PSYCHOSOCIAL SAFETY CLIMATE AND EMPLOYEES' HEALTH: A MULTILEVEL STUDY

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THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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ABSTRACT

The aim of this research was to examine the role of a specific organizational climate, psychosocial safety climate (PSC), and its effect on health-related outcomes (i.e., emotional exhaustion, and physical and psychological distress) and work-related outcomes (i.e., work engagement and workaholism) via job characteristics (i.e., job demands and job resources). In contrast to most studies and theories introduced in the Western context, this study was conducted in Malaysia, in order to obtain the non-Western perspective for a better understanding regarding the importance of good organizational climate (i.e., PSC).

The current research utilized a multilevel survey study and a quantitative diary study to test a series of statistical and methodological approaches. A sample comprising police personnel and teachers was used in the study. The first study employed a multilevel cross-sectional approach and involved 58 departments (N = 909) from the Contingent Police Headquarters in Bukit Aman, Peninsular Malaysia. By utilizing hierarchical linear modeling software (HLM version 7.0 [HLM 7]) for analysis, the study found, at the group level, that PSC had a negative relationship on individuals' physical health problems (i.e., headache, stomach ache, nausea, and sleep problems). The second study utilized a multilevel longitudinal study and was conducted among 392 police personnel (26 departments), matched across a gap of four months. Using HLM analysis, the study revealed between-groups moderated mediation effects linking PSC to job resources, work engagement, and workaholism, and, in cross-links, to psychological distress. The study also indicated that, at the group level, PSC improved the level of work engagement via job resources and mitigated the level of psychological distress over four months.

The third and fourth studies employed a multilevel diary study which involved 23 schools in the State of Selangor, Malaysia (N = 109; diary data = 545 occasions). The diary study is a useful approach for capturing the fluctuation of everyday experiences within and between individuals in the work context. By employing HLM analysis, the third study revealed that the organizational level of enacted PSC (supervisor support) moderated the relationship between espoused PSC and daily emotional exhaustion. The research also found that enacted PSC (supervisor support) mediated the relationship between espoused PSC and daily work engagement. Finally, the fourth study revealed that 15% of the PSC variance was due to the school, 44% was due to between-persons PSC variance, and 41% was due to within-person PSC variance. This study indicates that PSC resides at all levels of analysis.

Overall, the current study supports the notion of PSC's primary and secondary roles, confirming that PSC is a leading indicator and a moderator of the relationships between job conditions and outcomes. Specifically, this study provides further insight regarding PSC from the Malaysian context by utilizing various work occupations and methods of data collection and, more importantly, using a multilevel approach in order to scrutinize several aspects related to work environment and individual work-related outcomes. The current research suggests that PSC is one of the appropriate strategies to target in order to improve the quality of the work environment and employees' health and well-being.

ABSTRAK

Kajian ini bertujuan untuk mengkaji peranan iklim organisasi iaitu iklim keselamatan psikososial (PSC; Dollard & Bakker, 2010) ke atas hasil kerja (kepenatan emosi, semangat kerja, dan masalah fizikal dan psikologi) melalui karakteristik kerja (tuntutan kerja dan sumber kerja). Kajian dijalankan di Malaysia, untuk mengenalpasti perspektif Timur mengenai pentingnya iklim organisasi yang baik berdasarkan kepada kebanyakkan kajian dan teori yang telah diperkenalkan dalam konteks Barat.

Kajian yang dijalankan menggunakan pendekatan tahap peringkat (*multilevel*) dan diari kuantitatif untuk menguji beberapa siri pendekatan statistik dan metodologi dengan mengambil sampel dari kalangan polis dan guru. Kajian pertama merupakan kajian *cross-sectional* pelbagai tahap yang melibatkan 58 jabatan (N = 909 polis) daripada ibu pejabat kontinjen di Semenanjung Malaysia. Dengan menggunakan perisian analisis *Hierarchical Linear Modeling* (HLM) versi 7.0, kajian mendapati bahawa tahap PSC jabatan polis mempunyai hubungan negatif dengan masalah kesihatan fizikal individu. Manakala kajian kedua yang merupakan kajian *longitudinal* pelbagai tahap dijalankan ke atas 392 anggota polis (26 jabatan) dengan jeda masa selama empat bulan. Kajian mendapati bahawa tahap kumpulan PSC jabatan polis yang tinggi akan meningkatan semangat kerja dan mengurangkan keletihan emosi dari masa ke masa. Selain itu, kajian juga mendapati bahawa peningkatan tahap PSC jabatan polis mampu meningkatkan semangat kerja melalui sumber kerja dan mengurangkan masalah tekanan psikologi.

Kajian ketiga dan keempat menggunakan pendekatan kajian diari pelbagai yang melibatkan sebanyak 23 sekolah di kawasan Selangor, Malaysia (N = 109 guru, data diari = 545). Kajian diari sangat sesuai untuk melihat perubahan pengalaman harian di dalam dan di antara individu di tempat kerja. Dengan menggunakan perisian analisis HLM, kajian ketiga mendapati bahawa sokongan daripada penyelia berperanan sebagai

faktor penyederhana (*moderator*) di antara hubungan iklim organisasi PSC dengan kepenatan emosi. Kajian ini juga turut mendapati bahawa sokongan daripada penyelia menjadi faktor penengah (*mediator*) di antara hubungan iklim organisasi PSC dengan semangat kerja. Akhir sekali, kajian keempat mendapati bahawa terdapat perbezaan tahap varian PSC iaitu sebanyak 15 peratus PSC berada pada peringkat sekolah, 44 peratus berada pada peringkat individu dan 41 peratus berada pada peringkat diari (harian). Kajian ini menunjukkan bahawa PSC berada pada semua peringkat analisis.

Secara keseluruhan, kajian ini menyokong andaian PSC sebagai punca atau faktor utama (peranan utama) dan faktor penyederhana (peranan kedua) ke atas hubungan di antara karakteristik kerja dan hasil kerja. Kajian ini memberikan penjelasan yang jelas berkenaan dengan iklim organisasi PSC dalam konteks Malaysia dengan menggunakan pelbagai jenis pekerjaan dan kaedah pengumpulan data, dan yang lebih penting lagi, kajian ini menggunakan pendekatan pelbagai tahap untuk meneliti aspek-aspek yang berkenaan dengan persekitaran kerja dan hasil kerja. Dapatan kajian ini mencadangkan PSC sebagai mekanisma utama dalam mengatur strategi yang sesuai untuk memperbaiki dan meningkatkan kualiti persekitaran kerja dan kesihatan serta kebajikan pekerja.

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α	: Cronbach's Alpha
γ	: parameter estimate (cross-level effects)
β	: parameter estimate (lower-level effects)
χ^2	: chi-square
*	: $p < .05$
**	: $p < .01$
***	: $p < .001$

ANOVA	: analysis of variance
CFA	: confirmatory factor analysis
CFI	: comparative fit index
CI	: confidence interval
COPSOQ	: Copenhagen psychosocial questionnaire
COR	: conservation of resources (theory)
CVD	: cardiovascular disease
DISC	: demand–induced strain compensation (model)
DUWAS	: Dutch work addiction scale
EMIS	: education management information system
ERI	: effort–reward imbalance (model)
EUROFOUND	: European foundation for the improvement of living and working conditions
EU-OSHA	: European agency for safety and health at work
EVLN	: exit, voice, loyalty, neglect (model)
F_{III}	: F-value
FIML	: full information maximum likelihood (estimation)
FOCUS	: first organizational climate/culture unified search
GHQ	: general health questionnaire
HLM	: hierarchical linear modeling
ICC(1)	: intra-class coefficient (1)
ITUC	: international trade union confederation
JDC	: job demand–control (model)
JDC-S	: job demand–control–support (model)
JD-R	: job demands–resources (model)

KSAOs : knowledge, skills, abilities, and other (job-related characteristics)

KMO : Kaiser-meyer-olkin

L1 : Level 1

L2 : Level 2

L3 : Level 3

LL : lower-level

LMX : leader–member exchange

M : mean

MBA : master of business administration

M_DOQ : Majer_D'Amato organizational questionnaire

MCMAM : Monte Carlo method for assessing mediation

MMR : moderated multiple regression (analysis)

MSD : musculoskeletal disorder

MSEM : multilevel structural equation modeling

NIOSH : national institute for occupational safety and health

NORSCI : Norwegian offshore risk and safety climate inventory

OCB : organizational citizenship behavior

OLBI : Oldenburg burnout inventory

PCi : psychological climate with an individual referent

PCo : psychological climate with an organizational referent

PHQ : physical health questionnaire

POB : positive organizational behavior

PSC : psychosocial safety climate

PTSD : post-traumatic stress disorder

REFSA : research for social advancement

RMSEA : root mean square error of approximation

$r_{(wg)}$: inter-rater reliability

SAQ : safety attitude questionnaire

SAS : statistical analysis system

SD : standard deviation

SDT : self–determination theory

SE : standard error

SEM : structural equation modeling

SPSS : statistical package for the social sciences

SRC : safety-related work climate

T1	: Time 1
T2	: Time 2
TLI	: tucker–lewis index
UK	: United Kingdom
UL	: upper-level
USA	: United States of America
UWES	: Utrecht work engagement scale

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CHAPTER 1: GENERAL INTRODUCTION

1.1 Introduction

For several decades, psychosocial risks have been recognized as one of the most prominent emerging risk factors caused by significant global work, social, and economic changes, such as globalization, advances in technology, and demographic transformation. This has consequently led to the increasing level of health care and productivity costs, and also to reductions in the quality of life (EU-OSHA, 2012). The recent survey by the European Agency for Safety and Health at Work (EU-OSHA) shows that the reported workplace psychosocial risk factors, such as dealing with difficult customers, time pressure, long or irregular working hours, communication problems, job insecurity, lack of influence, and workplace discrimination are the main contributors in terms of negative impacts on health and well-being (EU-OSHA, 2015).

Consequently, work-related stress has become one of the most widely reported work-related health problems after musculoskeletal disorders (backache and muscular pain) and fatigue among European workers (Eurofound, 2006). Nearly 14% of European labor workers suffered from stress, depression, and anxiety in 2007 (EU-OSHA, 2012), with an estimated almost half a billion workers reporting work-related stress as the most prevalent cause of ill-health (Eurofound, 2006). The European countries have also estimated that their economic losses due to work-related stress are approximately EUR 20,000 million annually (EU-OSHA, 2007). Of the 1.2 million workers who reported work-related illness in Great Britain within the period 2014–2015, 440,000 workers suffered from work-related stress with 9.9 million working days of lost time (Health and Safety Executive, 2014). Correspondingly, in another region, although more than 90% of Australian workers agree with the importance of mental health at work, nearly 50% of workers believe that their workplace is mentally

unhealthy (Beyondblue, 2014). In 2015, the Gallup US Daily survey revealed that 68% of US workers and 87% of workers worldwide were disengaged from their work (Adkins, 2015; Mann & Harter, 2016), and went on to report that they suffered from several physical and psychological problems (Harter & Adkins, 2015). Therefore, given the human and financial costs of psychosocial risks at work, this issue has become a major challenge, with greater attention needed to improve workplace management and prevention of psychosocial risks.

The consequences of psychosocial risks are not restricted to developed countries. With more than three-quarters of the global workforce population, the emerging economies and developing countries are also facing similar problems (Rosenstock, Cullen, & Fingerhut, 2006). In terms of the consequences, exposure to psychosocial risks and work-related stress has resulted in several severe mental and physical problems, and also in adverse health behaviors (Kortum, Leka, & Cox, 2010). For example, long working hours, excessive workload, lack of physical activity, and monotonous work have led to employees' fatigue, stress overload, and depression. In the worst-case scenario, growing numbers of *karoshi* (work to death) (Kanai, 2009) and *karo-jisatsu* (suicide due to overwork) (Kawanishi, 2008) among working adults are inevitable. Statistically, the suicide rate among Asian employees has reached 60% of the world's total number of suicides, with this particularly the case in Japan, South Korea, and China which are among the top five countries with the highest suicide rates (World Health Organization, 2006). Therefore, these problems have drawn attention to the importance of the health and economic impacts of psychosocial risks and work-related stress in developing countries (Kortum, 2011; World Health Organization, 2007).

However, lack of research has limited the understanding of psychosocial risks and work-related stress in developing countries (Burke, 2010; Idris, Dollard, & Winefield, 2010; Kortum et al., 2010). Therefore, this research, by taking into account

the need to examine this issue, focuses on working conditions in Malaysia, one of the fastest emerging economies among the developing Asian countries, and also in the top 20 best economies worldwide on the Global Competitiveness Index (Global Competitiveness and Benchmarking Network, 2014). Prior research has shown that Malaysian employees also experience several work-related psychological problems, such as psychological strain, burnout, depression, and turnover intention (Idris & Dollard, 2011; Idris, Dollard, & Winefield, 2011; Panatik, O'Driscoll, & Anderson, 2011; Panatik, O'Driscoll, & Anderson, 2009; Yulita, Idris, & Dollard, 2014). A national agency has also reported a similar pattern. For example, while most cases brought forward to the Department of Occupational Safety and Health in Malaysia are mainly in relation to physical consequences, psychological symptoms related to work remain under-reported. As a comparison, while the reported cases of occupational musculoskeletal diseases have dramatically increased from 10 cases in 2005 to 675 cases in 2014 (Department of Occupational Safety and Health, 2014), only one case of a psychosocial problem was reported in 2014 (Department of Occupational Safety and Health, 2015).

Having less reported data does not reflect that Malaysia is not confronted with psychosocial hazards and work-related stress as is the case in the other both developed and developing countries. Specifically, Idris et al. (2011) have revealed that Malaysian employees suffer from psychological problems (i.e., burnout) and unfavorable job conditions. In addition, the International Trade Union Confederation (ITUC), in its function as an international workers' rights watchdog, has listed Malaysia as one of the worst countries in the world in which to work, based on violations of workers' rights from April 2013–March 2014 (ITUC Global Rights Index, 2014). Therefore, it is not surprising that underpayment issues among contract workers in Malaysia have affected over 60,000 workers (Labour Bulletin, 2014). In addition, unfair labor practices, and an

autocratic work system and worker recruitment system have resulted in labor conditions which are equivalent to "modern slavery", especially among migrant workers (Labour Bulletin, 2014). In short, the psychosocial risks at work have worsened both in terms of organizational outcomes and the augmentation of employees' work-related problems. Therefore, this research is crucial as it focuses on the consequences of workplace psychosocial risks in Malaysia.

1.2 Psychosocial factors at work

Psychosocial factors, by broad definition, are a combination of human factors and the work environment. By definition, the term "psychosocial factors at work" refers to the "interaction between and among work environment, job content, organizational conditions and workers' capacities, needs, culture, personal extra-job considerations that may, through perceptions and experience, influence health, work performance, and job satisfaction" (International Labour Organization, 1986, p. 3). To put this more simply, they reflect employees' responses to other aspects outside themselves that are related to occupational conditions, with these responses based on their experiences, expectations, abilities, needs, and culture (International Labour Organization, 1986). Therefore, the manifestation of psychosocial factors depends on the individual's characteristics and social context and, more importantly, on the abilities and coping strategies of the employee himself/herself.

In the work environment, several negative psychosocial factors have been identified as potential hazards for both organizational and individual outcomes. These psychosocial risk factors (or hazards) are used to define aspects of "work design and the organization and management at work, and their social and environment contexts, which have the potential for causing psychological, social, or physical harm" (Cox, Griffiths, & Rial-Gonzalez, 2000, p. 14). These risk factors include erratic employment

practices, an unstable labor market, job insecurity, lean production, work intensification, long working hours, high emotional demands, and poor work–life balance (EU-OSHA, 2007). Specifically, psychosocial risk factors are categorized into three groups, namely, job characteristics, the social and organizational work context, and individual factors (Dollard & Knott, 2004; International Labour Organization, 1986). Although several characteristics of psychosocial risks have to date been identified, the issue of subjectivity remains a major challenge in understanding and assessing psychosocial risks at work. Nevertheless, the large impact of these risk factors on employee psychological health and well-being is inevitable, with the relationships between the factors having the potential to result in severe consequences for employee health and well-being.

1.3 Workplace stress theories

Initially, the term "stress" was characterized as the stimuli of the work environment, the responses to the environment's stimuli, and the interaction between stimuli and responses (Jex, Beehr, & Roberts, 1992). By definition, the term "stimulus" refers to any element from the work environment (it is also known by the term "stressor"), whereas the term "response" is defined as the reaction to the stimulus (job stressor) (Jex et al., 1992). Thus, the interaction between stimulus and response may result in unfavorable effects, known as "strain", as a response to the stressor (Jex et al., 1992; Kinman & Jones, 2005). Therefore, in relation to the workplace, stress represents the reactions to the imbalance between stressors (usually known as job demands) and job resources, which may include physiological, emotional, cognitive, and also behavioral responses.

The issue of job stress presents a major challenge to all parties within the work organization. Therefore, efforts to understand job stress have been proposed by the

growing number of job stress theories in the literature. Generally, most job stress theories were introduced in the Western context and have been adopted and/or adapted into the Eastern context (Liu, Spector, & Shi, 2007). Studies from both contexts have consistently shown that job characteristics have a profound impact on employee well-being (i.e., work engagement) and lack of well-being (i.e., job strain, burnout). For example, studies have revealed that high work pressures, emotional demands, and role conflict may lead to burnout and impaired health conditions (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Halbesleben & Buckley, 2004), whereas social support, job control, and autonomy lead to a motivational process of work engagement and organizational commitment (Bakker & Demerouti, 2007; Demerouti et al., 2001; Salanova, Agut, & Peiró, 2005).

Two influential theories, namely, the Job Demand–Control (JDC) model (Karasek, 1979) and the Effort–Reward Imbalance (ERI) model (Siegrist, 1996), have been predominant in the discussion of job conditions. The JDC model emphasizes job demands and job decision latitude (or job control) as two dimensions of the work environment. Job demands refer to psychological stressors in terms of workload and role conflict, whereas job control refers to employee's authority in the decision-making process and the skill variation to be used to fulfill job tasks (Karasek, 1979). In addition, the major assumption of the JDC model is that the interaction between job demands and job control influences psychological strain. Specifically, high strain occurs in conditions of high demands and low job control, whereas positive work-related outcomes occur when job demands and job control are both high, with this constituted as the "active job" (Karasek, 1979).

However, the JDC model only examines the interaction (or fit) between the work environment's job demands and job control, whereas the complexity of the work environment does not solely depend on these aspects. It also depends on the

combination of other different job demands and job resources, such as social support (Bakker, van Veldhoven, & Xanthopoulou, 2010). Therefore, a few years after its introduction, the JDC model was expanded by the addition of a social dimension and was consequently called the Job Demand–Control–Support (JDC-S) model (Johnson & Hall, 1988; Johnson, Hall, & Theorell, 1989). However, similar to the JDC model, the JDC-S model, by solely focusing on job demands, job control, and social support, is also lacking complexity in explaining working conditions.

While the JDC and JDC-S models focus on the external job characteristics of job demands and employees' level of job control, the second major job stress theory, known as the Effort–Reward Imbalance (ERI) model, emphasizes the structure between effort and reward in the workplace (Siegrist, 1996; Siegrist, Siegrist, & Weber, 1986). The term "effort" represents job demands and work obligations, such as time pressures and working overtime, whereas the term "reward" includes financial compensation (e.g., adequate salary); personal and social recognition or esteem (e.g., respect and support); and security or career opportunities (e.g., job promotion and job security). The ERI model has shifted the focus of job stress theory to the personal factors of effort and reward as a type of cost–benefit formulation: it assumes that failed reciprocity between effort and reward may elicit stressful experiences and negative work-related outcomes (Siegrist, 1996). The ERI model argues that work is characterized by high effort and low reward that represents a high costs and low gains relationship. This imbalance can be identified in working conditions with hard-working employees who receive inadequate appreciation. In addition, the ERI model focuses on the employee's cognition of the effort that one has invested and the expected rewards that one will be receiving.

However, the ERI model is also not completely relevant and is limited because it solely emphasizes the relationship between efforts by employees and the expected

rewards received from the manager or employer at work. Several scholars have argued that other types of job characteristics, such as emotional demands, supervisor and co-worker support, and performance feedback should also not be neglected (Bakker & Demerouti, 2007). Therefore, a new job stress theory, in the form of the Job Demands–Resources (JD-R) model, was introduced by incorporating all the possible job characteristics associated with employees' well-being (Bakker & Demerouti, 2007; Demerouti et al., 2001).

The JD-R model assumes that each occupation has its own specific risk factors and identifies job demands and job resources as two general work characteristics (Bakker & Demerouti, 2007). Contrary to the previous job stress theories which solely focus on the negative aspects of job conditions (e.g., the JDC model and the ERI model), the JD-R model explains a broad definition of job stress theory which integrates the positive and negative job characteristics and their positive and negative effects on employees' health and well-being. Thus, the JD-R model is a broad theory that can be applied in various work settings and cultures, and is thus applicable in both Western and Eastern cultures (Bakker & Demerouti, 2007).

Job demands refer to any physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological effort and are associated with certain physiological and/or psychological costs. On the other hand, job resources represent any aspect that is: (i) functional in achieving work goals; (ii) reduces job demands and the associated physiological and psychological costs; and (iii) stimulates personal growth, learning, and development (Bakker & Demerouti, 2007, p. 312). In addition, the specifications of job demands and job resources play an important role in the development of job strain and work motivation (dual processes) via the health erosion and motivational pathways (Demerouti et al., 2001). Health erosion pathways represent the chronic job demands that lead to burnout and other negative

psychological outcomes, whereas motivational pathways occur in conditions of high job resources that may inspire employee motivation (e.g., work engagement and organizational commitment).

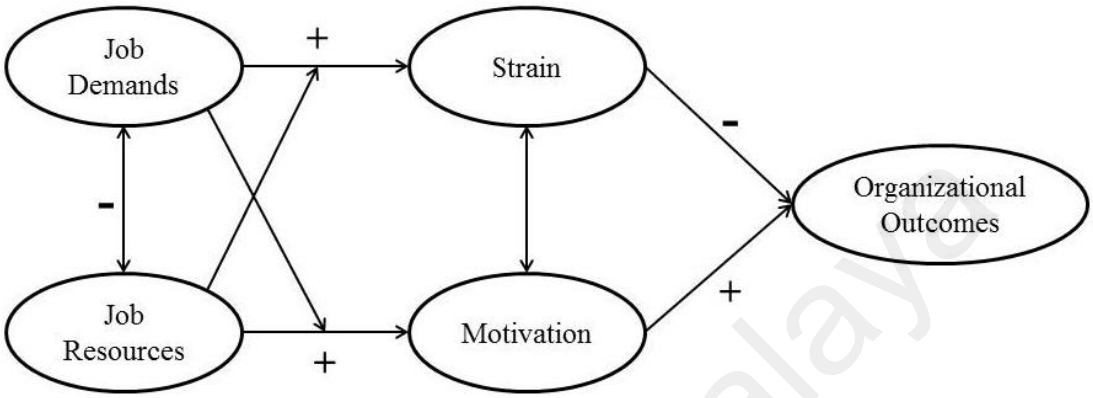

Figure 1.1: The Job Demands–Resources model (Bakker & Demerouti, 2007, p. 313)

In their study, de Jonge and Dormann (2003) criticized previous job stress theories as inadequate and having several limitations, especially due to their generalization of job demands and job resources that may actually consist of a broad range of elements. Later, they introduced the Demand–Induced Strain Compensation (DISC) model (de Jonge & Dormann, 2003, 2006). The DISC model recognizes the multidimensionality within job demands and job resources. Based on the argument that the work environment is associated with particular behavioral, cognitive, and emotional components, this model assumes that job demands, job resources, and job-related strains contain cognitive, emotional, and physical elements, thus known as the triple-match hypothesis (de Jonge & Dormann, 2003, 2006). Therefore, cognitive demands and cognitive resources are more likely to affect cognitive forms of strain (e.g., professional efficacy); emotional demands and emotional resources are more likely to influence emotional forms of strains (e.g., emotional exhaustion); and, lastly, physical demands and physical resources are more likely to affect physical forms of strain (e.g., musculoskeletal disorders and somatic complaints) (de Jonge & Dormann, 2003).

Although all of the models described above have their own assumptions in relation to employees' well-being, all of these models share the assumption that job demands are negative. Derived from the argument that job demands are not necessarily negative (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; LePine, LePine, & Jackson, 2004; LePine, Podsakoff, & LePine, 2005; Podsakoff, LePine, & LePine, 2007), the current research attempts to make the distinction in job demands of challenge demands and hindrance demands (LePine et al., 2004; LePine et al., 2005). Challenge demands are defined as job demands that are challenging and that support employees' personal growth and achievement (e.g., workload and time pressures), thus demonstrating a high similarity to job resources in the JD-R model (Cavanaugh et al., 2000). On the other hand, hindrance demands refer to job demands that threaten personal growth, such as role ambiguity, role conflict, role overload, and organizational politics, thus being very similar to the definition of job demands in the JD-R model (Cavanaugh et al., 2000). Several studies have supported this theory in which job demands can be perceived as a challenge or a hindrance. In addition, job demands are seen as being able to influence positive as well as negative work-related outcomes, such as motivation to learn, turnover intention, work engagement, emotional exhaustion, safety behavior, withdrawal behavior, and performance (Clarke, 2012; LePine et al., 2004; Podsakoff et al., 2007; Rodell & Judge, 2009; Van den Broeck, De Cuyper, De Witte, & Vansteenkiste, 2010)

Despite most job stress theories having consistently revealed job conditions to be significant contributors in understanding employees' psychological health and organizational outcomes, the recent trend in occupational research has also emphasized job conditions as an antecedent (the cause of the causes), particularly in relation to possible aspects of job design at work. Based on the assumption that jobs are created (Johns, 2010; Morgeson & Humphrey, 2008), job conditions can be affected by the

larger aspect of the work environment or other larger contexts. These include the organizational context (Morgeson, Dierdorff, & Hmurovic, 2010; Morgeson & Humphrey, 2008), the cultural aspect (Erez, 2010), or other external factors (Sauter & Murphy, 2003).

In relation to the current study, the research topic has been intentionally focused on the role of organizational context in creating job conditions. Specifically, there are several aspects of organizational context that can affect job design, such as organizational climate, organizational structure, organizational culture, and organizational system (Morgeson et al., 2010). In terms of consequences, several possible forms can be generated as a result of the linkages between organizational context and job design (Morgeson et al., 2010). For example, the organizational context may both promote and impact negatively on the positive characteristics of job design and the impact of job design on employee outcomes, such as job satisfaction.

To support this notion, the current research utilizes the meso-theory framework of organizational components that considers employees to be part of an organizational structure which is nested into several multilevel layers. For example, although employees are blamed if they suffer from psychological health problems or from lack of commitment, in fact, these symptoms are actually derived from the organizational context (Bliese & Jex, 1999). Logically, this is due to the fact that employees are part of the team level, while the team level is nested into subunits, followed by the organization level, strategic business group, and, finally, the performance environment (Mathieu, Maynard, Taylor, Gilson, & Ruddy, 2007). Therefore, the employee or the individual as the smallest unit within the organization may be influenced by the larger structure of the organization. Mathieu et al. (2007) have provided a good example of this situation as illustrated in Figure 1.2 below.

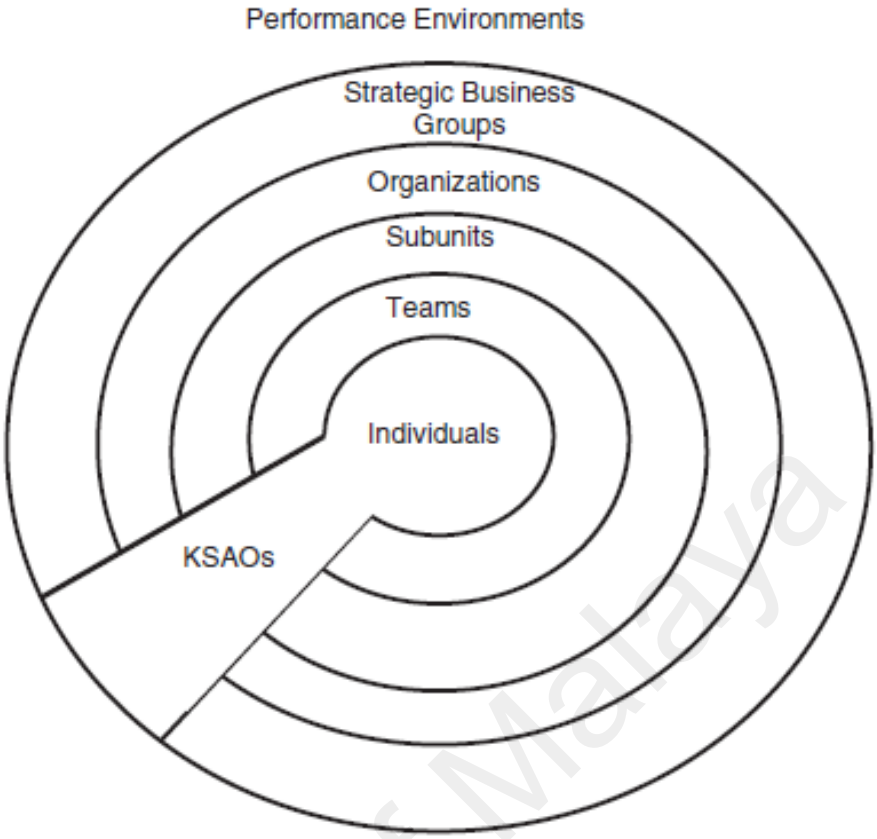

Figure 1.2: Meso-theory framework of organizational components (Mathieu et al., 2007, p. 892)
Note: KSAOs = Knowledge, Skills, Abilities, and Other (job-related characteristics)

By taking into account the notion that jobs are designed (Johns, 2010; Morgeson & Humphrey, 2008) and that phenomena that appear at the individual level are actually derived from the organizational level (Mathieu et al., 2007), the research framework is extended by using psychosocial safety climate (PSC; Dollard & Bakker, 2010) as the antecedent to job conditions. Specifically, the JD-R model is integrated with PSC and the study investigates how it influences positive and negative job demands (i.e., challenge–hindrance demands). Thus, the role of PSC is emphasized as an organizational property at the aggregated level that may buffer the impact of job conditions on negative employee health and well-being.

1.4 Psychosocial safety climate (PSC) and job conditions

In an effort to explain psychosocial risk factors and their impacts on individual-related outcomes and work-related outcomes in the workplace, psychosocial safety climate (PSC), as a facet-specific work climate, is used to explain the importance of psychosocial conditions for psychological health and safety at work. This climate was formally introduced by Dollard and Bakker (2010) after being initiated by the introduction of the PSC definition and the construction of the PSC survey in 2007 (Dollard, 2007; Dollard & Kang, 2007). Research on PSC was conducted in 2010 in the seminal study (Dollard & Bakker, 2010) among a sample of teachers in Australia to investigate the influence of PSC on psychological health and work engagement via job demands and job resources. Within the past few years, several studies exploring the specificity of PSC and its relationship to psychosocial risk factors at work have emerged in the literature.

As the most recent facet-specific climate construct on psychological health and safety, PSC refers to "a shared perception among the employees regarding policies, practices, and procedures that are largely driven by the senior management for the protection of employees' psychological health and well-being" (Dollard & Bakker, 2010, p. 580). In addition, PSC relates to freedom from psychological and social risks. Thus, the principal idea is that PSC flows from the upper management in the organization and influences working conditions by creating job tasks.

In line with the dimensions in the safety climate literature (Clarke, 1999; Flin, Mearns, O'Connor, & Bryden, 2000), PSC is characterized with four sub-dimensions that are derived from upper management's role in creating and maintaining a healthy work environment (Hall, Dollard, & Coward, 2010). Firstly, management priority emphasizes the role of managers/employers in prioritizing psychological health among employees. Secondly, management commitment refers to the commitment given by

management for the protection of employees' psychological health and well-being. Thirdly, organizational communication emphasizes the importance of good and effective communication for a better information distribution within the work organization. Finally, in organizational participation and involvement, all members in the organization participate and are involved in ensuring psychological health. Therefore, working conditions with high PSC will create healthy job demands that are conducive and motivating for employees' psychological health and well-being (Dollard & Bakker, 2010), whereas low PSC may ignore the high job demands scenario and the lack of resources at work which may lead to psychological problems and lack of well-being.

The notion of the linkages between PSC and job conditions has been well accepted and well researched in the past five years. The central idea is that PSC is a precursor to job conditions (i.e., job demands and job resources) and the work environment, with this known as PSC's primary function. Psychosocial safety climate (PSC) has been identified as a predictor that directly influences the unfavorable job conditions that lead to psychological health problems and lack of well-being. In their seminal research, Dollard and Bakker (2010) argue that PSC promotes a better work environment and diminishes negative work outcomes, particularly by using the JD-R model (Dollard & Bakker, 2010; Idris & Dollard, 2011; Idris et al., 2011). As a consequence, PSC is also partly a social determinant of employees' health and productivity (Dollard & Neser, 2013) as well as being a leading indicator and coping strategy of workplace bullying and workplace harassment (Bond, Tuckey, & Dollard, 2010; Kwan, Tuckey, & Dollard, 2014; Law, Dollard, Tuckey, & Dormann, 2011).

As a secondary function, PSC moderates the relationships between job conditions and outcomes, particularly the effect of job demands and workplace bullying on psychological health (Dollard & Karasek, 2010; Law et al., 2011). In conditions of

high PSC at work, the impact of job demands on psychological health is less than in a low PSC context. This secondary function also reflects that PSC is a safety signal, indicating to employees whether it is safe or not safe to utilize resources (e.g., personal resources or job resources) to cope with job demands (Law et al., 2011). However, in low PSC conditions, psychological health problems will increase due to the increase in high job demands at work.

Overall, PSC expands upon workplace stress theories with the basic tenet of PSC as an antecedent, and also as a moderator of, relationships between job conditions and outcomes (Dollard & Bakker, 2010). However, to avoid repetition, further explanations on organizational work climate, in general, and PSC, in particular, are extensively and systematically discussed in Chapter 2, the literature review chapter. Chapter 2 discusses the types of safety-related work climate identified that exist in the literature, and explores their similarities and/or the differences among them. The overview of the PSC theoretical framework is illustrated in Figure 1.3 below.

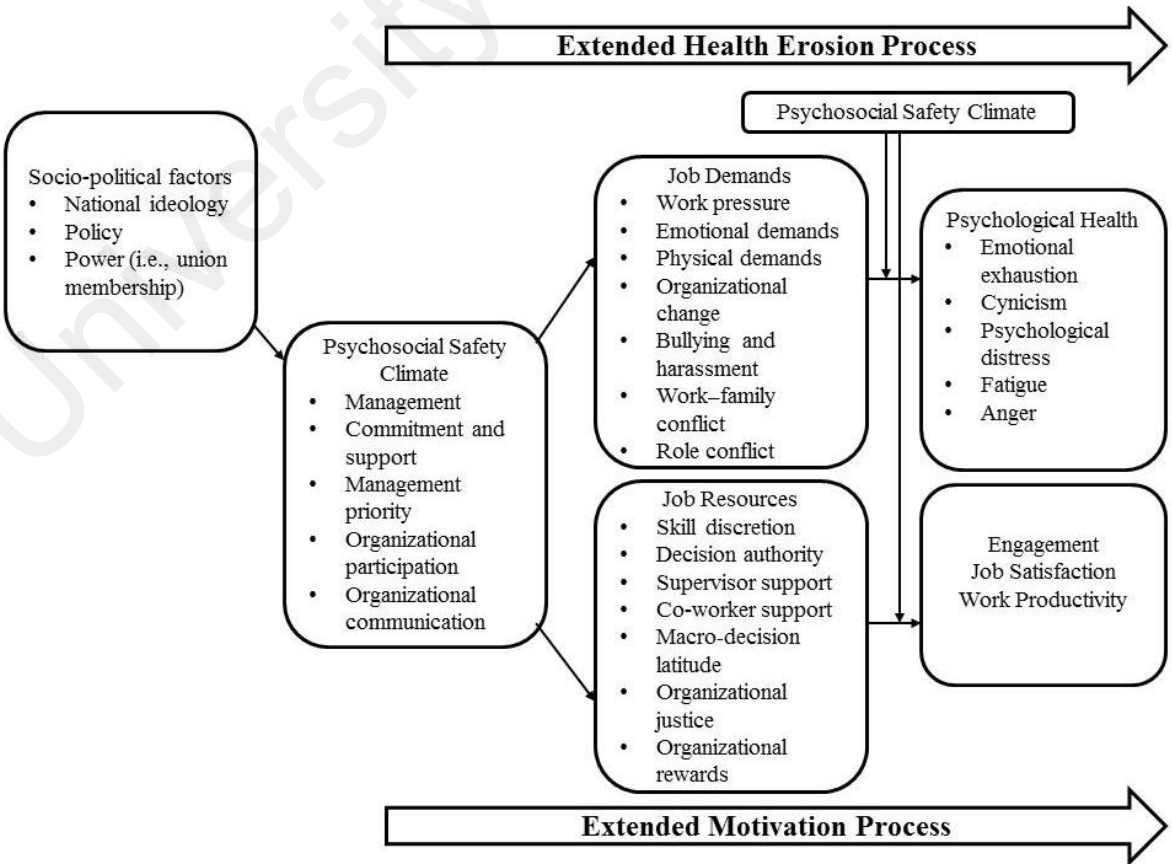

Figure 1.3: PSC theoretical framework (Zadow & Dollard, 2016, p. 420)

1.5 Climate congruence: Espoused vs. enacted PSC policies

The growing research interest in organizational climate has also led to consideration of alignment and/or misalignment between words and actions in relation to climate at work (i.e., climate congruence) (Simons, 2002; Zohar, 2000, 2003). Generally, climate congruence has been discussed in the safety climate literature by focusing on the priorities given to certain aspects at work (see Zohar, 2003). The terms "espoused policies" and "enacted policies" are used to refer to the distinction between workplace policies themselves and the actions that occur as a result of workplace policies.

Initially, espoused and enacted climate policies originated from the conceptualization of theories of action, namely, espoused theory and theory-in-use (Argyris & Schön, 1974). Espoused theory refers to the values and beliefs that are used to guide behaviors, whereas theory-in-use is defined as the actions taken based on these values and beliefs (Argyris & Schön, 1974). In other words, theory-in-use is the actual manifestation of espoused theory. The major assumption is the alignment between espoused theory and theory-in-use for the achievement of intended consequences and effective actions. However, if individuals are not aware of theory-in-use, they will not be able to manage behaviors and, consequently, will experience undesired consequences (Argyris & Schön, 1974). The espoused theory of action is the key to understanding human action because this theory is governed by a set of values that provide the framework for the action strategies chosen (Argyris, 1995, p. 20).

By focusing on PSC in the workplace context, work goals can be achieved when the espoused and enacted policies are aligned (Zohar, 2003). However, the information regarding actions that are rewarded can be identified by enacted policies, but not by espoused policies because outcomes are recognized after actions (Zohar, 2003). For example, the manager or employer plays a role by providing the right signal to their employees regarding the workplace priority. If employees receive the signal correctly,

they will perform accordingly and, as a result, they will be rewarded. Conversely, if employees receive and translate the signal incorrectly, they will not perform accordingly, and will be punished or will not obtain the expected results. Therefore, from the explanations above, we assume that employees' understanding of workplace policies is important in order for them to perform well at work and achieve the intended organizational outcomes. Thus, it is also important for employees to understand the workplace policies, practices, and procedures before taking any actions.

1.6 Research overview

As previously mentioned, organizational climate is one organizational context that is expected to influence job design (Morgeson & Humphrey, 2008). The current research postulates that PSC is one of the facet-specific organizational climates that may act as a precursor to job conditions. As illustrated in Figure 1.3, PSC can be a precursor to job conditions because it explains how a job is designed by higher-level management in the workplace (Dollard & Karasek, 2010).

Integrated with the JD-R model and positive job demands, PSC is also considered as an organizational resource and is expected to influence job demands and job resources (Dollard & Bakker, 2010). Low PSC at work could lead to poor job design with chronic job demands and less job resources, whereas high PSC may lead to job demands at manageable levels and provide more job resources to cope with these demands. Therefore, the current study integrates PSC with several job stress theories, particularly the JD-R model and challenge–hindrance demands. This research is focused on how PSC affects job conditions and work-related outcomes.

Moreover, the current research extended the research framework by not only treating PSC as a precursor to job conditions, but also as a moderator on job conditions in influencing work-related outcomes (i.e., emotional exhaustion and workaholism).

Psychosocial safety climate (PSC) is expected to buffer the relationships between support at work (particularly supervisory support) and emotional exhaustion, and also between emotional and cognitive resources (i.e., job resources) and workaholism. In summary, the issues regarding PSC have been mentioned as the rationale for the following series of studies, which comprise a multilevel study and a quantitative diary study, combined with a series of statistical and methodological approaches. Generally, the overview of the research framework is as illustrated in Figure 1.4.

