4 (self-perceived social class), x6 (seniority in organization), x7 (perceived own ability to manage own job stress) and x8 (feeling of persistent organizational stress now) have some negative correlation with the dependent variable y (perception that your organization has primary responsibility to manage organizational stress). The influences of the other x variables are quite weak. Finding 7 is related to Stress outcomes (CC4) indirectly.

Findings 6 and 7 need to be interpretation with caution for correlation statistics per se are not capable to establish cause-effect relationship between the independent variables (i.e., the x variables) and the dependent variables (i.e., the y variables). Readers are also referred to Ho (2014) to learn the limitations of the Facebook-based questionnaire survey as a research method. Overall, the seven survey findings show that job stress is a prevailing problem in Hong Kong and the problem is considered to be getting worse over the last 2 years. Furthermore, respondents in general feel that both they and their organizations have responsibility and need to do more to address the job stress problem. Lastly, the multiple regression analysis reveals that, among other findings, (i) gender and seniority in organization have some influence on feeling of persistent personal work stress now and (ii) self-perceived social class and feeling of persistent organizational stress now have some influence on the perception that the respondent's organization has primary responsibility to manage organizational stress. The empirical findings provide some updated information to enrich our understanding on the core concepts of job stress (i.e., CC1 to 4) in the Hong Kong context.

## **Concluding remarks**

In spite of the substantial literature on job stress that exists, it is still useful to gauge the current job stress status in a society,

e.g., Hong Kong, using properly formulated research methods, e.g. questionnaire survey and newspaper article study. In this paper, a few new systems thinking-based approaches on job stress have been proposed. Other than that, recognizing the complex nature of job stress concern very often found in real-world problem-situations, the writer recommends a more organization-focused approach to cope with job stress and organizational stress concerns with firmer theoretical anchoring on soft systems thinking and/ or creative holism thinking. Doing so offers (i) new imaginative space for pursuing theoretical advancement in the job stress field, e.g., enhancing our understanding on CC1 to CC4, as well as (ii) more vigorous theoretical justification for this kind of stress intervention exercises. Bearing in mind that the contemporary systems thinking has had negligible impacts on the job stress field up to now, such a recommendation from the writer is quite novel in this respect. For the same reason, there is academic value for reviewing stress-coping methods and notions in the form of the Multi-perspective, Systems-based (MPSB) Research, see Ho (2015c).

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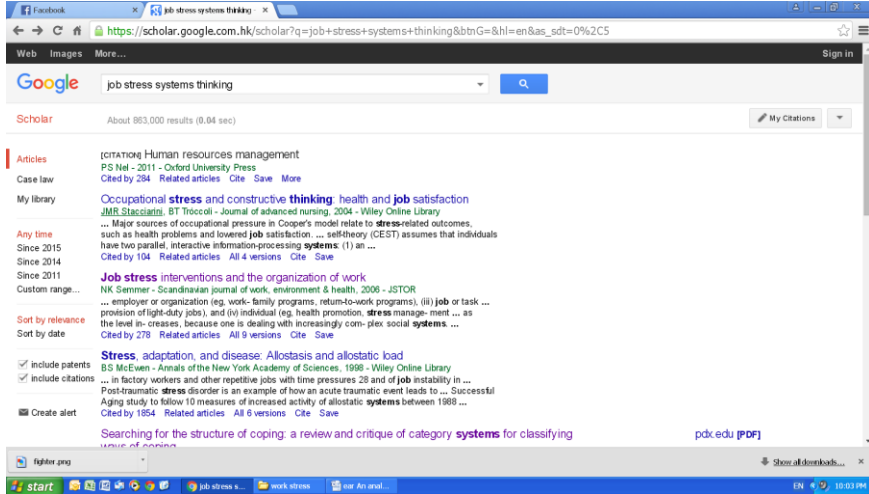
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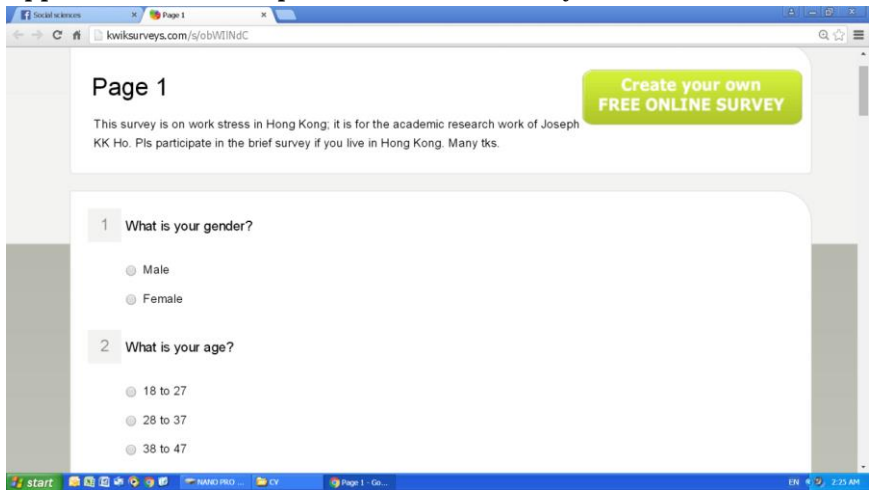
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## Appendixes