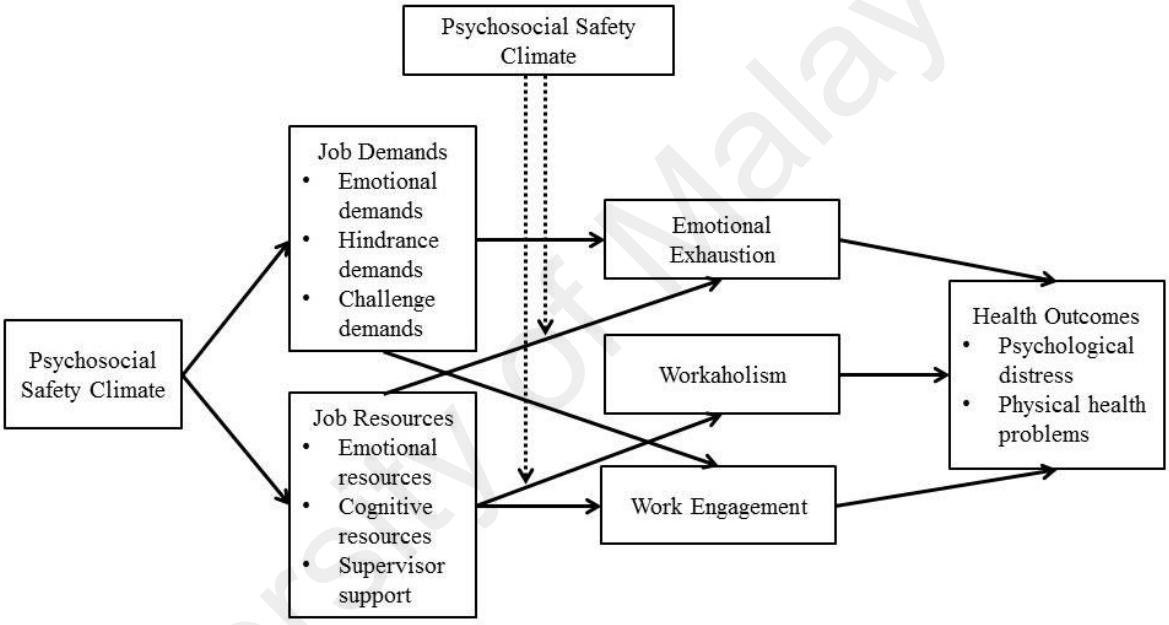

Figure 1.4: Research framework

1.7 Aims of the study

The aim of this research was to examine the role of a specific organizational climate, psychosocial safety climate (PSC) and its effect on job conditions (i.e., job demands and job resources) and on both health-related outcomes (i.e., emotional exhaustion, and physical and psychological distress) and work-related outcomes (i.e., work engagement and workaholism) in Malaysia. This study also explored the moderating effects of PSC on outcomes (i.e., emotional exhaustion and workaholism). In addition, the current study examined not only the specific issues regarding PSC and working conditions, but also revealed the non-Western perspective (particularly in Malaysia) of psychosocial

risk factors in the workplace. This study utilized a quantitative method (a multilevel survey study and a diary study) in order to scrutinize several aspects related to the work environment and their impacts on psychological and physical health, as well as on work motivation in Malaysia.

1.8 Research questions

This study scrutinizes the specific issues of organizational PSC from the Eastern context, and especially the Malaysian perspective. Overall, four major questions are addressed in this research as described below:

1. Does PSC influence positive and negative job demands in Malaysia, and is it also associated with physical health problems? (Article 1)
2. Does PSC have the potential to affect work attitudes (i.e., work engagement and workaholism) and psychological health via its effects on job resources (i.e., emotional resources and cognitive resources)? (Article 2)
3. What is the importance of the alignment between espoused PSC and enacted PSC (i.e., supervisor support) on daily psychological health and daily work motivation? (Article 3)
4. Can the variance of PSC be explained at a daily level, individual level, and school level, and is PSC related to job conditions and work-related outcomes at all levels? (Article 4)

1.9 Significance of the study

Generally, PSC has received increased attention from scholars with this indicated by the growing number of research studies on this topic conducted in both Western and Eastern contexts, and particularly in Australia and Malaysia. However, most studies have only relied on how PSC leads to job conditions, particularly using the Job

Demands–Resources (JD-R) model (Dollard & Bakker, 2010; Idris & Dollard, 2011; Idris et al., 2011). The current study attempts to fill the gaps not covered by the previous research as further explained below.

Firstly, most studies have emphasized the differentiation between PSC and its negative relationship with job demands and PSC and its positive relationship with job resources. Therefore, little is known about how PSC reacts with positive job demands (i.e., challenge demands) (Cavanaugh et al., 2000; LePine et al., 2004; LePine et al., 2005). To the best of the researcher's knowledge, most studies, particularly in Malaysia, have focused on the distinction between job demands as negative and job resources as positive, neglecting the possibility of positive job demands. Moreover, prior studies have also relied on the indirect relationship between PSC and work-related outcomes via job conditions. Only a few studies have utilized PSC as a moderator in their research (Dollard, Tuckey, & Dormann, 2012; Garrick et al., 2014). In addition, no known studies have examined whether PSC is able to influence the workaholism phenomenon at work, particularly by focusing on job resources.

Secondly, prior research on PSC has predominantly employed a multilevel approach with a two-level analysis by testing the effect at either the team level or the organizational level on individual work-related outcomes (Dollard & Bakker, 2010; Dollard, Opie, et al., 2012), while a few studies have used the individual level of analysis (Idris & Dollard, 2011; Idris et al., 2011). To date, no known studies have examined PSC by employing more than a two-level analysis (i.e., a three-level analysis design) in a multilevel approach. To the best of the researcher's knowledge, only Dollard, Opie, et al. (2012) have attempted to use a three-level analysis for PSC; however, they were unable to use it due to insignificant random variance, and finally decided not to proceed with it and to continue to use a two-level design. Therefore, it remains unclear whether PSC can be explained by using a three-level analysis design.

The current study has attempted to investigate the influence of PSC on job conditions and work-related outcomes by using not only a two-level design, but also an innovative three-level design following Bryk and Raudenbush's (1988) recommendation for more appropriate research conceptualization.

Thirdly, research on PSC has mainly relied on cross-sectional designs (Idris & Dollard, 2011; Idris, Dollard, & Tuckey, 2015), while some studies have attempted to explore PSC by using longitudinal designs (Dollard & Bakker, 2010; Dollard, Opie, et al., 2012; Idris et al., 2015). While a longitudinal study is considered one of the appropriate methods for solving common method variance (Podsakoff & Organ, 1986), a diary study is also considered an appropriate approach for studying psychosocial risk factors because it enables work experiences to be captured in a short period of time (Bolger, Davis, & Rafaeli, 2003; Ohly, Sonnentag, Niessen, & Zapf, 2015). To date, except for Garrick et al. (2014), no studies on PSC have utilized the diary method. Therefore, this limitation has encouraged the current research to use a diary study in order to explore the effect of PSC on employees' everyday working lives.

As supported by the previous discussion, the time interval in research should also be given considerable attention (Frese & Zapf, 1988). To date, the time lags in psychosocial risk factors research have been predominantly meso-term intervals (one month up to one year); however, there has been an increased call for variations in the time lags used in this research (Dormann & Van de Ven, 2014). As a consequence, scholars have recommended applying shorter time lags (less than one month) for a better understanding of the stressor–strain process (Dormann & Van de Ven, 2014). Therefore, the current study has utilized both a meso-term interval (a four-month interval) in a longitudinal study and short-term intervals (one-day interval) in a diary study for better understanding of the effects of psychosocial factors.

Finally, the current study was conducted outside the Western context in which most work health knowledge has been built. The study contributes to the body of knowledge by scrutinizing how the Western concepts of PSC operate in an Eastern work setting, in particular, in Malaysia. This study makes a significant contribution to the job stress literature by exploring the impact of job conditions on employees' health and well-being. It also provides more comprehensive findings to add to our understanding of PSC in Malaysia by adopting the most recent methodological research design in the job stress area with the combination of a multilevel longitudinal design and a multilevel diary design. The current study seeks to fill the knowledge gaps by employing two different types of methods as well as using two different samples. The current research has been conducted by using a more complex sample with representative sample sizes among Malaysian employees, specifically, among police personnel in Peninsular Malaysia and teachers in the State of Selangor, Malaysia. By using a similar construct to that used in previous research (Dollard & Bakker, 2010; Idris et al., 2011), the current research adds to the body of knowledge by modifying several aspects, such as the construct variables used, and using recent methods of data collection (i.e., a longitudinal study and a diary study) and an innovative analytical approach, thus following recent research trends and future recommendations made by previous studies. These modifications are expected to provide a better understanding in regard to the psychosocial conditions in Malaysia and their impacts on Malaysian employees' psychological health and well-being. Further explanations of the research stages in the current study are presented in more detail below.

1.10 Research context

In relation to the occupational sectors in prior PSC research, the examination of PSC and how it influences working conditions and individual outcomes has been well

researched in various occupational sectors from both public and private sectors. For example, PSC research in Australia has been conducted among teachers (Dollard & Bakker, 2010; Garrick et al., 2014); police officers (Bond et al., 2010; Dollard, Tuckey, et al., 2012); nurses (Dollard, Opie, et al., 2012); and using a population-based study (Bailey, Dollard, McLinton, & Richards, 2015; Hall, Dollard, Winefield, Dormann, & Bakker, 2013).

To the best of the researcher's knowledge, although PSC research in the Malaysian context has been conducted among employees from various sectors (Idris & Dollard, 2011; Idris, Dollard, Coward, & Dormann, 2012; Idris et al., 2015; Kwan et al., 2014), none of these studies have intentionally emphasized a specific occupation. Therefore, the current study has focused on two specific occupations, namely, police personnel and school teachers. Both of these occupations have been recognized among the 26 most stressful occupations, ranking in the top 10, including both public and private sectors (Johnson et al., 2005). Studies have revealed that levels of stress were reported for both occupations with less job satisfaction (ranked 3rd for police and 6th for teachers) and lower physical health and psychological well-being (ranked 9th for police and 2nd for teachers) than the average scores (Johnson et al., 2005).

As previously mentioned, police work ranks among the most stressful occupations (Dantzer, 1987; Terry, 1981), due to frequent exposure to potentially traumatic events, particularly in relation to threats, violence, and conflicts at work (Johnson et al., 2005). The poor work environment with its irregular working hours and shiftwork, as well as insufficient resources and workplace bullying, have worsened working conditions and put police personnel at high risk of work-related stress, for example, post-traumatic stress disorder (PTSD), the symptoms of depression and anxiety, and aggressive behavior (Bond et al., 2010; Gershon, Lin, & Li, 2002; Maguen et al., 2009; Wang et al., 2010). As with police work, being a teacher is considered to be

stressful as this occupation is also quite challenging (Borg & Riding, 1991; Travers & Cooper, 1993). High workloads and unconducive classroom conditions with aggressive student behavior have meant that teachers are prone to the high risk of burnout (Bauer et al., 2006).

Similar to Western findings, the policing and teaching professions are also considered to be stressful occupations in Malaysia (Masilamani et al., 2013; Segumpan & Bahari, 2006). The major contributors to police stress in Malaysia include the exposure to violence; administrative problems; lack of resources (support, training, and facilities); workload; rank; and low salaries (Masilamani et al., 2013; Royal Malaysian Police, 2005). Overall, the police–population ratio in Malaysia is 1:270, which exceeds the global standard ratio of 1:250 (REFSA, 2011), with Malaysia also having a high crime rate (Sidhu, 2005). For example, the crime rate in Malaysia increased almost 50% within the four years from 2003–2007, and increased by about 9% in the period from 2006–2007 (Centre for Public Policy Studies, 2008). In addition, Malaysia has been categorized among the five countries with the highest crime index in the Asia region, being ranked first (with the highest crime rate) in the Southeast Asia region over the past five years. In 2016, Malaysia is second highest in the high category in the crime index for the Asia region (68.55 points), and is in the low category in the safety index (31.45 points) (Numbeo, 2016). These conditions have forced police personnel to work under pressure and have also exposed them to higher levels of risk or harm.

In the teaching profession, student attitudes, excessive workload, and lack of recognition have become the major causes of teacher stress in Malaysia (Segumpan & Bahari, 2006). According to statistics from the Education Management Information System (EMIS) of the Ministry of Education Malaysia, the ratio in 2014 between teachers and students was 1:12 (Ministry of Education, 2014). Given the prevalence of the impacts on health and well-being in both professions and also the limited research

from the Eastern perspective and, in particular, the Malaysian perspective, it is imperative that both of these occupational sectors are intentionally examined as the main subject in this study.

1.11 Overview of research stages

In order to achieve the aims of the study, this research was designed to include three research stages, consisting of a systematic literature review in the first stage, and followed by two stages of data collection.

Stage 1 of the current study utilized a systematic literature review to contrast PSC and two other safety-related climate constructs, safety climate and psychological climate. In this stage, the existing published journals were reviewed in regard to the related topics. With the utilization of searches of three databases, PsycARTICLES@EBSCOhost, Academic Search Complete, and ISI Web of Knowledge, 331 articles were identified for further selection processes. In the final process, 88 articles were selected for final review from 29 journal publications (please refer to Chapter 2 for further details).

Stage 2 and 3 represent data collection process. Since the current study employed a multilevel design, group level sample (Level 2 unit) and individual level sample (Level 1 unit) are regarded as important (Maas & Hox, 2004, 2005). As suggested, the minimum number of group level sample size is 30 (ranging from 30 to 100) groups and each group is represented by at least 5 (ranging from 5 to 50) individuals (Kreft & de Leeuw, 1998). However, recent multilevel empirical studies in both Western and Eastern contexts have also utilized lower number of group level sample size ranging from 16 to 27 groups/teams/organizations to represent Level 2 unit (Dollard & Bakker, 2010; Dollard, Tuckey, et al., 2012; Idris et al., 2012; Idris, Dollard,

& Yulita, 2014), consistent with Snijders and Bosker's (1999) interest in multilevel design with more than 10 groups level sample size.

Stage 2, the first data collection stage, focused on a two-wave longitudinal study among 909 police personnel (58 departments) from the Contingent Police Headquarters in Bukit Aman, Peninsular Malaysia (at Time 1), and 392 police personnel (26 departments) at Time 2. The interval time between the date collection at Time 1 and Time 2 was four months.

Stage 3 focused on a diary study among high school teachers in the State of Selangor, Malaysia. In this stage, the study involved 109 teachers (23 schools), each of whom filled in daily diary information over five consecutive working days. In total, 545 diary events were collected from the respective teachers (109 x 5 days). Further details regarding data collection are illustrated in Figure 1.5 below.

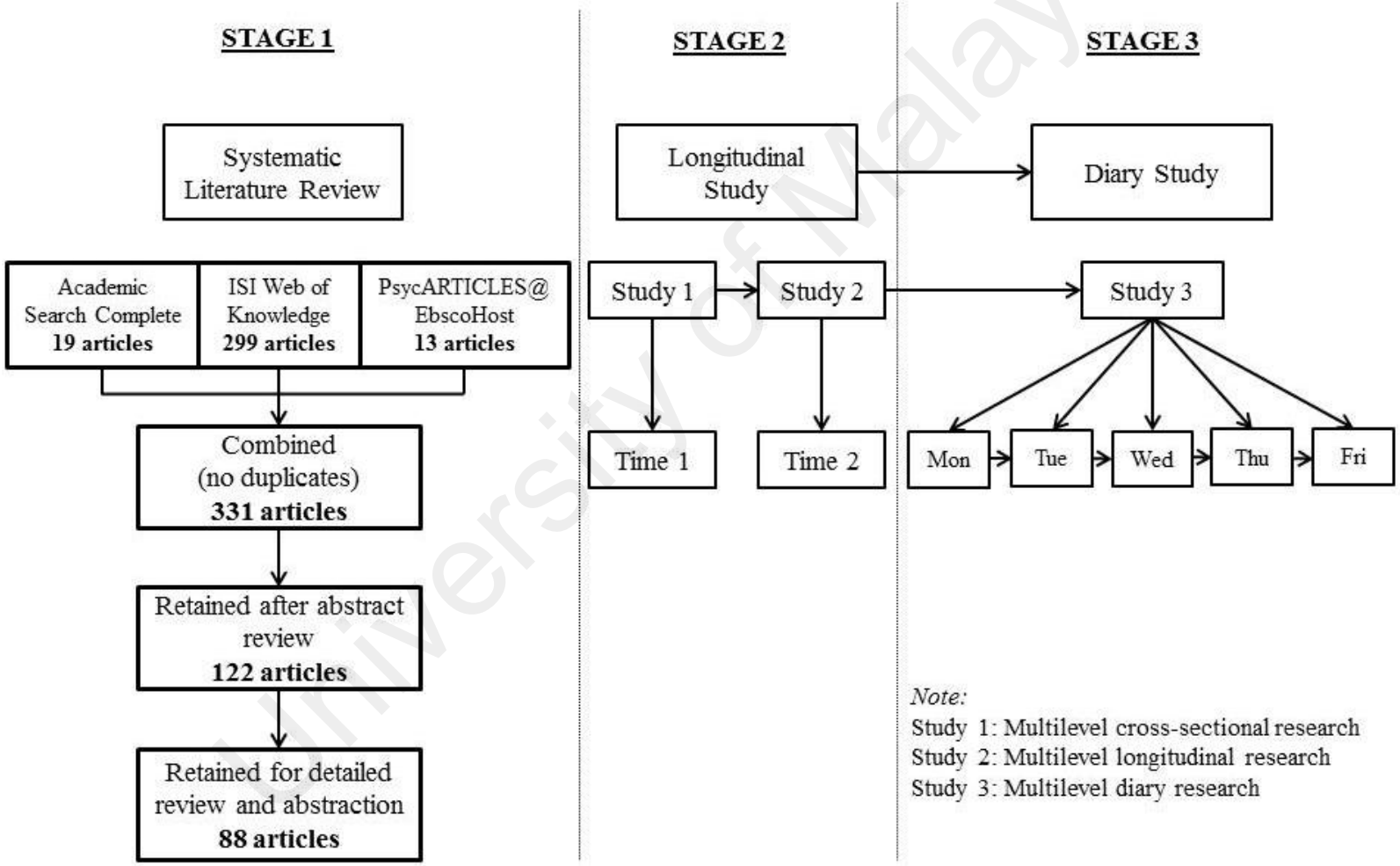

Figure 1.5: Research stages

1.12 Thesis structure

Overall, this thesis is structured in three parts. Part 1 of the thesis introduces the concept of organizational work climate by using a systematic literature review. This part summarizes information reported in the literature regarding several facet-specific climates for safety (i.e., safety climate, psychological climate, and psychosocial safety climate [PSC]). This method enables us to understand the work climate research trends in the area of job stress.

Part 2 focuses on the multilevel cross-sectional and longitudinal studies undertaken in the current research that examine the role of PSC on job conditions and work-related outcomes among police personnel. Details of these studies can be found in Chapter 3 and Chapter 4 of the thesis. Chapter 3 explores the relationships between PSC and both positive and negative job demands (i.e., challenge and hindrance demands), and how it associates with physical health problems. In addition, Chapter 4 discusses how PSC influences psychological health via motivational mechanisms (work engagement and workaholism) among police personnel.

In Part 3, the emphasis is on exploring how the organizational climate of PSC affects daily work engagement and daily emotional exhaustion. Details of the study are reported in Chapter 5 and Chapter 6. In Chapter 5, the study focuses on how the alignment between espoused PSC (organizational-level PSC) and enacted PSC (supervisor support) affects teachers' psychological health (i.e., emotional exhaustion) and work engagement at the daily level. In general, Chapter 6 focuses on the three-level design of PSC, namely, the school level, individual level, and daily-level experiences, and explains how school-level PSC influences the individual and daily levels of job conditions and work-related outcomes. The structure of the thesis chapters is outlined in Table 1.1 below.

Table 1.1: Summary of thesis chapters

Chapter	Title	Remarks
1.	General introduction	
2.	Literature review (systematic literature review)	**Accepted paper** Safety-related work climate: Past, present and future research. (Part of this chapter has been accepted for publication as a book chapter in the 2nd edition Asia Pacific book to be published by Springer: Yulita, Idris, M. A., & Dollard, M. F. (2016). Psychosocial safety climate: Past, present and future research. In A. Shimazu, R. Bin Nordin, M. F. Dollard & J. Oakman (Eds.), *Psychosocial factors at work in the Asia Pacific: From theory to practice* (in press).
3.	A multilevel study of psychosocial safety climate, challenge and hindrance demands, employee exhaustion, work engagement and physical health.	**Published paper** Yulita, Idris, M. A., & Dollard, M. F. (2014). A multilevel study of psychosocial safety climate, challenge and hindrance demands, employee exhaustion, engagement and physical health. In M. F. Dollard, A. Shimazu, R. Bin Nordin, P. Brough & M. R. Tuckey (Eds.), *Psychosocial factors at work in the Asia Pacific* (pp. 127-143). The Netherlands: Springer.
4.	Psychosocial safety climate, job resources, work attitudes, and psychological distress: A multilevel longitudinal study among Malaysian police personnel.	**Reviewed paper (2nd revision)** Yulita, Idris, M. A., & Dollard, M. F. (2015). *Journal of Organizational Behavior*
5.	Climate congruence: How espoused and enacted psychosocial safety climate affect emotional exhaustion and work engagement.	**Submitted paper** Yulita, Dollard, M. F., & Idris, M. A. (2016). *Journal of Occupational Health Psychology*
6.	A three-level between-groups, between-persons, within-person analysis of psychosocial safety climate.	**In preparation for submission**
7.	Conclusion, limitations, future research directions, and research implications	

CHAPTER 2: LITERATURE REVIEW

SAFETY-RELATED WORK CLIMATE: PAST, PRESENT AND FUTURE RESEARCH

Abstract

A systematic review was conducted to review facet-specific climates for safety (or *safety-related work climate*) by comparing three major "safety" climates that have been featured in the literature. Specifically, we sought answers regarding the roles, impacts, research trend, and challenges for safety-related climate research. From our search of the three databases employed, 331 articles were identified of which 88 articles qualified for the review. We found that each type of safety-related climate research has its own specific outcomes, in which safety climate is related to physical health and behavior towards safety, whereas psychological climate and psychosocial safety climate are associated with psychological health. In addition, as research interest in this area is growing, the research trend can be recognized from the use of various sampling and climate attributes, with most of these climates employed as the antecedent and moderator, and few as mediator. From the review, we suggest that more research should be encouraged to obtain a bigger and clearer picture of safety-related work climate by considering several challenges, such as the simultaneous use of multiple climates, multilevel modeling, research time lag, and advanced research designs. Finally, this review provides a better understanding safety-related work climate research and shows that the climate for safety crucial for improving health and work quality.

Keywords: safety climate; psychological climate; psychosocial safety climate; systematic review

2.1 Introduction

Safety risks at work have become a global concern due to their great impact on employees' health and their economic damage (EU-OSHA, 2014). For example, in 2008, approximately 2.5 million workers died due to work-related injuries and diseases, and about 317 workers suffered from non-fatal accidents at work (International Labour Organization, 2011). Specifically, over 20 million European workers have experienced health problems due to work, whereas workplace accidents leading to death reached over 5,500 cases within period 1999–2007 (Eurostat, 2010). In relation to economic losses, the annual cost of work-related injuries, for example, in New Zealand has reached NZ$3.5 billion (Workplace Health & Safety, 2012). In the United Kingdom (UK), the total cost of injury and illness at work reached approximately £14.3 billion in 2013 (Health and Safety Executive, 2013). Given the remarkable human and economic costs of work injuries and fatalities, greater attention must be given to workers' safety within organizations.

Since the tragedy of Chernobyl in 1986, there has been growing research interest in investigating the importance of safety at work in relation to employees' risks, safety attitudes, and organizational performance (Mearns & Flin, 1995; Nahrgang, Morgeson, & Hofmann, 2011). However, as "safety" is a broad concept, its conceptualization not only refers to physical safety (Zohar, 1980), but also to other research paradigms focusing on psychological and psychosocial aspects. Scholars have attempted to propose their own definition of "safety" by introducing the concept of psychological safety (Edmondson, 1999) and, more recently, the psychosocial approach (Dollard & Bakker, 2010). Although these three concepts each refer to safety, it remains unclear whether these climates are all distinct from one another.

To date, there are few studies that have used a systematic literature review to investigate particular features of the work climate. In their review, Kuenzi and

Schminke (2009) have attempted to recapture the origins and consequences of organizational work climate research. Their review successfully captured the distinction between global and facet-specific climate that existed in the literature during the period from 1980 to 2008. However, it did not specifically focus on "safety" issues, but more on the generalization of organizational climate. By contrast Clarke (2006), in her meta-analysis study, focused specifically on issues of safety climate and its outcomes rather than exploring the possibility of other climate constructs for safety.

The main purpose of the present review paper is to explore facet-specific climates for safety (or *safety-related work climate* [SRC]) by comparing three major "safety" climates that have been featured in the literature, namely, safety climate, psychosocial safety climate, and psychological safety. This review enables us to identify research conducted to date on organizational safety-related climate and to examine the issues that need to be answered regarding the roles, impacts, level of measurement, and future challenges of safety-related climate research.

2.2 Safety climate vs. psychosocial safety climate vs. psychological safety

In general, work climate has been discussed since the 1960s (Litwin & Stringer, 1968). Work climate emerged as an important antecedent to both individual and work outcomes. A growing number of studies of organizational climate have consistently shown that this concept is not only interesting, but also crucial in explaining employees' behavior and its consequences at work. Consequently, research in this area has grown dramatically, and has led to the emergence of several specific work climate concepts, with their own specific outcomes, such as physical safety (Clarke, 2006); service (Schneider, 1980, 1990; Schneider, White, & Paul, 1998); innovation (Anderson & West, 1998); diversity (McKay, Avery, & Morris, 2008); justice (Nauman & Bennet,

2000); and ethical climate (Victor & Cullen, 1988). Each climate has its own unique features and its consequences for employees at work.

A similar specificity trend also appeared in the development of the climate construct related to safety. For example, nearly two decades after the introduction of the term "safety climate" in 1980, with its emphasis on physical injury and risks to safety (Zohar, 1980, 2000), Edmondson (1999) introduced the specific safety climate construct for psychological safety. Unlike safety climate which focuses on physical health, psychological climate or psychological safety is more associated with psychological and performance outcomes (Edmondson, 1999). More recently, the concept of psychosocial safety climate (PSC) was distinguished and introduced in the literature (Dollard, 2007; Dollard & Bakker, 2010). Unlike both physical safety and psychological safety, PSC is a specific organizational climate that is believed to be able to create a conducive working environment (i.e., low job demands vs. higher job resources) which, in turn, influences positive outcomes for the individual and work outcomes (Dollard & Bakker, 2010; Idris et al., 2012).

By definition, the term "safety climate" is known as a climate for physical health that refers to employees' perceptions of the work environment in relation to safety (Griffin & Neal, 2000). Psychosocial safety climate (PSC), although using a different conception, is derived from safety climate terminology. In their seminal work on PSC, Dollard and Bakker (2010) explain the definition of PSC as "policies, practices, and procedures for the protection of worker psychological health and safety" (p. 580). Moreover, psychological safety reflects the interpersonal risk-taking of the individual when considering whether it is safe or not safe to engage with work based on their own perception of the work environment (Edmondson, 1999).

Furthermore, while psychological safety focuses on individuals' feelings of being safe to perform their work role and to undergo changes in their work without fear

of negative consequences (Edmondson, 1999), both safety climate and PSC are concerned about management initiative and priority in creating safe working conditions. The only aspect that distinguishes safety climate and PSC is the focus on specific outcomes. While the former focuses on physical safety or preventive procedures that keep employees safe from any physical harm, the latter is more focused on a prevention strategy for employees to avoid psychological harm or damage to their well-being. In other words, while safety climate attempts to reduce or prevent any physical threat at work (Zohar & Luria, 2005), PSC is concerned with reducing negative consequences to employees from any psychosocial hazards (Dollard & Bakker, 2010). Psychological safety, on the other hand, has an emphasis on the consequences of interpersonal risks as perceived by the individual. Psychological safety strives to give meaning to the work environment in relation to whether it is safe to seek help and take risks, while also augmenting the chance for learning behavior and achieving performance at work (Edmondson, 1999, 2003).

Climate differences may also be explained by using the fundamental approach of climate perceptions. In general, there are two main approaches in investigating work climate (Ostroff, Kinicki, & Tamkins, 2003). As argued by Reichers and Schneider (1990), work climate should be defined as employees' shared perception of the work environment. By using this approach, scholars conceive that organizational climate should be measured by accumulating the collective perceptions from employees within the same work unit or organization (Kozlowski & Klein, 2000). While this approach seems to have dominated organizational climate research, another school of thought considers work climate to be individuals' cognitive representations of their work environments (James & Sells, 1981). The differences between these two perspectives not only reflects the way in which work climates are defined, but has influenced the methodological approach regarding how the data are collected and the measurement

tools used. For example, most shared perception research to date has recommended referent shift approach, such as “in my team” (e.g., Idris et al., 2012), whereas the use of “I” is more obvious among the cognitive approach (e.g., Brown & Leigh, 1996). Consequently, although most studies of organizational climate have utilized a group approach, other scholars have investigated this area of research by using the individual level.

The different approaches to “individual” and “shared” perceptions not only influence the definition of “climate”, but also affect the way in which safety-related climates are modeled in the research framework. Although some studies on safety-related climate have utilized the cognitive approach of individual perceptions (e.g., Cheyne, Cox, Oliver, & Tomás, 1998; Hall et al., 2013; Idris & Dollard, 2011; Rundmo, 2000), the majority of these climate studies have used a shared perception approach (e.g., Idris et al., 2015; Zohar & Luria, 2005). In addition, having been defined as employees’ perceptions (regardless of whether these are individual or shared perceptions), these climates have been employed as the antecedents in predicting outcomes for the individual and work outcomes. For example, safety climate predicts safety behavior at work (Zohar & Luria, 2005). Similarly, psychological safety and PSC have been used to predict psychological health and performance (Dollard & Bakker, 2010; Edmondson, 1999). However, these climates can also be utilized as mediators and moderators in predicting outcomes, thus leading to the complexity of safety-related climate research.

Due to the complexity of this research paradigm, it is necessary to make a further clarification regarding safety-related climates. Our emphasis is on the past and present empirical findings and on the focus in their studies which may provide information for the current research trend as well as presenting the challenges for future

research and research ideas. We believe that this review provides a better understanding on safety-related climates, and offers guidelines for improvement of future research.

2.3 Review procedure

We included all possible types of facet-specific climate for safety, regardless of their level of analysis. We searched for published empirical studies that used the terms "work", "climate", and "safety". We conducted a series of searches by using several databases, specifically PsycARTICLES@EBSCOhost, Academic Search Complete, and ISI Web of Knowledge. The search was not limited by the year of publication. We formulated a set of search strings which combined the terms "organizational climate", "work climate", and "safety climate" with all the terms entered simultaneously. Our search was restricted to only peer-reviewed journals. In addition, the selected journals were not limited to the management and psychology fields, but also came from other fields, such as business and occupational health, and were indexed in the Social Sciences Citation Index. We omitted any articles on meta-analyses or systematic literature reviews; this yielded 331 articles; we continued the search by reviewing the abstract and full-text review of each article: this yielded 88 articles from 29 different journals (Table 2.1), with 243 articles discarded due to being on irrelevant topics.

Several questions were asked to guide the review. Firstly, what are the impacts of the safety-related climate? We explored the consequences of safety-related climate for individual health and well-being, and for work-related outcomes. Secondly, what are the roles of safety-related climate? We examined the role of safety-related climate as the antecedent, mediator, or moderator in the research framework. Thirdly, what is the research trend in safety-related climate and its level of measurement? We examined the research method applied, the sample selection and the level of analysis used over time.

Finally, we provided several challenges for future research improvement, in terms of climate usage, multilevel modeling, research time interval, and research design.

Table 2.1: Journals used in the work climate review

Academy of Management Journal
Administrative Science Quarterly
American Journal of Public Health
Accident Analysis and Prevention
Anxiety, Stress & Coping: An International Journal
Applied Ergonomics
Canadian Journal of Administrative Sciences
European Journal of Work and Organizational Psychology
European Psychologist
Human Relations
International Journal of Hospitality Management
International Journal of Occupational Safety and Ergonomics
International Journal of Stress Management
Journal of Applied Psychology
Journal of Business and Psychology
Journal of Loss Prevention in the Process Industries
Journal of Management
Journal of Organizational Behavior
Journal of Occupational and Organizational Psychology
Journal of Occupational Health Psychology
Journal of Safety Research
Journal of the Academy of Marketing Science
Journal of Vocational Behavior
Management Science
Personnel Psychology
Safety Science
Scandinavian Journal of Psychology
Stress and Health
Work & Stress

Tables 2.2, 2.3, and 2.4 present descriptive information on the safety-related climate research, including: the organizational work climate measurement; information about the sample; design of the study; level of analysis; the role as antecedent and its consequences; mediation and moderation of analysis involved in the study; and a summary of key results. We organized the report arrangement based on the year of publication, from older dates to the most recent year, for research on each type of safety-related climate. In addition, we used specific terms for each type of safety-related

climate by identifying (physical) safety climate as “safety climate” (Zohar, 1980); psychological (safety) climate as “psychological climate” (Edmondson, 1999); and “psychosocial safety climate” (Dollard & Bakker, 2010) to avoid misunderstanding of the climate terms.

Table 2.2: Summary of safety climate studies

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Zohar (1980)	Safety climate; 40-item consists of 8 dimensions of safety climate (developed measure)	20 industrial organizations in Israel	Cross-sectional & interview/ multiple-range test/ organizational level		Safety program effectiveness		Perceptions of management about safety and perceptions of the relevance of safety were two of the eight safety climate dimensions that were highly correlated with safety program effectiveness.
Cheyne et al. (1998)	Safety climate; 4 items of physical work environment questionnaire by Tomás and Oliver (1995), and 30-item scale of safety issues adopted from Cox and Cox (1991) and Tomás and Oliver (1995), as cited in Cheyne et al.	915 employees from a manufacturing organization in the UK and France	Cross-sectional/ structural equation modeling (SEM) and analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA)/ individual level	Organizational variables (safety management and safety standards); environmental evaluation (physical work environment and workplace hazards); attitudes to group process variables (personal involvement, individual responsibility, and	Safety activity	Safety management as a mediator of the relationship between safety standards and workplace hazards.	Safety standards and goals were positively related to safety management and personal involvement. Safety management was positively related to personal involvement, communication and physical work environment, and negatively related to workplace hazards. Personal involvement, communication and workplace hazards were positively associated with individual responsibility. Individual responsibility and physical work environment were

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(1998)			communication)			positively related to safety activities.
Griffin and Neal (2000)	Safety climate; 4 subscales of safety climate (Study 1) and 5 subscales of safety climate (Study 2)	Study 1: 1,403 employees from 7 Australian manufacturing and mining organizations. Study 2: 326 employees from 3 Australian manufacturing organizations	Cross-sectional/SEM/ individual level	Safety climate	Study 1: safety knowledge; safety performance (safety compliance and safety participation) Study 2: safety knowledge; motivation (compliance motivation and participation motivation); safety performance (safety compliance and safety participation)	Study 1: safety knowledge as a mediator of the relationship between safety climate and safety performance. Study 2: safety knowledge and motivation as mediators of the relationship between safety climate and safety performance.	Safety climate was positively associated with safety knowledge, motivation, and safety performance.
Rundmo (2000)	Safety climate; 4 dimensions of safety	730 respondents of 13 plants in the	Cross-sectional/SEM	Safety climate	Risk behavior		Safety climate was positively related to safety behavior and negatively related to risk

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	climate (Rundmo (1998), as cited in Rundmo (2000)	USA and Canada					behavior.
Varonen and Mattila (2000)	Safety climate; 32 variables by following Seppälä (1992), as cited in Varonen and Mattila (2000)	508 employees in 1990 and 548 employees in 1993 from 8 wood-processing companies in Southern Finland	Cross-sectional/ correlation matrix and factor analysis (Kaiser–Meyer–Olkin test index)/ individual level	Safety climate	Safety practices; safety of work environment; occupational accidents		Safety climate was more strongly correlated with the safety of the work environment than with the safety practices of the company. High safety climate reduced the accident rate at the company. Four out of eight companies with an accident rate below the average had a better safety climate that four other companies with an accident rate above the average.
Zohar (2000)	Group-level safety climate; (developed group-level measurement)	534 production workers in 53 work groups in a manufacturing company	Cross-sectional/ hierarchical linear modeling (HLM)/ multilevel	Safety climate perception	Subunit injury and personal injury		The perception of safety climate influenced injury at the subunit level and the individual level. Safety climate predicted micro-accident records over 5 months.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Gillen, Baltz, Gassel, Kirsch, and Vaccaro (2002)	Safety climate; 9-item scale of safety climate for construction sites developed by Dedobbeleer and Béland (1991) and based on work of Brown and Holmes (1986) which was adapted from Zohar (1980), as cited in Gillen et al. (2002)	255 injured construction workers in California (union membership = 27%)	Telephone interview/ hierarchical multiple regression/ individual level	Perceptions of workplace safety climate measure score	Decision latitude; social support; injury severity; union status		Safety climate scores were positively correlated with injury severity and union status. Union workers reported a higher level of safety climate perception than non-union workers. There was a negative relationship between safety climate measure score and social support.
Zohar (2002)	Safety climate; 10-item questionnaire from Zohar (2000)	411 production workers (42 work groups) in a metal processing plant company in Israel	Cross-sectional/SAS mixed procedure/ group level and department level	Leadership style (transformational, laissez-faire, corrective transactional, and constructive)	Injuries	Safety climate as a mediator of the relationship between leadership style and injury; assigned safety priority as a moderator of the relationship between	Transformational and constructive leadership predicted injury rate. The corrective and laissez-faire leadership were negatively related to safety climate, whereas the transformational and constructive transactional leadership were positively associated with safety climate.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
						leadership style and safety climate.	
Hofmann, Morgeson, and Gerras (2003)	Safety climate; safety climate measure revised and updated version of Zohar (1980)	94 individuals in 25 teams in the US Army transportation unit	Cross-sectional/ HLM/ multilevel	Leader–member exchange	Safety citizenship behavior; safety citizenship role definitions	Safety citizenship role definitions as a mediator of the relationship between leader–member exchange and safety citizenship behavior; safety climate as a moderator of the relationship between leader–member exchange and safety citizenship role definitions.	The positive relationship between leader–member exchange and safety citizenship role definitions was moderated by safety climate. In a condition of positive safety climate, safety behaviors are seen as responsibilities that need to be done, whereas the relationship was not found if safety climate was not positive.
Mearns, Whitaker, and Flin (2003)	Safety climate; Offshore Safety Questionnaire (Mearns, Flin, Fleming, & Gordon, 1997; Mearns, Flin,	682 employees (Year 1) and 806 employees (Year 2) in 13 UK Continental Shelf oil and	Longitudinal/ multilevel	Safety climate	Safety performance; self-reported accident; official accident reports		Safety climate as a leading indicator of safety performance. Safety climate was also related to lower proportions of self-reported accident involvement and also official accident reports in

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	Gordon, & Fleming, 1998; Rundmo, 1994, 1996), as cited in Mearns et al. (2003)	gas installations					Year 1 only, not in Year 2.
DeJoy, Schaffer, Wilson, Vandenberg, and Butts (2004)	Safety climate; 7 items of the National Institute for Occupational Safety and Health (NIOSH) Safety Climate Scale (Dejoy, Murphy, & Gershon, 1995), as cited in DeJoy et al. (2004)	2,208 employees of a large national retail chain in 21 locations in the USA	Cross-sectional/ hierarchical, multiple regression analysis	Work situation (environmental conditions, safety-related policies and program, organizational climate)	Perceived work safety	Safety climate as a mediator of the relationship between work situation and perceived safety at work.	Exposure to hazardous environment was negatively related to safety climate. Safety policies and program had the strongest effect on safety climate followed by organizational support. The evidence for the safety climate mediation role was limited for safety policies and program.
Probst (2004)	Organizational safety climate; 16 items (Neal, Griffin, & Hart, 2000), as cited in Probst	136 manufacturing employees in the Pacific Northwest USA	Cross-sectional/ multivariate multiple regression analysis	Job security	Safety outcomes (safety knowledge, safety compliance, accidents, and	Safety climate as a moderator of the relationship between job insecurity and safety outcomes.	Safety climate was positively related to safety knowledge and safety compliance, and negatively associated with accidents and workplace injury. At a high level of

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(2004)				injuries)		safety climate perception, the relationship between job insecurity and safety outcomes became weak.
Siu, Phillips, and Leung (2004)	Safety climate; 45 items of Safety Attitude Questionnaire (SAQ) to measure safety attitude and 7 items to measure communication (Donald & Canter, 1993), as cited in Siu et al. (2004)	Sample 1: 18 qualitative in-depth interviews Sample 2: 374 construct-ion workers on 27 construction sites in Hong Kong	Cross-sectional/EQS program	Safety climate (safety attitudes and communication)	Safety performance (accident rates and occupational injuries)	Psychological distress as a mediator of the relationship between safety attitude and accident rates.	Safety attitudes were negatively related to occupational injuries and not to accident rates. The hypotheses proposed were partially supported as significance could be found on the relationship between safety attitudes and accident rates via psychological distress.
Katz-Navon, Naveh, and Stern (2005)	Safety climate; 4 dimensions of safety climate measure (Brunsson & Jacobsson, 2000; Hofmann & Stetzer,	632 employees in 47 hospital units from 3 hospitals in Israel	Cross-sectional/EQS program 6.0 and SEM/ unit level	Safety climate (safety performance, safety information flow, managerial safety practices, and priority of safety)	Treatment errors on patient safety; unit safety performance	Safety priority as a moderator of the relationship between safety procedure and safety performance, and between safety information flow	Perceived safety procedures, safety information flow, and perceived managerial safety practices were significantly related to unit safety performance in a curvilinear relationship. The level of unit safety priority influenced the curvilinear effect of safety

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	1998; O'Reilly, 1980; Zohar, 2000), as cited in Katz-Navon et al. (2005)					and safety performance.	procedures on safety performance, with the high-priority curve less steep than the rises in the low-priority curve, whereas no significant relationship was found at the intermediate level.
Naveh, Katz-Navon, and Stern (2005)	Safety climate; 4 dimensions of safety climate (Brunsson & Jacobsson, 2000; Hofmann & Stetzer, 1998; Zohar, 2000), as cited in Naveh et al. (2005)	Phase 1: 241 staff members in 21 medical units of acute care in general hospital, with this cross-validated in Phase 2 Phase 2: 218 staff members in 15 units in another hospital	Cross-validated/ hierarchical moderated regression analysis/unit level	Safety climate dimensions: safety procedures suitability and safety information flow (independent variables), managerial safety practices (moderating variable), and priority to safety (mediating variable)	Treatment errors at unit level	Managerial safety practices as a moderator of the relationship between safety information flow and treatment errors; as well as between safety procedures suitability and treatment errors. Priority to safety as a mediator of the relationship for both safety procedures and safety information flow on treatment errors.	Safety climate dimensions (i.e., safety procedures) were negatively related to unit's rate of treatment errors. Safety procedures and safety information flow were related to safety priority. All the mediating findings were partially mediated.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Zohar and Luria (2005)	Safety climate; 27 items which then reduced to16 items, some based on Zohar (2000)	3,952 production workers in 401 work groups from 36 small to medium-sized manufacturing plants	Cross-sectional/ organizational level and group level (multilevel)	Organization-level safety climate; group-level safety climate	Safety behavior; climate variability	Group-level safety climate as a mediator of the relationship between organization-level safety climate and safety behavior. Routinization as a moderator of the relationship between organization-level safety climate and group-level safety climate.	Organization-level safety climate strength was negatively related to between-group climate variability.
Hofmann and Mark (2006)	Safety climate; 9-item safety climate measure from Zohar (1980)	1,127 nurses in 81 general medical-surgical nursing units in 41 hospitals in the USA	Longitudinal/ unit level	Safety climate	Medication errors; nurse and patient outcomes (nurse back injuries, patient urinary tract infections, patient satisfaction, patient perceptions of	Patient complexity as a moderator of the negative relationship between safety climate and both nurse back injuries and medication	Safety climate was negatively related to nurse back injuries, medication errors, and patient urinary tract infection. Safety climate was positively associated with patient satisfaction, patient perceptions of nurse responsiveness, and nurse satisfaction. The positive

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
					nurse responsiveness, and nurse satisfaction)	errors.	safety climate was related to fewer incidents and errors, and higher satisfaction and perception levels.
Huang, Ho, Smith, and Chen (2006)	Safety climate; developed items (Huang, Chen, Krauss, & Rogers, 2004; Huang, Chen, Rogers, & Krauss, 2003; Huang, Shaw, & Chen, 2004), as cited in Huang et al. (2006)	2,680 employees in 18 manufacturing, construction, service, and transportation companies in the USA	Cross-sectional/SEM AMOS 4.0	Safety climate (management commitment to safety, return-to-work policies, post-injury administration, and safety training)	Self-reported occupational injury	Safety control as a mediator of the relationship between safety climate and self-reported injury.	Safety climate was positively related to safety control.
Neal and Griffin (2006)	Safety climate; safety climate measure from Neal et al. (2000)	135 employees from 33 work groups in Australian hospitals	Longitudinal/ MLwiN/ individual level and group level (multilevel)	Safety climate	Lagged effect on individual safety motivation		Group-level safety climate was positively related to individual-level safety motivation.
Smith, Huang, Ho, and Chen (2006)	Safety climate; 14 items (Huang et al., 2006)	33 industrial companies in the USA	Cross-sectional survey and objective data/ linear	Safety climate	Objective data of injury rates		Safety climate was negatively related to injury rates. Higher and positive safety climate was associated with lower injury

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
			regression analysis				rates.
Wallace, Popp, and Mondore (2006)	Safety climate; 9-item scale adapted from Zohar (2000); 9-item scale of organizational support climate (Eisenberger, Huntington, Hutchison, & Sowa, 1986); 15-item scale of management–employee relations climate (Lucias, 1994), as cited in Wallace et al. (2006)	9,429 delivery drivers in 253 centers (work groups) in the USA	One-month survey, and accident data collected for the next 12 months/ LISREL 8.54/ group level	Organizational support climate; management–employee relations climate	Occupational accidents	Safety climate as a mediator of the relationship between organizational support climate and occupational accidents; safety climate as a mediator of the relationship between management–employee relations and occupational accidents.	Safety climate was negatively related to accident rate. Organizational support and management–employee relations were positively related to safety climate and negatively related to accidents. The mediation analyses were fully mediated.
Wills, Watson, and Biggs (2006)	Safety climate; 6 factors of safety climate questionnaire,	323 employees of 3 organizations: local	Cross-sectional/ hierarchical regression	Safety climate factors (communication, work pressures,	Work-related driving behavior		Several aspects of safety climate (safety rules, communication, and management commitment)

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	modified version of Glendon and Litherland (2001), as cited in Wills et al. (2006)	government councils, state government agency; and private industrial in Queensland, Australia	analysis/ individual level	relationships, driver training, management commitment, and safety rules)			were strongly related to work-related driving behavior.
Huang, Chen, DeArmond, Cigularov, and Chen (2007)	Safety climate; 14-item safety climate measure (Huang et al., 2006; Smith et al., 2006)	1,351 employees of 16 companies in 6 industries	Prospective design: cross-sectional survey and objective data injury frequencies)/ STATA 8.0/ individual level and company level (multilevel)	Safety climate	Perceived injury risk	Safety climate as a moderator of the relationship between work shift and perceived injury risk.	Safety climate was related to perceived injury risk and night shift work. In conditions of poor safety climate among night shift workers, higher risks of injury were reported than in conditions with positive safety climate. This condition was not found for day shift workers.
Lee, Wu, and Hong (2007)	Safety climate; 23-item scale developed by Wu (2001), as cited in Lee et al. (2007)	121 employees in 113 facilities in Taiwan	Cross-sectional/ regression analysis	Safety climate	Organizational citizenship behavior	Job satisfaction and organizational commitment as mediators of the relationship between safety	Safety climate was positively related to work attitude (job satisfaction and organizational commitment).

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
						climate and organizational citizenship behavior.	
Mark et al. (2007)	Safety climate; 25 items from Zohar (1980)	1st round: 4,911 nurses (collected workplace information) 2nd round: 3,689 nurses (collected organizational structure and safety climate information) 3rd round: 3,272 nurses (collected organizational effectiveness information) Data collected from 281 nursing units in	Three-wave longitudinal/ Mplus/ multilevel	Safety climate; organizational structure (work engagement and work conditions)	Organizational effectiveness (needle sticks and back injuries)	Safety climate as a moderator of the relationship between work engagement and needle sticks; safety climate as a moderator of the relationship between work conditions and needle sticks; safety climate as a moderator of the relationship between work conditions and back injuries.	Safety climate was positively related to work engagement and work conditions, and negatively related to back injuries.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
		143 hospitals in the USA					
Lu and Tsai (2008)	Safety climate; 47 safety climate attributes of safety attitude-related dimensions	291 seafarers in 31 vessel companies in Taiwan	Cross-sectional/ logistic regression analysis/ individual level	Safety climate (management safety practices dimension, supervisor safety practices, safety attitude, safety training, job safety and co-worker safety practices)	Vessel accidents		Job safety was the strongest predictor on vessel accidents, followed by safety practices and safety training dimension.
Probst, Brubaker, and Barsotti (2008)	Organizational safety climate; 8 items conducted by the Labor Education and Resource Center of the University of Oregon and funded by the National Institute for Occupational	1,390 employees of 38 construction companies in the Northwestern USA	Cross-sectional/ simple regression analysis	Safety climate	Workplace injury and illness rates; underreported injury rates		Safety climate was negatively related to workplace injury rates and unreported injury rates. The more positive safety climate had significantly lower rates of unreported injury rates.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	Safety and Health (NIOSH)						
Baba, Tourigny, Wang, and Liu (2009)	Safety climate; 10-item perceived safety climate measure from (Zohar, 2000)	485 major international airline employees in China	Cross-sectional/ moderated linear hierarchical regression/ individual level	Proactive personality	Individual performance; organizational citizenship behavior (conscientious-ness and altruism)	Safety climate as a moderator of the relationship between proactive personality and individual performance; emotional exhaustion together with safety climate as moderators of the relationship between proactive personality and role overload (three-way interactions).	The perceived safety climate was positively related to organizational citizenship behavior. With conditions low in emotional exhaustion and low safety climate, proactive personality was negatively related to role overload.
Cavazza and Serpe (2009)	Safety climate; 4 dimensions (Cheyne et al., 1998; Clarke,	345 blue-collar workers of 3 industrial companies in	Cross-sectional/SEM AMOS 4.0/ individual level	Safety climate (company safety concern, senior managers' safety	Safety norm violations (unsafe behavior) towards personal	Individual ambivalence as a mediator of the relationship	Three out of four dimensions of safety climate (company safety concern, senior managers' safety concern, and

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	2006; Flin et al., 2000), as cited in Cavazza and Serpe (2009)	North Italy		concern, supervisors' attitudes towards safety, and work pressure)	protective equipment	between safety climate and safety norm violations regarding the use of personal protective equipment.	supervisors' attitudes towards safety) were positively related to individual ambivalence, whereas work pressure was negatively related to individual ambivalence.
Cigularov, Chen, and Stallones (2009)	Safety climate; 5 items modified from Zohar (2000); Safety locus of control; 5 items modified from Jones and Wuebker (1985), as cited in Cigularov et al. (2009)	244 adolescent farm workers from 202 farm families in Colorado, USA	Telephone survey (cross-sectional)/ moderated regression analysis/ individual level	Safety climate; safety locus of control	Open communication about errors at work	Safety climate as a moderator of the relationship between safety locus of control and open error communication.	Safety locus of control and safety climate was positively related to open error communication.
Keren, Mills, Freeman, and Shelley (2009)	Safety climate; 33-item scale developed measure from the extensive	117 employees of a manufacturing facility in Iowa, USA	Survey Monkey/linear regression/ individual level	Safety climate	Safety orientation in decision making; selection of safer choices		Safety climate was not significantly related to decision making, but positively related to selection of safer choices.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	review						
Vinodkumar and Bhasi (2009)	Safety climate; 62-item scale with 8-dimension modified scale (Cox & Cheyne, 2000; Glendon & Litherland, 2001; Neal et al., 2000; Varonen & Mattila, 2000; Vredenburgh, 2002; Williamson, Feyer, Cairns, & Biancotti, 1997; Zohar, 1980), as cited in Vinodkumar and Bhasi (2009)	1,806 employees in 8 chemical industrial units in Kerala, India	Cross-sectional/SEM AMOS 4.0/ individual level	Safety climate	Accident rates		Safety climate was negatively related to self-reported accident rates. Higher safety climate scores showed lower accident rates.
Hope, Øverland, Brun, and	Safety climate; 46-item Norwegian	9,601 offshore workers of 52 offshore	Cross-sectional/ hierarchical	Risk perception; safety climate	Sleep quality		Risk perception was negatively related to safety climate. Safety climate was

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Matthiesen (2010)	Offshore Risk and Safety Climate Inventory (NORSCI)	installations on the Norwegian Continental Shelf	multiple regression/ individual level				positively related to good sleep quality. Higher risk perception and negative safety climate were significantly associated with poor subjective sleep quality.
Jiang, Yu, Li, and Li (2010)	Safety climate; 14-item mainly adapted scale (Evans, Glendon, & Creed, 2007; Glendon & Evans, 2007), as cited in Jiang et al. (2010)	23 work units of 631 participants in 2 petroleum and chemical companies in China	Cross-level/ HLM/ individual level and unit level (multilevel)	Safety climate	Safety behaviors (safety compliance and safety participation); safety performance (self-report injuries and self-report near-misses)	The unit level of safety climate as a moderator of the relationship between perceived safety knowledge/ behavior and safety behavior; safety behaviors as moderators of the relationship between perceived safety knowledge/ behavior and injuries, but not with near-misses.	Higher levels of safety climate increased the effect of perceived safety knowledge/ behavior on safety behavior, whereas, with lower levels of safety climate, the effects became weaker.
Kath, Magley, and Marmet	Safety climate; 6-item scale with	599 grocery store employees of	Cross-sectional/ HLM/	Safety climate (group upward safety	Organizational trust; organizational	Individual organizational trust as a	Group-level safety climate was related to individual-level organizational trust, job

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
(2010)	2 dimensions (Hofmann & Morgeson, 1999; Neal & Griffin, 2006)	97 work groups in New England, USA	individual level and department level (multilevel)	communication and group management attitudes toward safety)	outcomes (safety motivation, job satisfaction, and turnover intentions)	mediator of the relationship between safety climate on safety motivation and job satisfaction (partial mediation); individual organizational trust as a mediator of the relationship between safety climate and turnover intentions (full mediation); job safety relevance as a moderator of the relationship between safety climate and organizational trust.	satisfaction, and safety motivation. The relationship between safety climate and organizational trust became stronger in conditions of high job safety relevance.
Kath, Marks, and Ranney	Safety climate; 25-item scale (Dedobbeleer	636 railway workers of the Canadian	Cross-sectional/ hierarchical	Safety climate (management safety attitudes,	Upward safety communication		Leader–member exchange and safety climate (management safety attitudes and safety job

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
(2010)	& Béland, 1991; Hofmann & Stetzer, 1996; Mueller, DaSilva, Townsend, & Tetrick, 1999; Zohar, 1980), as cited in Kath, Marks, et al. (2010); 7 items of supervisor–employee relationship measure (Wayne, Shore, & Liden, 1997), as cited in Kath, Marks, et al. (2010); 3 items of perceived organizational support measure (Eisenberger et	Pacific Railway	multiple regression analysis	safety peer pressure, and safety job demands); leader–member exchange; organizational support			demands) were positively related to upward safety communication.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	al., 1986), as cited in Kath, Marks, et al. (2010)						
Mearns, Hope, Ford, and Tetrick (2010)	Safety climate; 7-item scale (Basen-Engquist, Hudmon, Tripp, & Chamberlain, 1998), as cited in Mearns et al. (2010) Health climate; 6-item scale (Basen-Engquist et al., 1998), as cited in Mearns et al. (2010)	1,932 employees from 31 offshore installations of 7 oil and gas companies in the UK	Cross-sectional/ *R 1.6.2* software/ worksite level and individual level (multilevel)	Health investment practices; safety climate; health climate	Safety compliance; commitment		Health investment practices were positively related to safety compliance and commitment. Worksite level of safety climate was positively associated with individual safety compliance and commitment. Health climate did not predict safety compliance and commitment.
Morrow et al. (2010)	Safety climate; 19-item measure (Zohar, 1980)	421 mechanical workers of a large North American railroad	Cross-sectional/SEM and Probability SAS Macro/ individual level	Safety climate (management safety, co-worker safety, and work–safety tension)	Unsafe behavior		Safety climate was related to unsafe behavior. Management safety and co-worker safety were negatively related to unsafe behavior, whereas

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
							work–safety tension was positively related to unsafe behavior. Co-worker safety was the weakest predictor to unsafe behavior, whereas work–safety tension had the strongest influence on unsafe behavior.
Payne, Bergman, Rodríguez, Beus, and Henning (2010)	Safety climate; 12-item safety climate perception measure (Baker et al., 2007; Zohar & Luria, 2005), as cited in Payne et al. (2010)	7,728 manufacturing employees from 62 sites	Online survey and organizational data of site incidents one year before (lagging) and after (leading) online survey/ site level (group level) and individual level (multilevel)	Safety climate as leading and lagging indicator (employees' beliefs about systems and processes to prevent large backlogs, good routine housekeeping, and employees' perceptions about prompt correction health safety issues)	Incidents (environmental impact, fire/ explosion and property damage)		The lagging indicator of site-level employees' beliefs about systems and processes to prevent large backlogs was negatively related to level 2 environmental impact incidents. The lagging and leading indicators of good routine housekeeping and employees' perceptions about prompt correction health safety issues were negatively related to environmental impact incidents and fire/ explosion. Good routine housekeeping was the lagging indicator to property damage incidents.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Probst and Estrada (2010)	Safety climate; 16-item scale (Neal et al., 2000)	425 employees from various industries and organizations in the USA	Cross-sectional/ individual level	Safety climate	Unreported accidents	Safety climate as a moderator of the relationship between reported and unreported accidents.	Safety climate was negatively related to reported and unreported accidents.
Nielsen, Mearns, Matthiesen, and Eid (2011)	Safety climate; 16 items of the Safety Climate Questionnaire (Zohar & Luria, 2005)	986 Norwegian offshore workers of 2 major unions	Cross-sectional/ hierarchical regression analysis/ individual level	Safety climate; risk perception	Job satisfaction	Safety climate as a moderator of the relationship between risk perception and job satisfaction.	Safety climate was positively related to job satisfaction. In the condition of high safety climate perception, the relationship between risk perception and job satisfaction became weaker.
Tomás, Cheyne, and Oliver (2011)	Safety climate; 27-item scale by Cheyne et al. (1998)	1,234 employees in industries in Valencia, Spain (individual level) 544 employees from 91 organizations (same participants as above-mentioned)	Cross-sectional/SEM with latent variables/ individual level and company (group) level (multilevel)	Safety climate (safety management, personal involvement, communication, and individual responsibility)	Accident occurrence (near-misses, minor accidents, accidents with three-days off and severe accidents with three or more days off); safety climate and attitude	Individual attributes as a mediator of the relationship between safety climate and accident occurrence.	Safety climate was positively related to safety behavior and attitude.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
		(group level)					
Wu, Chang, Shu, Chen, and Wang (2011)	Safety climate; 15 items of safety climate scale modified from Wu, Liu, and Lu (2007), as cited in Wu et al. (2011)	521 employees from 23 plants in 7 departments of petrochemical companies in Taiwan	Cross-sectional/SEM AMOS 5.0/ individual level	Safety leadership	Safety performance	Safety climate as a mediator of the relationship between safety leadership and safety performance.	Safety leadership was positively related to safety climate. Safety climate was positively associated with safety performance.
Arcury, O'Hara, et al. (2012)	Safety climate; 10-item perceived safety climate scale from Gillen et al. (2002), as cited in Arcury, Mills, et al. (2012)	300 Latino migrant farmworkers from North Carolina, USA	Cross-sectional/SAS 9.2/ individual level	Safety climate	Health problems (musculoskeletal discomfort and depression); safety (working while injured)		Farmworkers perceived work safety climate to be poor and it related to musculoskeletal discomfort and safety. Work safety climate was not associated with the elevation of depression.
Brondino, Silva, and Pasini (2012)	Safety climate; 12 items of organizational safety climate adopted from Zohar and Luria (2005)	Cross-sectional/991 blue-collar workers from 91 work groups in 5 Italian manufacturing	Cross-sectional/ Mplus 5.2/ individual level and work group level (multilevel)	Safety climate (organizational, supervisor, and co-workers' safety climate)	Safety behaviors	Supervisor safety climate as a mediator of the relationship between organizational safety climate	Organizational safety climate was significantly related to supervisor and co-workers' safety climate at both individual and group levels. Co-workers' safety climate was more strongly related to

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	and Neal et al. (2000); 10 items of supervisor safety climate adapted from Zohar and Luria (2005); 12 items of co-workers' safety climate adapted from Zohar and Luria (2005)	companies				and co-workers' safety climate at the individual level; co-workers' safety climate as a mediator of the relationship between organizational safety climate and safety behaviors, and between supervisor safety climate and safety behaviors at the individual level.	safety behaviors than supervisor safety climate at both individual and group levels.
Fernández-Muñiz, Montes-Peón, and Vázquez-Ordás (2012)	Safety climate; based on extensive review work of numerous previous research studies	131 firms in Spain	Cross-sectional/SEM/ group level	Safety climate (management commitment, incentives and rewards, and organizational communication)	Safety behaviors; incentives for safety behaviors; work pressure; effect on communication and information transmission		Management commitment was positively related to incentives for safety behaviors and communication, and negatively related to work pressure. Communication was positively related to safety behaviors.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Fugas, Silva, and Meliá (2012)	Safety climate; 6-item scale modified from Zohar and Luria (2005)	356 transportation workers in Spain	Cross-sectional/SEM AMOS 17.0/ individual level	Safety climate	Safety attitude; perceived behavioral control over safety; safety behaviors (compliance and proactive safety behaviors)	Co-workers' descriptive safety norms and safety attitudes as mediators of the relationship between safety climate and proactive safety behaviors; supervisors' injunctive safety norms and perceived behavioral control over safety as mediators of the relationship between safety climate and compliance safety behaviors.	Safety climate was directly and positively related to co-workers' descriptive safety norms, supervisors' injunctive safety norms, safety attitudes, and perceived behavioral control over safety.
Bosak, Coetsee, and Cullinane (2013)	Safety climate; 26 items of Offshore Safety Questionnaire (Fleming,	856 non-management employees of a chemical manufacturing	Cross-sectional/ hierarchical regression analysis/	Safety climate (management commitment to safety, priority to safety, and	Self-reported risk behaviors	Priority to safety and pressure for production as moderators of the relationship	All safety climate dimensions were significantly related to risk behaviors. Management commitment was negatively related to risk behaviors under

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	2001; Mearns et al., 1997; Mearns et al., 2003), as cited in Bosak et al. (2013)	company in South Africa	individual level	pressure for production)		between management commitment and risk behaviors (three-way interaction).	three conditions, (1) low pressure for production and low priority to safety; (2) high pressure for production and low priority to safety; and (3) high pressure for production and high priority to safety.
Khandan, Maghsoudipour, Vosoughi, and Kavousi (2013)	Safety climate; Safety Climate Questionnaire (Vinodkumar & Bhasi, 2009)	134 employees from Iranian petrochemical company	Cross-sectional/SEM/ individual level	Safety climate	Ergonomic behaviors		Safety climate was positively related to ergonomic behaviors.
Kwon and Kim (2013)	Safety climate; adapted from Griffin and Neal (2000) and Vinodkumar and Bhasi (2009)	131 manufacturing industry employees in South Korea	Cross-sectional/ Smart PLS 2.0/ individual level	Safety climate dimensions (safety knowledge, safety compliance, safety motivation, and safety participation)	Safe working environment		Safety compliance and safety participation were positively related to safe working environment. Safety knowledge was positively related to safety compliance. Safety motivation was positively related to both safety compliance and safety participation.
McCaughey, DelliFraine, McGhan,	Safety climate; 50-item work safety scale	218 health care providers in hospitals in	Cross-sectional/ multiple	Workplace injury or illness	Job stress; turnover intentions; job	Safety climate as a mediator of the relationship	Workplace injury or illness was negatively related to safety climate perceptions.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
and Bruning (2013)	(Hayes, Perander, Smecko, & Trask, 1998), as cited in McCaughey et al. (2013)	Western Canada	regression/ individual level		satisfaction	between workplace injury or illness and job stress; safety climate as a mediator of the relationship between workplace injury or illness and turnover intentions; safety climate as a mediator of the relationship between workplace injury or illness and job satisfaction.	Safety climate was negatively related to job stress. The relationships between workplace injury or illness and job stress and between workplace injury or illness and job satisfaction via safety climate were partially mediated. The relationship between workplace injury or illness and turnover intentions via safety climate was fully mediated.
Tholén, Pousette, and Törner (2013)	Safety climate; 35 items with 4 scales adopted from Cheyne et al. (1998)	289 construction workers in 43 units in Sweden	Four-wave longitudinal (7-month time interval)/ MLwiN 2.22/ individual level and group level (multilevel)	Psychosocial conditions; safety climate	Individual safety behavior		Supportive psychosocial conditions were positively related to safety climate. Safety climate was positively related to safety behavior and also reversed the relationship in which safety behavior had an effect on safety climate.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Clark, Zickar, and Jex (2014)	Safety climate; 15 items of hospital safety scale (Gershon et al., 2000), as cited in Clark et al. (2014)	168 nurses and 103 peer surveys from 2 hospitals in the Midwestern USA with a total dataset of 94 matched dyads used in the study	Dyad study/ hierarchical multiple moderated regression analysis	Safety climate	Organizational citizenship behavior	Role definition as a moderator of the relationship between safety climate and organizational citizenship behavior.	Safety climate was positively associated with peer-rated organizational citizenship behavior.
Golubovich, Chang, and Eatough (2014)	Safety climate; 9 items adapted from Neal et al. (2000)	464 full-time employees in a university in southern USA	Cross-sectional/ M*plus* 6.0/ multilevel	Safety climate	Work-related musculoskeletal complaints; frustration	Psychological hardiness as a moderator of the relationship between safety climate and frustration; frustration as a mediator of the relationship between safety climate and work-related musculoskeletal complaints.	Safety climate was negatively related to frustration.
Huang et al. (2014)	Safety climate; 40 items of	1,831 truck drivers and	Cross-sectional/	Employees' safety climate;	Lost work days/ injury severity	Safety behavior as a mediator of	Both organization and group levels of employee perception

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	organizational and group levels of safety climate dimensions adopted from Trucking Safety Climate Scale (Huang et al., 2013), as cited in Huang et al. (2014)	matched with 219 of their supervisors from 4 trucking companies in the USA	paired sample *t*-tests and mixed effect ANOVA/ organizational level and group level	supervisors' safety climate	(objective measurement); safety behavior (subjective measurement)	the relationship between organization-level employee safety climate and lost work days; and also between group-level employee safety climate and lost work days.	on trucking safety climate were significantly related to safety behavior. This study suggested that study on trucking driver should rely on employee perspectives, rather than on that of supervisors.
Zohar, Huang, Lee, and Robertson (2014)	Safety climate; 40 items of Trucking Safety Climate measure (Huang et al., 2013), as cited in Zohar et al. (2014); 6 items from Leader–Member Exchange (LMX-7) scale to measure	3,207 long-haul truck drivers from a national trucking company in the USA	Prospective design (cross-sectional survey with hard braking data 6 months before and after survey)/Mplus 6.0	Dispatcher leadership (leader–member exchange); work ownership; safety climate	Safety driving behavior; hard braking	Safety driving behavior as a mediator of the relationship between safety climate and hard braking.	Leadership and work ownership were positively related to safety climate. Safety climate was positively related to safety driving behavior.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	leadership (Graen & Uhl-Bien, 1995), as cited in Zohar et al. (2014); 5 items of psychological ownership scale to measure work ownership (Van Dyne & Pierce, 2004), as cited in Zohar et al. (2014)						
Zohar and Polachek (2014)	Safety climate; 16-item group-level scale (Zohar & Luria, 2005)	364 mid-sized manufacturing company workers of 26 work teams	Randomized field study (experimental group and control group; pre- and post-interventions)/ SAS 9.3/ multilevel	Perceived supervisory messages	Safety climate; safety behavior; workload; teamwork; safety audit		After receiving feedback or supervisory messages, there were significant changes for higher safety climate, higher safety behavior, lower perceived workload, higher teamwork, and higher safety audit scores among the experimental group. No changes were found among the control group.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Barbaranelli, Petitta, and Probst (2015)	Safety climate; 16 items (Neal et al., 2000)	Sample 1: 616 employees from 21 industrial organizations in the USA Sample 2: 738 employees from 20 industrial organizations in Italy	Cross-sectional/ Mplus 7.1	Safety climate	Safety behavior (safety compliance and safety participation)	Safety knowledge and safety motivation as mediators of the relationship between safety climate and safety compliance with higher impact among US participants than Italian participants; safety knowledge and safety motivation as mediators of the relationship between safety climate and safety participation with the same effect between the two countries.	Safety climate was positively related to safety knowledge and safety motivation for the USA and Italy with approximately the same impact in the two countries.
Lee and Dalal (2016)	Safety climate; 10-item scale	964 employees from 17	Cross-sectional/SAS	Conscientious-ness	Safety behavior (safety	Safety climate as a moderator of	The positive relationship between conscientiousness and

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(Griffin & Neal, 2000)	manufacturing organizations in South Korea	9.2/individual level and organization level (multilevel)		compliance and safety helping)	the relationship between conscientiousness and safety compliance; safety climate as a moderator of the relationship between conscientiousness and safety helping.	both dimensions of safety behavior were stronger in conditions of weak safety climate.

Table 2.3: Summary of psychological climate studies

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Day and Bedeian (1991)	Psychological climate: Organizational Climate Questionnaire from Litwin and Stringer (1968), as cited in Day and Bedeian (1991)	483 public, industrial, and government accountants in the USA	Cross-sectional/ hierarchical regression analysis	Work orientation; psychological climate	Job performance	Psychological climate as a moderator of the relationship between work orientation and job performance.	High work orientation was more strongly positively associated with job performance than low work orientation when the psychological climate was positive.
Brown and Leigh (1996)	Psychological climate; 22 items of psychological climate from Kahn (1990)	Sample 1: 178 salespeople from 3 companies Sample 2: 161 sales representatives from a medical products company	Cross-sectional/ LISREL/ individual level	Psychological climate	Job involvement; effort; performance	Job involvement as a mediator of the relationship between psychological climate and effort.	The perceived psychological climate was positively related to job involvement, with job involvement, in turn, related to effort and effort related to performance.
Baer and Frese (2003)	Psychological safety climate; 7 items developed by	47 mid-sized industrial and service sectors companies in	Longitudinal/ LISREL 8 and moderated hierarchical	Initiative climate; psychological safety climate	Company performance (goal achievement and	Initiative climate and psychological safety climate as	Initiative climate and psychological safety climate were positively related to company performance. High

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	Edmondson (1999) Initiative climate; 7 items of self-reported initiative by Frese, Fay, Hilburger, Leng, and Tag (1997), as cited in Baer and Frese (2003)	Germany	regression analysis/ organizational level		return on assets)	moderators of the positive relationship between process innovations and company performance.	levels of climate for initiative and psychological safety climate were related to a positive relationship, whereas low levels of both climates were associated with a negative relationship.
Carless (2004)	Psychological climate; generic version of climate scale (Hart, Wearing, Griffin, & Cooper, 1996) of Hart, Wearing, Conn, Carter, and Dingle (2000), as cited in Carless (2004)	174 customer service employees in Australia	Cross-sectional/SEM AMOS 4.0/ individual level	Psychological climate	Psychological empowerment; job satisfaction	Psychological empowerment as a mediator of the relationship between psychological climate and job satisfaction.	Psychological climate was positively related to psychological empowerment which, in turn, increased job satisfaction. Negative affectivity was moderately negatively related to psychological climate.
Byrne, Stoner,	Psychological climate;	139 part-time restaurant	Cross-sectional/	Work effort; psychological	Job performance	Work effort and psychological	Psychological climate was positively related to job

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Thompson, and Hochwarter (2005)	22-item scale (Brown & Leigh, 1996)	employees	moderated multiple regression (MMR)	climate; conscientiousness		climate subgroup as moderators of the relationship between conscientiousness and job performance in the three-way interaction effect.	performance. There was a strong and positive relationship between conscientiousness and job performance in the conditions of high work effort, together with positive psychological climate only, but not significant in high-negative, low-positive or low-negative of work effort and psychological climate.
Martin, Jones, and Callan (2005)	Psychological climate; 3 dimensions of psychological climate measure for each study: (Glick, 1985; Payne, 2000; Schein, 2000); and (Kouzes & Posner, 1993; Martin et al., 2005), as cited in Martin et al. (2005)	Sample 1: 779 public hospital employees (for Study 1) Sample 2: 877 public sector employees (for Study 2)	Cross-sectional/SEM EQS program v5.7b/ individual level	Study 1: psychological climate (patient care, employee relationships, and supervisor support) Study 2: psychological climate (customer service, leader vision, and supervisor support)	Adjustment indicators (Study 1: psychological well-being and job satisfaction; Study 2: organizational commitment, turnover intentions, and absenteeism)	Study 1: change appraisal in terms of self-efficacy as a mediator of the relationship between psychological climate and adjustment indicators; change appraisal in terms of change stress as a mediator of the relationship between	Psychological climate was positively related to favorable change appraisals and better adjustment.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
						employee relationships and psychological well-being. Study 2: change appraisal (change control and change self-efficacy) as a mediator of the relationship between psychological climate and adjustment indicators.	
Martin and Bush (2006)	Psychological climate; 8 subdimensions of psychological climate perceptions (Koys & DeCotiis, 1991), as cited in Martin and Bush (2006)	106 sales managers and 313 sales representatives (matched data) in the USA	Dyad study/ LISREL 8.3/ individual level	Sales manager psychological climate; sales representatives' psychological climate	Sales manager empowerment; sales representatives' empowerment; sales representatives' customer-oriented selling; sales representative		Some psychological climate dimensions (3 dimensions) of sales managers and sales representatives were related to their own empowerment perceptions (sales manager empowerment and sales representative empowerment). Some psychological climate dimensions (3 dimensions) of sales managers influenced

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
					performance		transformational leadership. Sales managers' use of transformational leadership was related to sales representatives' customer-oriented selling. Sales representatives' customer-oriented selling was positively related to sales representative performance.
D'Amato and Zijlstra (2008)	Psychological climate; Majer_D'Amato Organizational. Questionnaire 10 (M_DOQ10) (D'amato & Majer, 2005; Majer & D'Amato, 2001), as cited in D'Amato and Zijlstra (2008)	406 hospital employees in North Italy	Cross-sectional/SEM/ individual level	Psychological climate and self-efficacy	Work outcomes (quality of performance and emotional exhaustion)	Organizational citizenship behavior as a mediator of the relationship between psychological climate and work outcomes; and as a mediator of the relationship between self-efficacy and work outcomes.	Psychological climate was positively related to organizational citizenship behavior.
Larsson, Pousette, and Törner	Psychological climate; 8 dimensions	189 blue-collar construction workers in	Cross-sectional/SEM AMOS 4.0/	Psychological climate	Self-reported safety behavior (structural safety	Safety motivation and safety knowledge as	Psychological climate was positively related to three aspects of safety behavior.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
(2008)	adapted from the Copenhagen Psychosocial Questionnaire (COPSOQ) (Kristensen, Borg, & Hannerz, 2002), as cited in Larsson et al. (2008)	Sweden	individual level		behavior, interactive safety behavior, and personal safety behavior); workplace commitment; job satisfaction; safety motivation; safety knowledge	mediators of the relationship between psychological climate and personal safety behavior; safety motivation as a mediator of the relationship between psychological climate and interactive safety behavior.	Psychological climate was related to workplace commitment, job satisfaction, safety knowledge, safety motivation, and structural safety behavior.
Tordera, González-Romá, and Peiró (2008)	Psychological climate; 4 dimensions (support, innovation, goals orientation, and rules orientation) developed by First Organizational Climate/Culture	383 non-supervisor employees in 33 health care centers of Regional Public Health Service in Spain	Cross-sectional/ hierarchical multiple regression analysis and SEM/ individual level	Leader–member exchange	Role overload	Psychological climate dimensions (innovation, goals orientation, and rules orientation) as moderators of the relationship between leader–member exchange and role overload;	Support climate was negatively related to role overload. The mediation analysis between leader–member exchange and role overload via support climate showed it was fully mediated.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	Unified Search (FOCUS)					support climate as a mediator of the relationship between leader–member exchange and role overload.	
Baltes, Zhdanova, and Parker (2009)	Psychological climate; 4 dimensions (role, job, leader, and work group), created by Altmann et al. (1998), revised from James and James (1992), as cited in Baltes et al. (2009)	639 non-government, non-profit fitness and community service organization employees in 28 Midwest locations, USA	Cross-sectional/ hierarchical regression/ individual level	Psychological climate with an organizational referent (PCo) and an individual referent (PCi)	Job satisfaction		Both PCo and PCi were positively related to job satisfaction.
Bradley, Postlethwaite, Klotz, Hamdani, and Brown (2012)	Psychological safety climate; 9-item scale developed by Edmondson (1999), as cited in Bradley et al.	561 undergraduate students from a Midwestern university (117 project teams)	Participants were assigned to complete different tasks for one semester (in weeks 2, 4, 8,	Psychological safety climate; task conflict	Team performance	Psychological safety climate as a moderator of the relationship between task conflict and team performance.	Team psychological safety climate was positively related to team performance. Task conflict and team performance were positively related under conditions of high psychological safety climate.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(2012)		10, and 13)/ moderated hierarchical regression analysis/group level				
Leroy et al. (2012)	Team psychological safety; 7-item measure (Edmondson, 1999), as cited in Leroy et al. (2012); 6 items of leader behavioral integrity for safety (Simons, Friedman, Liu, & McLean Parks, 2007), as cited in Leroy et al. (2012); 7-item scale of team priority of safety adopted	Stage 1: 580 nurses in 54 nursing departments in Belgian hospitals Stage 2: 54 head nurses from same nursing departments as above (collected 6 months after Stage 1 survey)	Dyad study/ Mplus/team (group) level	Leader behavioral integrity for safety; priority of safety; psychological safety	Reported treatment errors	Psychological safety as a moderator of the relationship between priority of safety and reported treatment errors; both priority of safety and psychological safety as mediators of the relationship between leader behavioral integrity for safety and reported treatment errors.	Leader behavioral integrity for safety was positively related to priority of safety and psychological safety. Psychological safety was positively related to reported treatment errors. The negative relationship of priority of safety to safety on reported treatment errors became stronger under conditions of higher psychological safety.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	from Zohar (2000)						
Bedi, Courcy, Paquet, and Harvey (2013)	Psychological climate; French version of the Psychological Climate Questionnaire from Gagnon, Paquet, Courcy, and Parker (2009), as cited in Bedi et al. (2013)	1,893 hospital employees in Canada	Cross-sectional/SEM AMOS/ individual level	Interpersonal aggression	Burnout (emotional exhaustion, diminished personal accomplishment and de-personalization)	Psychological climate partially mediated the relationship between interpersonal aggression and two dimensions of burnout (emotional exhaustion and de-personalization).	Interpersonal aggression was negatively related to psychological climate. Psychological climate was negatively associated with three dimensions of burnout (emotional exhaustion, diminished personal accomplishment, and depersonalization).
Wang, Leung, and Zhou (2014)	Psychological climate for communication safety; 3 items adopted from (Gibson & Gibbs, 2006), as cited in Wang et al. (2014)	Sample 1: 135 part-time MBA students with full-time employment in China Sample 2: 86 supervisors of industrial firms near the university	Cross-sectional/ hierarchical multiple regression	Harmony enhancement; disintegration avoidance	Psychological climate for communication safety; innovative performance	Psychological climate as a mediator of the relationship between harmony enhancement and innovative performance; job autonomy as a moderator of the relationship between harmony	Harmony enhancement was positively related to psychological climate. Psychological climate was positively associated with innovative performance.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
		studied in Sample 1 (answered by supervisors) A total of 193 valid sets used for the analysis (28 were excluded)				enhancement and psychological climate; job autonomy as a moderator of the relationship between disintegration avoidance and psychological climate; job autonomy as a moderator of the indirect relationship between harmony enhancement and innovative performance via psychological climate.	
Lee and Ok (2015)	Psychological climate; 13-item scale (Amenumey & Lockwood, 2008), as cited in Lee and Ok	394 entry-level employees and managers from 4 areas of hotel operations in the USA	Cross-sectional/SEM AMOS 20 and SPSS 20/ individual level	Core self-evaluation; psychological climate (customer orientation of management, managerial	Employee engagement		Psychological climate was positively related to employee engagement. Psychological climate did not moderate the relationship between core self-evaluations and employee engagement.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(2015)			support, internal service, and information and communication)			

Table 2.4: Summary of psychosocial safety climate studies

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Dollard and Bakker (2010)	Psychosocial safety climate (PSC); 4-scale measurement from Hinkin (1995), as cited in Dollard and Bakker (2010)	209–288 Australian Education Department education workers	Three-wave longitudinal/ HLM/ individual level and school level	PSC	Psychological health problems (psychological well-being, emotional exhaustion); work engagement	Job demands (work pressure, emotional demands) and job resources (job demands-resources [JD-R]) as mediator between PSC predicting psychological health problems and work engagement; PSC as a moderator of job demands and job resources in predicting psychological health problems and work engagement.	PSC was negatively related to psychological health problems via job demands. PSC acts as a moderator between emotional demands and emotional exhaustion. PSC was significantly related to engagement through job resources. PSC was not a moderator of the relationship between job resources and work engagement.
Idris and Dollard (2011)	PSC; PSC-12 scale from Hall et al. (2010), as cited	269 employees of public and private sectors in Selangor,	Cross-sectional/SEM AMOS/ individual level	PSC	Job demands, job resources; depression; anger;	Job demands and job resources as mediators between PSC and	PSC was related to anger and depression via job demands. PSC was related to engagement via job resources.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	in Idris and Dollard (2011)	Malaysia			engagement	anger, depression, and engagement	
Law et al. (2011)	PSC; PSC-12 scale from Hall et al. (2010), as cited in Law et al. (2011)	220 Australian employees from 30 organizations in South Australia	Cross-sectional/ HLM/ individual level and organization level (multilevel)	PSC	Workplace bullying, demands (harassment); resources (work rewards); work engagement; psychological health problems (psychological distress, emotional exhaustion); engagement	PSC as a moderator of the relationship between workplace bullying/ harassment and psychological health problems, as well as of the negative relationship between workplace bullying/ harassment and work engagement.	PSC as a determinant of harassment/bullying and resources (rewards, justice, supervisor support) in predicting psychological health problems (health erosion pathway) and work engagement (motivational pathway). Organizational level of PSC was negatively related to workplace bullying/harassment and then influenced psychological health problems. PSC was positively associated with resources and, in turn, work engagement.
Dollard, Opie, et al. (2012)	PSC; from Dollard and Bakker (2010) with priority scale excluded	Time 1: 202 and Time 2: 163 from 48 units of Australian nurses working	Two-wave longitudinal/ HLM/ individual level and group level (multilevel)	PSC	Working conditions (workload, job control, and supervisor support),	Working conditions (emotional demands, workload, job control,	PSC was negatively related to workload, and positively related to job control and supervisor support. PSC was related to emotional exhaustion via emotional

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
		in remote areas			psychological strain (emotional exhaustion, psychological distress)	supervisor support) as a mediator of PSC and psychological strain.	demands and workload. PSC was related to psychological distress via job control, but not via supervisor support.
Dollard, Tuckey, et al. (2012)	PSC; PSC-12 scale from Hall et al. (2010), as cited in Dollard, Tuckey, et al. (2012)	Time 1: 318 and Time 2: 139 police constables from 23 Australian police units (stations)	Two-wave longitudinal/ HLM/ individual level and group level (multilevel)	PSC	Workgroup distress	PSC as a moderator between the interaction of emotional demands and emotional resources in predicting workgroup distress.	PSC as the main factor that moderates the effects between emotional demands and emotional resources in predicting workgroup distress.
Idris et al. (2012)	PSC; PSC-12 scale from Hall et al. (2010), as cited in Idris et al. (2012); 7 items of team psychological safety scale	126 Australian health care workers (16 teams) and 180 Malaysian industrial workers (31 teams).	Cross-sectional/ HLM/ individual level and group level (multilevel)	PSC, physical safety climate, team psychological climate, perceived organizational support	Job demands (workload, emotional demands, and psychological demands), psychological health problems (psychological distress and	Job demands (workload, emotional demands, and psychological demands) as a mediator of PSC and psychological health problems.	PSC was the strongest predictor to psychological health problems among other climates. PSC was related to psychological distress (depression) and emotional exhaustion in the Malaysian context, but not in the Australian context. PSC was negatively related to workload,

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(Edmondson, 1999), as cited in Idris et al. (2012); 6 items of perceived organizational support scale (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001), as cited in Idris et al. (2012); 12-item physical safety climate measure revised from PSC-12 scale (Hall et al., 2010), as cited in Idris et al. (2012)				emotional exhaustion)		emotional demands, and psychological demands in the Malaysian sample only.
Hall et al. (2013)	PSC; PSC-12 scale from Hall et al.	2,343 Australian workers in	Cross-sectional/ moderated	PSC	Depression; positive organizational	PSC as a moderator of the relationship	PSC as an overarching climate that was related to job demands, depression, and

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	(2010), as cited in Hall et al. (2013)	New South Wales and Western Australia	structural equation modeling AMOS 17/ individual level		behavior (POB) (engagement and job satisfaction)	between job demands and depression; PSC as a moderator of the relationship between depression and POB.	POB. The study demonstrated the moderating effect of PSC on psychological and emotional job demands.
Garrick et al. (2014)	PSC; 11 items adapted from Hall et al. (2010), as cited in Garrick et al. (2014)	61 school teachers in Australia (N = 915 data points)	Diary study (3-wave longitudinal; 8 months; 15 entries)/ HLM analysis using MLwiN 2.10/daily level, diary level, and individual level (three-level)	Job demands; recovery	Work engagement; acute fatigue	PSC as a moderator of the relationship between job demands and acute fatigue; between daily recovery and acute fatigue; between daily job demands and work engagement; and also between daily recovery and work engagement.	PSC could buffer the negative impact of job demands on a daily basis. PSC could also strengthen daily recovery for teachers.
Idris et al. (2014)	PSC; PSC-12 scale	117 employees (27	Longitudinal/ HLM/	PSC	Emotional demands,	Emotional demands as	PSC is a predictor to emotional demands and also

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
	from Hall et al. (2010), as cited in Idris et al. (2014)	organizations) Malaysian private sector	individual level and group level (multilevel)		emotional exhaustion; depression	mediators of the relationship between PSC and emotional exhaustion.	directly related to emotional exhaustion.
Kwan et al. (2014)	PSC; PSC-12 scale from Hall et al. (2010) and 13 semi-structured questions on bullying experiences and process, coping strategies, and the role of organizations in dealing with bullying	20 Malaysian workers	Interviews (PSC was measured by using a questionnaire after the interview session)/ grounded theory approach/a modified Exit, Voice, Acquiescence, and Neglect model (from the Exit, Voice, Loyalty, and Neglect [EVLN] model)	PSC	Coping strategies and workplace bullying		High PSC in the workplace activated employees' coping strategies in dealing with workplace bullying; low PSC escalated bullying experiences and led to passive coping strategies.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Bailey, Dollard, and Richards (2015)	PSC; PSC-12 scale from Hall et al. (2010), as cited in Bailey, Dollard, and Richards (2015)	Used three different samples: Sample 1 (Time 1): 2,907 New South Wales and Western Australian participants Sample 2 (Time 2): 1,156 New South Wales and Western Australian participants Sample 3: 1,043 South Australian participants	Longitudinal and cross-sectional using telephone interview/ regression analysis/ individual level	PSC	Job strain; depression	Job strain as a mediator of the relationship between PSC and symptoms of depression.	PSC was negatively related to job strain and symptoms of depression; the benchmark for optimal organization PSC was at the mean score of 41 with the study finding that participants experienced mild symptoms of depression (37.6).
Bailey, Dollard, McLinton, et al.	PSC; PSC-12 scale from Hall et al. (2010), as cited	1,095 Australian workers	Longitudinal/ SEM AMOS/ individual level	PSC	Psychosocial risk factors (i.e. work pressure and harassment/	Emotional exhaustion as a mediator of the relationship	PSC was related to psychosocial risk factors; PSC was indirectly associated with workers' compensation claims

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
(2015)	in Bailey, Dollard, McLinton, et al. (2015)				bullying/ violence), emotional exhaustion; musculoskeletal disorder symptoms (MSDs); workers' compensation claims	between psychosocial risk factors and MSDs; emotional exhaustion and MSDs as mediators of the relationship between psychosocial risk factors and workers' compensation; psychosocial risk factors as mediators of the relationship between PSC and MSDs; harassment/ violence/ bullying as mediators of the relationship between PSC and workers' compensation claims.	in the psychosocial–physical processes.