### Appendix 1: Search result on Google Scholar with “job stress systems thinking”, dated November 13, 2015.

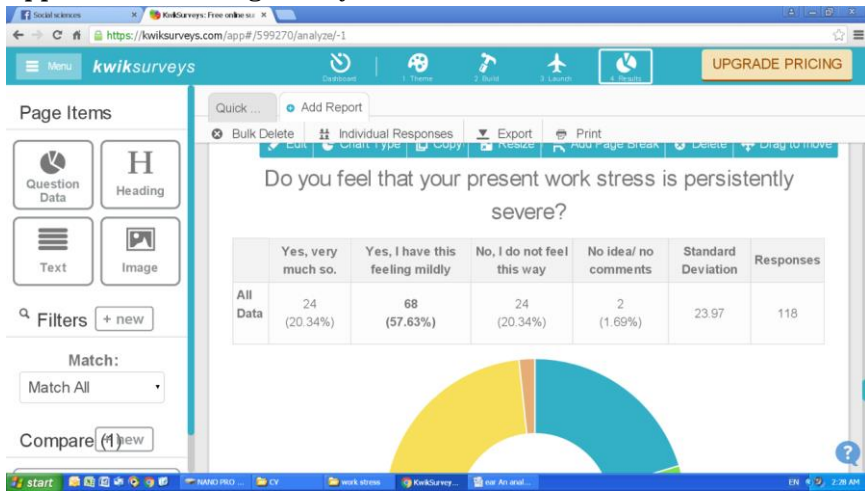


### Appendix 2: Online input screen of the survey form.





**Appendix 3: Viewing survey statistics on-screen.**



**Appendix 4: The Facebook-based survey questions (17 questions) and responses statistics, from October 22 to 25, 2015.**

<i>Survey questions</i>	<i>Survey statistics</i>
Question 1: What is your gender?	Male: 49 (38.28%) Female: 79 (61.72%) Standard Deviation: 15 Responses: 128
Question 2: What is your age?	18 to 27: 7 (5.47%) 28 to 37: 64 (50%) 38 to 47: 48 (37.5%) 48 to 57: 9 (7.03%) 58 to 67: 0 (0.0%) 68 or above: 0 (0.0%) Standard Deviation: 25.16 Responses: 128
Question 3: What is your education background?	Not yet a degree-holder: 30 (23.44%) Finished University Undergraduate Degree study: 82 (64.06%) Finished Master Degree study: 15 (11.72%) Finished Ph.D. Degree study (or equivalent): 1 (0.78%) Standard Deviation: 30.63 Responses: 128
Question 4: What is your perceived own social class?	Upper class: 4 (3.13%) Middle class: 70 (54.69%) Lower class: 30 (23.44%) Not applicable/ no idea: 24 (18.75%) Standard Deviation: 23.96 Responses: 128
Question 5: What is the size of your organization?	Large enterprise (larger than SME): 69 (53.91%) Small and medium enterprise (less than 100 full-time employees for manufacturing; less than 50 full-time employees for non-manufacturing companies): 36 (28.13%)