Author/s (Year)	Climate domain & measurement	Sample	Study design/ analysis strategy/level of analysis	Antecedents	Consequences	Moderators/ mediators	Key climate results
Idris et al. (2015)	PSC; PSC-12 scale from (Hall et al., 2010), as cited in Idris et al. (2015)	427 employees (56 teams) Malaysian private sector	Cross-sectional/ HLM/ individual level and group level (multilevel)	PSC	Learning opportunities; work engagement; performance	Learning opportunities mediate the relationship between PSC and work engagement. Work engagement mediates the relationship between PSC and performance, and also between learning opportunities and performance.	PSC as a pivotal climate which fosters work engagement and performance through learning opportunities. PSC was positively related to learning opportunities.

2.4 Descriptive explanations of safety-related work climate research

As mentioned previously, this narrative review focuses on the safety-related climate research. Of the 88 articles to be reviewed, the safety climate research dominated with 59 articles (67%), followed by psychological climate research with 16 articles (18%) and psychosocial safety climate with 13 articles (15%). In addition, three main roles were investigated for safety-related climate, namely, antecedent, mediator, and moderator. The summary of climate roles is presented below in Table 2.5.

Table 2.5: Summary of climate roles

	Roles			**Total (*N* = 88)***
	Antecedent	**Mediator**	**Moderator**	
Safety climate	50	8	13	71
Psychological climate	10	3	6	19
Psychosocial safety climate	10	-	6	16

Note: *Some studies fit into multiple role categories and types of climate studies; therefore the number of studies in Table 2.5 outweighs the total number of studies.

The consequences of safety-related climates were classified as: (i) work-related outcomes; and (ii) individual-related outcomes (see Table 2.6 for summary). Most studies emphasized work-related outcomes (76 articles), rather than individual health and well-being outcomes (24 articles). In addition, one study focused on workers' compensation claims related to workplace injuries or occupational accidents. For information, some of the safety-related climate studies included both individual-related outcomes and work-related outcomes in their research framework.

Table 2.6: Summary of findings

	Types of outcomes		Description
1.	Work-related outcomes	**Positive**:	coping strategies, job performance, effort, commitment, safety behavior, job involvement, innovative performance, work engagement, motivation, safety knowledge, safety compliance, organizational citizenship behavior, open/safety communication, safety orientation, job satisfaction, teamwork, safety audit, ergonomic behavior, effort, company performance, sales representatives' customer-oriented selling, safety work environment, organizational effectiveness, organizational trust.
		Negative:	workplace bullying, turnover intentions, absenteeism, role overload, unsafe behavior, treatment errors, workload, job strain, incidents (fire/explosion, property damage, environmental impacts), workplace hazards, workgroup distress.
2.	Individual-related outcomes	**Positive**:	psychological well-being
		Negative:	burnout (emotional exhaustion and depersonalization), depression, anger, psychological distress, acute fatigue, musculoskeletal disorder symptoms (MSDs), interpersonal aggression, sleep quality, illness rates, job stress, injuries/ accidents.
3.	Other outcomes		Workers' compensation claims

We measured the trends of publications, ranging from 1980 until 2016, in the climate genres in terms of frequency. From 1980, safety climate was the most often published climate concept, followed by psychological climate. However, the trend of research changed dramatically with the introduction of PSC in 2010. Although safety climate remains as the dominant research interest, since 2010, PSC has surpassed psychological climate. The summary of the growth in the number of articles, and their years of publication, for safety-related climate research is illustrated in Figure 2.1.

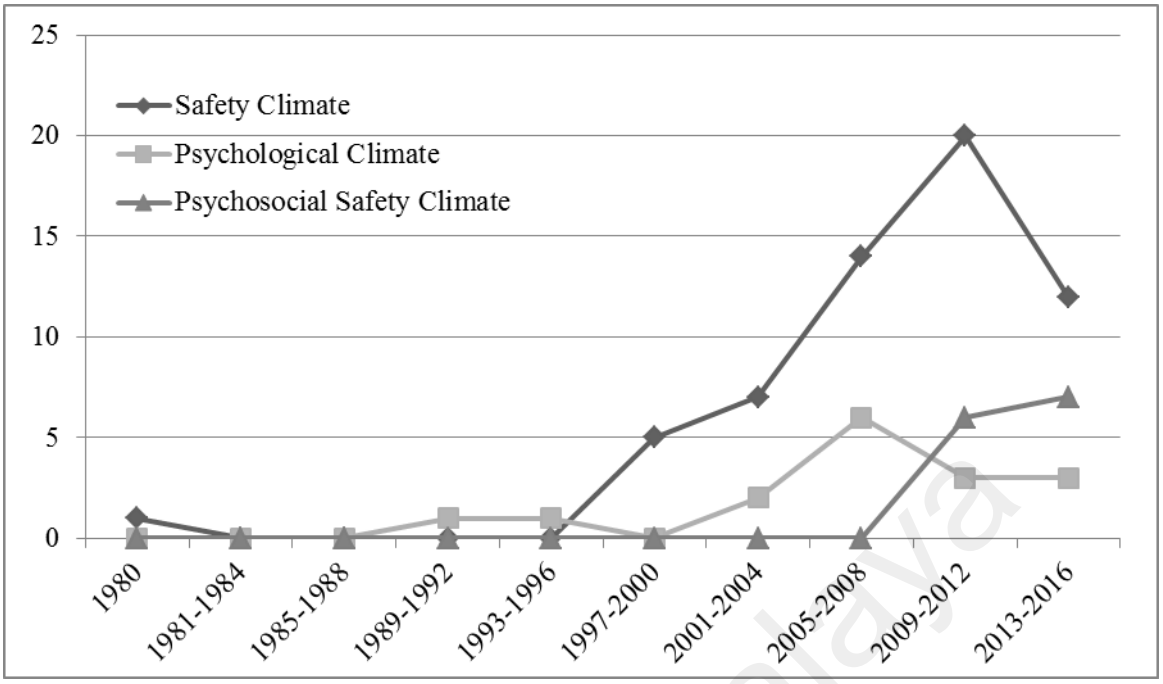

Figure 2.1: Number and year of publication

2.5 Impacts of safety-related climate

We have found that the majority of consequences investigated in the safety climate research is in relation to safety behavior, occupational injuries, and risks among workers. Psychological climate and PSC alternatively emphasize psychological health and well-being.

Safety climate accentuates taking an active role in preventing and managing injury and accidents due to unsafe working behavior. For example, studies have shown that safety climate has led to strong safety behavior, safety practices, and safety performance (e.g., Barbaranelli et al., 2015; Siu et al., 2004; Varonen & Mattila, 2000). In addition, research on safety climate has revealed that perceptions of safety climate are negatively associated with negative outcomes, such as treatment errors, unsafe behavior, and occupational accidents and injuries (e.g., Cavazza & Serpe, 2009; Mearns et al., 2003; Morrow et al., 2010; Probst et al., 2008; Smith et al., 2006; Vinodkumar & Bhasi, 2009).

Moreover, safety climate had influence above individual-level effects, such as on strong unit-level safety, and on unit safety performance and injuries (e.g., Katz-Navon et al., 2005; Zohar, 2000). Overall, safety climate impacts on both individual-level and unit-level outcomes which are closely related to physical safety aspects.

Unlike safety climate, psychological climate emphasizes the psychological aspects of individual consequences. Generally, most psychological climate research has focused on positive aspects of outcomes for individuals and work outcomes (12 articles), with less emphasis on negative consequences. Only a few studies (4 articles) have examined the negative relationship between psychological climate and work as well as individual outcomes, such as turnover intention, absenteeism, emotional exhaustion, role overload, and interpersonal aggression (e.g., Bedi et al., 2013; Martin et al., 2005). Thus, the most widely researched psychological climate outcomes are in relation to job attitudes, such as job performance, job satisfaction, organizational commitment, and psychological empowerment (11 articles). For example, Carless (2004) found that psychological climate is positively related to psychological empowerment and job satisfaction. As with safety climate research, research on psychological climate examines its impact on positive outcomes above individual-level outcomes, such as team performance (Bradley et al., 2012) and company performance (Baer & Frese, 2003). For instance, Baer and Frese (2003) found that psychological climate is positively related to company performance, particularly on goal achievement and return on company assets.

The majority of PSC research (13 articles) in contrast has examined its impact on job conditions, particularly on job demands (e.g., workload, and emotional and psychological demands) and job resources (e.g., emotional resources, job control, supervisor support, and learning opportunities). However, job resources (5 articles) have been studied less compared to job demands (8 articles). Psychosocial safety

climate (PSC) is negatively related to job demands and positively associated with job resources (e.g., Dollard & Bakker, 2010; Dollard, Opie, et al., 2012; Idris & Dollard, 2011; Idris et al., 2014). Interestingly, PSC has also negatively related to workplace hazards, such as workplace bullying and harassment (2 articles; Kwan et al., 2014; Law et al., 2011). In relation to psychological health and work outcomes, PSC is positively related to work engagement and performance, and negatively linked to burnout, psychological distress, depression, and anger via job conditions (e.g., Dollard & Bakker, 2010; Dollard, Opie, et al., 2012; Idris & Dollard, 2011; Idris et al., 2015; Idris et al., 2014)

2.6 Roles of safety-related climate

In relation to the safety-related climate role as antecedent, we identified two types of antecedents: individual-level antecedents and multilevel antecedents (above individual-level antecedents).

As an individual-level antecedent, the safety-related work climate encompasses individual perceptions of work environment that are likely to be related to individual-related outcomes. Overall, the majority of psychological climate studies used an individual-level antecedent (10 articles; e.g., D'Amato & Zijlstra, 2008; Lee & Ok, 2015), whereas, in safety climate research, this comprised 26 articles (e.g., Khandan et al., 2013; Kwon & Kim, 2013), with only a few for PSC research (3 articles; e.g., Bailey, Dollard, McLinton, et al., 2015; Idris & Dollard, 2011). On the other hand, unlike the case for analysis as an individual-level antecedent, we discovered that none of the psychological climate research used psychological climate as the group-level, team-level or organizational-level antecedent, unlike many studies for safety climate (24 articles; e.g., Golubovich et al., 2014; Zohar & Luria, 2005) and some for PSC research (7 articles; e.g., Garrick et al., 2014; Law et al., 2011).

Safety-related climate was also treated as a mediator and a moderator. For instance, psychological climate mediated the relationship between interpersonal aggression and burnout (Bedi et al., 2013), and between interpersonal harmony enhancement and work innovative performance (Wang et al., 2014). Likewise, safety climate mediated the relationships between organizational support climate and occupational accidents, and between management–employee relations and occupational accidents (Wallace et al., 2006). By contrast, none of the PSC research used PSC construct as a mediator. Research has also shown safety-related work climate acts as a moderator of the job characteristics–outcomes relationship (e.g., Dollard & Bakker, 2010; Probst, 2004). In addition, some studies have used more than one role of safety-related climate at a time. For example, Dollard and Bakker (2010) employed PSC as a group-level antecedent and also as a moderator in the same period of study.

2.7 Trend of safety-related climate and level of measurement

In this section, safety-related climate research is explored by focusing on the climate attributes, research design, research time lag, and sampling. Generally, work climate is attributed as having individual and organization interpretations; climate research is designed mostly as cross-sectional or longitudinal; the meso-term was the dominant time interval in the research; and various types of samples were used in the existing safety-related climate research. Further explanations are discussed below.

2.7.1 Safety-related climate attributes: Individual to organization interpretations

In order to explain climate attributes, we have emphasized the development of research from the earliest introduction of the concept of work climate for safety through to the present. Similar to work climate in general, the initial safety-related climate research was measured at the individual level and was known as an individual attribute that was eventually assessed as an organizational attribute. Most safety-related climate research

has utilized individual perceptions to identify the individual's perceptions of the work environment and the influence of safety-related climate on outcomes for the individual and work outcomes at the individual level. For example, Huang et al. (2006) found individual perceptions of safety climate were negatively related to self-reported occupational injury. Similarly, Idris and Dollard (2011) examined the individual level of PSC, finding that it was negatively associated with anger and depression via job demands, and positively related to work engagement via job resources. Thus, individual perceptions of psychological climate were also positively related to job satisfaction (Baltes et al., 2009).

On the other hand, in relation to attributes above the individual level, that is, the unit, group or organization attribute or as a broader attribute, safety-related climate can be viewed as a snapshot of the prevalent state of group safety perception within the organization. Most recent safety-related climate research has utilized climate as a group attribute, particularly in safety climate and PSC research (e.g., Dollard, Opie, et al., 2012; Idris et al., 2015; Zohar, 2000; Zohar & Luria, 2005). In relation to psychological climate, although the majority of research has focused on the individual level, a few studies have proven that this climate could also be measured at levels other than the individual level with the same level of outcomes (e.g., Baer & Frese, 2003; Bradley et al., 2012; Leroy et al., 2012).

2.7.2 Research design

Overall, several research methods were found when reviewing the safety-related climate research. Survey design was the dominant research method (80 articles), with a few studies using a dyad study (3 articles), intervention (1 article), a diary (1 article), and interviews (1 article). Most survey research was cross-sectional (47 articles) with just a few longitudinal (15 articles).

Although the existing safety-related climate research has been dominated by cross-sectional survey design, more recently the research has shifted to a longitudinal survey design. A few studies have also employed dyad (e.g., Clark et al., 2014; Leroy et al., 2012; Martin & Bush, 2006) or diary designs (e.g., Garrick et al., 2014), or even a qualitative approach using interviews (e.g., Siu et al., 2004). Zohar and Polachek (2014) undertook a different approach, using an intervention study to examine whether organizational climate intervention of perceived supervisory messages would lead to safety climate improvement. Furthermore, one study combined individual survey and interviews in (e.g., Kwan et al., 2014) while others used a prospective research design with a combination of survey and objective data, such as frequency of injury and (in the trucking environment) hard braking data (e.g., Huang et al., 2007; Zohar et al., 2014).

2.7.3 Sample selection

Various samples have been used in the reviewed research consisting of several types of occupation and different work settings. In general, most of the samples for safety climate are from industrial and manufacturing settings (26 articles); followed by health care (8 articles); construction (7 articles); transportation (7 articles); and petroleum (7 articles) as these are settings in which employees are more prone to physical injuries and occupational accidents. For PSC, research was mostly conducted in public and private sectors (8 articles) with a few studies in the sectors of education (2 articles), health care (2 articles), and policing (1 article). Similarly, psychological climate research is also dominated by the sector of health care (6 articles), followed by the service sector (4 articles), and public and private sectors (3 articles).

In terms of the geographic region, most safety-related climate research is dominated by the Western context, in particular, the USA and Canada (34 articles) and Europe (18 articles). Some studies were conducted in Asia (23 articles), and Australia (14 articles). Most research on safety climate and psychological climate is from the US

and Canada, with 26 articles on safety climate and 8 articles on psychological climate. However, contrary to both safety climate and psychological climate, PSC research was dominated by Australia (9 articles) with a few studies in Asia, in particular, in Malaysia (5 articles).

2.8 Challenges for future research

We discuss the simultaneous use of multiple climates, multilevel modeling, the time lag in safety-related climate research, and advanced research design, with the aim of achieving improvements in future climate research.

2.8.1 Multiple climates in safety-related climate research

In line with a prior review on organizational work climate literature (e.g., Kuenzi & Schminke, 2009), this current review also reveals that the majority of safety-related climate research emphasizes one specific climate at a time. Although the use of one single type of climate has been widely accepted as the best way to explain the climate–outcomes relationship, the question that springs to mind is what would be the findings if several types of climate were examined simultaneously. This is important as some of the climate consequences are shared among several types of outcomes, such as job performance, job satisfaction, organizational trust, and commitment. The reason why it is important to consider the simultaneous use of multiple types of climate in this area of research was stated by Carr, Schmidt, Ford, and DeShon (2003) in their meta-analytic study. They suggested that greater understanding of the effectiveness of the climate–outcomes relationship would possibly be achieved by investigating multiple types of climate simultaneously. To date, very little research has explored multiple types of climate in safety-related climate research. One example is the study by Leroy et al. (2012) in which they combined psychological climate and safety climate dimensions, linking this with treatment errors. In another example, Idris et al. (2012) compared

several types of climate, specifically by using PSC, safety climate, team psychological climate, and perceived organizational support in predicting psychological health problems. Therefore, we urge that future research should consider this issue.

2.8.2 Multilevel modeling in safety-related climate research

Multilevel research has consistently been identified as potentially important, and is widely used, in safety-related climate research, particularly in safety climate and PSC research. Many research studies on safety climate have focused on the relationship between upper level (i.e., unit, group, and organization levels) and lower level (i.e., individual level) by creating cross-level relationships of climate–outcomes research. As the use of multilevel research is derived from the meso-theory of organizational entities (Mathieu et al., 2007), climate may be explained by using several sources. Specifically, Mathieu et al. (2007) explain that "the overall logic of organizational entities is that individuals are nested in teams or workgroups, which in turn are nested in larger organizational subunits such as departments or districts, which in turn are nested in organizations" (p. 892). Therefore, a better understanding of safety-related climate research could be achieved by nesting perceptions of climate at the various levels.

In addition, our review has revealed that most safety-related climate research has relied on two levels of analysis: individual level and organizational level. We would like to propose the use of more than two levels of analysis, for example, three levels of analysis or more. As organizational entities are nested from the smallest (individual) to the largest (group) (Mathieu et al., 2007), this could lead to a better assessment of perceptions of climate. Indeed, although beyond the scope of climate research, Bryk and Raudenbush (1988) suggest that three levels of analysis offer a comprehensive understanding through the use of a multilevel framework.

2.8.3 Time intervals in safety-related climate research

As most safety-related climate research has included stress and strain (the job stress area) as outcomes of climate, it is essential that the appropriate time interval for studies be considered. Therefore, prominent concerns about the time interval during data collection have been raised, particularly in relation to repeated measurement research designs that usually employ a longitudinal study and a diary study (Frese & Zapf, 1988). Generally, the former reflects the number of repeated measurements at Time 1, Time 2, etc., whereas the latter represents the number of repeated measurements based on occasions (hourly, daily, or weekly).

It is important to decide the appropriate time interval as some consequences take longer to be affected than other consequences (Frese & Zapf, 1988). For example, Dormann and Van de Ven (2014) suggest that research on bullying should consider the meso-term time interval, whereas research on depression should be conducted using the grand-term time interval. However, obscure statements that time intervals that are "not too short" or "not too long" are adequate to explain the impact (Hertzog & Nesselroade, 2003), have limited the understanding of climate research. In relation to this current review, most longitudinal studies have been conducted at the meso-time interval (one month–one year). Similarly, as far as we are aware, very few safety-related climate studies have utilized a diary study. One example is Garrick et al. (2014) who collected three identical diaries for five consecutive days with the interval of four months for each (within the category of short-term and meso-term). However, these studies have ignored the other lengths of time interval, such as immediate (seconds–minutes); short-term (hours–one day); mid-term (one day–one month); or even the long-term time interval (one year–10 years) (adopted from Dormann and Van de Ven, 2014). Therefore, we suggest that researchers consider other lengths of time interval in safety-related climate

studies to obtain a better and more comprehensive understanding of the climate and stress/strain processes.

2.8.4 Advanced research design

As previously mentioned, the survey has become a dominant research method in safety-related climate studies. However, this method suffers from several limitations. Firstly, as surveys in safety-related climate research are related to perceptions about climate and other related constructs, bias occurrences are inevitable. The possibility of false responses from individuals about their work climate and other related variables may be misleading in providing an understanding of the real situation of the work environment. Secondly, the representativeness of the sample in the study also becomes a major concern when using surveys. Although a small-sized sample is considered acceptable in climate research (Schneider, Salvaggio, & Subirats, 2002), researchers need to consider whether their climate research should involve a small or large-sized sample.

In addition, although using a survey in a longitudinal study may resolve some of the limitations of a cross-sectional study, the causal relationships (between causes and effects) remain a major problem of longitudinal studies (Frese & Zapf, 1988). However, the majority of safety-related climate research has been conducted using cross-sectional and longitudinal studies, with very few studies using other advanced research designs. Therefore, other designs should be considered, as well as the use of objective measurement, when undertaking climate–outcomes research, such as dyad studies, diary studies, intervention studies, prospective designs, or even qualitative approaches using interviews and focus group discussions.

2.9 Conclusion

For more than three decades, safety-related work climate research has provided a great deal of theoretical and practical implications for individuals and organizations. In this

current review, we examined the existing safety-related climate research in the literature by identifying the focus and level of analysis from the research findings. We provided several important aspects about consequences and roles of the different types of safety-related climate. We also outlined the recent trend of safety-related work climate research. More importantly, this review presents several challenges with the aim of improvements in future research, such as considering multiple climates simultaneously, advanced research design, and multilevel modeling. Therefore, our goal in this comprehensive review has been to gain greater understanding and provide a better view of past research, the current literature, and the future possibilities for safety-related work climate research.

From this review, we concluded that safety-related work climate exists in the literature, particularly safety climate, psychological climate, and PSC. These climates have specific effects on specific safety outcomes, such as protection from physical, psychological and psychosocial risks. In relation to the current trends of work-related climate, climate attribute has changed from individual attribute measurement to multilevel approach with the integration of individual and organizational attributes. Thus, although several advanced research designs have been introduced, most of safety-related climate research solely focuses on survey tool. More importantly, this review presents several challenges with the aim of improvements in future research, such as considering multiple climates simultaneously. This may provide a clearer understanding of the effectiveness of climate when several climates are measured simultaneously. Advanced research designs and the use of multilevel modeling should also be considered as important for understanding the climate impacts in organizations.

CHAPTER 3: ARTICLE ONE

A MULTILEVEL STUDY OF PSYCHOSOCIAL SAFETY CLIMATE, CHALLENGE AND HINDRANCE DEMANDS, EMPLOYEE EXHAUSTION, WORK ENGAGEMENT, AND PHYSICAL HEALTH

Abstract

The purpose of the present study was to examine the effect of psychosocial safety climate (PSC) on work engagement, emotional exhaustion, and physical health problems, particularly through two types of demands (i.e., challenge and hindrance demands) among police personnel in Peninsular Malaysia. Data were collected using a survey among 909 participants from 58 departments and were analyzed using hierarchical linear modeling (HLM) version 7.0. The study discovered that PSC was negatively related to hindrance demands. PSC was also found negatively associated with emotional exhaustion and physical health problems. Interestingly, challenge demands were positively related to work engagement and also emotional exhaustion, whereas hindrance demands were negatively related to work engagement and positively associated with emotional exhaustion. In the mediating pathways, hindrance demands mediated the relationship between PSC and emotional exhaustion, whereas emotional exhaustion mediated the relationship between challenge and hindrance demands and physical health problems. This study provides evidence that PSC acts as a predictor in a multilevel way, while challenge and hindrance demands lead to negative and positive work outcomes.

Keywords: psychosocial safety climate; work engagement; emotional exhaustion; physical health problems; challenge and hindrance demands; hierarchical linear modeling

3.1 Introduction

For several decades the main work stress theories have emphasized the role of job design as the main cause of work stress. Prominent models such as the Job Demand–Control (JDC) model (Karasek, 1979), the Effort–Reward Imbalance (ERI) model (Siegrist, 1996; Siegrist et al., 1986), and the more recent Job Demands–Resources (JD-R) model (Demerouti et al., 2001) all highlight the job design features of job demands and job resources and their combinations as important for work stress. This fairly singular focus on job design for so long has neglected the question, "what influences job design?" Unsurprisingly, there is a call for researchers to explore the genesis of job design and how elements of the organizational context operate to shape work design characteristics (Morgeson et al., 2010). The question is of practical significance because as one gets closer to the source of the problem, the better chance there is of solving the work stress problem. Psychosocial safety climate (PSC) construct addresses this theoretical gap and extends the main work stress theories in a multilevel way and proposes that psychosocial safety climate, as an organizational level construct, precedes job design features that are experienced at the individual level. This construct proposes that the genesis of job design features that specifically relate to psychological health and well-being, arise from the management values and priorities for psychological health and safety.

In this study, we are interested in how PSC associates with job conditions, specifically focusing on job demands. Job demands are defined as the aspects of work that required sustained physical, cognitive, and emotional effort in order to fullfil the work tasks (Demerouti et al., 2001). We conceive that job demands are not necessarily negative. Building on previous work that distinguishes kinds of job demands, we explored challenge and hindrance demands (Cavanaugh et al., 2000). We are interested to know for instance whether high PSC contexts are more likely to generate more

positive challenging demands for employees, and less likely to create negative hindrances to work goal achievement. Since PSC concerns employee health and well-being, we are interested to know whether and how these demand types create different processes via which PSC affects health and work outcomes. This study contributes to the body of knowledge in four ways. Firstly, while most previous studies focused on the negative effects of job demands, we focused on both positive (i.e., work engagement) and negative outcomes (i.e., emotional exhaustion and physical health problems) of job demands (i.e., challenge and hindrance demands). Secondly, to date, study on PSC has focused only on general job demands without separation into challenges and hindrances. Thirdly, with the exception of a few studies (e.g., Idris et al., 2012), most studies on PSC have focused on Western job settings. We, however, undertook the investigation in Malaysia, an emerging Eastern economy, which is regarded as having a collective culture and power distance, much different from Western countries with their individual values (Hofstede, 1994). We considered how these factors could affect how PSC translates to qualitatively different job demands. Forth, while PSC is proposed to relate to psychological health, here we propose and test links physical health for the first time.

3.1.1 Psychosocial safety climate and its relationship with challenge and hindrance demands

Psychosocial safety climate (PSC) is defined as a shared perception among employees regarding policies, practices, and procedures in the workplace as they relate to worker psychological health and well-being (Dollard, 2007; Dollard & Bakker, 2010). Psychosocial safety climate (PSC) construct proposes that management values and priorities will characterize the kind of organizational climate that is experienced by employees. Since management are largely responsible for how job design is created (Morgeson & Campion, 2003; Morgeson & Humphrey, 2008), this implies that PSC precedes job conditions. Empirical evidence has consistently shown that PSC is a

precursor to work-related stress factors in multilevel studies using both longitudinal (Bond et al., 2010; Dollard & Bakker, 2010; Dollard, Opie, et al., 2012), and cross-sectional (Law et al., 2011), designs. These studies found that PSC is a leading indicator of a better working environment by providing manageable demands and a high level of resources to cope with demand/tasks at work. An organization with poor PSC might lead to poor job design such as excessive work pressure, and emotional demands (Dollard & Bakker, 2010). On the other hand, a high level of PSC tends to reduce demands and create healthy working conditions by providing adequate resources (Dollard & Bakker, 2010).

Previous studies have explored PSC as a contextual precursor to the job demands and job resources by using the JD-R model (e.g., Idris et al., 2011). The JD-R model explains how job demands and job resources trigger to the health impairment and motivational processes (Schaufeli & Bakker, 2004). Job demands require sustained physical and/or psychological effort which associated with physiological and psychological impacts (Bakker, Demerouti, & Verbeke, 2004), while job resources play a motivational role that facilitate work goals and reduce job demands (Bakker & Demerouti, 2007). Under this framework, prior studies have discovered that PSC is negatively related to job demands which in turn lead to negative work outcomes, such as burnout, depression, and anger, especially among Malaysian workers (Idris & Dollard, 2011; Idris et al., 2012; Idris et al., 2011). Although having several job demands has been used to provide support that PSC is able to mitigate the effects of job demands (Dollard & Bakker, 2010; Idris et al., 2012), to date most studies still rely on negative job demands (i.e., emotional demands and role conflict).

Using the Conservation of Resources (COR) theory (Hobfoll, 1989; Hobfoll & Shirom, 2001), we argue that PSC may be negatively related to negative job demands, and positively related to positive job demands. The COR theory suggests that individual

strive to retain, preserve, and build resources in order to cope with demands, and the most threatening to them is the loss of resources (Hobfoll, 1989, p. 516). Therefore, we reason that PSC may be a mechanism to make jobs more challenging while, at the same time, reducing the negative aspect of job demands. High PSC organizations will try to enhance the way in which it distributes job tasks to its employees (Dollard & Bakker, 2010). Thus, the organization possibly tries to find ways to motivate its employees by giving them more challenging tasks which are able to enhance employees' learning and skills (Idris et al., 2015), at the same time, reducing the work characteristics that have a negative effect on their well-being (Idris & Dollard, 2011). Previous studies on PSC revealed that effective employers are always alert to employees' needs providing them with adequate support and job resources (Idris & Dollard, 2011).

3.1.2 Hindrance demands vs. challenge demands

Although most job stress models postulate that job demands may lead to negative consequences (Bakker & Demerouti, 2007; Karasek, 1979), recent studies have revealed that some types of job demands also lead to positive outcomes, such as increased performance (LePine et al., 2004; LePine et al., 2005; Wallace, Edwards, Arnold, Frazier, & Finch, 2009), and motivation (LePine et al., 2004). The outcome of the demand depends on how stress manifests either by encouraging, or as an obstacle, to personal growth and mastery. These appraisals were chacterized as "challenge appraisal" and "threat appraisal" respectively (Lazarus & Folkman, 1984). Conditions in which the employee perceives demands as a challenge may influence positive individual and organizational outcomes. In contrast, an erosion of the individual's energy will be inevitable if demands are perceived as threats.

Similarly, using different terminology, Cavanaugh et al. (2000) separated work stressors into two types (i.e., challenge and hindrance stressors) and suggested that job demands have their own unique impacts on employees' well-being and work behavior

(Webster, Beehr, & Christiansen, 2009). Although job demands are strongly related to physiological or psychological costs (Demerouti et al., 2001), there is also a possibility of the positive relationship between job demands and positive outcomes when it viewed as challenges. Van den Broeck et al. (2010) stated that not all job demands are equal which might be lead to different impact on individual. Some types of job demands challenge employees to gain personal achievement at work. They argued, for example, that time pressures, workload, high job responsibility, and job complexity may increase stress levels, but consequently lead to personal growth, creativity, and innovative performance (Cavanaugh et al., 2000; LePine et al., 2005). Some other types of job demands, such as role conflict, red tape, organizational politics, and job insecurity (Cavanaugh et al., 2000) may decrease personal gain and increase negative outcomes, for example, counterproductive behaviors, anxiety, and anger (Rodell & Judge, 2009), and turnover and withdrawal behavior (Podsakoff et al., 2007). Hindrance stressors lead to employee confusion about their actual role and decrease their performance (Cavanaugh et al., 2000; LePine et al., 2004; LePine et al., 2005). In a similar way, job insecurity is also a cause of negative work consequences: employees who experience this condition might feel insecure and not engage with their work. LePine et al. (2004) reported that hindrance stressors act as a predictor of emotional exhaustion: high levels of hindrance stressors lead to an increasing level of emotional exhaustion. Even though challenge and hindrance demands affect work outcomes such as work engagement differently, some studies have discovered that they affect emotional exhaustion in a similar way (Crawford, LePine, & Rich, 2010; LePine et al., 2004; LePine et al., 2005). This can be explained by using the Conservation of Resources (COR) theory (Hobfoll, 1989; Hobfoll & Shirom, 2001) as both types of demands lead to depletion of energy. The COR theory argues that loss of resources in coping with demands is the main component of stress (Hobfoll & Shirom, 2001). Also, jobs in which employees

experience high levels of demands influence emotional exhaustion and emotional depletion (Hobfoll, 1989).

In this study, we draw on the work of Cavanaugh et al. (2000), but propose some modifications. We use the term demands rather than stressor. The term stressor already implies the expectation of a negative reaction. Alternatively job demands are aspects of the job that require sustained cognitive, emotional, and/or physical effort (see Jones & Fletcher, 1996). In and of themselves, demands such as time pressure and work load are unlikely to be challenge demands. They may ultimately become positive when considered in combination with the levels of job control and resources available, as predicted in the JDC and JD-R models respectively. Psychosocial safety climate (PSC) theory is concerned only with promoting an environment that will lead to positive benefits PSC and challenge stressors relationship as previously operationalized (Cavanaugh et al., 2000; LePine et al., 2005). In line with PSC theory, we propose that:

Hypothesis 1a: PSC is positively related to challenge demands.

Hypothesis 1b: PSC is negatively associated with hindrance demands.

Thus, prior studies have also shown the positive relationship between challenge and hindrance demands on emotional exhaustion (Crawford et al., 2010; LePine et al., 2004). However, hindrance demands influence emotional exhaustion stronger than challenge demands on emotional exhaustion (Crawford et al., 2010). Under this new formulation we predict that:

Hypothesis 2a: Challenge demands will be related to emotional exhaustion.

Hypothesis 2b: Hindrance demands demands will be positively related to emotional exhaustion.

Although employees trapped by high job demands experience negative consequences, it is possible that demands may also lead to positive individual and

organizational outcomes (i.e., challenge demands). Challenge demands are positively related to work engagement and suggest that the nature of demands plays an important role in the relationship between demands on work and individual outcomes. Thus, meta-analytical analysis discovered that if job demands are appraised as challenges, this will increase the level of work engagement (Crawford et al., 2010). Conversely, hindrance stressor is a type of stressor that reduces and hinders personal growth (Cavanaugh et al., 2000) and reduces levels of work engagement among employees (Crawford et al., 2010). Van den Broeck et al. (2010) also discovered that challenge demands and hindrance demands influence vigor (sub-dimension of work engagement) in positive and negative way, respectively. Thus, we predict that:

Hypothesis 3a: Challenge demands will be positively related to work engagement.

Hypothesis 3b: Hindrance demands will be negatively associated with work engagement.

By focusing on the physical complaints due to the exposure to work-related stress, there has been growing recognition of the relationship between psychological functioning and physical complaints in the literature (see Herbert & Cohen, 1993). Psychological factors (e.g., stress) have also been considered as potential factors in physical health problems (Cohen, 1996; Schaufeli & Bakker, 2004). Cohen (1996) explained the linkage between psychological stress and physical disease through the concept of "immunosuppression", the immune system suppress its function in response to stress conditions and the risk of getting disease is high. Hence, prior studies have revealed that high exposure to work-related stress increases the risk of an infectious disease (Cohen & Williamson, 1991), musculoskeletal complaints (Lundberg et al., 1999), and stroke, asthma and ulcers (Quick, Quick, Nelson, & Hurrell, 1997). In

relation to work engagement and emotional exhaustion leading to physical health problems, some previous studies discovered that work engagement improves employees' health, but emotional exhaustion reduces employees' health (e.g., Law et al., 2011). Law et al. (2011) found that work engagement and emotional exhaustion are related to psychological health. Therefore, we argued that positive and negative psychological conditions affect physical conditions by proposing that emotional exhaustion leads not only to psychological problems, but also to physical health problems, such as headache, sleep disturbance, and digestive problems, whereas work engagement reduces physical complaints. We hypothesize that:

Hypothesis 4: Work engagement will be negatively related to physical health problems.

Hypothesis 5: Emotional exhaustion will be positively related to physical health problems.

In testing mediating pathways, several studies have discovered the indirect links between work characteristics (i.e., job demands) and health consequences through work engagement and emotional exhaustion (Dollard, Opie, et al., 2012; Idris & Dollard, 2011; Idris et al., 2011). In a similar way, LePine et al. (2004) discovered that emotional exhaustion acts as a mediator of the indirect relationship between hindrance stressor and learning performance. Therefore, we proposed that:

Hypothesis 6: Challenge demand has an indirect relationship on physical health problems via work engagement.

Hypothesis 7: Emotional exhaustion will mediate the relationship between hindrance demands and physical health problems.

Thus, we consider PSC as an important predictor of the indirect relationship towards work and individual outcomes through job demands (i.e., challenge and

hindrance demands). Several studies on PSC also discovered that the relationship of PSC towards work engagement and emotional exhaustion were mediated by job demands, specifically among Malaysian employees (Idris & Dollard, 2011). Based on the idea of challenge and hindrance demands as specific facets of job demands (Cavanaugh et al., 2000), we proposed that:

Hypothesis 8a: Challenge demand will mediate the relationship between PSC and work engagement.

Hypothesis 8b: Hindrance demand will mediate the relationship between PSC and emotional exhaustion**.**

As the final hypothesis, we are also interested in how PSC affects physical health problems directly. Studies on PSC mostly focus on the psychosocial aspect of working conditions and its relation to psychological health (e.g., Dollard & Bakker, 2010; Idris et al., 2011; Law et al., 2011). Hence, psychological functioning also been considered associated with physical aspects (Cohen, 1996), we argue that PSC able to influence physical health among employees by providing management priority, commitment, involvement and participation, and communication similar to PSC on psychological health. Therefore, we propose that:

Hypothesis 9: PSC will be negatively associated with physical health problems.

3.2 Method

3.2.1 Participants and procedure

Participants in this current study were 909 police personnel in Peninsular Malaysia which consisted of 58 departments. Each participant was given a self-rated questionnaire to complete. Participants comprised 630 males (69.3%) and 279 females (30.7%), with 193 having worked from 6 to 10 years (22.6%) and age ranging from 21

to 60 years. In total, 772 of participants were married (84.9%), 13.1% were single and 2.0% were divorced. Participants were mainly Malay (89.5%), followed by Chinese and other ethnicities (each 3.6%), and 3.2% were Indian. In addition, 31.4% of participants were aged in their thirties and 29.1% were in their twenties. Most participants were Muslim (91.1%), 3.5% were Buddhist, 2.8% Hindu, 1.7% Christian and, lastly, 1.0% were 'others'.

3.2.2 Instruments

Psychosocial safety climate (PSC) was assessed using a PSC-12 scale (Hall et al., 2010) from the original PSC-24 (Dollard & Kang, 2007). The instrument consists of four sub-dimensions which include three items for each sub-dimension: management commitment, management priority, organizational communication, and organizational participation and involvement (e.g., "In my workplace senior management acts quickly to correct problems/issues that affect employees' psychological health"). All items were scored using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) with the reliability α = .91.

Emotional exhaustion was examined using the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003). This dimension consists of eight items (α = .87; e.g., "After work, I tend to need more time than in the past in order to relax and feel better") which were scored on five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Work engagement was measured using the *vigor, dedication and absorption* dimensions to measure work engagement. These dimensions consist of seventeen items derived from the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003; Schaufeli, Salanova, González-Romá, & Bakker, 2002). *Vigor* was measured with six items (e.g., "At my work, I feel bursting with energy"), while *dedication* was assessed with five items (e.g., "I am enthusiastic about my job"), and *absorption* was assessed

with six items (e.g., “To me, my job is challenging”). All these items were scored on seven-point scale ranging from 1 (never) to 7 (everyday).

Challenge and hindrance demands were examined using ten items from the stressor scale (Cavanaugh et al., 2000; LePine et al., 2004; LePine et al., 2005). *Challenge demands* (three items; e.g., “I have a lot of projects/tasks at work”) represent job responsibility, job complexity, and job scope, whereas *hindrance demands* (five items; e.g., “I have not fully understood what is expected to me”) represent role ambiguity, role conflict, organizational politics, hassles, and red tape, and two additional items from challenge demands. We omitted two items of challenge demands which represent time pressure and workload, due to the factor loadings were more likely to hindrance demands during the extraction method using Principle Axis Factoring (Table 3.1). Then, we combined these two items as hindrance demands. The reliability of challenge and hindrance demands were α = .78 and α = .85, respectively. The items were scored on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Physical health problems were assessed using the Physical Health Questionnaire (PHQ; Schat, Kelloway, & Desmarais, 2005) to measure physical health problems, such as gastrointestinal problems, headaches, and sleep disturbance. This instrument consists of 11 items (α = .86; e.g., “How often have you had difficulty getting to sleep at night?”) with items scored on a four-point scale ranging from 1 (never) to 4 (very often).

Table 3.1: Factor analysis of challenge and hindrance demands

	Component	
	1	2
Challenge1		.76
Challenge2		.81
Challenge3	.60	
Challenge4		.57
Challenge5	.71	
Hindrance1	.62	
Hindrance2	.60	
Hindrance3	.78	
Hindrance4	.52	
Hindrance5	.64	

Note: Extraction method: Principal Axis Factoring
Rotation method: Varimax with Kaiser Normalization

3.2.3 Statistical analysis

Harmann's test was conducted to assess common method variance (Podsakoff & Organ, 1986) on challenge and hindrance demands due to their similarity as types of demands. We found that two factors were extracted of which the first variant was 35.2% and 23.7% was the second variant of both demands. In addition, data were analyzed using hierarchical linear modeling version 7.0 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011) in order to test all hypotheses. Data were standardized and differentiated into two levels, namely level 1 variable across individuals and level 2 variables across the 58 departments (Mathieu & Taylor, 2007).

To test the indirect effects of the hypotheses proposed, we followed a Monte Carlo method (Selig & Preacher, 2008) which required a significant effect from independent measure (*X*) to outcome (*Y*), followed by significant effects of *X* to *M* (mediator), and lastly a significant effect from *M* to *Y*. A Monte Carlo method was used to measure the confidence intervals of the indirect effect by reporting lower level and upper level values (Selig & Preacher, 2008).

3.2.3.1 Aggregation procedure

In order to determine the level of analysis, namely individuals (N = 909) and departments (N = 58), two tests, inter-rater reliability ($r_{(wg)}$) and intra-class coefficient [ICC(1)] were conducted. PSC was aggregated as the team level with the $r_{(wg)}$ agreement index as .96 (SD = .03) = (.83 – 1.00), representing 96% the homogeneity of psychosocial safety climate (PSC) perception within departments (James, Demaree, & Wolf, 1984). In addition, one-way random effects analysis of variance (ANOVA) showed significant between-group variance (F_{III} (56, 744) = 2.45, p < .001). The ICC(1) was .10 indicating that 10% of variance in the PSC was explained by differences between departments, with a significant chi square (57) = 154.07, p < .001.

3.2.3.2 Hypotheses testing

In Hypotheses 1a and 1b, we tested PSC (psychosocial safety climate) at the team level to predict challenge and hindrance demands at the individual level in cross-level analysis with the equation as follows:

Level-1 Model

$$Challenge_{ij} = \beta_{0j} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(PSC_j) + u_{0j} + r_{ij}$$

and

Level-1 Model

$$Hindrance_{ij} = \beta_{0j} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(PSC_j) + u_{0j} + r_{ij}$$

Next, we ran an analysis for Hypotheses 2a and 2b at the lower level effect of challenge and hindrance demands to predict emotional exhaustion. In further, for

individual analysis of Hypothesis 3a and Hypothesis 3b, we alternated emotional exhaustion with work engagement as the outcomes of challenge and hindrance demands:

Level-1 Model

$$\text{Exhaustion} = \beta_{0j} + \beta_{1j}(\text{Challenge}_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$B_{1j} = \gamma_{10}$$

and

Level-1 Model

$$\text{Exhaustion} = \beta_{0j} + \beta_{1j}(\text{Hindrance}_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$B_{1j} = \gamma_{10}$$

To test the mediation pathways, we utilized a Monte Carlo method (Preacher & Selig, 2012; Selig & Preacher, 2008). Monte Carlo methods are seen as a better test than the Sobel test in multilevel mediation analysis (MacKinnon, Lockwood, & Williams, 2004). Therefore, we analyzed the mediation effects in several pathways which showed that: challenge demands predict physical health problems via work engagement (challenge demands → work engagement → physical health problems) and hindrance demands predict physical health problems via emotional exhaustion (hindrance demands → emotional exhaustion → physical health problems), PSC predicts work engagement via challenge demands (PSC → challenge demands → work engagement), and lastly PSC predicts emotional exhaustion via hindrance demands (PSC → hindrance demands → emotional exhaustion).

3.3 Results

Table 3.2 reports the means, standard deviations, and correlations between variables at the individual and team level, the F_{III} values, and intra-class coefficients, ICC(1).

Table 3.2: Means, standard deviations, and correlations between variables

	Variables	M	SD	1	2	3	4	5	6	F_{III}	ICC(1)
1.	Psychosocial safety climate	3.54	.68		-.11*	-.40**	.20	-.44**	-.29*	2.50***	.10
2.	Challenge demands	3.15	.68	.02		.37**	.26*	.14	.16	1.91***	.06
3.	Hindrance demands	2.94	.75	-.19**	.46**		-.14	.69**	.35**	2.23***	.07
4.	Work engagement	5.50	1.11	.15**	.19*	-.12**		-.39**	-.32*	2.37***	.08
5.	Emotional exhaustion	2.40	.53	-.16**	.18**	.47**	-.21**		.44**	1.64**	.04
6.	Physical health problems	2.09	.53	-.11**	.14**	.36**	-.22**	.37**		2.50***	.08

Note: Above diagonal, aggregate; below diagonal, individual. (N = 909 individuals, 58 departments).
*p < .05, **p < .01, ***p < .001 (two-tailed).

Hypotheses 1a and 1b proposed that PSC would be positively related to challenge demands and negatively related hindrance demands. We found that hypothesis 1a was not supported as PSC was not significantly related to challenge demands (γ = -.01, SE = .04, t = -.18, n.s.; Table 3.3 and Table 3.11, Model 46), whereas PSC was found to be negatively associated with hindrance demands (γ = -.11, SE = .03, t = -4.09, p < .001; Table 3.3 and Table 3.11, Model 47) and supported the hypothesis 1b, indicating that PSC does not relate to challenge, but negatively associate with hindrance demands. Thus, Hypotheses 2a and 2b which proposed that challenge and hindrance demands would be positively related to emotional exhaustion were supported (β = .13, SE = .03, t = 4.15, p < .001; Table 3.4 and Table 3.7, Model 17, and β = .34, SE = .03, t = 12.31, p < .001; Table 3.4 and Table 3.7, Model 18), respectively. The result showed that hindrance demands associate with emotional exhaustion stronger than challenge demands. In a similar vein, Hypothesis 3a was also supported as the analysis found that challenge demands was positively related to work engagement (β = .25, SE = .04, t = 5.43, p < .001; Table 3.4 and Table 3.7, Model 20). Support was also found for Hypothesis 3b with findings showing that hindrance demands was negatively related to work engagement (β = -.17, SE = .06, t = -2.77, p < .01; Table 3.4 and Table 3.7, Model 21).

Table 3.3: Multilevel random coefficient model of PSC level 2 predicting level 1 (between-group variance)

	Challenge Demands			**Hindrance demands**			**Work engagement**			**Emotional exhaustion**			**Physical health problems**		
	γ	S.E.	*t*	γ	S.E.	*t*	γ	S.E.	*t*	γ	S.E.	*t*	γ	S.E.	*t*
PSC	-.01	.04	-.18	-.11	.03	-4.09***	.12	.06	2.17^{+}	-.08	.02	-3.42***	-.06	.03	-2.05*

Note: N = 909 individuals, 58 departments, **p* < .05, ****p* < .001 (two-tailed), $^{+}$sig. at one-tailed.

γ = parameter estimate, S.E. = Standard Error, *t*-ratio.

Table 3.4: Multilevel random coefficient model of challenge and hindrance demands level 1 predicting level 1 (within-group variance)

	Work engagement			**Emotional exhaustion**			**Physical health problems**		
	ß	S.E.	*t*	ß	S.E.	*t*	ß	S.E.	*t*
Challenge demands	.25	.04	5.43***	.13	.03	4.15***	.10	.03	3.27***
Hindrance demands	-.17	.06	-2.77**	.34	.03	12.31***	.25	.03	8.01***
Work engagement							-.09	.02	-4.59***
Emotional exhaustion							.35	.04	9.15***

Note: N = 909 individuals, 58 departments, **$p < .01$, ***$p < .001$ (two-tailed).

γ = parameter estimate, S.E. = Standard Error, *t*-ratio.

Table 3.5: HLM analysis of lower-level outcomes

	Physical health problems							
Model	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Lower-level effects								
Emotional exhaustion	.22 (.04)***		.32 (.04)***		.24 (.04)***	.29 (.03)***	.22 (.04)***	
Work engagement	-.07 (.02)***		-.07 (.02)***	-.08 (.02)***		-.08 (.02)***	-.06 (.02)***	-.11 (.02)***
Challenge demands	.01 (.02)	-.02 (.02)**		.01 (.02)	-.01 (.02)	.08 (.02)***		.13 (.03)***
Hindrance demands	.16 (.03)***	.26 (.03)***		.23 (.03)***	.18 (.03)***		.17 (.03)***	

Note: N = 909 individuals, 58 departments, **p < .01, ***p < .001 (two-tailed).

The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.6: HLM analysis of lower-level outcomes

	Physical health problems						
Model	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Lower-level effects							
Emotional exhaustion	.33 (.04)***		.24 (.04)***			.35 (.04)***	
Work engagement		-.08 (.02)***					-.09 (.02)***
Challenge demands	.06 (.02)*			.10 (.03)***			
Hindrance demands		.24 (.03)***	.17 (.03)***		.25 (.03)***		

Note: N = 909 individuals, 58 departments, *p < .05, ***p < .001 (two-tailed).
The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.7: HLM analysis of lower-level outcomes

	Emotional exhaustion			Work engagement		
Model	**16**	**17**	**18**	**19**	**20**	**21**
Lower-level effects						
Emotional exhaustion						
Work engagement						
Challenge demands	-.02 (.03)	.13 (.03)***		.42 (.05)***	.25 (.04)***	
Hindrance demands	.35 (.03)***		.34 (.03)***	-.38 (.06)***		-.17 (.06)**

Note: N = 909 individuals, 58 departments, ***p* < .01, ****p* < .001 (two-tailed).

The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.8: HLM analysis of cross-level effect of PSC on lower-level outcomes

	Physical health problems							
Model	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**
Lower-level effects								
Emotional exhaustion		.22 (.04)***		.32 (.04)***		.24 (.04)***	.29 (.04)***	.22 (.04)***
Work engagement		-.07 (.02)***		-.07 (.02)***	-.08 (.02)***		-.08 (.02)***	-.06 (.02)***
Challenge demands		.01 (.02)	-.02 (.02)		.02 (.02)	.01 (.02)	.08 (.02)***	
Hindrance demands		.16 (.03)***	.26 (.03)***		.23 (.03)***	.18 (.03)***		.17 (.03)***
Cross-level effects								
PSC	-.06 (.03)*	-.01 (.03)	-.03 (.03)	-.02 (.03)	-.02 (.03)	-.02 (.03)	-.02 (.03)	-.01 (.03)

Note: N = 909 individuals, 58 departments, *p < .05, ***p < .001 (two-tailed).

The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.9: HLM analysis of cross-level effect of PSC on lower-level outcomes

	Physical health problems							
Model	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**
Lower-level effects								
Emotional exhaustion		.33 (.04)***		.24 (.04)***			.34 (.04)***	
Work engagement	-.11 (.02)***		-.08 (.02)***					-.09 (.02)***
Challenge demands	.13 (.03)***	.06 (.02)*			.10 (.03)***			
Hindrance demands			.24 (.03)***	.17 (.03)***		.25 (.03)***		
Cross-level effects								
PSC	-.04 (.03)	-.03 (.03)	-.02 (.03)	-.02 (.03)	-.06 (.03)*	-.03 (.03)	-.03 (.03)	-.05 (.03)

Note: N = 909 individuals, 58 departments, *$p < .05$, ***$p < .001$ (two-tailed).

The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.10: HLM analysis of cross-level effect of PSC on lower-level outcomes

	Emotional exhaustion					Work engagement		
Model	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
Lower-level effects								
Emotional exhaustion								
Work engagement								
Challenge demands		.02 (.03)	.25 (.03)***			.41 (.05)***	.25 (.04)***	
Hindrance demands		.34 (.03)***		.13 (.03)***		-.37 (.06)***		-.16 (.06)**
Cross-level effects								
PSC	-.08 (.02)***	-.04 (.02)*	-.06 (.02)**	-.08 (.02)**	.12 (.06)$^{+}$	.09 (.07)	.13 (.06)*	.11 (.07)

Note: N = 909 individuals, 58 departments, *p < .05, **p < .01, ***p < .001 (two-tailed), $^{+}$sig. at one-tailed.
The first value is the parameter estimate, and value in parenthesis is the standard error.

Table 3.11: HLM analysis of cross-level effect of PSC on lower-level outcomes

	Challenge demands	Hindrance demands
Model	**46**	**47**
Lower-level effects		
Emotional exhaustion		
Work engagement		
Challenge demands		
Hindrance demands		
Cross-level effects		
PSC	-.01 (.04)	-.11 (.03)***

Note: N = 909 individuals, 58 departments, ***$p < .001$ (two-tailed).

The first value is the parameter estimate, and value in parenthesis is the standard error.

As expected, the relationship between work engagement and emotional exhaustion on physical health problems were significant. Hypothesis 4, proposing that work engagement would be negatively related to physical health problems, was supported (β = -.09, SE = .02, *t* = -4.59, *p* < .001; Table 3.4 and Table 3.6, Model 15). On the other hand, emotional exhaustion was found to be positively related to physical health problems as Hypothesis 5 was supported by the analysis (β = .35, SE = .04, *t* = 9.15, *p* < .001; Table 3.4 and Table 3.6, Model 14).

In further analysis, the indirect effect (Hypothesis 6) of work engagement mediating the relationship between challenge demands and physical health problems (95% CI [-.04, -.01]) was supported and the relationship between hindrance demands, and physical health problem via emotional exhaustion in Hypothesis 7 was also supported as the value (95% CI [.05, .01]). In testing mediating pathways, Hypothesis 8a, proposing that challenge demands would mediate the relationship between PSC and work engagement, was not supported as the findings indicated that the relationship between PSC and work engagement was not mediated by challenge demands (95% CI [-.02, .02]). On the other hand, Hypothesis 8b was supported as the analysis found that hindrance demands mediated the relationship between PSC and emotional exhaustion (95% CI [-.03, -.01]). Finally, Hypothesis 9 proposing that PSC would be negatively associated with physical health problems was also supported (γ = -.06, SE = .03, *t* = -2.05, *p* < .05; Table 3.3 and Table 3.8, Model 22).

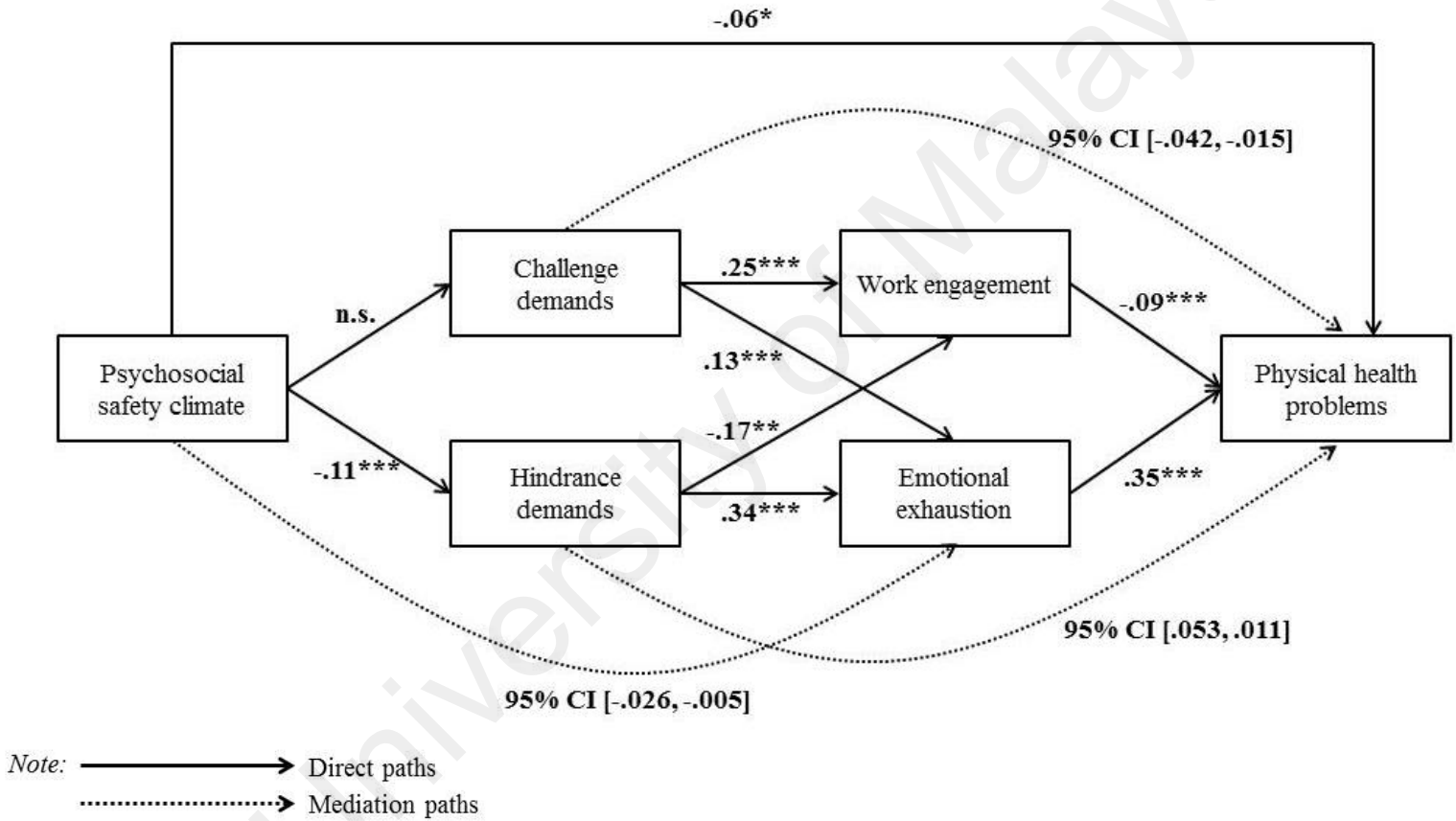

Figure 3.1: The final model

3.4 Discussion

In general, the present study provides an insightful understanding of PSC's influence on challenge and hindrance demands. This study discovered that PSC at the team level was able to reduce levels of hindrance demands, but unfortunately unable to influence challenge demands. Moreover, this study also provides an explanation for the inconsistent findings in the literature about work and individual consequences of job demands, and supports the theoretical separation of demand dimensions.

Challenge and hindrance demands were found as predictors towards positive and negative outcomes (i.e., work engagement, emotional exhaustion, and physical health problems). This study was able to support the idea that the relationship between demands and consequences (i.e., work engagement and emotional exhaustion) may depend on the type of demands itself, that is, whether stress is related to challenge or hindrance demands. According to the results, challenge demands was positively associated with work engagement, whereas hindrance demands was positively related to emotional exhaustion and physical health problems. The positive relationship between challenge demands and work engagement was consistent with LePine et al. (2004) and LePine et al. (2005) studies as they found that challenge demands increases positive motivation and also learning performance. The current study also found that challenge and hindrance demands were positively related to emotional exhaustion which was similar to the findings of LePine et al. (2004) study. It can be argued that the basic characteristic of challenge demands is job demands, so that it is inevitable that challenge demands also produces strain (i.e., emotional exhaustion). However, the study indicated that hindrance demands were found significantly related to emotional exhaustion stronger than challenge demands on emotional exhaustion.

In relation to physical health problems, the study was able to support the idea of the relationship between psychological functioning and physical complaints. Work

engagement as the positive state of mind towards work reduces physical complaints, whereas emotional exhaustion triggers to the increasing level of physical problems among employees. In conclusion, we suggest that it is important to distinguish the type of demand (challenge demands from hindrance demands) in order to get a better explanation of the effect of demands and their consequences on work and individuals. Thus, the organization level (i.e., PSC) should also be considered as an important aspect that could reduce demands and create a healthy and safe working environment. Upper level management's policies and regulations play a crucial role in determining employees' health and well-being as well as employees' perception towards work.

3.5 Limitations and future research

This current study was able to identify the significant influence of PSC on demands (i.e., challenge and hindrance demands) by using a multilevel perspective which differentiated PSC at the team level and other variables at individual levels. However, we acknowledge that we were unable to explain a long-term effect due to the cross-sectional data employed, particularly in relation to PSC and challenge demands. Future research is expected to further this study in order to explain these relationships using longitudinal data. Moreover, future research should also employ other variables in order to enrich this field of study in the literature. Finally, self-rated questionnaire should also be improved using the objective measurement in order to get more reliable data, such blood pressure and employees' Key Performance Index.

CHAPTER 4: ARTICLE TWO

THE EFFECT OF ORGANIZATIONAL PSYCHOSOCIAL SAFETY CLIMATE ON PSYCHOLOGICAL DISTRESS VIA JOB RESOURCES, WORK ENGAGEMENT, AND WORKAHOLISM: A MULTILEVEL MODERATED MEDIATED LONGITUDINAL STUDY

Abstract

Our innovation was to propose a multilevel moderated mediated model to explain how an organizational factor, psychosocial safety climate (PSC) — a climate for psychological health — related to psychological distress, via motivational processes (work engagement and workaholism). We proposed two key explanatory mechanisms: 1) the extended motivational process of the Job Demands–Resources (JD-R) model via job resources and work motivation, with a secondary PSC moderation, and 2) a process whereby PSC directly predicts work motivation, explained by psychological need satisfaction, relational theory and care giving. Longitudinal data were collected in Peninsular Malaysia across 26 police departments and 392 police personnel, matched across four months. Hierarchical linear modeling revealed between-group moderated mediated effects linking PSC to job resources, to work engagement, and workaholism, and, in cross-links, to psychological distress. When PSC operates via improving job resources, aside from increased work engagement, the process may unwittingly boost workaholism. However, the secondary function of PSC nullifies this process; when PSC is high the relationship between resources and workaholism disappears. Results support a multilevel moderated mediation PSC extended JD-R motivation path with cross-links, and a second PSC mediated path directly via motivation, as an explanation of worker psychological health. Confirming PSC as a leading indicator and the importance of

motivation pathway, provides new evidence for targeting PSC to improve worker psychological health.

Keywords: psychosocial safety climate; job resources; psychological distress; work engagement; workaholism

4.1 Introduction

Stress at work is a huge burden on worker health and productivity worldwide (EU-OSHA, 2009) with costs to the US economy alone of more than USD300 billion per year (Rosch, 2001). In the US more than one third of workers reported stressful jobs (Murphy & Sauter, 2003); across Europe about half the workers reported work stress (EU-OSHA, 2013). Work stress has serious psychological [e.g., depression (McTernan, Dollard, & LaMontagne, 2013)], physical [muscular skeletal disorders (Bongers, Ijmker, Van den Heuvel, & Blatter, 2006) and cardiovascular disease (CVD) (Belkic, Landsbergis, Schnall, & Baker, 2004)], and work-related [sickness absence, presenteeism, workers compensation claims (PricewaterhouseCoopers, 2014)] impacts. Managing work-related stress is a challenge for managers (Biron, Karanika-Murray, & Cooper, 2012). In Australia, only 56% of workers considered that their most senior leaders valued their mental health (Beyondblue, 2014). Given the prevalence, and human and productivity costs of work stress, greater attention needs to be given to how worker psychological health is managed within organizations.

The main goal of this multilevel longitudinal research was to investigate how an organizational climate specific for worker psychological health — psychosocial safety climate (PSC) — largely shaped by senior management, could positively influence worker psychological health. Psychosocial safety climate (PSC) reveals management values in relation to worker psychological health; for instance managers may prioritize worker psychological health in relation to other competing organizational imperatives

(e.g., service climate, productivity). Through strategic decision making, and influenced by their values, managers make choices about the way jobs are designed (Morgeson et al., 2010). In work contexts where managers have humanistic ideals, such as in high PSC contexts, managers are concerned for worker well-being and ensure that jobs are designed to minimize psychosocial risks, such as high demands and low resources, that have the potential to cause psychological, social, or physical harm (Cox et al., 2000).

We expand conceptions about work stress in this paper by using a multilevel framework because of a growing body of evidence signifying a hierarchy of work stress causes, including organizational and job design factors (Dollard & Bakker, 2010; Dollard, Osborne, & Manning, 2013; Morgeson et al., 2010). Psychosocial safety climate (PSC) is a leading organizational indicator of job design and worker psychological health (Dollard & Bakker, 2010); theoretically it is a multilevel extension (predictor) of dominant work stress theories that emphasize job design risks, such as the Job Demand–Control (JDC; Karasek, 1979) and Effort–Reward Imbalance (ERI; Siegrist, 1996) models. Here we focus on the theoretical extension of the Job Demand–Resources (JD-R) framework (Bakker & Demerouti, 2007).

Our goal is to explore work motivation as a key explanatory mechanism for linking organization-level PSC to psychological health. The JD-R literature in explanation of worker psychological health has focused on the job demands in health erosion pathway, whereby job demands wear out and exhaust an employee's energy reserves. However, the JD-R theorists have always contended that there are cross-links to psychological health from a second, motivational path (Bakker & Demerouti, 2007); psychological health could be explained in terms of job resources, and work motivation. How this motivation mechanism works may depend on the kind of motivation: work engagement is a positive, and workaholism a negative, work-related motivational state. Work engagement and workaholism, respectively, denote the good and bad of working

hard (Schaufeli, Taris, & Van Rhenen, 2008; Shimazu & Schaufeli, 2009). Our aims are: (a) to explore the extended motivational path and cross-link as a key mechanism connecting PSC to psychological distress; (b) to investigate the unique role of workaholism; (3) to explore the direct effect of PSC on motivational states; and (4) to uncover the potential, secondary, moderating role of PSC in the process. The conceptual research model is illustrated in Figure 4.1. Theoretically addressing these aims has the potential to augment PSC construct by delineating new explanatory mechanisms (Dollard & Bakker, 2010), which from a practical perspective, may provide the evidence to tackle work stress, its health effects, and its productivity costs at source.

4.1.1 Psychosocial safety climate (PSC) and job resources

Psychosocial safety climate (PSC) concerns four organizational domains: senior management commitment to stress prevention; senior management priority for psychological health versus productivity imperatives; organizational participation and involvement in managing psychological health risks; and organizational communication concerning psychological health issues. Psychosocial safety climate (PSC) is assessed by aggregating employees' perceptions of organizational policies, practices, and procedures regarding their psychological health and well-being (Dollard & Bakker, 2010); it has a primary role, predicting work conditions, and a secondary role, moderating the effect of work conditions.

In aggregate, PSC reflects the "heart" of the organization, its fundamental regard or care for worker psychological health. Psychosocial safety climate (PSC) is related to but different from other safety constructs. Team psychological safety refers to a shared belief held by members of a team that it is safe to take interpersonal risks in a team: this is theorized to promote learning behavior and team performance (Edmondson, 1999). Psychological safety refers to feeling confident to express oneself without fear of negative consequences to one's self-image or status (Kahn, 1990).

Psychosocial safety climate (PSC) likewise refers to freedom from personal harm, but concerns psychological health as a basic human value across all work-related activities, not just interpersonal relations, risky decision making, or when making a mistake.

Psychosocial safety climate (PSC) construct proposes that senior managers play a crucial role in job design (Dollard & Bakker, 2010). In high PSC contexts, managers are concerned about employees' psychological health and safety, and act accordingly. Scholars emphasize that organizational-based resources play an important role in boosting employees' motivation and well-being (Briner & Walshe, 2015). An organization with high PSC may allocate a variety of job resources (e.g., supervisor support, job control, decision authority) to enable members to perform their job. These resources, by definition, stimulate employees to learn and develop new skills, and to have personal control over demands when performing work tasks (Dollard & Bakker, 2010). Multilevel research has shown that PSC aggregated to the organizational level is related to job resources, such as job control, emotional resources, supervisor support, and rewards (Dollard & Bakker, 2010; Idris et al., 2015; Law et al., 2011). Therefore, we propose:

Hypothesis 1: Psychosocial safety climate (PSC) has a positive effect on job resources.

4.1.2 Work engagement vs. workaholism

As introduced by Kahn (1990), personal engagement represents the efforts of individuals to fully utilize their own selves in the performance of their work roles. Later, the term "work engagement" was used to represent the energy and involvement (Maslach, Schaufeli, & Leiter, 2001), and vigor and dedication that individuals bring to work tasks (Schaufeli, Bakker, & Salanova, 2006). Specifically, work engagement is a work-related condition defined as a positive and fulfilling state of mind, involving: (1)

vigor (being full of energy and mental resilience when working); (2) dedication (a sense of enthusiasm through being highly involved at work); and (3) absorption (being strenuously and happily immersed in work so that time passes quickly) (Schaufeli et al., 2006). Engaged employees show an affective and energetic behavior while working due to a "psychological presence" that influences their minds and behavior (Maslach & Leiter, 1997), and an energetic enthusiasm towards work (Schaufeli et al., 2002).

Workaholism is defined as working excessively hard, and being obsessed with work, which is manifested through working compulsively (Schaufeli, Shimazu, & Taris, 2009). Workaholics push themselves and are driven to work harder than their colleagues, and more than is required by their organizations, to avoid negative feelings, such as anxiety, shame, and guilt (Killinger, 2006). They find the motivation of their internal drive very difficult to resist, have difficulty disengaging from work, frequently think about work, and spend a great deal of time at work. For workaholics, their strong compulsive drive to work jeopardizes health quality and interpersonal relationships (Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015)

The distinction between work engagement and workaholism is the source of debate. Scholars suggest that work engagement has a dark side that relates to negative consequences and potentially becomes workaholism (Bakker, Albrecht, & Leiter, 2011; Schaufeli & Salanova, 2011). Engaged employees craft their job to make it more challenging which potentially leads to work–life imbalance; they may invest too much energy without receiving adequate outcomes and may experience burnout (Schaufeli & Salanova, 2011). However, Schaufeli and Salanova (2011) argue that work engagement does not create workaholism. Engaged employees are also devoted to long working hours, but do not have the element of working compulsively (Bakker, Schaufeli, Leiter, & Taris, 2008; Schaufeli & Salanova, 2011). Moreover, the motivational element also differentiates them; engaged employees are pulled to work because work is perceived as

fun, whereas workaholic employees are pushed to work (Taris, Schaufeli, & Shimazu, 2010). Factor analysis (Schaufeli et al., 2008) and longitudinal research confirmed that work engagement and workaholism are independent constructs (Mäkikangas, Schaufeli, Tolvanen, & Feldt, 2013).

4.1.3 Job resources on work engagement and workaholism

Job resources are potential antecedents to work engagement and workaholism. As theorized in the motivational pathway of the JD-R model, job resources, such as emotional resources, social support, autonomy, and learning opportunities, are strongly related to motivational work-related outcomes, particularly work engagement (Bakker & Demerouti, 2007). Job resources play intrinsic and extrinsic motivational roles (Bakker & Demerouti, 2007). According to Self-Determination Theory, there are specific basic human needs, autonomy, competence, and relatedness (Deci & Ryan, 2000), and resources such as job control, social support, and opportunity for learning help fulfill these basic human needs (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008), and increase intrinsic motivation (Deci & Ryan, 1985). Job resources also encourage personal growth, learning, and development (Bakker & Demerouti, 2008). Extrinsically, job resources are motivational because they are instrumental in attaining work goals which can be rewarding (Bakker & Demerouti, 2007). Several empirical studies (Bakker & Demerouti, 2007, 2008) and meta-analytic studies (Halbesleben, 2010) showed that job resources enhance work engagement.

Theory relating to how job resources relate to workaholism is lacking. By contrast, there is much theory and research showing that job demands, such as pressure to work intensively and long work hours, relate to workaholism (Burke, 2000; Ng, Sorensen, & Feldman, 2007). A recent study suggested that job resources have no relationship with workaholism (Schaufeli et al., 2008). However, we theorize that, while supplying specific resources at work to generate positive motivation, managers may

unwittingly trigger negative motivation or workaholism. In other words, job resources may boost work engagement but, at the same time, may initiate the unintended outcome of workaholism. It is likely that workaholic employees may continue to working excessively if adequate job resources are provided in the workplace. Although workaholics are driven by themselves to work hard, job conditions may also trigger or boost workaholism. Job resources, therefore, facilitate workaholic employees' need to work harder in a similar way to job demands. Although researchers have argued that workaholics are motivated by external regulation, such as by praise, esteem, and rewards (Spence & Robbins, 1992), others have not found support for this (Van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). However, we were interested in the role of instrumental resources (emotional and cognitive), those that help to get the job done. Therefore, we propose:

Hypothesis 2: Job resources positively relate to (a) work engagement and (b) workaholism.

4.1.4 Mediation: PSC on work engagement and workaholism via job resources

Prominent scholars have consistently postulated that PSC is positively associated with positive motivational states, such as work engagement, through job characteristics (job demands and job resources) (Dollard & Bakker, 2010; Idris & Dollard, 2011; Law et al., 2011). In high PSC conditions, with the psychological health of workers in mind, managers are likely to design jobs and allocate adequate job resources, like job autonomy, to enable employees to do the job: in turn, due to the motivational attributes of job resources (as discussed), employees will be engaged with their job (Dollard & Bakker, 2010; Idris & Dollard, 2011). Managers will be able to motivate workers intrinsically by meeting their basic psychological needs, such as the need for autonomy and social support, thus boosting their work engagement.

Although there is evidence of the beneficial effects of PSC on work engagement, based on the logic of the effects of resources discussed above, a paradox emerges. Resources have potentially good and bad effects on motivational states, because they are a potential feeder for workaholism, and as PSC precedes job resources, the expected "unconditional" positive effects of PSC on worker psychological well-being are called into question. We foresee that PSC is related to job resources in a positive way that gives rise to a positive state of work engagement (expected consequence) and also an undesired state of workaholism (unexpected consequence). Taking into account Hypotheses 1 and 2, we propose:

Hypothesis 3: Job resources mediate (a) the beneficial relationship between PSC and work engagement, and (b) the detrimental relationship between PSC and workaholism.

4.1.5 Work engagement, workaholism, and psychological distress

The consequences of work engagement and workaholism on individual health and well-being have been extensively researched. Engaged employees enjoy both work and their life outside and this satisfaction contributes to their psychological health. The relationship between work engagement and psychological health may be explained by intrinsic factors; according to Self–Determination Theory (SDT) when psychological needs are met, motivated employees are more likely to have improved psychological health (Deci & Ryan, 1985; Ryan & Deci, 2000). This is because being engaged creates a sense of belonging, being valued, and connectedness with others (Cartwright & Holmes, 2006) this in turn will positively increase psychological health.

Conversely, workaholism is theorized to negatively relate to psychological health. Drawing on Hockey's (1997) compensatory control model, when workaholic employees put in more effort to maintain their performance for increased work

accomplishment, the expenditure of personal cognitive and mental effort is likely to increase their levels of strain (Hansez & Chmiel, 2010). The nature of this process is chronic for workaholic employees as they spend most of their time working.

Distinct effects of work engagement and workaholism have been found in both cross-sectional and longitudinal studies (Shimazu & Schaufeli, 2009; Shimazu et al., 2015; Shimazu, Schaufeli, Kubota, & Nawakami, 2012), whereby work engagement reduced negative psychological health (Hakanen & Schaufeli, 2012), and workaholism increased ill-health (Shimazu et al., 2015; Shimazu et al., 2012). Prior studies have revealed that work engagement leads to positive work outcomes such as job satisfaction, organizational commitment, and work performance (Saks, 2006; Schaufeli et al., 2008), and reduces negative psychological states such as depression (Idris & Dollard, 2011). By contrast, workaholic employees experience negative work outcomes, such as less job satisfaction (Burke & MacDermid, 1999), more interpersonal conflict at work (Mudrack, 2006), and relatively high levels of job strain and health problems (Burke, Richardsen, & Mortinussen, 2004; Spence & Robbins, 1992). Therefore, we propose:

Hypothesis 4: Work engagement (a) and workaholism (b) are negatively and positively, respectively, related to psychological distress.

As our main proposition is that PSC is related to psychological distress via job resources and via work motivation, logically we also need to confirm that:

Hypothesis 5: Work engagement (a) and workaholism (b) mediate the relationship between job resources and psychological distress.

Although we have described the indirect effect of PSC on motivational states via job resources, PSC may also relate to these motivational states via other mechanisms. Relational theory (Kahn & Heapy, 2014), the literature on caring organizations, and Self-Determination Theory (Deci & Ryan, 1985) suggest that when an organization

values and cares about its employees, psychological needs, such as the needs for relatedness, competence, and autonomy, will be fulfilled, and the employees' intrinsic motivation will be increased, and their psychological health enhanced. This is because caring relationships nurture meaningfulness, safety, and availability: members feel that their existence at work is useful, valued, and meaningful, and that they can perform work roles freely without fear of negative consequences. This promotes the intrinsic motivation to engage and perform at work (Kahn & Heapy, 2014). Caring organizations, such as those with high PSC, are characterized by the gestures of care given by those within the organization to each other (Kahn, 2005): organizational members feel that the organization cares about their interests (Carmeli, Jones, & Binyamin, 2015; McAllister & Bigley, 2002). Psychosocial safety climate reflects concerns for the inner needs of others at the highest levels in organizations, and is likely to cultivate humanistic connections between members that could help meet psychological needs (Carmeli et al., 2015) and promote work engagement. Workaholics throw themselves into their work to avoid negative feelings (Killinger, 2006; Van Beek et al., 2012). As workaholism may be related to personal insecurity and low self-worth, care giving may act to reduce the workaholic's fundamental needs that drive workaholism. Recent research found a direct effect relationship between PSC and work engagement (Idris et al., 2015). As explained the motivational states in turn relate to distress. Therefore, we propose a second mediation process:

Hypothesis 6: Psychosocial safety climate (PSC) is directly positively related to work engagement (a) and negatively related to workaholism (b): these states mediate the relationship between PSC and psychological distress (6[c] and 6[d]).

The secondary role of PSC as a multilevel moderator of hazardous work conditions is theorized to occur because PSC functions as a safety signal, indicating when it is safe to utilize resources to offset aversive stimuli (Law et al., 2011; Lohr, Olatunji, & Sawchuk, 2007). Consistent with this safety signal effect PSC ameliorated the effect of demands (Dollard & Bakker, 2010; Law et al., 2011), and the resources-demand interaction (Dollard, Tuckey, et al., 2012), in relation to psychological distress. The beneficial moderating function of PSC on resources has been shown in relation to psychological health (Dollard & Karasek, 2010), but not investigated in relation to work engagement; Law et al. (2011) found PSC moderated effects in relation to work engagement, but the independent measure was bullying/harassment. Since resources for work engagement are not aversive, the safety signal function may not be relevant for work engagement. For workaholism, since PSC acts to meet basic psychological security needs, this may offset the compulsive need to use available resources; we expect:

> *Hypothesis 7:* PSC will moderate the job resources to workaholism relationship; the relationship between job resources and workaholism will be tempered when PSC is high.

4.2 Current study

We were interested in how PSC, a distal organizational facet, operationalized at the police department level, affects psychological distress (see Figure 4.1) via moderated, mediation processes. We used longitudinal data to provide insights into the causal nature of the relationships. As we had only two waves of data to test mediation processes, we used a "half-longitudinal design" (Cole & Maxwell, 2003). Two waves of data are sufficient to examine mediation relationships as discussed by Cole and Maxwell (2003). Theory regarding the optimal time lags is limited (Dormann & Van de

Ven, 2014), however, in stressor–strain studies where the starting points of the stressor are unclear, shorter time lags, such as four months are adequate (Dormann & Van de Ven, 2014). Considering this and for practical reasons (costs associated with the length of the project, potential participant loss over time), we estimated the mediation pathways using lagged data with a four-month time interval for each path. Moreover, exploring how these Western concepts operate in an Eastern work setting is important for generalizing knowledge across the global economy. The study was conducted outside of Western nations where most work health knowledge has been built, in Malaysia, one of the emerging economies in Southeast Asia. According to the International Trade Union Confederation (ITUC) Global Rights Index, Malaysia is one of the worst countries in the world to work, where workers have no guarantee of rights (ITUC Global Rights Index, 2014). We applied our theoretical model to policing since this sector in Malaysia is increasingly under-resourced and has high levels of stress (Ramli, Andin Salamat, & Abdul Rahman, 2015) and police work is considered to be one of the most stressful occupations worldwide (Tuckey, Winwood, & Dollard, 2012).