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	Micro-enterprise (fewer than 10 full-time employees): 14 (10.94%) No comments/ not applicable: 9 (7.03%) Standard Deviation: 23.65 Responses: 128
Question 6: How would you consider your seniority in your organization?	Senior management: 13 (10.16%) Middle management: 38 (29.69%) Junior management: 48 (37.5%) Not applicable/ no idea: 29 (22.66%) Standard Deviation: 12.86 Responses: 128
Question 7: Do you feel that your present work stress is persistently severe?	Yes, very much so: 25 (19.53%) Yes, I have this feeling mildly: 75 (58.59%) No, I do not feel this way: 26 (20.31%) No idea/ no comments: 2 (1.56%) Standard Deviation: 26.62 Responses: 128
Question 8: Do you feel that your work stress has increased significantly over the last 2 years?	Yes, very much so: 48 (37.5%) Yes, I have this feeling mildly: 47 (36.72%) No, I do not feel this way: 29 (22.66%) No idea/ no comments: 4 (3.13%) Standard Deviation: 17.85 Responses: 128
Question 9: Do you feel that the present organizational stress of your organization is persistently severe?	Yes, very much so: 41 (32.28%) Yes, I have this feeling mildly: 57 (44.88%) No, I do not feel this way: 23 (18.11%) No idea/ no comments: 6 (4.72%) Standard Deviation: 19.12 Responses: 127
Question 10: Do you feel that the organizational stress of your organization has increased significantly over the last 2 years?	Yes, very much so: 44 (34.65%) Yes, I have this feeling mildly: 50 (39.37%) No, I do not feel this way: 24 (18.9%) No idea/ no comments: 9 (7.09%) Standard Deviation: 16.28 Responses: 127
Question 11: Do you feel that you are able to manage your job stress effectively based on your personal effort?	Yes, very much so: 21 (16.41%) Yes, I have this feeling mildly: 87 (67.97%) No, I do not feel this way: 18 (14.06%) No idea/ no comments: 2 (1.56%) Standard Deviation: 32.57 Responses: 128
Question 12: Do you feel that it is primarily your own responsibility to manage your job stress?	Yes, very much so: 31 (24.41%) Yes, I have this feeling mildly: 68 (53.54%) No, I do not feel this way: 27 (21.26%) No idea/ no comments: 1 (0.79%) Standard Deviation: 23.89 Responses: 127
Question 13: Do you feel that your organization has primary responsibility to manage organizational stress?	Yes, very much so: 30 (23.62%) Yes, I have this feeling mildly: 62 (48.82%) No, I do not feel this way: 30 (23.62%) No idea/ no comments: 5 (3.94%) Standard Deviation: 20.23 Responses: 127
Question 14: Do you feel that your organization is capable to manage	Yes, very much so: 12 (9.38%) Yes, I have this feeling mildly: 43 (33.59%)

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organizational stress effectively?	No, I do not feel this way: 65 (50.78%) No idea/ no comments: 8 (6.25%) Standard Deviation: 23.38 Responses: 128
Question 15: Do you feel that your organization should do more to manage organizational stress responsibly?	Yes, very much so: 42 (32.81%) Yes, I have this feeling mildly: 65 (50.78%) No, I do not feel this way: 10 (7.81%) No idea/ no comments: 11 (8.59%) Standard Deviation: 22.99 Responses: 128
Question 16: Do you feel that you are quite familiar with the topic of job stress?	Yes, very much so: 25 (19.53%) Yes, I have this feeling mildly: 69 (53.91%) No, I do not feel this way: 24 (18.75%) No idea/ no comments: 10 (7.81%) Standard Deviation: 22.17 Responses: 128
Question 17: Do you feel that you are interested in learning more about the topic of job stress?	Yes, very much so: 45 (35.16%) Yes, I have this feeling mildly: 57 (44.53%) No, I do not feel this way: 18 (14.06%) No idea/ no comments: 8 (6.25%) Standard Deviation: 19.79 Responses: 128

**Appendix 5: Excel report on multiple regression analysis 1 (y variable is “feeling of persistent personal work stress now”; re: Formula 1).**

<i>Regression Statistics</i>				
Multiple R	0.565158674			
R Square	0.319404327			
Adjusted R Square	0.255882065			
Standard Error	0.544728171			
Observations	83			
<i>ANOVA</i>				
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	7	10.44413668	1.492019526	5.028226536
Residual	75	22.2546585	0.29672878	
Total	82	32.69879518		
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.816122501	0.463731537	1.759902951	0.082501737
Gender	0.31796484	0.130174863	2.442597839	0.01693639
Age group	0.024002699	0.009883657	2.428524011	0.017556812
Education background	-0.037178973	0.09987969	-0.372237566	0.71076573
Self-perceived social class	0.004151457	0.129916557	0.031954792	0.97459299
Organizational size	-0.002783095	0.094434169	-0.029471272	0.976567014
Seniority in organization	0.331546475	0.101774545	3.257656189	0.001688775
Perceived own ability to manage own job stress	-0.275703047	0.118184055	-2.332827795	0.022341386