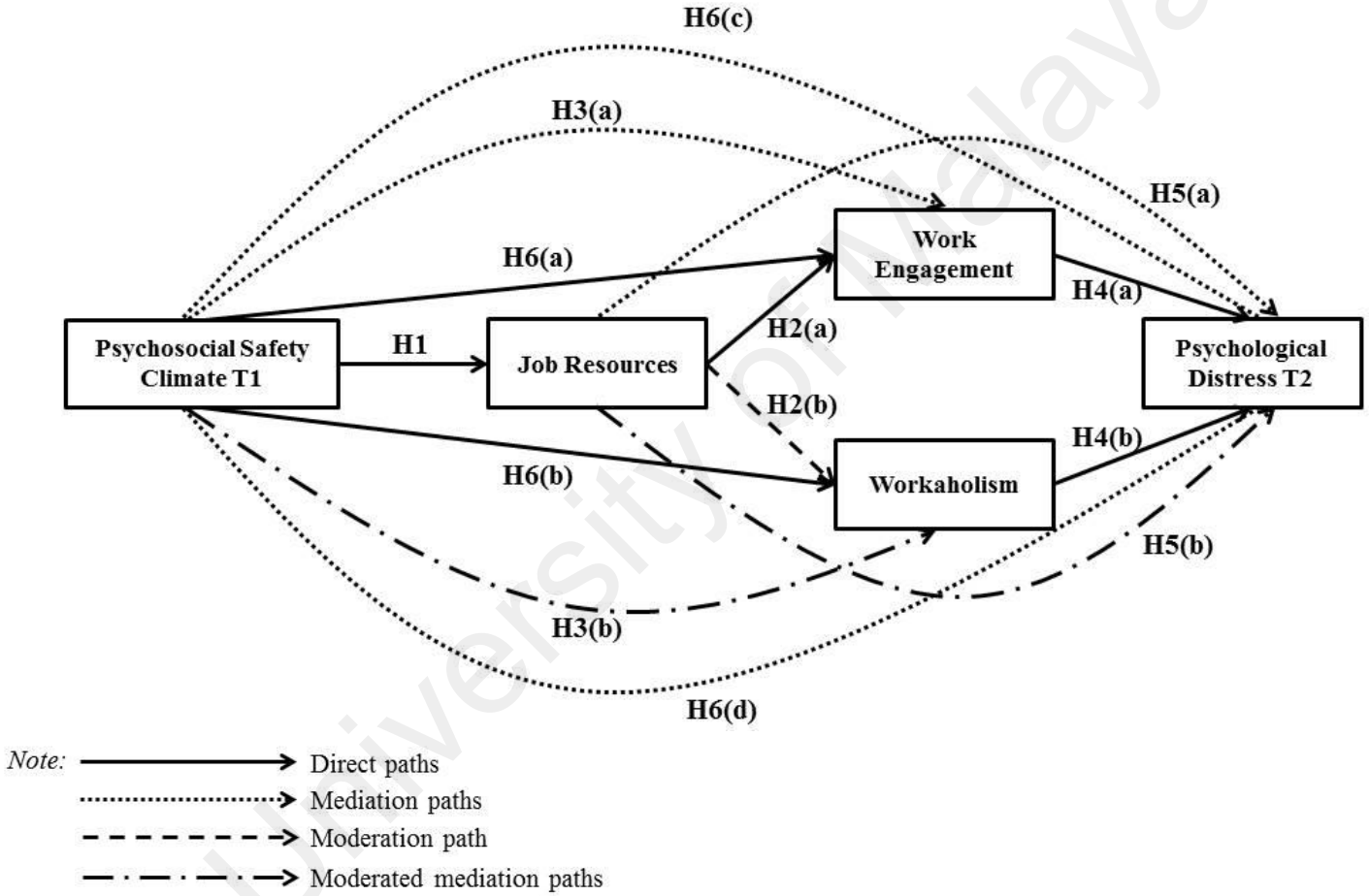

Figure 4.1: Research model

4.3 Method

4.3.1 Participants and procedure

A multilevel longitudinal design was used in the study with 392 police personnel from 26 departments in the Police Contingent Headquarters in Peninsular Malaysia (involving 11 states). Participants completed paper and pencil surveys twice, with a time lag of four months. The time frame for data collection was one month from the date of distribution. A consent letter was obtained from the Royal Malaysia Police Headquarters, Kuala Lumpur. For safety reasons, the headquarters assisted the researchers by sending the questionnaires to each state (100 questionnaires for each state), and they were distributed to police departments within the states. At Time 1 (T1), data were collected from 44 departments (638 participants). At Time 2 (T2), the same departments and participants who participated at Time 1 were identified through their personnel identification number provided at Time 1, and were approached by the headquarters personnel. At both times, the questionnaires were returned by mail directly to the researchers. Participants were matched across time by the identification number and other demographic information (e.g., date of birth, gender, position, length of service, and location). In the final matched sample, only 26 departments (59%) were willing to participate (N = 392 participants, 61.4%).

Participants were mostly male (69.5%), with their ethnicity mainly Malay (87.5%), followed by Chinese (5.4%), Indian (4.3%), and others (2.8%). Their educational backgrounds ranged from secondary school (63.9%), diploma (25.3), and bachelor degree (9.2%), through to Master's degree (0.5%) and others (1.0%). In total, 86.4% of participants were married, 12.8% were single, and 0.8% were divorced. Their religion was mainly Muslim (90.1%), followed by Buddhist (4.6%), Hindu (3.8%), Christian (1.0%), and others (0.5%).

To test whether attrition led to any bias in the sample, an independent-samples *t*-test analysis was conducted, comparing the demographics of those who participated only at Time 1 with those who participated at both times. Although no difference was found for age, there was a significant difference for gender: $t(634) = 2.32$, $p < .05$. This means that the longitudinal sample was biased with more women proportionately retained in the sample. As gender was not related to any of the variables, we do not expect that our results were duly affected by sample attrition.

4.3.2 Instruments

Psychosocial safety climate (PSC) was measured by using the 12-item scale developed by Hall et al. (2010) and translated into Malay (Idris et al., 2015). The questionnaire consists of four dimensions (each measured by three items), namely: (1) management commitment (e.g., "In my workplace, senior management acts quickly to correct problems/issues that affect employees' psychological health"); (2) management priority (e.g., "Psychological well-being of staff is a priority for this organization"); (3) organizational communication (e.g., "Information about workplace psychological well-being is always brought to my attention by my manager/supervisor"; and (4) organizational participation (e.g., "Employees are encouraged to become involved in psychological safety and health matters"). The scales were added together to form a composite common scale. Prior Malaysian research shows that the scales correlate > 0.70, thus justifying this decision (Idris et al., 2015). All items were scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree) with reliability $\alpha = .94$.

Job resources were assessed using the Demand–Induced Strain Compensation (DISC) questionnaire (de Jonge et al., 2009): six items measured *cognitive resources* (e.g., "I have the opportunity to determine my own work method") and five items assessed *emotional resources* (e.g., "I get emotional support from others when a threatening situation at work occurs"). All items were scored on a 5-point scale from 1

(strongly disagree) to 5 (strongly agree). The scales were highly correlated at Time 1, r = .75, p < .01, and Time 2, r = .65, p < .01, and had almost identical temporal relationships with the other variables. For model parsimony, we added together the item-adjusted mean scales (T1 α = .90; T2 α = .88). The scale was translated using the back-translation method (Brislin, 1970) in which an English version was initially translated into Malay by the first translator; it was then translated back into English by the second translator. Both translators are psychologists well versed in the work psychology area and fluent in English and Malay. Translation discrepancies were resolved by discussion between the translators and the first and second authors.

Work engagement was assessed using the 9-item Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006) and translated into Malay (Idris et al., 2015). The measure canvases three dimensions: *vigor* (e.g., "At my work, I feel bursting with energy"); *dedication* (e.g., "I am enthusiastic about my job"); and *absorption* (e.g., "To me, my job is challenging"), each with three items, scored on a 7-point scale from 1 (never) to 7 (every day) (T1 α = .85; T2 α = .87).

Workaholism was measured using 10 items of the Dutch Work Addiction Scale (DUWAS; Schaufeli et al., 2009), which represents two dimensions: *working compulsively* (five items, such as "I stay busy and keep many irons in the fire"); and *working excessively* (five items, such as "I feel guilty when I take time off work"). All items were scored on a 4-point scale from 1 (never) to 4 (very often) (T1 α = .88; T2 α = .88). The scale was translated using the back-translation method (Brislin, 1970).

Psychological distress was assessed using the 12-item General Health Questionnaire (GHQ-12; Goldberg, 1978) and translated into Malay (Idris et al., 2012), which detects symptoms of depression, anxiety, and social withdrawal (e.g., "Have you recently been able to concentrate on whatever you're doing?"). Items are scored on a 4-

point scale from 1 (never) to 4 (very often) (T1 α = .70; T2 α = 71). The GHQ is a tool used to measure psychological distress reliably (Rai et al., 2012).

4.3.3 Analysis strategy

The data were analyzed using hierarchical linear modeling (HLM) version 7.0 (Raudenbush, Bryk, Cheong, & Congdon, 2005). Variables were standardized and nested in two levels, namely, Level 1 across individuals and Level 2 across 26 departments (Mathieu & Taylor, 2007). All Level 1 (individual-level) variables were group-mean centered, while Level 2 (department-level) variables were grand-mean centered (Hofmann & Gavin, 1998). To test the hypotheses longitudinally, whereby the Time 1 independent measure predicts Time 2 outcome measures, we controlled for the baseline Time 1 outcome measures. We followed Aguinis, Gottfredson, and Culpepper (2013) and estimated cross-level effects by reporting the intercept value (γ_{00}); the within-team (Level 1) variance (σ^2); the intercept (Level 2) variance (τ_{00}); the slope (Level 2) variance (τ_{11}); the intercept-slope (Level 2) variance (τ_{01}); the –2 log x likelihood (full information maximum likelihood estimation [FIML]); the number of estimated parameters; and the pseudo R^2 value.

4.3.3.1 Aggregation procedure

We determined the group-level properties of PSC to ascertain whether it could be aggregated to the department level. We investigated its variability between departments, and its homogeneity within departments, using intra-class coefficients (ICCs) and inter-rater reliability ($r_{(wg)}$), respectively. The ICCs were confirmed with one-way random effects analysis of variance (ANOVA) in Statistical Package for the Social Sciences (SPSS) and, in HLM, using a null model. The ANOVA showed significant between-group variance for PSC (F (25, 366) = 3.31, p < .001), as did the HLM, with a significant chi square (25) = 82.83, p < .001 (LeBreton & Senter, 2007). The ICC(1) for

PSC was .13, indicating that 13% of variance in PSC was explained by differences between departments. Research suggests ICCs ranging from .15 – .30 (Mathieu, Aguinis, Culpepper, & Chen, 2012) or .05 – .20 (Peugh, 2010) have adequate between-group variance for exploration. The mean $r_{(wg)}$ agreement index was .96 (standard deviation [*SD*] = .02) indicating that there was 96% homogeneity of perceptions of PSC (James et al., 1984) within departments; the mean $r_{(wg)}$ agreement index reached the cut-off of .70 indicating an adequate level of agreement within the organization (Mathieu et al., 2007). Adequate between-group variance and consistency of perceptions within groups provided good evidence that PSC was a group-level (organizational) phenomenon.

4.3.3.2 Hypotheses testing

We first tested null models, to verify the level of between-group variance in the measures (Tables 4.2, 4.3, 4.4, and 4.5, Model 1). The cross-level direct effect hypothesis (Hypothesis 1) was then tested by regressing job resources Time 2 on PSC Time 1, controlling for job resources Time 1 (Table 4.2, Model 2). Next we used the lower-level direct effect to test Hypotheses 2(a), 2(b), 4(a), and 4(b). For Hypothesis 2(a), we regressed work engagement Time 2 on job resources Time 1, controlling for work engagement Time 1 (Table 4.3, Model 2). For Hypothesis 2(b), we regressed workaholism Time 2 on job resources Time 1, controlling for workaholism Time 1 (Table 4.4, Model 2). For the last direct hypothesis, Hypothesis 4(a), and Hypothesis 4(b), we regressed psychological distress Time 2 on work engagement Time 1 and workaholism Time 1, controlling for psychological distress Time 1 (Table 4.5, Model 2).

In relation to the mediation process in multilevel models, there is no consensus on the best approach. In the current study, to test the mediation Hypotheses 3, 5, and 6, we followed Mathieu and Taylor (2007) rules for testing meso-mediational relationships in

order to test cross-level mediation by using lower-level mediator analysis [*X* (Level 2) → *M* (Level 1) → *Y* (Level 1)]. Step 1 tested a significant relationship between the antecedent variable and outcome variable (*X* → *Y*). Step 2, *path a*, tested a significant relationship between the antecedent variable and mediator (*X* → *M*). Step 3 required a test of the mediator on the outcome variable (*M* → *Y*). Step 4, *path b,* tested a significant relationship between the mediator on the outcome variable (*M* → *Y*), controlling for the antecedent variable (*X*). However, as recommended by Shrout and Bolger (2002), significant relationships between *X* and *Y* are not required for mediation analysis, particularly when the antecedent is distal from the dependent variable as is the case in our study.

Mediation paths were formally tested using the Monte Carlo method (MCMAM) to measure the confidence intervals of the indirect effects (MacKinnon et al., 2004; Selig & Preacher, 2008). The Monte Carlo method is considered to be a better test than the Sobel test for mediation analysis (MacKinnon et al., 2004). We used 95% confidence intervals (CIs) with 20,000 repetitions, reporting lower-level (LL) and upper-level (UL) values.

4.4 Results

As prior research, albeit cross-sectional, showed that PSC was related to work engagement via psychological health (Idris et al., 2015), it was important to consider whether the direction of our hypotheses — motivation to psychological distress — was viable. In a reciprocal structural equation model (SEM), using AMOS version 20.0 (Arbuckle, 2011), controlling for concurrent and autoregressive relationships, we found simultaneous cross-lagged paths as follows: PSC predicts (→) job resources (β = .08*); job resources → work engagement (β = .13*) / workaholism (β = .33***); work engagement and workaholism → psychological distress (β = -.31***; β = .21**);

psychological distress → work engagement (β = -.28***) / workaholism (β = .21***); work engagement and workaholism → job resources (β = .16**; β = .34***); and job resources → PSC (β = .03, non-significant [n.s.]), with the following fit indices: $\chi^2(20) = 22.79$, CFI = .99, TLI = .96, RMSEA = .02. This provides evidence that our proposed hypothetical direction is legitimate to consider in the context of reciprocal paths.

We confirmed that work engagement was a construct distinct from workaholism in two ways: confirmatory factor analysis (CFA) using SEM AMOS, showed a two-factor model, χ^2 (151) = 866.75, $p < .001$, fit the data better than a one-factor model, $\Delta\chi^2$ (1) = 1305.65, $p < .001$; and, confirming the correlation between them was small, β = -.12, B = -.04, SE = .02, $p < .05$.

Table 4.1 reports the descriptive analysis of the means, standard deviations (SDs), and inter-correlations between variables at the individual and department levels, and the F_{III} values and intra-class coefficients, ICC(1). The ICC(1) values had between-department variance ranging from 7% (in job resources) to 21% (in psychological distress Time 2); for each variable this indicates the significant variance that could have its genesis in Level 2 factors (i.e., PSC). The HLM analyses are shown in Tables 4.2, 4.3, 4.4, and 4.5; findings are summarized in Figure 4.3.

Table 4.1: Means, standard deviations, and correlations between variables

	Variables	M	SD	1	2	3	4	5	6	7	8	9	F_{III}	ICC(1)
1.	PSC T1	3.48	.69		.43*	.45*	.28*	.35*	.34*	-.01	-.47**	-.05	3.31***	.13
2.	Job resources T1	2.57	.51	.32***		.25	.20	.10	-.08	-.13	-.03	.03	2.15***	.07
3.	Job resources T2	2.54	.48	.11*	.15**		.47*	.22	.28*	.01	-.04	-.27*	2.22***	.07
4.	Work engagement T1	5.53	1.09	.12*	.09^{+}	.19***		.24	.03	.06	.05	-.30*	3.72***	.15
5.	Work engagement T2	5.46	1.22	.17***	.10*	.07	.14**		.12	-.27*	-.56**	-.16	4.02***	.15
6.	Workaholism T1	2.47	.53	.11*	.07	.30***	.02	-.01		.01	-.10	.31*	4.13***	.16
7.	Workaholism T2	2.46	.56	.11*	.28***	.10*	.08^{+}	-.01	.10*		.28*	.19	2.54***	.09
8.	Psychological distress T1	2.17	.37	-.21***	-.10*	-.03	.01	-.31***	-.04	.20***		.25^{+}	4.19***	.15
9.	Psychological distress T2	2.24	.36	-.06	-.02	-.13**	-.22***	-.12*	.24***	.08^{+}	.14**		5.59***	.23

Note: N = 392 individuals (26 departments); M = mean; SD = standard deviation.

Individual-level correlations below the diagonal; department-level correlations above the diagonal.

*p < .05; **p < .01; ***p < .001 (two-tailed); ^{+}p < .05 (one-tailed).

Hypothesis 1 proposed that there is a relationship between Level 2 of PSC and job resources; this was supported. We found a significant positive effect of PSC Time 1 on job resources Time 2, $\gamma = .18$, standard error [SE] = .07, $p < .01$ (Table 4.2, Model 2); PSC accounts for between-group change in variance in job resources.

Hypothesis 2(a) predicted that job resources are positively associated with work engagement, and this was supported. Job resources Time 1 had a positive effect on work engagement Time 2, $\beta = .13$, SE = .06, $p < .01$, (Table 4.3, Model 2). Hypothesis 2(b), proposed that job resources would predict workaholism; this was supported. There was a significant positive lagged effect between job resources Time 1 and workaholism Time 2 ($\beta = .35$, SE = .06, $p < .001$; Table 4.4, Model 2),

For the mediation Hypothesis 3(a), we predicted that PSC would be associated with work engagement via job resources; this was supported. The mediation effect was estimated using the parameter estimate for *path a* for the relationship between PSC Time 1 and job resources Time 2 ($\gamma = .18$, SE = .07, $p < .01$; Table 4.2, Model 2), and for *path b* the estimate for job resources Time 1 and work engagement Time 2 with PSC Time 1 in the model ($\beta = .11$, SE = .05, $p < .01$; Tabl4.3, Model 5). PSC Time 1 had a significant effect on work engagement Time 2 through job resources, 95% confidence interval (CI) [.0007, .0485]: note the relationship is significant if the CI does not contain zero.

For Hypothesis 3(b), we proposed that job resources would mediate the relationship between PSC and workaholism; this was supported, 95% CI [.01, .12], but as noted below this path is moderated by PSC.

Hypotheses 4(a) and 4(b) proposed that work engagement and workaholism would predict psychological distress; both hypotheses were supported. We found a significant lagged effect between work engagement Time 1, $\beta = -.30$, SE = .05, $p <$

.001, workaholism Time 1, β = .19, SE = .07, $p < .01$ with psychological distress Time 2, as shown in Table 4.5, Model 2.

For Hypotheses 5(a) we proposed work engagement (a) would mediate the relationship between job resources and psychological distress. We estimated *path a* using the parameter estimate of job resources Time 1 to work engagement Time 2 relationship (β = .13, SE = .06, $p < .01$; Table 4.3, Model 2), and *path b* using the relationship between work engagement Time 1 and psychological distress Time 2, with job resources Time 1 in the model (β = -.30, SE = .05, $p < .001$; Table 4.5, Model 3). We found a significant effect of job resources and psychological distress via work engagement, 95% CI [-.08, -.01]. Similarly, for Hypothesis 5(b), we found a significant lagged effect of job resources and psychological distress via workaholism, 95% CI [.02, .12] but this effect is conditional as shown below (see moderation).

Table 4.2: Multilevel analysis predicting job resources Time 2

	Model 1	**Model 2**
Level 1		
Intercept	.00 (.07)	.00 (.06)
Job resources T1		.09 (.05)*
Level 2		
PSC T1		.18 (.07)**
Variance components		
Within-team (L1) variance	.93	.92
Intercept (L2) variance	.07	.04
Slope (L2) variance		
Intercept-slope (L2) covariance		
Additional information		
–2log x likelihood (FIML)	1,103	1,093**
Number of estimated parameters	3	5
Pseudo R^2	0	.009

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; *N* L1 = 392 and *N* L2 = 26 departments.
Values in parentheses are standard errors. *$p < .05$; **$p < .01$ (two-tailed).

Table 4.3: Multilevel analysis predicting work engagement Time 2

	Model 1	Model 2	Model 3	Model 4	Model 5
Level 1					
Intercept	.01 (.09)	.01 (.09)	.01 (.08)	.01 (.08)	.01 (.08)
Job resources T1		.13 (.06)**		.13 (.06)**	.11 (.05)**
Work engagement T1		.13 (.06)*	.13 (.06)*	.13 (.06)*	.16 (.06)*
Level 2					
PSC T1			.23 (.08)**	.23 (.08)**	.21 (.08)**
Variance components					
Within-team (L1) variance	.84	.81	.83	.81	.76
Intercept (L2) variance	.15	.15	.10	.10	.10
Slope 1 (L2) variance (JR T1)					.02
Slope 2 (L2) variance (WE T1)					.03
Intercept-slope 1 (L2) covariance					-.027
Intercept-slope 2 (L2) covariance					-.029
Additional information					
–2log x likelihood (FIML)	1,078	1,064**	1,064	1,057**	1,047*
Number of estimated parameters	3	5	5	6	11
Pseudo R^2	0	.013	.013	.019	.029

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; *N* L1 = 392 and *N* L2 = 26 departments; JR = job resources; WE = work engagement.

Values in parentheses are standard errors. *$p < .05$; **$p < .01$ (two-tailed).

Table 4.4: Multilevel analysis predicting workaholism Time 2

	Model 1	Model 2	Model 3	Model 4	Model 5
Level 1					
Intercept	-.01 (.08)	-.01 (.08)	-.01 (.07)	-.01 (.07)	-.01 (.07)
Job resources T1		.35 (.06)***		.35 (.05)***	.33 (.07)***
Workaholism T1		.03 (.06)	.03 (.05)	.03 (.05)	.06 (.06)
Level 2					
PSC T1			-.14 (.07)*	-.14 (.07)*	-.14 (.07)*
Variance components					
Within-team (L1) variance	.91	.79	.91	.79	.73
Intercept (L2) variance	.09	.09	.07	.07	.08
Slope 1 (L2) variance (JR T1)					.05
Slope 2 (L2) variance (WH T1)					.03
Intercept-slope 1 (L2) covariance					-.014
Intercept-slope 2 (L2) covariance					-.025
Additional information					
–2log x likelihood (FIML)	1,098	1,049***	1,049	1,045***	1,037
Number of estimated parameters	3	5	5	6	11
Pseudo R^2	0	.045	.045	.048	.055

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; *N* L1 = 392 and *N* L2 = 26 departments; JR = job resources; WH = workaholism.

Values in parentheses are standard errors. *$p < .05$; ***$p < .001$ (two-tailed).

Table 4.5: Multilevel analysis predicting psychological distress Time 2

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Level 1							
Intercept	-.02 (.10)	-.02 (.10)	-.02 (.10)	-.02 (.10)	-.02 (.10)	-.02 (.10)	-.02 (.10)
Job resources T1			.01 (.05)			.01 (.05)	.02 (.05)
Work engagement T1		-.30 (.05)***	-.30 (.05)***		-.30 (.05)***	-.30 (.05)***	-.25 (.06)***
Workaholism T1		.19 (.07)**	.19 (.07)**		.19 (.06)**	.19 (.06)**	.19 (.06)**
Psychological distress T1		.09 (.04)*	.09 (.04)*	.96 (.05)*	.09 (.04)*	.09 (.04)*	.08 (.04)*
Level 2							
PSC T1				-.07 (.12)	-.08 (.12)	-.08 (.12)	-.08 (.11)
Variance components							
Within-team (L1) variance	.78	.66	.66	.77	.66	.66	.58
Intercept (L2) variance	.23	.24	.24	.23	.23	.23	.24
Slope 1 (L2) variance (JR T1)							.01
Slope 2 (L2) variance (WE T1)							.02
Slope 3 (L2) variance (WH T1)							.05
Slope 4 (L2) variance (PD T1)							.01
Intercept-slope 1 (L2) covariance							.003
Intercept-slope 2 (L2) covariance							-.020
Intercept-slope 3 (L2) covariance							-.005
Intercept-slope 4 (L2) covariance							-.031
Additional information							
–2log x likelihood (FIML)	1,057	998***	998	1,054***	997***	997	984
Number of estimated parameters	3	6	7	5	7	8	22
Pseudo R^2	0	.056	.056	.003	.057	.057	.069

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; *N* L1 = 392 and *N* L2 = 26 departments; JR = job resources; WE = work engagement; WH = workaholism; PD = psychological distress.
Values in parentheses are standard errors. *$p < .05$; **$p < .01$; ***$p < .001$.

Hypothesis 6(a) proposed a relationship between Level 2 of PSC and work engagement; this was supported. As shown in Table 4.3, Model 3, PSC Time 1 positively accounted for between-group variance in work engagement at Time 2 (γ = .23, SE = .08, p < .01), after controlling for work engagement Time 1. Hypothesis 6(b) predicted that PSC would negatively associate with workaholism; this was supported. As shown in Table 4.4, Model 3, PSC Time 1 had a negative effect on workaholism Time 2 (γ = -.14, SE = .07, p < .05), after controlling for workaholism Time 1.

Hypothesis 6(c), that work engagement would mediate the relationship between PSC and psychological distress, was supported. Path a, was PSC Time 1 to work engagement Time 2, γ = .23, SE = .08, p < .01 (Table 4.3, Model 3), and path b, work engagement Time 1 and psychological distress Time 2, with PSC Time 1 in the model, β = -.30, SE = .05, p < .001) (Table 4.5, Model 5). There was a significant lagged effect of PSC on psychological distress via work engagement 95% CI [-.12, -.02].

Hypothesis 6(d), that the relationship between PSC and psychological distress would be mediated via workaholism, was supported. *Path a* was PSC Time 1 to workaholism Time 2, γ = -.14, SE = .07, p < .05 (Table 4.4, Model 3), and *path b* was workaholism Time 1 to psychological distress Time 2, with PSC Time 1 in the model, β = .19, SE = .06, p < .01, (Table 4.5, Model 5). We found that PSC also has a significant lagged effect on workaholism via job resources, 95% CI [-.06, -.01].

For Hypothesis 7, that PSC moderates the job resources to workaholism relationship we found support with a significant PSC X job resources interaction, B = -.09, SE = .05, p < .05. As shown in Figure 4.2, at low levels of PSC the relationship between job resources and workaholism was significant and positive B = .51, SE = .09, p < .001; at high levels of PSC the relationship was not significant, B = .20, SE = .12, n.s. This finding signifies that the mediation paths involving the resources–workaholism relationship are conditional. Hypothesis 3b, that job resources mediates the relationship

between PSC and workaholism only holds when PSC is low, *path a*, B = .18, SE = .07, $p < .01$, *path b*, B = .51, SE = .09, $p < .001$, 95% CI [.02, .18]. Hypothesis 5b, that workaholism mediates the relationship between job resources and psychological distress only holds when PSC is low, *path a*, B = .51, SE = .09, $p < .001$, *path b*, B = .19, SE = .07, $p < .01$ from Table 4.5 (Model 3) the result is 95% CI [.02, .18]. Figure 4.3 reflects the final model, at low levels of PSC.

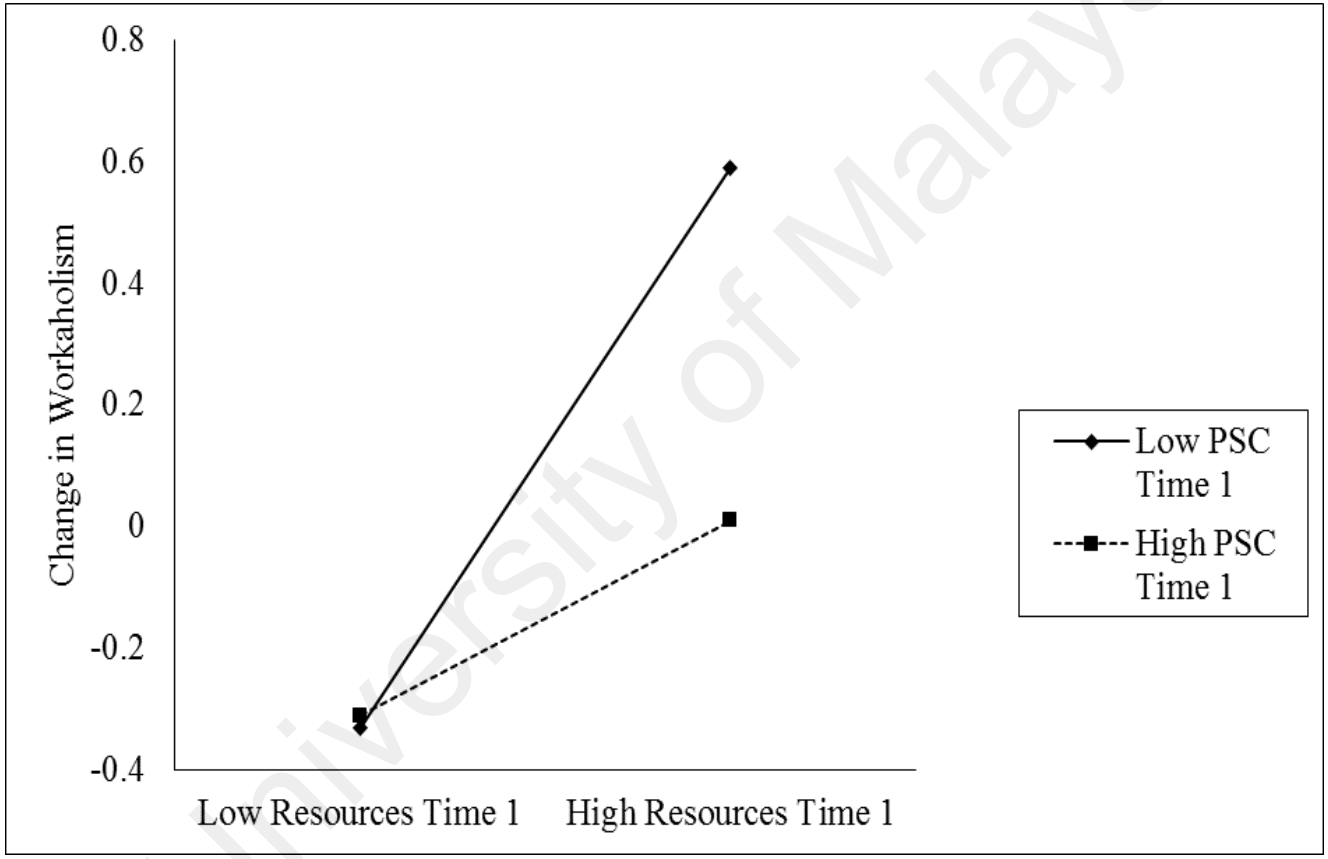

Figure 4.2: Moderation of job resources-workaholism relationship by PSC

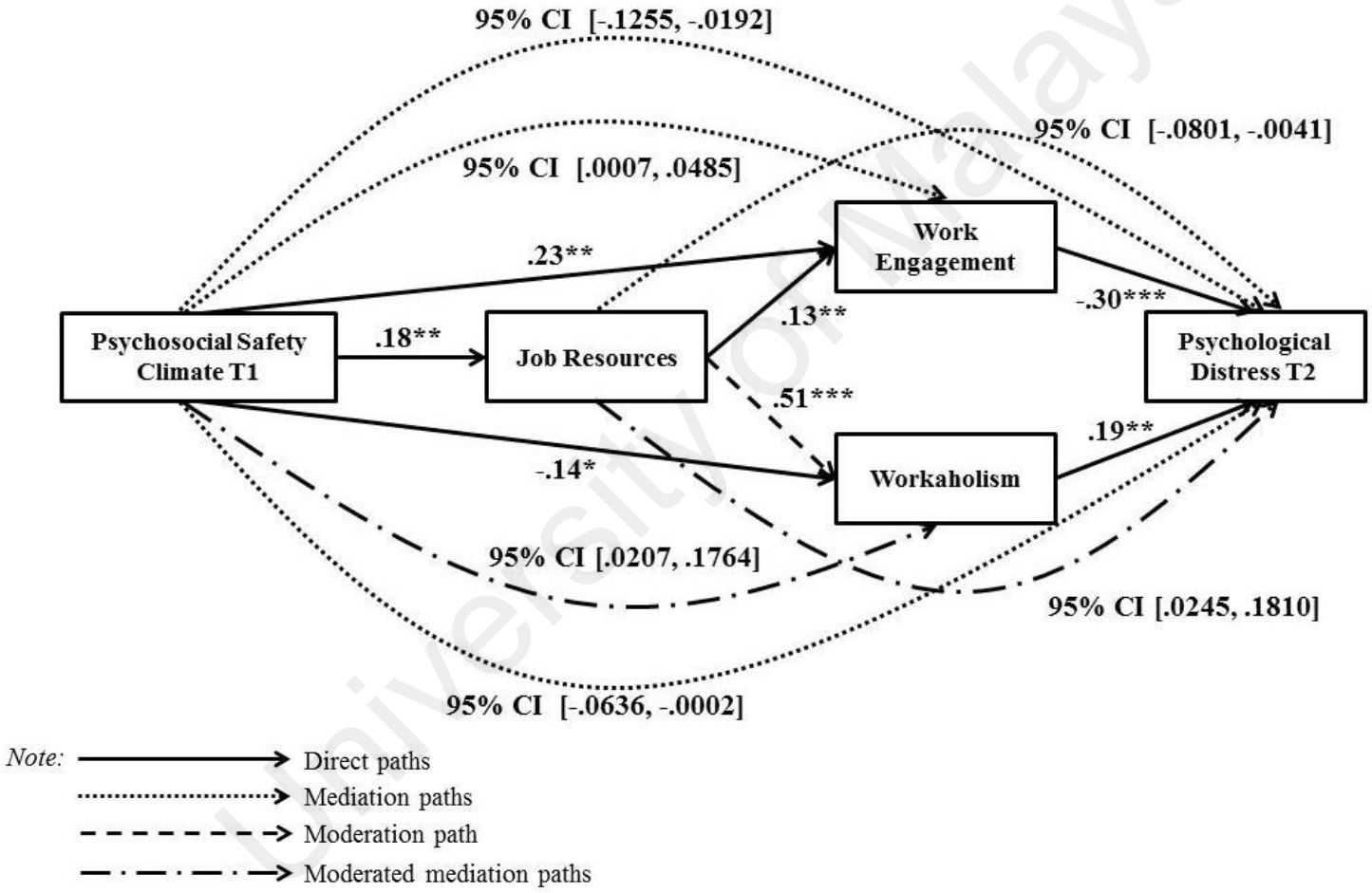

Figure 4.3: The final model

4.5 Discussion

The main objective of this multilevel longitudinal study was to examine the cross-level influence of an organizational factor — psychosocial safety climate (PSC) — on psychological distress via motivational states. To reveal PSC as the distal organizational source of these paths, we used a half-longitudinal design and HLM modeling; we estimated the PSC of police departments and predicted police personnel reports of psychological distress, via the proposed motivational paths.

Our main findings was that PSC was an organizational level predictor of psychological distress via two main motivational paths: the first was via job resources and work motivation, consistent with the extended pathway of the JD-R model with cross-links, and a secondary moderation function of PSC; and, the second was via its direct effect on work motivation. Our results showed that while PSC has beneficial direct effects, increasing work engagement and decreasing workaholism, paradoxically, when PSC operates via improvements in job resources, aside from increased work engagement, resources boosts workaholism. However, the secondary function of PSC acts to nullify this process; when PSC is high the relationship between job resources and workaholism disappear.

We also confirmed the conceptual distinctiveness of the motivational states, work engagement and workaholism, via CFA, a low inter-correlation, and different effects. This aligns with previous findings that work engagement is positively related to well-being and performance (Idris et al., 2015; Idris et al., 2011), whereas workaholism is associated with a poor state of well-being and under-performance (Schaufeli et al., 2008; Shimazu & Schaufeli, 2009; Shimazu et al., 2012).

Previously, scholars have consistently postulated that one of the main mechanisms by which PSC relates to psychological health is via the extended health erosion pathway of the JD-R model (Dollard & Bakker, 2010). We, however, go beyond these previous

explanations by proposing and discovering that PSC affects psychological distress via a motivational pathway, that is driven through available resources. Psychosocial safety climate (PSC) precedes job resources, and job resources are motivating for the intended positive outcome (work engagement) but, at the same time, for the unintended negative motivational state, workaholism. Workaholic employees are mainly motivated extrinsically and work because of its instrumental value; engaged employees are mainly motivated intrinsically and work because they enjoy their work and find it satisfying (Van Beek et al., 2012). The job resources operationalized in this study, cognitive (can vary complex and simple tasks) and emotional (can get emotional support in the face of threats), were of the instrumental variety, because they can help to get the job done and achieve work goals (Bakker & Demerouti, 2007). Workaholic employees are able to work harder with instrumental resources, to achieve their goal of avoiding guilt and anxiety. Other employees will find these job resources help with work engagement, enabling them to manage job demands, and they feel satisfaction and joy with their achievements. From a PSC theoretical perspective, this research however presents a contradiction because not all effects generated from PSC, despite the best intentions, play out positively. However, the secondary function of PSC operates to temper the possible detrimental effects of resources on workaholism (but not work engagement); when PSC is high the link between PSC and distress via this mechanism is broken. Only when PSC is low do we find that the detrimental effects of resources on workaholism prevail.

Moreover our findings support the theoretical supplementation of the PSC extended JD-R model, by explanations of how PSC relates directly and beneficially to work engagement and workaholism, to reduce distress. According to the caring organizational literature, PSC is an organizational caring attribute because it values, and is likely to lead to the fulfilment of, employees' basic psychological needs (Kahn,

2005). According to Relational Theory, the organizational relational context likely found in high PSC contexts, affects three psychological conditions: meaningfulness (whether work matters), psychological safety (expression without fear), and availability (energizing relationships improve personal capacity) that promote personal engagement (Kahn & Heapy, 2014). Researchers have found that basic need satisfaction is negatively related to workaholism, because it is relates positively to enjoyment at work and negatively to drive (Andreassen, Hetland, & Pallesen, 2010). In addition, in high PSC contexts we expect employers to be alert to the health benefits of work engagement, and the negative health effects of workaholism, and set out policies and procedures to directly tackle workaholism. To date theoretical underpinnings of work engagement and workaholism have emphasized psychological processes particularly motivational correlates (Shimazu & Schaufeli, 2009; Shimazu et al., 2015; Shimazu et al., 2012), yet our findings clearly highlight organizational foundations of the phenomena; the results imply that PSC affects motivation regulation. By using PSC, we show how the organization with the right climate is able to channel employees into a healthful and productive path of motivation, and avoid the development of "bad" motivation. Finally, the research implies a novel theoretical extension to include the secondary function of PSC, moderating the detrimental effect of resources on workaholism.

In its broadest sense, this study provides additional support for multilevel theorization in occupational and organizational settings. The study demonstrated that PSC resides at the organizational level, beyond the level of the individual, and supported the notion of PSC as a leading "cause of the causes" of psychological health (Dollard & Bakker, 2010); whereas the typical cause is usually operationalized in terms of job design.

4.6 Practical implications

In practical terms, our study suggests that action should be taken to develop PSC within organizations as a mechanism to build positive work motivation and psychological health (Dollard & Karasek, 2010; Rickard et al., 2012). Measurement of PSC in the workplace will assist employers or managers to identify PSC levels and domains to target to protect employees' psychological health and well-being. For example, employees' perceptions of PSC can be used to indicate whether to maintain or to increase the quality of commitment, communication, participation, and priority given to psychological health from upper-level management (e.g., employers, managers, or supervisors). Researchers have established evidence based benchmarks for PSC levels within organizations, specifying levels of risk for future job strain and depression (Bailey, Dollard, & Richards, 2015). Our research suggests that this tool could be used for predicting motivational states too.

Focusing on bolstering PSC may have more wide-ranging and beneficial effects, rather than tackling complex motivational states head on. The observation that work motivation is a path to psychological distress implies that intervention strategies should be used such as providing instrumental job resources (with caution because of the possible effect of these on workaholism). Management training in values-based leadership and leadership for psychological health and positive motivation is indicated as a path to a psychologically healthy motivated police workforce in Peninsular Malaysia. Confirming PSC as a lead indicator of psychological health provides evidence for targeting PSC to improve worker psychological health.

4.7 Limitations and further research

A possible limitation of our research is the use of self-reported measures which may render relationships due to common method effects. We overcame these limitations in

some respects by the research design. Firstly, the time of testing the measures was lagged; therefore, method effects should not unduly influence cross-time relationships. Secondly, we used a multilevel design whereby group PSC predicted the between-group variance in the lower-level entities; average group resources predicted work engagement and workaholism and so on. This means that the observed relationships may not be solely explained by individual-level factors, such as personality and demographics: in individual-level, cross-sectional analyses typical in the field, level of analysis and direction of causation are often confounded.

A further strength of the current study was the panel design, enabling us to control for baseline measures: every path in the mediation model estimated the effect of the predictor variable on change in variance in the mediator or dependent measure. A possible limitation is the lack of randomization of police departments in the study: departments with high levels of PSC may have been selected to create a favorable impression. Nevertheless, there was sufficient variation in levels of PSC between departments to show the effects as theorized.

Although HLM is one of the best solutions for dealing with multilevel data (Aguinis et al., 2013; Mathieu & Taylor, 2007), multilevel structural equation modeling (MSEM), considering all paths simultaneously may provide more accurate estimation effects. However, as MSEM needs a sample size of at least 100 at the upper level (Meuleman & Billiet, 2009; Preacher, Zhang, & Zyphur, 2011), we were unable to analyze our data using this approach.

Future research could examine effects using personal resources (Van den Heuvel, Demerouti, & Peeters, 2015) as these may also boost employees' motivation. Moreover, further research is needed to understand the effects of external contingencies, such as status, praise, and material rewards, on workaholism (Spence & Robbins, 1992). Competing leadership measures, such as transformational leadership, could also be

considered alongside PSC in the model to tease out unique and possible overlapping effects (Bass & Avolio, 1993). Interventions aimed directly at PSC are now required in other occupations across nations, to verify the motivational processes found here.

4.8 Conclusion

This multilevel longitudinal study examined the influence of organizational PSC on psychological distress via two types of work motivations. In terms of the extended JD-R theory, our study supports a multilevel explanation of psychological distress, via the extended health erosion path involving job demands (Idris et al., 2014), and via the extended motivational and cross-links processes shown in this study. Moreover, via the care giving and relational attributes of PSC, basic needs satisfaction leads to direct beneficial effects on increased engagement and reduced workaholism. PSC has a beneficial moderating effect preventing workaholism arising from job resourcing. This study of Malaysian police personnel provides evidence that PSC observed at the organizational level is a leading indicator of psychological distress. Although our research focused on the causal direction, motivation to psychological health, prior research and our SEM analysis suggests that this relationship cycles around via cross-links and the genesis is PSC.

CHAPTER 5: ARTICLE THREE

CLIMATE CONGRUENCE: HOW ESPOUSED AND ENACTED PSYCHOSOCIAL SAFETY CLIMATE AFFECT EMOTIONAL EXHAUSTION AND WORK ENGAGEMENT

Abstract

The alignment between espoused (saying) and enacted (doing) psychosocial safety climate (PSC; a climate for worker psychological health) is important to consider in relation to health and work outomes. This diary study explored the boundary conditions of espoused PSC (organizational Level PSC), a distal antecedent of work-related psychological ill-health (i.e., daily emotional exhaustion) and motivation (i.e., daily work engagement) respectively. In all, 545 diary data points were collected within five consecutive days from 109 secondary school teachers across 23 schools in Selangor, Malaysia. Using Hierarchical Linear Modeling (HLM), in a three level model we found alignment between espoused PSC and enacted PSC (daily management support), as a predictive positive relationship. In turn the expected relationship between espoused PSC and work engagement was mediated by enacted PSC. For emotional exhaustion, enacted PSC moderated the negative relationship between espoused PSC and daily emotional exhaustion. The expected beneficial effects of espoused PSC on emotional exhaustion were evident when levels were aligned with those of enacted PSC within schools. When considering emotional exhaustion, PSC acts as a safety signal — when high espoused PSC is coupled with repeated, unequivocal, and stable support (enacted PSC), employees may feel safe to take action to reduce threatening demands. These findings offer new insights regarding how managers can build PSC, by valuing employee psychological health, and translating PSC into action (integrity in saying and doing), to increase psychological health and work engagement.

Keywords: espoused PSC; enacted PSC; supervisor support; emotional exhaustion; work engagement

5.1 Introduction

Globally, work stress has become a pandemic problem and a major challenge to workers because of psychological ill-health, and to organizations because of costs associated with reduced work engagement, sickness absence, and workers compensation, caused by increased competition and technological advances (Bailey, Dollard, McLinton, et al., 2015; EU-OSHA, 2009; McTernan et al., 2013). Across Europe, about one third of workers reported that they faced health risks due to work-related stress, with the annual financial cost for work-related stress nearly EUR 20 billion (EU-OSHA, 2007). In 2015, the Gallup U.S daily survey reported that 68% of US workers and 87% of worldwide workers were disengaged with their work (Adkins, 2016; Mann & Harter, 2016), and approximately 18% of disengaged US workers suffered from several physical (hypertension, cholesterol, and obesity) and psychological (depression and stress) problems (Harter & Adkins, 2015). In the same year, although the Staples Advantage Workplace Index (2015) showed the majority (86%) of US and Canada workers were happy and motivated at work, but 53% were also burned out. The World Health Organization reports that workplaces in most countries do not have concrete policies for psychological and mental health (Harnois & Gabriel, 2000). Across Australia, only 50% of workers considered that their workplaces were mentally healthy (Beyondblue, 2014). Clearly increased attention needs to be given to protecting and promoting worker psychological health and work engagement.

The main objective of this study was to examine the mechanism via which organizational psychosocial safety climate (PSC) affects worker psychological health and motivation by using a climate congruence approach. Psychosocial safety climate

(PSC) refers to shared perceptions of policies, practices, and procedures for employee psychological health and safety (Dollard & Bakker, 2010). In this study, we were concerned with how PSC related to both psychological health (operationalized as emotional exhaustion) and work motivation (operationalized as work engagement). Emotional exhaustion is the central manifestation of burnout, and occurs when individuals experience taxing demands that sap energy reserves leading to feelings of being burned out (Maslach & Jackson, 1986; Maslach et al., 2001). In contrast, work engagement reflects a positive cognitive-affective condition categorized by vigor, dedication, and absorption (Schaufeli & Bakker, 2004; Schaufeli et al., 2002). An engaged worker displays energetic behavior and a high level of devotion towards their work (Saks, 2006; Schaufeli et al., 2006). Employees who are psychologically healthy, with high work engagement should yield benefits for the employee and organization alike.

Driving the manifestation of PSC is senior management values and philosophy about their priority of regard for employees psychological health and welfare in the face of competing interests, such as productivity imperatives. In workplaces, PSC has important implications for worker psychological health and productivity related outcomes. Researchers have found that workers in high PSC contexts have higher levels of psychological health (such as reduced emotional exhaustion; Idris et al., 2014) and positive worker motivational states (such as work engagement; Idris et al., 2015) compared to low PSC workplaces.

While there are several potential mechanisms linking organizational PSC to psychological health and work engagement, such as job quality (i.e., higher resources vs. less job demands, see Idris et al., 2015; Idris et al., 2014), an open question relates to the dynamic unfolding of PSC over time. To date, there is no theory that disentangles espoused PSC (what managers say they do via formal policies and procedures) and

enacted PSC (what managers actually do), and their separate and interactive effects on employee psychological health and work engagement. In this paper, we address this gap and advance PSC theory by considering the temporal (snap shot vs. daily) and implicit vs. explicit, manifestations that characterize espoused vs. enacted PSC respectively. We draw on "theories of action" (Argyris & Schön, 1974, 1978, 1996), to highlight the importance of congruence between espoused and enacted PSC and implications for employee psychological health and work engagement. The practical significance of this "climate congruence" approach, already discussed in the safety climate literature (Zohar, 2003), is that it will throw light on the importance of integrity in PSC — enacting what one is espousing, saying, and doing the same thing — and the consequent ramifications for employee behavior. We theorize about when and how the interaction between espoused PSC (a snap shot of PSC) and enacted PSC (daily individual perceptions of supervisor support) affects daily perceptions of psychological health (i.e., emotional exhaustion). We use safety signal theory (Lohr et al., 2007), to explain why espoused PSC acts as a safety signal in the face of aversive stimuli (e.g, high demands), and why enacted PSC interacts with espoused PSC in relation to emotional exhaustion, but not in relation to work engagement.

In addition, we are also interested to examine how espoused PSC is related to work engagement via job conditions, particularly via enacted PSC (supervisor support) by using the extended framework of job demands–resources (JD-R) theory (Bakker & Demerouti, 2007; Demerouti et al., 2001). Drawing on Dollard and Bakker (2010), we conceived that espoused PSC as a property of the organization may stimulate the enactment of PSC (supervisor support), and in turn influence work engagement. In addition, using Social Exchange Theory (Blau, 1964) and Expectancy-Valence Theory (Vroom, 1964), we also argue that work engagement is the valued consequences of enacted PSC with its consistency of frequency and immediacy of impacts may be

evidenced at daily basis. In this paper, we develop a conceptual model that explains high espoused and enacted PSC, may reduce emotional exhaustion and increase work engagement, and the conditions under which employees may particularly benefit from high espoused PSC. We tested this model using a diary study across five consecutive days from 109 secondary school teachers across 23 schools in Selangor, Malaysia, an emerging developing country in South East Asia.

5.1.1 Climate congruence: Espoused vs. enacted policies

The theoretical underpinning of "theories of action" particularly highlights the alignment between words and actions, by using the concepts of espoused theory and theory-in-use (Argyris & Schön, 1974, 1978, 1996). By definition, espoused theory refers to values and beliefs that are used to guide behaviors, whereas theory-in-use is defined as the actions taken that are based on these values and beliefs (Argyris & Schön, 1974). Theories of action are key to understanding human behavior. These theories are governed by a set of values that provide the framework for action strategies chosen, where human actors are conceived as designing beings, that create, store, and retrieve designs to guide future action for goal attainment (Argyris, 1995, p. 20). The core premise of this theory is the necessity to align both espoused and theory-in-use (enacted theory) in order to achieve the most effective action and intended outcomes.

Scholars have argued for a distinction between espoused climate and enacted climate in organizational climate construct (Simons, 2002; Zohar, 2000). Espoused climate represents perceptions of policies (strategic goals and means for their attainment), practices (guidelines for action related to goals and means), and procedures (implementation of policies and procedures) that are shared among members (espoused-polices, practices, and procedures) (Zohar & Luria, 2005). Enacted climate represents policies, practices, and procedures that are utilized practically in the organization (enacted-policies, practices, and procedures). Applied to safety climate, congruence

between espoused and enacted climate is important in order to achieve safety goals and important in high risk industries to prevent accidents and injuries (Zohar, 2003). However, in any organization there are competing imperatives; for example, even though management may value worker health and safety, their productivity and profit imperatives may drive them to behave contrarily to espoused values and cut corners in relation to health and safety policy implementation. Similarly, PSC is related to safety climate but is focally concerned with worker psychological health rather than worker physical health, injuries, and accidents (Idris et al., 2012). Both PSC and safety climate investigate the role of management and the work environment as determinants of worker health and safety (Dollard & Bakker, 2010; Neal & Griffin, 2006). In the present study, we used organizational level PSC to represent espoused theory and perceived daily supervisor support to represent enacted PSC in relation to employee psychological health and work engagement at work. Workplaces with high PSC (espoused climate) should provide good supervisory support for their employees (an exemplar of enacted PSC).

Senior managers set down policies and procedures to achieve organizational goals and the means to achieve them, such as a climate for service and a climate for safety (Zohar, 2008). Likewise in establishing a climate for psychological health, managers set down relevant policies, practices, and procedures that specifically relate to employee psychological health (Dollard & Bakker, 2010). To guide their behaviors, employees must make sense of complex and complicated organizational contexts, and sometimes contradictory information and actions (Weick, 1995). According to Zohar (2008), for employees, assessing policies, practices, and procedures is difficult, and requires distinguishing formal policy and procedures (overt statements, policies, and procedures) from enacted practices that are tacit and derived through observation. Zohar and Luria (2005) emphasize that the most relevant indicators of an organizations true

priorities, are the enacted or instituted policies, practices, and procedures, that emerge as a pattern, after being distinguished from formally declared counterparts. Organizational PSC therefore, is a convergent measure of employees' appraisal of relevant policies, practices, and procedures aggregated to the level of the organization. Although organizational PSC may be perceived as high at one point in time, subsequent actions by management may be congruent or contradict this, thereby strengthening or weaking the *expectancy* or the association between PSC and future management actions.

Hypothesis 1: Espoused PSC predicts future enacted PSC.

5.1.2 How supervisor support (as an exemplar of enacted PSC) relates to emotional exhaustion and work engagement

Although no studies to date have examined espoused and enacted PSC in organizations, research on safety climate has shown that poor enacted safety climate leads to a higher number of injury cases and underreported injuries, in comparison to organizations that have highly enacted their safety intentions (Probst et al., 2008). Therefore, we expect that while espoused organizational climate plays an important role in creating expectations among employees about role behaviors that are acceptable within the climate; whether or not employees are able to enact certain types of behavior depends on management or supervisor behavior (Zellars, Tepper, & Duffy, 2002). Indicative of the sizable influence of supervisors on the experience of subordinate's emotion work for instance, in multilevel research, investigators found that 11% of the variance of emotional exhaustion was due to supervisor level factors and 89% due to within-person factors (Wilk & Moynihan, 2005).

Supervisor support, used in this study as enacted PSC, is defined as the degree to which emotional (e.g., concern for the welfare of those under him/ her) and instrumental support (e.g., help in getting the job done) are given by the supervisor to an

employee (Kahn, 1993). Supervisor support includes the following aspects: extent of supervisor concern, attention, help, and organization skills. Supervisor support has a crucial role in the job stress process (Dollard & McTernan, 2011; Viswesvaran, Sanchez, & Fisher, 1999), reducing job strain, and improving job satisfaction and performance (Griffin, Patterson, & West, 2001).

The reason social support (particularly management/supervisor support) has beneficial effects can be explained by Conservation of Resources theory (COR; Hobfoll, 1989). According to this theory, strain occurs when there is a threat, or actual loss, of resources, or when resource investment does not lead to expected goals. When confronted with threats, individuals strive to conserve or minimize resource loss; when not confronted with stress, individuals will strive to develop and accumulate resources for future use (Hobfoll, 1989; Hobfoll & Shirom, 2001). According to the COR theory, social support is one of four fundamental resources (the others being conditions, personal characteristics, and energies), and is an effective source of resource investment at work, as it can bolster worker resources. Resources are likely to agglomerate, or form "caravans"; by possessing one main resource employees automatically access other resources (Hobfoll, 1998). Supervisor support is generative and links to future resources (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010). Supervisor support may proliferate personal resources, such as self-efficacy (Tuckey, Bakker, & Dollard, 2012). Thus, employees who receive job resources in terms of high support from their supervisor are likely to improve their level of confidence and motivation, and in turn become sanguine about their ability to meet work goals. The COR theory predicts that personal resources are likely to improve with supervisor support, and as these increase, coping is likely to improve (Salanova et al., 2010). The absence of supervisor support may restrain workers capacity to conserve and minimize resource loss in coping with taxing demands. These arguments suggest that in high supervisor support contexts,

increased coping capacity may reduce negative consequences (such as emotional exhaustion) and augment positive consequences at work (such as work motivation).

Supervisor support at work may reduce strains as long as supervisors are perceived as positive and encouraging by the workers. A responsive and empathetic supervisor who focuses on employees' needs is able to help workers manage their psychological strains (Humphrey, 2002; Pescosolido, 2002). Many studies have confirmed that supervisor support is strongly related to workers' psychological outcomes. Support given by the supervisors boosts workers' psychological health (Maslach et al., 2001; Mayo, Sanchez, Pastor, & Rodriguez, 2012; Schirmer & Lopez, 2001) and mitigates negative work-related outcomes (Idris & Dollard, 2011). Moreover, supervisor support plays an important role in the relationship between job stressors and strains (Cooper, Dewe, & O'Driscoll, 2001; Mayo et al., 2012).

Theoretically, supervisor support also leads to higher levels of work engagement. According to the JD-R theory, with high levels of supervisor support, employees become intrinsically motivated and engaged with work as their basic needs for belonging, competence, and autonomy are addressed through supervisor support (Deci & Ryan, 2000). Moreover extrinsic motivation for work and engagement is increased with appropriate feedback and assistance from supervisors as employee's capacity to achieve work goals bolstered (Bakker & Demerouti, 2007). There is empirical evidence for the relationship between supervisor support and work engagement (Idris & Dollard, 2011).

5.1.3 The alignment between espoused and enacted PSC in predicting emotional exhaustion and work engagement

As previously argued, it is imperative for management to align espoused and enacted PSC to achieve intended organizational goals. PSC that is measured at one point in time provides a snap shot of espoused theory, or a kind of generalized, "theory in action".

But a stronger measure, enacted PSC, or "theories in use" or, at least in terms of support, is how supervisor support is enacted, practiced, and observed on a daily basis. Actions observed more frequently, observable actions, and those manifest closer in time should provide more confidence and trust that supervisor support is a "resource caravan", and that it is safe to utilize these resources. So far, studies discovered that organizational PSC reduces emotional exhaustion (Dollard & Bakker, 2010; Idris et al., 2014). We expect that one of the mechanisms behind this observation, not yet tested, is the alignment of espoused and enacted PSC.

According to Zohar and Luria (2005), for practices to become a source of climate perceptions, they should be unequivocal and stable. If the formally declared organizational policies and procedures show high concern for employee psychological health and well-being, but the manager acts in a contradictory way by harassing or bullying staff, new (and low) perceptions of the climate will emerge. Alternatively, if the actions converge with high PSC, in the case that the manager is supportive, then this will act to verify the priority of regard for worker psychological health. Through sense-making employees translate the meaning of signals within the policies, procedures, and practices of their supervisor, informing them of the desired behavior to be rewarded. Since espoused PSC in this context refers to employees' shared perception of policies, practices, and procedures set down by managers, for optimal worker psychological health it is imperative that their perceptions are aligned with the quotidien support given by the manager at work.

Our analysis of the importance of contiguity between the espoused and enacted PSC is informed by safety signal theory (Lohr et al., 2007). Prior PSC research has used safety signal theory to explain the the moderation effects of PSC on bullying in relation to emotional exhaustion (Law et al., 2011), and on job demands in relation to psychological health (Dollard & Bakker, 2010; Garrick et al., 2014). Drawing from

Lohr et al. (2007) safety signal theory of psychopathology, organizational PSC and supervisor support and may be conceptualized as external cues that signify safety as they relate to psychopathology, in the presence of aversive stimuli. The theory concerns prediction and control of aversive events. For instance anxiety may in part result from an underprediction of safety resources. Likewise, emotional exhaustion may be a consequence of underprediction and uncontrollable threatening situations which may be managed by the provision of both espoused PSC and enacted PSC (daily supervisor support). Espoused PSC may function as a safety signal to signify the proper and congruent actions by providing support from supervisor in order to compensate for the aversive stimuli. In terms of learning theory, employees learn the relationship between the two stimuli (espoused and enacted PSC) due to their contiguity. Therefore, when the climate indicates high espoused PSC and actions are consistent with it (high enacted PSC), emotional exhaustion can be ameliorated; employees can confidently use resources and strategies (e.g., time out) to manage workplace demands (e.g., disruptive students), job demands are likely to be manageable, other climates, such as workplace mistreatment climates would be less likely too (Yang, Caughlin, Gazica, Truxillo, & Spector, 2014). In conditions where employees are convinced (climate is unequivocal and stable, Zohar & Luria, 2005) of a high level of PSC (congruence between espoused and enacted PSC), we expect the levels of burnout to be less than in other conditions.

Therefore, in relation to emotional exhaustion, espoused PSC and enacted PSC must be high and aligned in order to reduce emotional exhaustion. There are some risks in acting in the presence of organizational PSC since it is “espoused (in theory)”; it is only when supervisor support, is high too, indicating the true PSC of the organization, that the emotional exhaustion is reduced.

Hypothesis 2: Enacted PSC moderates the negative relationship between espoused PSC and daily emotional exhaustion. The negative

(beneficial) relationship between espoused organizational PSC and emotional exhaustion is evident only at high levels of enacted PSC (high supervisor support).

According to the JD-R theory, job resources are the most important work conditions that determine work engagement (Bakker & Demerouti, 2007). Managing aversive demands, such as managing threatening students, appears less important in the development of work engagement. For work engagement, we expect that espoused theory (organizational PSC), should predict the extent to which PSC is enacted (i.e., supervisor support). Like Neal and Griffin (2006) in explanation of safety climate effects, we place the concepts of PSC and behavioral consequences into a broader theoretical context of work motivation. In high safety climate contexts, high levels of safety motivation and behavior are evident (Neal & Griffin, 2006). The theoretical explanations for the link between PSC and work motivation, include Social Exchange Theory (Blau, 1964) and Expectancy-Valence Theory (Vroom, 1964). Under Social Exchange Theory, if employees perceive that an organization is concerned about their well-being, employees will reciprocate with increased pro-organizational behaviors, such as work engagement. Evidence shows that high organizational PSC is positively related to work engagement (Idris et al., 2015). Expectancy-Valence Theory proposes that employees will enact role behaviors that they believe it will lead to valued outcomes; in a high PSC context, working in a positive engaging way should lead to further praise and recognition (Bakker, 2015).

Recent research distinguished multi-level climates, organizational-level and group-level, to exemplify their consequential differences in terms of two behavioral parameters, outcome frequency and immediacy (Zohar & Luria, 2005). At the group-level, supervisors offer feedback and consequences daily, which results in frequent and immediate outcomes. At the organizational level, outcomes are more likely to be

delayed and uncertain. Using multilevel modeling Zohar and Luria (2005) found support for the argument that supervisory practices provided more powerful or proximal antecedents to employee role behavior, with organizational-level expectancies providing the distal antecedent. In other words, they found that organizational level-climate through its boundary setting effect on policies, practices and procedures of supervisors, predicted group-level climate, which in turn predicted role behavior. In theorizing this research Zohar and Luria (2005) also considered organizational-level climate as espoused theory, and group-level climate as enacted theory. Applied to our research, using the reasoning of work motivation, and frequency and immediacy of consequences, we expect a mediation process whereby PSC as organizational level climate, predicts PSC supervisory behaviors, which witnessed on a daily basis, in turn predicts daily employee work engagement.

Hypothesis 3: The positive relationship between espoused PSC and daily perceptions of work engagement is mediated by enacted PSC.

The study took place in organizational units (i.e., schools) and because of the flat hierarchical structure; the manager of the school who sets boundaries of PSC in the schools, is also the manager or supervisor who provides daily social support.

5.2 Current study

In the current study, we were interested in how espoused PSC as an organizational climate, operationalized at the school level, relates to daily enactment of supervisor support, daily emotional exhaustion, and work engagement among Malaysian school teachers. This study is significant because school teaching is one of the most stressful occupations (Borg & Riding, 1991) with high exposure to burnout (Bauer et al., 2006), and high psychosocial risks, such as poor job design and poor work–life balance. In the

US for instance, up to 20% of teachers experience stress and burnout (Farber, 1991). Similarly, teachers in Finland are among one of the most stressful occupations (Kalimo & Hakanen, 2000). Likewise in some developing countries, such as Malaysia, teachers also experience high levels of stress (Segumpan & Bahari, 2006). However, some teachers also reveal that their job is challenging, meaningful, and not necessarily all negative. For example, Hakanen, Bakker, and Schaufeli (2006) found that in addition to being burnout, teachers were also engaged with their work. Therefore, in this study it was important to consider both the strain and motivating aspects of the teaching experience and consider teachers' emotional exhaustion and work engagement. A diary was completed by teachers over five consecutive days, whereas PSC was measured once for each set of diary report. Prior research has shown the stability of PSC construct (Idris et al., 2012).

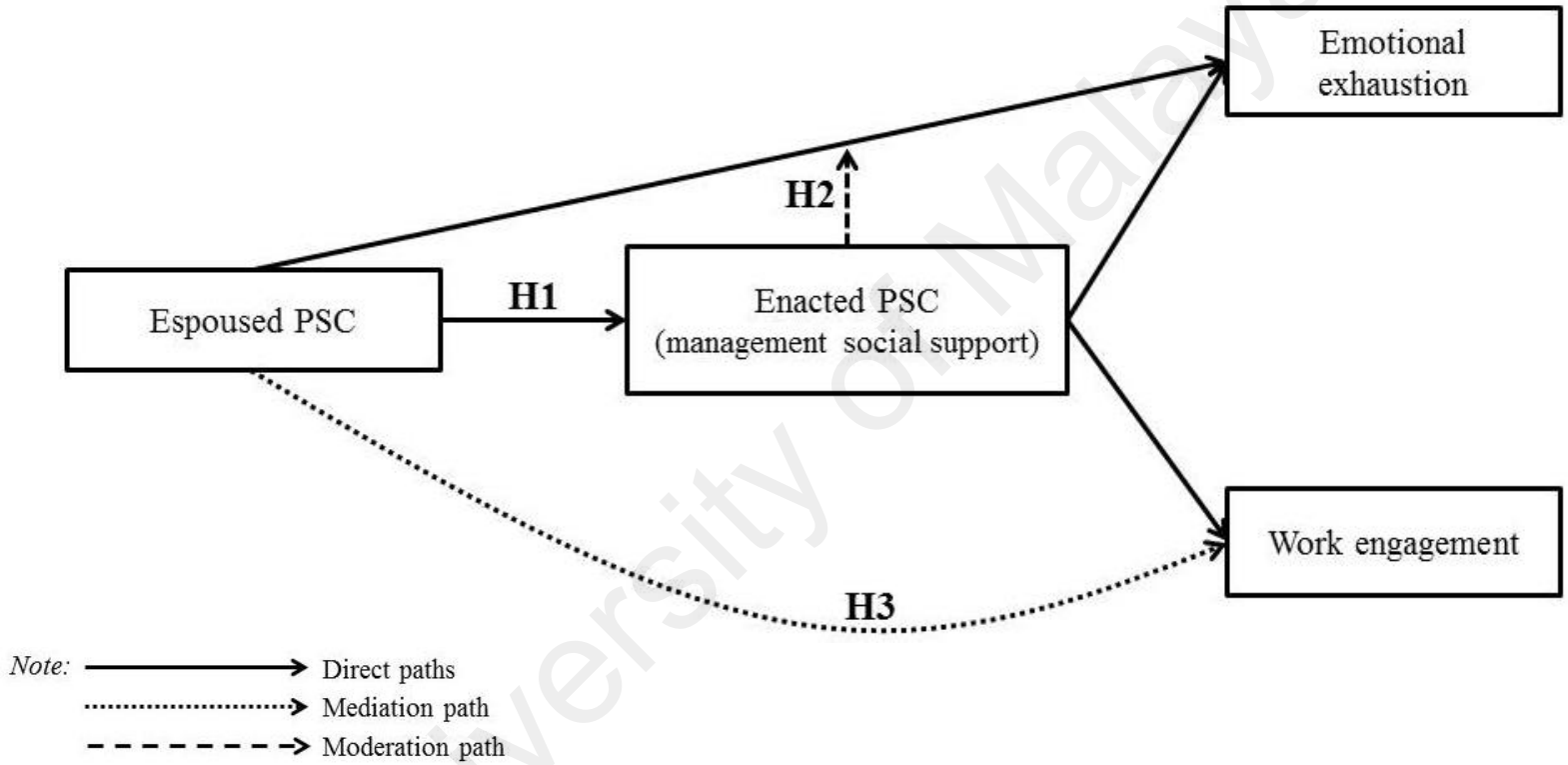

Figure 5.1: Research model

5.3 Method

5.3.1 Participants and procedure

A diary questionnaire was distributed among secondary school teachers in Selangor, Malaysia. After obtaining consent letters from the Ministry of Education Malaysia, Selangor Education Department, and school principals from the participating schools, we approached 40 schools of which 23 schools agreed to participate voluntarily. Participants completed paper and pencil of a booklet diary questionnaire for five days. Participants were instructed to complete PSC items only on Monday and the remaining items after morning sessions every day from Monday to Friday within a week. Within two weeks after diary distribution, we returned to the participating schools and collected the completed diaries from participants. A total of 109 respondents returned the questionnaire (response rate = 54.5%) with the total number of data points being 545 (5 x 109).

In general, participants were mainly female (88%), with a range of educational backgrounds (diploma, 1.9%; bachelor degree, 82.4%; and master degree, 15.7%). In total, 86.8% of participants were married, 9.4% were single, and 3.7% indicated 'others'. In addition, their religion was mainly Muslim (84.0%), followed by Hindu (6.6%), Buddhist (5.7%), and Christian (3.8%).

5.3.2 Instruments

Espoused PSC was measured only once per diary (on Monday) by using the Malay-validated version (Idris et al., 2015) of the PSC-12 scale (Hall et al., 2010). The instrument consists of four sub-dimensions (i.e., management commitment, management priority, organizational communication, and organizational participation and involvement) each assessed by three items. Example items are: "School management acts quickly to correct problems/issues that affect employees' psychological health" (*management commitment*); "Psychological well-being of staff

(teachers) is a priority for this school" (*management priority*); "At school, there is good communication here about psychological safety issues which affect me" (*organizational communication*); and "Teachers are encouraged to become involved in psychological safety and health matters at school" (*organizational participation*). All items were scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree) with the reliability of $\alpha = .93$.

Enacted PSC was measured using the supervisor support subscale of the Job Content Questionnaire (JCQ; Karasek et al., 1998), for which we used the Malay version of the JCQ from Edimansyah et al. (2008). This supervisor support scale consists of four items to represent supervisor concerned, supervisor pays attention, helpful supervisor, and supervisor good organizer. This scale shows good reliability as reported in prior research in Malaysia, with the reported Cronbach alpha value was .81 (Edimansyah et al., 2008). We reworded items from JCQ to measure daily experiences, such as, "Today, my school principal/senior assistant was concerned about the welfare of those under him/her". All items were scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree) with the reliability of $\alpha = .82$.

Daily emotional exhaustion was assessed using the eight item Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2003). All items were reworded to measure daily emotional exhaustion, for example, "Today, I felt emotionally drained at work". All items were scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree) with the reliability of $\alpha = .91$.

Daily work engagement was measured using the nine item Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) translated into Malay (Idris et al., 2015). Prior research has consistently shown the reliability and validity of this measure in the Malaysian context. For instance, Idris et al. (2015) reported the internal consistency of Cronbach alpha value for work engagement in their study was .93.

Likewise, the reliability of this measure in the current study was .90. In addition, previous research on work engagement has also utilized this measure on daily basis (e.g., Breevaart, Bakker, & Demerouti, 2014; Garrick et al., 2014; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Therefore, in this study all items were reworded to assess daily work engagement, for example, "Today, I felt bursting with energy", and scored on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree).

5.3.3 Hypotheses testing

We used Hierarchical Linear Modeling (HLM) (version 7.01) software (Raudenbush et al., 2005), with Level 3 representing school data (i.e., espoused PSC), Level 2 gender to represent individual data, and Level 1 representing daily reports (i.e., supervisor support (enacted PSC), emotional exhaustion, and work engagement). Daily-level data (Level 1) were nested within the individual data (Level 2), and individual data were nested within the school data (Level 3). All Level 1 and Level 2 variables were centered around the group (person) mean, whereas the Level 3 (school level) variable was centered around the grand-mean (Hofmann & Gavin, 1998). We followed Aguinis et al. (2013) recommendations for estimating the cross-level interaction effect using multilevel modeling and reported; the intercept value (γ_{000}); the within-team Level 1 variance (σ^2); the intercept Level 2 variance (τ_π); the intercept Level 3 variance (τ_β); the –2 log x likelihood; the number of estimated parameters; and pseudo R^2. All variables were also standardized in the analysis following a discussion in Aguinis et al. (2013) for multilevel process.

To test cross-level relationships in predicting enacted PSC for Table 5.2, we began the analysis with the unconditional means or null model for enacted PSC (Model 1); adding the Level 2 predictor (gender) (Model 2); and adding the Level 3 predictor (Espoused PSC) together with Level 2 predictor (gender) (Model 3). To assess longitudinal relationships, we examined the individual enacted PSC using two-level

analysis, starting with the unconditional means or null model for each day enacted PSC (model 1), and adding Level 2 predictor (espoused PSC) (Model 2) (Table 5.3).

Additionally, we used a sequence of steps to build the models to examine the cross-level moderation in Table 5.4, starting with the unconditional means or null model for emotional exhaustion (Model 1); adding the Level 2 predictor (gender) (Model 2); adding the Level 3 predictor (espoused PSC) together with Level 2 predictor (gender) (Model 3); adding the Level 1 predictor (enacted PSC) together with Level 3 predictor (espoused PSC) and Level 2 predictor (gender) (Model 4); allowing variation in slopes of enacted PSC (Model 5); and lastly, adding the cross-level interaction of espoused PSC with enacted PSC to test Hypotheses 2 (Model 6). In relation to the cross-level mediation process in predicting work engagement for Table 5.5, we assessed several models in a sequence, beginning with the unconditional means or null model for work engagement (Model 1); adding the Level 1 predictor (enacted PSC) (Model 2); adding the Level 2 predictor (gender) together with Level 1 predictor (enacted PSC) (Model 3); allowing variation in slopes of enacted PSC (Model 4); and adding the Level 3 predictor (espoused PSC) together with Level 2 predictor (gender) and Level 1 predictor (enacted PSC) (Model 5).

To confirm the mediation hypothesis, we followed Mathieu and Taylor (2007) recommendation for meso-mediational framework to test cross-level mediation. We used the antecedent variable at the Level 3, and the day level of mediator and outcome variables. We tested the relationship between the antecedent variable and mediator (*path a*), and the relationship between mediator on the outcome variable (*path b*), controlling for the antecedent variable. Finally, the significance of the indirect effects was tested using the Monte Carlo method (MacKinnon et al., 2004; Selig & Preacher, 2008).

5.4 Results

Table 5.1 reports the descriptive analysis of the means, standard deviations, correlations between variables at the daily and school levels, and the F_{III} values and intra-class coefficients [ICC (1)]. To verify the climate level properties of PSC, we calculated the ICC(1) value of between-schools variance for PSC as .16 which indicated that the proportion of variance in PSC due to schools was nearly 16%. In addition, the inter-rater reliability ($r_{(wg)}$) agreement index was .97 (*SD* = .03), representing 97% of the homogeneity of PSC perception between schools (Level 3) (James et al., 1984). These results confirm the climate nature of PSC, supporting several previous studies (Dollard & Bakker, 2010). An initial analyses showed that nearly 10% of the variance in supervisor support was due to school level factors; an HLM model showed that PSC at the school level was significantly related to daily perceptions of supervisor support, providing evidence that supervisor support was to some degree an enactment of espoused PSC.

Report ICCs of the other variables, indicating that there is sufficient variance in the measures due to schools to explain (Table 5.1) (Bliese, 2000). The results of the HLM analysis are shown in Tables 5.2, 5.3, 5.4, and 5.5.

Table 5.1: Means, standard deviations, and correlations between variables

	Variables	M	SD	1	2	3	4	5	F_{III}	ICC(1)
1.	Espoused PSC	3.63	.64		.81***	-.49*	.32	-.20	2.00**	.16
2.	Enacted PSC	3.61	.62	.53***		-.36*	.23	-.22	6.45***	.10
3.	Emotional exhaustion	2.79	.83	-.11**	-.22***		-.22	-.07	7.15***	.11
4.	Work engagement	3.75	.63	.28***	.42***	-.31***		-.20	4.45***	.02
5.	Gender	1.88	.32	-.24***	-.17***	-.09*	-.11*		-	-

Note: PSC = psychosocial safety climate; Above diagonal is school-level correlations; Below diagonal is day-level correlations.

N = 545 daily reports, sample size = 109. *p < .05, **p < .01, ***p < .001 (two-tailed).

Tables 5.2, 5.3, 5.4, and 5.5 report the results of the analysis predicting enacted PSC (daily supervisor support), daily emotional exhaustion and daily work engagement respectively. From the variance component information shown in Table 5.2 (Model 1), the across-person variance in individual supervisor support was .55, the within-person variation was .33, and the between-school variation was .09, with differences across individuals accounting for approximately 56% of the variability in daily supervisor support, and approximately 10% of the variability in daily emotional exhaustion across schools (i.e., the ICC). In Table 5.4 (Model 1), the across-person variance in individual emotional exhaustion was .46, the within-person variation was .43, and the between-school variation was .11, with differences across individuals accounting for approximately 43% of the variability in daily emotional exhaustion, and approximately 11% of the variability in daily emotional exhaustion across schools. Similarly, the across-person variance in individual work engagement was .58, the within-person variation was .41, and the between-school variation was .02, as shown in Table 5.5 (Model 1), with differences across individuals accounting for approximately 57% of the variability in daily work engagement and approximately 2% of the variability in daily emotional exhaustion across schools. For enacted PSC, emotional exhaustion and work engagement, each subsequent model with a significance symbol led to a significant decrease in the –2 log x likelihood which indicated improved model fit for the data and higher pseudo R^2. Particularly, the significant improvement in model fit as shown in Table 5.4 (Model 5) and Table 5.5 (Model 4), indicated that there were significant variances in slopes of the enacted PSC on emotional exhaustion and work engagement due to school level effects.

Table 5.2: Multilevel model predicting day-level enacted PSC

Level and Variable	Model 1	Model 2	Model 3
Level 1 Day-level			
Intercept	.01 (.10)	.01 (.10)	.01 (.06)
Level 2 Diary-level			
Gender		-.12 (.08)*	-.12 (.08)*
Level 3 School-level			
Espoused PSC			.40 (.06)***
Variance components			
Within-person (L1) variance	.33	.33	.33
Intercept (L2) variance	.55	.53	.46
Intercept (L3) variance	.09	.10	.01
Additional information			
–2 log x likelihood	1,102	1,101	1,079***
Number of estimated parameters	4	5	8
Pseudo R^2	0	.001	.021

Note: L1 = Level 1, L2 = Level 2. L1 N = 545, L2 sample size = 109, and L3 = 23 schools.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 5.3: Multilevel model predicting everyday enacted PSC

Level and Variable	Day 1		Day 2		Day 3		Day 4		Day 5	
	Model 1a	**Model 1b**	**Model 2a**	**Model 2b**	**Model 3a**	**Model 3b**	**Model 4a**	**Model 4b**	**Model 5a**	**Model 5b**
Level 1										
Intercept	.01 (.11)	-.01 (.07)	-.01 (.12)	-.01 (.09)	.01 (.10)	-.01 (.07)	.01 (.09)	-.01 (.09)	.01 (.11)	-.01 (.08)
Level 2										
Espoused PSC		.47 (.09)***		.42 (.09)***		.36 (.05)***		.30 (.10)**		.39 (.08)***
Variance components										
Within-person (L1) variance	.88	.79	.84	.83	.96	.87	.99	.91	.89	.85
Intercept (L2) variance	.11	.01	.15	.01	.03	.01	.01	.01	.10	.01
Additional information										
–2 log x likelihood (FIML)	305	282***	303	287***	306	293***	306	297**	305	290***
Number of estimated parameters	3	4	3	4	3	4	3	4	3	4
Pseudo R^2	0	.075	0	.053	0	.042	0	.029	0	.049

Note: FIML = full information maximum likelihood estimation; L1 = Level 1, L2 = Level 2.
L1 sample size = 109, and L2 = 23 schools; Values in parentheses are standard errors; $^{**}p < .01$, $^{***}p < .001$ (two-tailed).

Hypothesis 1 proposed that espoused PSC predicts future espoused PSC (daily supervisor support). Consistent with our prediction, we found a significant positive effect of espoused PSC on enacted PSC (Table 5.2, Model 3), with $\gamma = .40$, SE = .06, $p < .001$. In addition, to ensure that espoused PSC predicts supervisor support, we also found that organizational level of espoused PSC was positively related to enacted PSC (supervisor support) for five consecutive days as shown in Table 5.3 (Model 1b, 2b, 3b, 4b and 5b), with $\gamma = .47$, SE = .09, $p < .001$ (Day 1); $\gamma = .42$, SE = .09, $p < .001$ (Day 2); $\gamma = .36$, SE = .05, $p < .001$ (Day 3); $\gamma = .30$, SE = .10, $p < .01$ (Day 4); and $\gamma = .39$, SE = .08, $p < .001$ (Day 5), respectively.

For the moderation effects in Hypothesis 2, we hypothesized that enacted PSC would moderate the relationship between espoused PSC and daily emotional exhaustion in a two-way interaction effect. We found there was a significant negative interaction between enacted PSC and espoused PSC on emotional exhaustion (Table 5.4, Model 6), as shown in Figure 5.2, supporting Hypothesis 2.

For the final Hypothesis 3, we proposed that the positive relationship between espoused PSC and daily perceptions of work engagement was mediated by enacted PSC. Supporting *path b* of the hypothesis, we found that both espoused and enacted PSC were significantly related to work engagement on daily basis. As shown in Table 5.5 (Model 5), our findings showed that enacted PSC was positively to work engagement ($\beta = .29$, SE = .09, $p < .01$), and so was espoused PSC ($\beta = .12$, SE = .10, $p < .05$). Moreover, *path a*, from espoused PSC to supervisor support was significant as per Hypothesis 1. Bringing the paths together we found that there was a significant mediation effect of organizational PSC on work engagement via supervisor support, 95% CI [.04, .20].

Table 5.4: Multilevel model predicting day-level emotional exhaustion

Level and Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Level 1 Day-level						
Intercept	.02 (.10)	.02 (.10)	.02 (.09)	.02 (.09)	.02 (.09)	.02 (.09)
Enacted PSC				-.02 (.07)	-.07 (.06)	-.08 (.05)
Level 2 Diary-level						
Gender		-.09 (.05)*	-.09 (.05)*	-.09 (.05)*	-.09 (.04)*	-.09 (.04)*
Level 3 School-level						
Espoused PSC			-.25 (.13)*	-.25 (.13)*	-.23 (.12)*	-.25 (.13)*
Cross-level interaction						
Espoused PSC X Enacted PSC						-.10 (.05)*
Variance components						
Within-person (L1) variance	.43	.43	.43	.43	.40	.40
Intercept (L2) variance	.46	.46	.45	.45	.46	.46
Intercept (L3) variance	.11	.11	.06	.06	.06	.06
Additional information						
–2 log x likelihood	1,193	1,192	1,185**	1,186	1,175*	1,174
Number of estimated parameters	4	5	6	7	14	15
Pseudo R^2	0	.001	.007	.006	.015	.016

Note: L1 = Level 1, L2 = Level 2. L1 N = 545, L2 sample size = 109, and L3 = 23 schools.
Values in parentheses are standard errors. *$p < .05$, **$p < .01$ (two-tailed).

Table 5.5: Multilevel model predicting day-level work engagement

Level and Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Level 1 Day-level					
Intercept	-.01 (.09)	-.01 (.09)	-.01 (.09)	-.01 (.09)	-.01 (.09)
Enacted PSC		.37 (.10)***	.37 (.10)***	.29 (.09)**	.29 (.09)**
Level 2 Diary-level					
Gender			-.08 (.09)	-.07 (.09)	-.07 (.09)
Level 3 School-level					
Espoused PSC					.12 (.10)*
Variance components					
Within-person (L1) variance	.41	.36	.36	.29	.29
Intercept (L2) variance	58	.59	.58	.54	.54
Intercept (L3) variance	.02	.02	.02	.06	.05
Additional information					
–2 log x likelihood	1,179	1,130***	1,129	1,090***	1,089
Number of estimated parameters	4	5	6	13	14
Pseudo R^2	0	.041	.042	.075	.076

Note: L1 = Level 1, L2 = Level 2. L1 N = 545, L2 sample size = 109, and L3 = 23 schools.
Values in parentheses are standard errors. *p < .05, **p < .01, ***p < .001 (two-tailed).