**Comments on the statistics**

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<i>x variables</i>	<i>b value and [comments]</i>	<i>p-value and [comments]</i>
Gender (x1)	0.3180 [Gender has some positive correlation with the y variable.]	0.0169 (0.845% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is rejected.]
Age group (x2)	0.0240 [Age group has quite weak positive correlation with the y variable.]	0.0176 (0.88% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is rejected.]
Education background (x3)	-0.0372 [Education background has quite weak negative correlation with the y variable.]	0.7108 (35.54% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Self-perceived social class (x4)	0.0042 [Self-perceived social class has quite weak positive correlation with the y variable.]	0.9746 (48.73% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Organizational size (x5)	-0.0028 [Organizational size has quite weak negative correlation with the y variable.]	0.9766 (48.83% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Seniority in organization (x6)	0.3315 [Seniority in organization has some positive correlation with the y variable.]	0.0017 (0.085% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is rejected.]
Perceived own ability to manage own job stress (x7)	-0.2757 [Perceived own ability to manage own job stress has some negative correlation with the y variable.]	0.0223 (1.115% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is rejected.]

**Appendix 6: Excel report on multiple regression analysis 2 (y variable is “perception that your organization has primary responsibility to manage organizational stress”; re: Formula 2).**

<i>Regression Statistics</i>				
Multiple R	0.428440781			
R Square	0.183561503			
Adjusted R Square	0.040326679			
Standard Error	0.687360371			
Observations	68			
<i>ANOVA</i>				
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	10	6.05483016	0.605483016	1.281542419
Residual	57	26.93046396	0.47246428	
Total	67	32.98529412		
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.522667096	0.673091003	0.776517728	0.440653839
Gender	0.115366064	0.188528997	0.611927426	0.54301905
Age group	0.010072938	0.014691401	0.685634969	0.495722563
Education background	-0.071419764	0.133394174	-0.53540393	0.594453466
Self-perceived social class	-0.244949536	0.198009612	-1.23705881	0.221137648

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Organizational size	0.061494351	0.144994973	0.424113679	0.6730793
Seniority in organization	0.152399542	0.151956883	1.002913053	0.3201415
Perceived own ability to manage own job stress	0.184812758	0.174968251	1.056264534	0.295303757
Feeling of persistent organizational stress now	0.302415445	0.152452899	1.983664768	0.052117146
Feeling of persistent personal work stress now	-0.029340093	0.194957093	-0.15049513	0.880905303
Your familiarity with the job stress topic	0.078145868	0.153136043	0.510303559	0.611809372

**Comments on the statistics**

<i>x variables</i>	<i>b value and [comments]</i>	<i>p-value and [comments]</i>
Gender (x1)	0.1154 [Gender has minor positive correlation with the y variable.]	0.5430 (or 27.15% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Age group (x2)	0.0101 [Age group has very weak positive correlation with the y variable.]	0.4957 (or 24.785% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Education background (x3)	-0.0714 [Education background has very weak negative correlation with the y variable.]	0.5945 (or 29.725% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Self-perceived social class (x4)	-0.2449 [Self-perceived social class has some negative correlation with the y variable.]	0.2211 (or 11.055% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Organizational size (x5)	0.0615 [Organizational size has quite weak positive correlation with the y variable.]	0.6731 (or 33.655% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Seniority in organization (x6)	0.1524 [Seniority in organization has some positive correlation with the y variable.]	0.3201 (or 16.005% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Perceived own ability to manage own job stress (x7)	0.1848 [Perceived own ability to manage own job stress has some positive correlation with the y variable.]	0.2953 (or 14.765% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Feeling of persistent organizational stress now (x8)	0.3024 [Feeling of persistent organizational stress now has some positive correlation with the y variable.]	0.0521 (or 2.605% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
Feeling of persistent personal work stress now (x9)	-0.0293 [Feeling of persistent personal work stress now has weak negative correlation with the y variable.]	0.8809 (or 44.045% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]

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Your familiarity with the job stress topic (x10)	0.0781 [Feeling of persistent personal work stress now has weak positive correlation with the y variable.]	0.6118 (or 30.59% on each side) [With the critical value of 5% (or 2.5% on each side), the null hypothesis that the b value be zero is not rejected.]
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