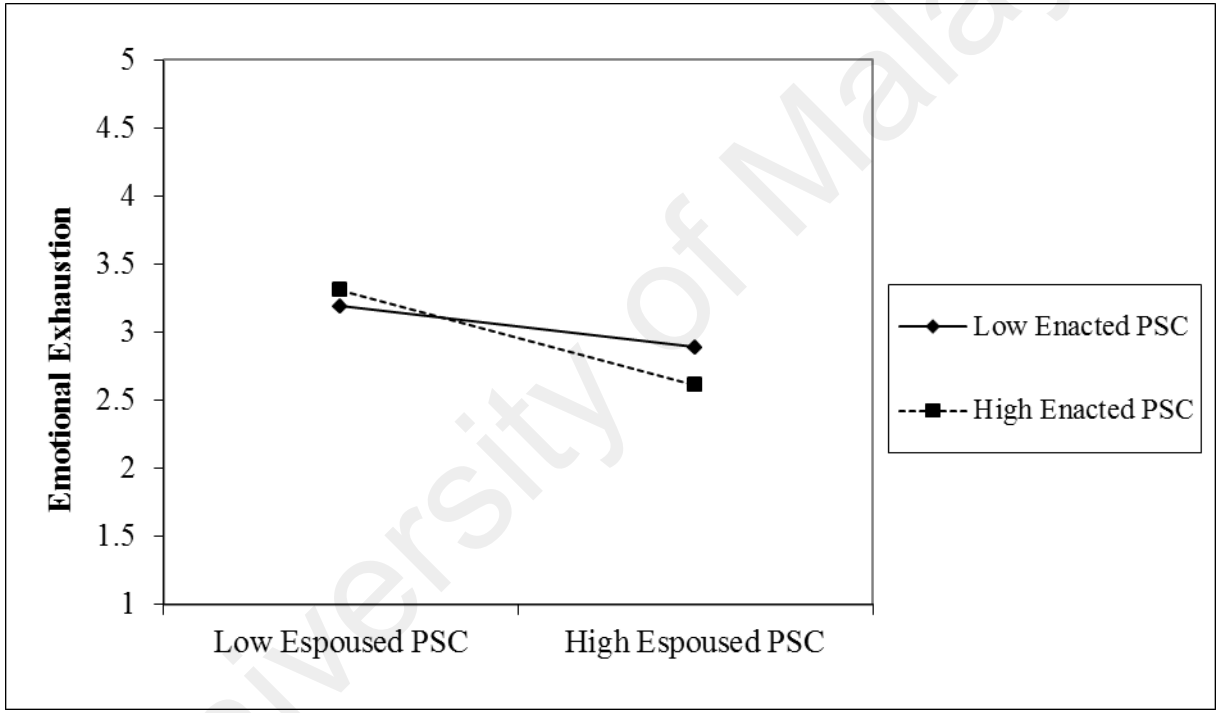

Figure 5.2: Plot of the interactive of espoused PSC and enacted PSC predicting emotional exhaustion

5.5 Discussion

We proposed a multilevel model to explain how PSC context (i.e., espoused PSC) assists employee health and work engagement depending on the enacted PSC (i.e., perceived daily supervisor support). We were interested in how and when espoused organizational PSC interplayed with enacted PSC to reduce emotional exhaustion and increase engagement on a daily basis. In the first part of the analysis, we focused on the alignment (direct effect) of espoused PSC on enacted PSC on a daily basis. Then we proposed that for emotional exhaustion, when personal stakes are high, the effect of espoused PSC is sustained only when levels of enacted PSC are high (doing reinforces saying). In addition, we also investigated the indirect effect of espoused PSC and work engagement via enacted PSC (supervisor support). The findings of our study enabled us to understand how the alignment between espoused PSC and enacted PSC (i.e., perceived supervisor support) is important to achieve desired worker health outcomes (i.e., reduced emotional exhaustion). The study also elucidated a process via which espoused PSC leads to work engagement (via enacted PSC).

Using supervisor supervisor as the "real" manifestation of espoused PSC in the workplace, this study revealed that organizational level of espoused PSC was positively related to daily supervisor support. In other words, espoused PSC manifests as the existence of support from manager or supervisor within organization. Organizational conditions of high priority and commitment as well as communication and participation from managers or supervisor, will likely lead to higher support from managers and supervisors to their employees. Our study showed that espoused PSC influenced daily fluctuation of supervisor support.

In relation to the proposed multilevel moderation framework, importantly we were able to identify that a specific type of support enabled the relationship between espoused PSC and a specific work health related outcome to be evident. We found that

enacted PSC moderated the negative relationship between espoused PSC and emotional exhaustion in a multilevel model. This significant interaction indicated that it was only in high enacted PSC contexts (high support from supervisors) that espoused PSC could enact its function (i.e., do its job) and reduce the levels of emotional exhaustion. When level of supervisor support was low, even at high levels of espoused PSC, emotional exhaustion was higher. Put more simply, prevailing levels of PSC helps teachers to mitigate their emotional exhaustion if supervisor support is enacted in a stable consistent way. We also confirmed in line with expectations that the moderating effect of supervisor support on espoused PSC was not significant; rather espoused PSC continued to exert a positive influence on work engagement, despite the levels of management support. In addition, we also assessed the interaction effect between espoused and enacted PSC in predicting work engagement, but this was not significant. As expected, this null finding is in line with safety signal theory (Lohr et al., 2007) where the signal is only helpful when employees face aversive stimuli.

This important finding is consistent with the concept of "behavioral integrity" (Simons, 2002), which emphasizes on the perceived pattern of alignment or misalignment between words and deeds that are observed overtime (p. 19). Applied to an organizational context, when employees perceive that their managers or supervisors' words are congruent with what they are really doing, then alignment occurs. In this case, when managers/supervisors truly put a priority on employees psychological health, they will act in ways to show that they really care, by giving support for employees for instance. Thus, when employees realize that both espoused and enacted policies on psychological health priority are congruent, the safety signal mechanism is triggered and employees are safe to utilize the support, and other resources (organizational and personal), to reduce or prevent emotional exhaustion at work.

Furthermore, our study also demonstrated that supervisor support has a significant role in work engagement. The more support given by managers/supervisors, perceived on a daily basis, the greater the daily perceptions of work engagement. As in prior studies, our results confirm that support from the supervisor is likely to increase workers' positive perceptions toward work and leads them to become more engaged with their work (Idris & Dollard, 2011). The findings of this study are also in line with Tuckey, Bakker, et al. (2012), as we indicated the important role of leaders or managers or supervisors to ensuring their employees' well-being and in preventing psychological health problems.

In relation to the mediation path, we found that enacted PSC mediated the positive relationship between espoused PSC and work engagement. This finding suggests that high level of organizational PSC enhances the quality of supervisor support within organization which in turn elevates the level of work engagement among employees. This finding is in line with the extended JD-R framework (Demerouti et al., 2001), proposed in the PSC framework, and supports the notion of the extended motivational pathway from PSC to work engagement via job resources (particularly supervisor support) (Dollard & Bakker, 2010; Idris et al., 2015). Additionally, the significant relationship between enacted PSC and work engagement has proven the immediacy of the valued outcomes, and this relationship was stronger with espoused PSC as a distal antecedent (Zohar & Luria, 2005). Espoused PSC sets policies, practices, and procedures for psychological health protection which may instigate good enacted PSC in term of supervisory support, and in turn influence work engagement.

Theoretically, in relation to work engagement, our results support the conceptualization of the primary role of organizational PSC in the JD-R extended model. As a primary role PSC is a "cause of the causes", organizational PSC acts as the antecedent to ensuring positive work conditions (with high job resources) which is

expected to increase work motivation (Dollard & Bakker, 2010). Our results in relation to emotional exhaustion, support an action science (Argyris, 1995) and safety signal (Lohr et al., 2007) theoretical interpretation. In action science, "theories of action" or organizational functioning is best achieved when there is alignment between the words and actions of management. Espoused theory refers to values and beliefs espoused to guide behaviors, whereas theory-in-use refers to actions based on these values and beliefs (Argyris & Schön, 1974). Our results support the idea of "theories of action" because congruence between espoused and enacted PSC led to the best outcome in relation to emotional exhaustion. Qualifying this, there is a reason why the interaction was evident with emotional exhaustion and not engagement, and it can be explained in terms of safety signal theory.

In the face of potential aversive stimulti, according to our theory, espoused PSC acts as a safety signal indicating when it is safe to act to use resources to reduce emotional exhaustion; consistent supervisor support on a daily basis helps to *strengthen* that signal. Of course there may be circumstances where the prevailing climate or ethos (theory-in-action) is not translated into actions in reality (theory-in-use). In this case high espoused PSC is ineffective, because it is unreliable, and not safe for employers to enact coping strategies.

Practically, this study suggests that for espoused PSC to be effective in addressing psychological health, daily acts congruent with espoused PSC, such as supervisor support (i.e., enacted PSC), are likely to lead to the most beneficial outcomes. The results demonstrate that PSC has an interaction effect on negative psychological outcomes (i.e., emotional exhaustion) by buffering the positive effect of supervisor support (i.e., enacted PSC). These findings indicate that espoused PSC is strongly related to the expected actions or behaviors to be taken, and through the

interactive process, aversive stimuli could be compensated. More importantly, in order to achieve more effective results, both espoused and enacted PSC must be congruent.

5.6 Limitations and future research

In this study we operationalized enacted PSC in terms of supervisor support. Future research could use different operationalizations of enacted PSC. Although our study used data from multiple time points, these were in sum across a short time span (five days). Future research could evaluate longitudinal data to better tease out cause and effect. Certainly the observation that daily supervisor support could moderate the effect of espoused PSC indicates that diary research illuminating daily actions by management in relation to PSC could provide better insights into translating higher level policy into lower level practice. Our study was conducted in schools with a flat hierarchical structure (multilevel approach with one source of data), by using the employees' perception data only. Future research could examine the transmission of espoused PSC in organizations by examining enactment of PSC by middle managers (see Zohar & Luria, 2005 who investigated this link in relationship to safety climate) and consequent effects.

Although the current research employed a diary design that enabled us to detect fluctuation of daily changes, another potential limitation is the use of single source, self-reported data. Future research could consider using multisource data and objective measurement, for instance linking teacher data (e.g., the effect of teachers' daily experiences) with student perceptions (e.g., daily behavior) or linking teachers' average experience to objective student data (e.g., exam results, grade point average).

5.7 Conclusion

Our study provides evidence of the significance of climate congruence between espoused PSC and enacted PSC in its effect on worker emotional exhaustion and work engagement on a daily level. The study adds to the body of knowledge by examining social support at work (i.e., supervisor support) as an exemplar of enacted PSC and investigating its boundary effects, moderation and mediation, on the effectiveness of espoused organizational PSC in addressing emotional exhaustion and work engagement respectively. The study provides evidence that the alignment between espoused and enacted PSC is important for achieving intended work goals, in this study, to reduce emotional exhaustion, when personal stakes are high.

CHAPTER 6: ARTICLE FOUR

A THREE-LEVEL, BETWEEN-GROUP, BETWEEN-PERSON, WITHIN-PERSON ANALYSIS OF PSYCHOSOCIAL SAFETY CLIMATE

Abstract

Psychosocial safety climate (PSC) is a concept that reflects an organization's concern regarding the psychological health and safety of its workers. On any given day, the work quality, health, and motivation of workers are likely to be affected by the organizational reality of PSC, differences between workers in their perceptions of PSC, and differences in the daily perceptions of PSC by workers. Our conceptual framework posited the multilevel PSC concept as a precursor to the health and motivation pathways of the Job Demands–Resources (JD-R) model. To grasp how to optimize the health and motivation of workers, we proposed an innovative three-level design that investigated teachers in 23 schools: this involved 109 teachers from each of whom daily diary information was collected over five consecutive days. We found that 15% of the PSC variance was due to the school, 44% was due to between-persons PSC variance, and 41% was due to within-person PSC variance. In relation to work quality (demands and resources), we found that PSC at the organizational and between-persons level was related to daily emotional demands, and that PSC, at all three levels, was associated with daily emotional resources. In terms of emotional exhaustion, we found that PSC at the school level only was negatively related to daily emotional exhaustion at the within-person level; and, lastly, in relation to work engagement, we found that the relationship between PSC and daily work engagement can be explained at all three levels. The conventional test (i.e., two-level analysis design) showed between-school PSC was associated with between-persons demands, resources, and emotional exhaustion. The three-level model in the current study provides a comprehensive framework for

examining how organizational aspects may have differential effects on the individual's work-related outcomes.

Keywords: psychosocial safety climate; emotional demands; emotional resources; emotional exhaustion; work engagement

6.1 Introduction

One of the important organizational climate constructs associated with the protection of workers' well-being and psychological health is psychosocial safety climate (PSC). By definition, PSC refers to "a shared perception on policies, practices, and procedures to ensure workers' psychological and well-being" (Dollard & Bakker, 2010, p. 580). Driven by the argument that working conditions are created by top management (Johns, 2010; Morgeson et al., 2010), PSC is assumed as a precursor to job conditions. For example, if an employer pays attention to workers' well-being, the employer will provide more job resources (i.e., more support), and diminish unnecessary job demands (i.e., less psychological demands). Several scholars agree that the best practice for measuring the organizational climate construct is to use the multilevel approach, especially treating the independent variable as being at the upper level, with the outcomes variables at the individual level (Klein & Kozlowski, 2000; Kozlowski & Klein, 2000; Mathieu et al., 2007).

Although previous studies (Dollard & Bakker, 2010; Idris et al., 2015; Idris et al., 2014) have shown evidence of this direction, these studies have not emphasized the unit level of analysis, particularly examining the concept of "shared perception" may reside at several levels of investigation. However, many theorists propose a "psychological climate" approach which emphasizes individual perceptions of climate as important. In this study, we investigate what proportion of PSC could be accounted for by individual climate perceptions. Moreover, we investigate whether individual

climate perceptions of PSC could add to our understanding, above group perceptions of PSC, about how employees perceive job quality (job demands and job resources) and their psychological health and work engagement.

In the context of PSC, to date, several multilevel studies have been conducted with various occupational samples (Dollard, Opie, et al., 2012; Idris et al., 2012). These studies rely only on the two-level approach, and no known study has been found to employ three-level analysis. In the current study, we go beyond the limitations of the previous approach by employing a three-level approach. We use this approach in order to examine for instance, if PSC at a higher level (i.e., Level 3, the school level, and Level 2, PSC at the individual level) has different effects on lower-level variables (i.e., Level 1). We used a diary study approach by collecting data using analysis on a daily basis. One of the advantages of using a diary study was that it enabled us to see the effect at each level of analysis (i.e., team level [between-groups/schools] vs. individual level [between-persons] vs. daily level [within-persons]). We used a sample of Malaysian school teachers, and we investigated the variability of the variance within PSC and examined the effects of PSC on job characteristics (i.e., emotional demands and emotional resources) and work-related outcomes (i.e., emotional exhaustion and work engagement) with a three-level model of analysis.

6.1.1 Psychosocial safety climate (PSC)

Over four decades, many researchers have attempted to explain the organizational climate from various perspectives (Kuenzi & Schminke, 2009). In general, disagreements have arisen regarding the best way to conceptualize organizational climate. While a few scholars have advocated the cognitive schema approach conceiving that climate may reside at the individual level of perception (James & Sells, 1981), other theorists have argued that organizational climate needs to be conceived as a shared construct and measured by aggregating individual perceptions within a group

(Reichers & Schneider, 1990). Consequently, it seems likely that climate may reside at both the individual and group levels of analysis (James & Jones, 1974). Therefore, it is crucial to measure the distribution of variance at all units of analysis, and to explore how organizational climate possibly influences outcome variables.

Empirical studies have indirectly shown that PSC resides at both the group and individual levels. For example, in a study among Australian education workers, it was found that 22% of variance in PSC was explained by differences between schools (Dollard & Bakker, 2010), whereas 78% was explained at the individual level. Other studies produced similar findings on the PSC variance distribution among Malaysian workers with PSC variance ranging from 11% to 19% explained by differences between teams or organizations (Idris et al., 2012; Idris et al., 2015; Idris et al., 2014).

However, researchers to date have not investigated PSC at all levels and their effects. As opposed to other areas of climate research, PSC research has been largely investigated at the organizational or group level. Climate perceptions converge because of a shared reality; employees make sense of their social reality by attending to salient cues in the work environment. According to Zohar and Luria (2005), enacted policies, practices, and procedures provide evidence to employees concerning the organizations true priorities. As a specific organizational climate, PSC refers to a "shared" perception of policies, practices, and procedures for the protection of workers' psychological health and well-being through the emphasis placed by management on the priority, commitment, participation, and communication with regard to psychological health (Dollard & Bakker, 2010). Dollard and Bakker (2010) argue that this shared perception reflects a social reality of the management philosophy and values regarding worker well-being. In organizations where there are high levels of PSC, we expect that there will also be quality work conditions. Therefore, we expect that PSC at the organizational level would predict work quality, psychological health, and well-being.

Within organizations, employees may differ in their perceptions of PSC. Each employee has unique experiences with, or exposures to an organization's policies, practices, and procedures. For example, although the majority of employees in an organization perceive that PSC is high, a specific employee may observe the situation differently. Their own perception of the PSC may be lower; they do not perceive a supportive management committed to stress prevention, or see organizational communication systems regarding risk factors to be helpful. With their own unique outlook low PSC employees may interpret demands as more demanding, and resources as less available. For these employees emotional exhaustion will likely be higher and work engagement lower.

Moreover, within employees PSC perceptions may fluctuate. Consider the scenario where perceptions of low PSC may change at the end of the week where some but not all members of the organization attend a staff meeting where management reiterates its commitment to worker well-being and the implementation of flexible worktime arrangements. This may lead to variation in the individual's perception, and a more favorable perception of job demands (i.e., they can cope better now with flexible starting times), job resources (i.e., levels of autonomy are increased with flexible time arrangments), psychological health, and work engagement. Researchers to date have not considered the variability of PSC responses within-organizations, or within-persons as factors that could be of interest in understanding the quality of work, perceived and real, that in composite can affect psychological health and work engagement.

In the current study, we argue that PSC resides at organizational and individual levels. However, we attempt to delve deeper and examine PSC that resides at the within-person level. We suggest that the perception of PSC may differ from one school to other schools (between-groups/schools), from one person to another (between-persons), and across days (within-persons) with the proposed hypothesis as follows:

Hypothesis 1: The variance components of PSC are evident at the between-group/school, between-person, and within-person levels.

6.1.2 PSC and job characteristics

According to Dollard and Bakker (2010), PSC is a construct that extends the Job Demands–Resources (JD-R) model in a multilevel way. Based on the JD-R model (Bakker & Demerouti, 2007), the current study focuses on negative and positive indicators of worker well-being, namely, job demands and job resources. Job demands refer to any aspects that are to be invested, emotionally, cognitively, and physically, in order to fulfill/finish job tasks, whereas job resources refer to aspects that are used to cope with demands (Demerouti et al., 2001). The JD-R model emphasizes the influence of work characteristic on work-related outcomes through two processes, the health erosion process and the motivational process (Bakker & Demerouti, 2007; Demerouti et al., 2001). If work is characterized as having high demands and low job resources, it will lead to unfavorable job strains, such as burnout. On the other hand, high job resources such as support at the workplace may mitigate job demands and is able to increase work motivation among workers (i.e., work engagement).

As a specific climate that protects workers from psychosocial risks, PSC is believed to have an influence on how job conditions are created (Dollard & Karasek, 2010). Consequently, PSC acts as an antecedent to job demands and job resources, explaining how this work climate plays a role as an organizational resource and organizational support which is expected to maintain or even attenuate job demands at a manageable level and stimulate job resources (Dollard & Bakker, 2010; Dollard & McTernan, 2011; Idris et al., 2012). Although the focus has been on how PSC mitigates job demands and increases job resources, a plethora of studies have consistently proven that PSC influences the work context (both job demands and job resources), whether this is examined in cross-sectional versus longitudinal designs or individual level versus

multilevel analyses (Dollard & Bakker, 2010; Idris & Dollard, 2011; Idris et al., 2011). In this current study, we focus on using specific types of job demands and job resources (i.e., emotional demands and emotional resources) as we are interested in examining the emotional aspects at work as they relate to PSC and are augmented in the JD-R model (Dollard & Bakker, 2010; Idris et al., 2014).

However, to date, PSC has only been explained with data sets at two levels in multilevel studies, group/team level and individual/person level. Therefore, in our study, we attempt to explore PSC within three levels of analysis, between-school level (L3), between-person level (L2), and within-person level (L1). We conceive that PSC may reside at all levels and are interested in examining at all levels of analysis how PSC enables us to understand its effect on job characteristics. In particular, when the shared collective perception of a group of workers toward their organizational practice is to maintain conducive working conditions, it seems that PSC resides at the group level. However, the organization may also have ideas about focusing on avoiding psychosocial risk among its workers, and workers may individually focus on placing a priority on protecting themselves from psychological harm (e.g., reducing burnout). Therefore, by focusing on the variability of PSC at different levels, our hypotheses are as follows:

Hypothesis 2: PSC at all levels significantly negatively relates to emotional demands.

Hypothesis 3: PSC at all levels significantly positively relates to emotional resources.

6.1.3 PSC and psychological outcomes

As a precursor to working conditions, PSC also places emphasis on how work is designed in order to meet not only organizational goals, but also workers' interests. To

ensure workers' performance, PSC plays an important role in maintaining and prioritizing their psychological health and well-being. Therefore, PSC could be associated with psychological outcomes because PSC, as an organizational resource, may provide a secondary support mechanism to supply resources when workers experience energy depletion due to high job demands (Dollard & Karasek, 2010; Law et al., 2011). A supportive work environment in the form of PSC may help workers to achieve work goals through workers' well-being being a management priority; thus, management communication and involvement would mitigate negative psychological outcomes and increase positive psychological outcomes (work engagement). Several studies have revealed that PSC is related to psychological outcomes, such as burnout, depression, and anger at the lower level (Idris et al., 2011; Law et al., 2011), and also burnout and psychological distress at the group level (Idris et al., 2012; Idris et al., 2014). Moreover, recent study also discovered that PSC is related to work engagement at the individual and daily levels (Garrick et al., 2014; Idris et al., 2015). Therefore, our hypotheses are as follows:

Hypothesis 4: PSC at all levels significantly negatively relates to emotional exhaustion.

Hypothesis 5: PSC at all levels significantly positively relates to work engagement.

6.2 Method

6.2.1 Participants and procedure

After permission was obtained from the Ministry of Education Malaysia and Selangor State Education Department and with school consent, a daily diary questionnaire was collected from secondary school teachers in Selangor, Malaysia. Participants were

approached at their schools and were asked for their consent to participate. Each school was given five diary questionnaires (consisting of five consecutive days, Monday to Friday) to be completed by five teachers.

Of the 200 questionnaires distributed, a total of 109 were returned by participants from only 23 schools (response rate of 57.5%). The total number of data points was 5 x 109 = 545. Most participants (88%) were female with a range of educational backgrounds (bachelor degree, 82.4%; master's degree, 15.7%; and diploma, 1.9%). The mean duration of service as a teacher was 12.9 years (range from 11 months to 30 years and 10 months; standard deviation [SD] = 7.85). The majority of participants were Malay (82.6%), followed by Indian (8.4%), and Chinese 7.5%, with the main religion being Islam (84%), followed by Hindu (6.6%), Buddhist (5.7%), and Christian (3.8%).

6.2.2 Instruments

Some of the instruments (i.e., PSC and work engagement) were adopted from the Malay version of prior studies (Idris et al., 2012; Idris et al., 2015). In addition, the instruments for emotional demands, emotional resources, and emotional exhaustion were translated into Malay using the back-translation technique (Brislin, 1970). This technique involved the first translator translating the original English version into the Malay language; this version was then re-translated from Malay into English by another translator who had not seen the original English version.

We measured PSC twice per diary (only on Mondays and Fridays), using a validated PSC-12 scale (Idris et al., 2012) in Malay. Although a prior diary study only measured PSC once per diary (Garrick et al., 2014) and this was conceptualized as being stable, we utilized PSC on Mondays and Fridays to confirm the consistency of PSC during the first and last days of the working week. The measurement consisted of four dimensions, namely, *management commitment*, *organizational communication*,

management priority, and *organizational participation*, with three items used to assess each dimension, for example, "School management acts quickly to correct problems/issues that affect employees' psychological health". All items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency reliability value was high (Cronbach's $\alpha = 0.93$).

Daily emotional demands were assessed using five items of the Demand-Induced Strain Compensation (DISC) questionnaire (de Jonge et al., 2009), for example, "Today, I have to display emotions that are inconsistent with my current feelings". All items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency reliability value was high (Cronbach's $\alpha = 0.86$).

Daily emotional resources were examined using five items of the Demand-Induced Strain Compensation (DISC) questionnaire (de Jonge et al., 2009), for example, "Today, I have the opportunity to express my emotion after a threatening situation occurs, without experiencing negative consequences". All items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency reliability value was high (Cronbach's $\alpha = 0.80$).

Daily emotional exhaustion was measured using eight items of the Oldenburg Burnout Inventory (OLBI) (Demerouti et al., 2003), for example, "At work today, I felt emotionally drained". All items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency reliability value was high (Cronbach's $\alpha = 0.91$).

Daily work engagement was assessed using nine items of the Utrecht Work Engagement Scale **(**UWES) (Schaufeli et al., 2006). This measurement consisted of three dimensions: *vigor* (e.g., "Today, at my work I feel bursting with energy"); *dedication* (e.g., "Today, I am enthusiastic about my job"); and *absorption* (e.g.,

"Today, I was immersed in my work"). All items were scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The internal consistency reliability value was high (Cronbach's $\alpha = 0.90$).

6.2.3 Aggregation procedure

We performed tests for inter-rater reliability ($r_{(wg)}$) and the intra-class coefficient [ICC(1)] to confirm that PSC could be aggregated to the school level. We found that the $r_{(wg)}$ agreement index was .97 (SD = .03), representing 97% the homogeneity of PSC perception at the within-school level (level 3) (James et al., 1984). We then assessed between-school variance for PSC and found the ICC(1) was .15, a significant chi square (22) = 48.37, and $p < .001$, indicating that 15% of the variance in PSC was due to school differences (LeBreton & Senter, 2007). In addition, one-way random effects analysis of variance (ANOVA) indicated a significant between-school variance for PSC (F_{III} (22, 194) = 3.58, $p < .001$).

6.2.4 Analysis strategy

Data were analyzed using Hierarchical Linear Modeling (HLM) software version 7.0 (Raudenbush et al., 2005). Prior to analysis, we nested the data in three levels; specifically, level 1 (L1) variables (within-persons) were nested in daily events across 545 occasions, level 2 (L2) variables (between-persons) were nested in persons across 109 individuals, and level 3 (L3) variables (between-schools) were nested in schools across the 23 schools. Following this step, further analysis of the data, constructed in HLM software, could be undertaken.

To test our hypotheses, we followed the recommendation introduced by Aguinis, Gottfredson, and Culpepper (2013) to evaluate the proportion of the total variance that resided within-persons, between-persons, and between-schools. We initiated the testing of Hypothesis 1 with a null model with PSC as an outcome at level 1. We then

calculated the variance by calculating the proportion of the total variance that resides within-persons, between-persons, and between-schools (Aguinis et al., 2013, p. 1497):

Level-1 Model

$$PSC_{mij} = \psi_{0ij} + \varepsilon_{mij}$$

Level-2 Model

$$\psi_{0ij} = \pi_{00j} + e_{0ij}$$

Level-3 Model

$$\pi_{00j} = \beta_{000} + r_{00j}$$

In relation to Hypothesis 2, we regressed daily emotional demands (Level 1) on PSC at all levels simultaneously (e.g., PSC Level 1, PSC Level 2, and PSC Level 3). The HLM equations are as follows:

Level-1 Model

$$EmotionalDemands_{mij} = \psi_{0ij} + \psi_{1ij}*(PSC_{mij}) + \varepsilon_{mij}$$

Level-2 Model

$$\psi_{0ij} = \pi_{00j} + \pi_{01j}*(PSCTC_{ij}) + e_{0ij}$$

$$\psi_{1ij} = \pi_{10j}$$

Level-3 Model

$$\pi_{00j} = \beta_{000} + \beta_{001}(PSCSC_j) + r_{00j}$$

$$\pi_{01j} = \beta_{010}$$

$$\pi_{10j} = \beta_{100}$$

To obtain an accurate estimation, we then regressed Levels 2 and 3 of emotional demands separately on PSC at all levels.

Similar methods of analysis were performed to test Hypotheses 3, 4, and 5, respectively, with emotional resources, emotional exhaustion, and work engagement the respective outcomes. For Hypothesis 3, we regressed emotional resources on PSC at all levels. We then regressed emotional exhaustion on PSC at all levels for Hypothesis 4.

Finally, we regressed work engagement on PSC at all levels in order to test Hypothesis 5:

Level-1 Model

$$\text{EmotionalResources}_{mij} = \psi_{0ij} + \psi_{1ij}*(PSC_{mij}) + \varepsilon_{mij}$$

Level-2 Model

$$\psi_{0ij} = \pi_{00j} + \pi_{01j}*(PSCTC_{ij}) + e_{0ij}$$

$$\psi_{1ij} = \pi_{10j}$$

Level-3 Model

$$\pi_{00j} = \beta_{000} + \beta_{001}(PSCSC_j) + r_{00j}$$
$$\pi_{01j} = \beta_{010}$$
$$\pi_{10j} = \beta_{100}$$

Model testing was undertaken for Hypothesis 4 as follows:

Level-1 Model

$$\text{EmotionalExhaustion}_{mij} = \psi_{0ij} + \psi_{1ij}*(PSC_{mij}) + \varepsilon_{mij}$$

Level-2 Model

$$\psi_{0ij} = \pi_{00j} + \pi_{01j}*(PSCTC_{ij}) + e_{0ij}$$

$$\psi_{1ij} = \pi_{10j}$$

Level-3 Model

$$\pi_{00j} = \beta_{000} + \beta_{001}(PSCSC_j) + r_{00j}$$
$$\pi_{01j} = \beta_{010}$$
$$\pi_{10j} = \beta_{100}$$

Model testing was undertaken for Hypothesis 5 as follows:

Level-1 Model

$$\text{WorkEngagement}_{mij} = \psi_{0ij} + \psi_{1ij}*(PSC_{mij}) + \varepsilon_{mij}$$

Level-2 Model

$$\psi_{0ij} = \pi_{00j} + \pi_{01j}*(PSCTC_{ij}) + e_{0ij}$$

$$\psi_{1ij} = \pi_{10j}$$

Level-3 Model

$$\pi_{00j} = \beta_{000} + \beta_{001}(PSCSC_j) + r_{00j}$$

$$\pi_{01j} = \beta_{010}$$

$$\pi_{10j} = \beta_{100}$$

We added an additional analysis by regressing the between-person and between-school levels of emotional resources, emotional exhaustion, and work engagement on PSC at all levels.

6.3 Results

Table 6.1 presents a descriptive analysis of the means, standard deviations, and correlations between variables, F_{III} values, and intra-class correlations [ICC(1)].

The HLM analysis results are shown in Tables 6.2 and 6.3 with a summary of the findings presented in Figure 6.1. In Hypothesis 1, it was proposed that the variance components of PSC would be evident at the between-group/school, between-person, and within-person levels. The analysis showed that Level 1 variance component σ^2 = .14272, Level 2 variance component τ = .15445, df = 86, χ^2 = 270.11, p < .001; and Level 3 variance component π = .05255, df = 22, χ^2 = 46.37, p < .001 (Table 6.2, Model 1). We found that the variance of PSC resides at all levels: 15% of the variance in PSC was explained in the differences between-schools, 44.2% of the variance was due to differences between-persons, and, lastly, 40.8% of the variance was explained by differences within-persons (the daily level). In total, as 100% of the variance of PSC resides at all levels (three-level), Hypothesis 1 was supported.

Table 6.1. Means, standard deviations, and correlations between variables

	Variables	M	SD	1	2	3	4	F_{III}	ICC(1)
1.	Psychosocial safety climate (PSC)	3.61	.59					3.58***	.15
2.	Emotional demands	3.02	.80	-.03				9.74***	.17
3.	Emotional resources	3.76	.52	.43**	.05			4.58***	.03
4.	Emotional exhaustion	2.79	.83	-.04	.37**	-.06		7.15***	.11
5.	Work engagement	3.75	.63	.37**	.04	.50**	-.31**	4.45***	.01

Note: N = 545 daily reports; Sample size = 109 individuals; School sample = 23 schools.
**p < .01, ***p < .001 (two-tailed), ^{+}p < .05 (one-tailed).

Table 6.2: Multilevel model of PSC

	Model 1
Level 1	
Intercept	3.61 (.07)***
PSC (within-persons)	
Level 2	
PSC (between-persons)	
Level 3	
PSC (between-schools)	
Variance components	
Within-team (L1) variance	.14
Intercept (L2) variance	.15
Intercept (L3) variance	.05
Additional information	
ICC	.15
–2 log x likelihood (FIML)	335
Number of estimated parameters	4

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109. Values in parentheses are standard errors. ***$p < .001$ (two-tailed).

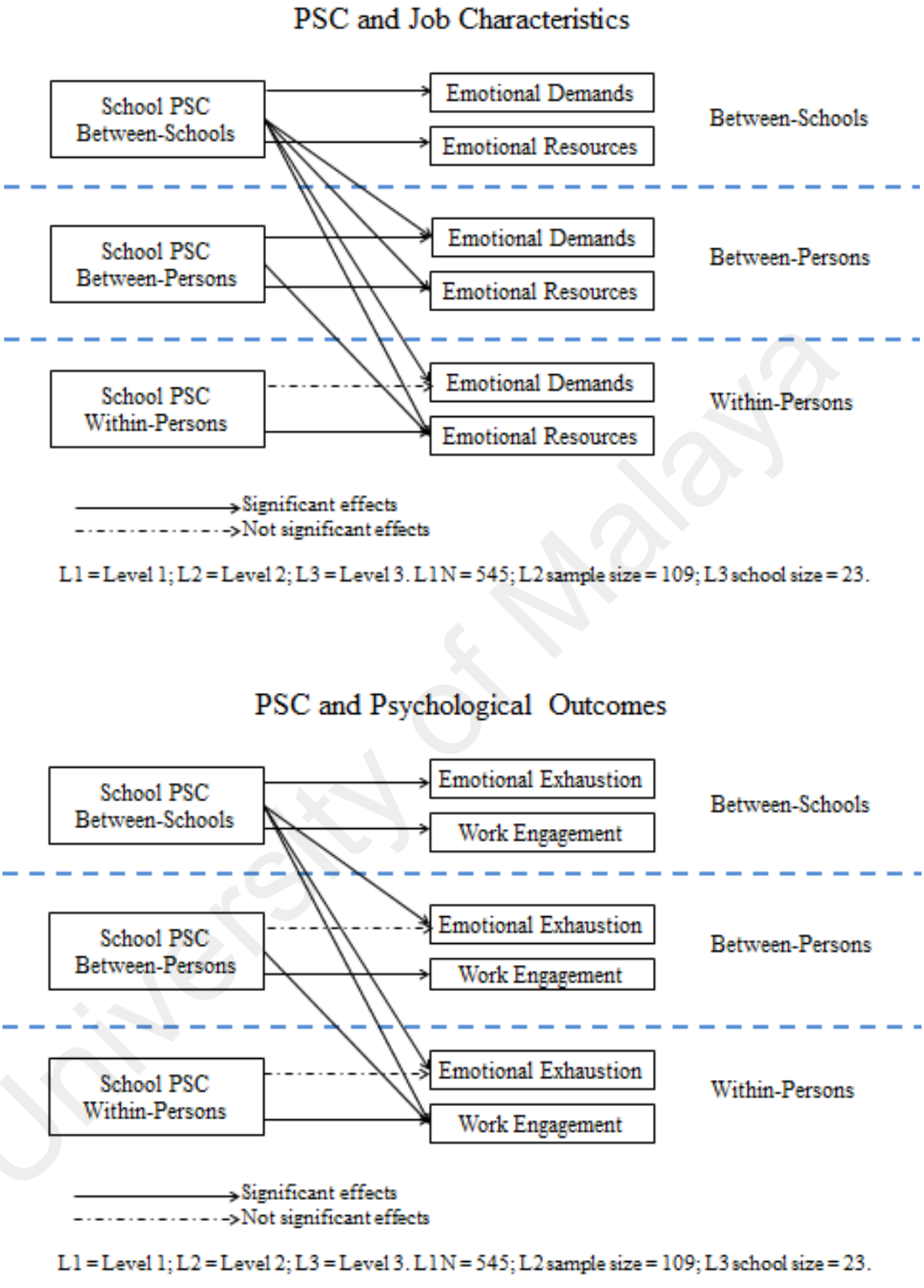

Figure 6.1: PSC, job characteristics, and psychological outcomes

It was proposed in Hypothesis 2 that PSC at all levels would significantly negatively relate to emotional demands (ED). Only the between-person and between-school levels of PSC were found to be significantly related to daily (within-person) emotional demands with γ = -.27, SE = .15, $p < .05$ (PSC L2 → ED L1) and γ = -.86, standard error (SE) = .30, $p < .01$ (PSC L3 → ED L1). However, the daily (within-person) level of PSC was not significantly related to the daily (within-person) perception of emotional demands with γ = -.01, SE = .12 (non-significant [*n.s.*]) (PSC L1 → ED L1) (Table 6.3, Model 4). The between-person and between-school levels of PSC were also significantly related to individual (between-person) emotional demands with γ = -.36, SE = .13, $p < .05$ (PSC L2 → ED L2) and γ = -.49, SE = .33, $p < .01$ (PSC L3 → ED L2) (Table 6.4, Model 3). In addition, PSC at the between-school level was negatively related to the between-school perception of emotional demands (γ = -.66, SE = .25, $p < .05$) (PSC L3 → ED L3) (Table 6.5, Model 2), indicating that Hypothesis 2 was moderately supported.

On the other hand, it was predicted in Hypothesis 3 that PSC at all levels would significantly positively relate to emotional resources (ER). We consequently found that PSC at all levels was significantly related to daily (within-person) emotional resources with γ = .20, SE = .11, $p < .05$ (PSC L1 → ER L1); γ = .45, SE = .08, $p < .001$ (PSC L2 → ER L1); and γ = .37, SE = .12, $p < .001$ (PSC L3 → ER L1) (Table 6.6, Model 4). In addition, PSC at the between-person and between-school levels was also found to be significantly related to individual (between-person) emotional resources (γ = .44, SE = .05, $p < .001$, PSC L2 → ER L2; and γ = .37, SE = .08, $p < .001$, PSC L3 → ER L2) (Table 6.7, Model 4). In addition, the between-school level of PSC was significantly related with the between-school perception of emotional resources (γ = .28, SE = .12, $p < .001$, PSC L3 → ER L3) (Table 6.8, Model 2), thus indicating that Hypothesis 3 was fully supported.

Table 6.3: Multilevel model predicting emotional demands (within-persons)

	Model 1	Model 2	Model 3	Model 4
Level 1				
Intercept	3.03 (.09)***	3.01 (.09)***	3.01 (.09)***	3.01 (.08)***
PSC (within-persons)		-.02 (.12)	-.01 (.12)	-.01 (.12)
Level 2				
PSC (between-persons)			-.10 (.16)*	-.27 (.15)*
Level 3				
PSC (between-schools)				-.86 (.30)**
Variance components				
Within-team (L1) variance	.21	.30	.30	.30
Intercept (L2) variance	.33	.28	.27	.26
Intercept (L3) variance	.11	.10	.11	.07
Additional information				
ICC	.17			
–2 log x likelihood (FIML)	942	484***	483	476***
Number of estimated parameters	4	5	6	7

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, **p < .01, ***p < .001 (two-tailed).

Table 6.4: Multilevel model predicting emotional demands (between-persons)

	Model 1	**Model 2**	**Model 3**
Level 2			
Intercept	3.04 (.09)***	3.04 (.09)***	3.04 (.08)***
PSC (between-persons)		-.35 (.17)*	-.36 (.13)*
Level 3			
PSC (between-schools)			-.49 (.33)**
Variance components			
Within-team (L1) variance	.37	.34	.34
Intercept (L2) variance	.11	.12	.11
Additional information			
ICC	.23		
–2 log x likelihood (FIML)	219	212**	208*
Number of estimated parameters	3	4	5

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, **p < .01, ***p < .001 (two-tailed).

Table 6.5: Multilevel model predicting emotional demands (between-schools)

	Model 1	**Model 2**
Level 3		
Intercept	3.04 (.07)***	3.05 (.07)***
PSC (between-schools)		-.66 (.25)*
Variance components		
Within-team (L1) variance	.19	.15
Additional information		
–2 log x likelihood (FIML)	25	20*
Number of estimated parameters	3	4

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 6.6: Multilevel model predicting emotional resources (within-persons)

	Model 1	Model 2	Model 3	Model 4
Level 1				
Intercept	3.76 (.04)***	3.75 (.05)***	3.75 (.04)***	3.75 (.04)***
PSC (within-persons)		.20 (.11)*	.20 (.11)*	.20 (.11)*
Level 2				
PSC (between-persons)			.43 (.06)***	.45 (.08)***
Level 3				
PSC (between-schools)				.37 (.12)***
Variance components				
Within-team (L1) variance	.11	.13	.13	.13
Intercept (L2) variance	.15	.14	.09	.09
Intercept (L3) variance	.01	.01	.01	.01
Additional information				
ICC	.03			
–2 log x likelihood (FIML)	588	296***	266***	.265
Number of estimated parameters	4	5	6	7

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 6.7: Multilevel model predicting emotional resources (between-persons)

	Model 1	Model 2	Model 3
Level 2			
Intercept	3.76 (.04)***	3.76 (.04)***	3.76 (.04)***
PSC (between-persons)		.44 (.05)***	.44 (.05)***
Level 3			
PSC (between-schools)			.37 (.08)***
Variance components			
Within-team (L1) variance	.17	.12	.12
Intercept (L2) variance	.01	.02	.01
Additional information			
ICC	.05		
–2 log x likelihood (FIML)	119	93***	85**
Number of estimated parameters	3	4	5

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, **p < .01, ***p < .001 (two-tailed).

Table 6.8: Multilevel model predicting emotional resources (between-schools)

	Model 1	**Model 2**
Level 3		
Intercept	3.76 (.06)***	3.76 (.06)***
PSC (between-schools)		.28 (.12)*
Variance components		
Within-team (L1) variance	.04	.03
Additional information		
–2 log x likelihood (FIML)	10	14*
Number of estimated parameters	3	4

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109. Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

It was proposed in Hypothesis 4 that PSC at all levels would be significantly negatively related to emotional exhaustion (EE); however, this hypothesis was less supported. Only the between-school level of PSC was significantly related to daily (within-person) emotional exhaustion with γ = -.49, SE = .28, $p < .05$ (PSC L3 → EE L1). However, daily (within-person) and between-person levels of PSC were not significantly related to daily (within-person) emotional exhaustion with γ = -.18, SE = .13, *n.s.* (PSC L1 → EE L1); and γ = -.05, SE = .10, *n.s.* (PSC L2 → EE L1) (Table 6.9, Model 4). Thus, a significant relationship was only found for the between-school level of PSC and individual (between-person) emotional exhaustion (γ = -.53, SE = .24, $p < .05$, PSC L3 → EE L2), but not for the between-person level of PSC and individual (between-person) emotional exhaustion (γ = -.02, SE = .14, *n.s.*, PSC L2 → EE L2) (Table 6.10, Model 4). In addition, the between-school level of PSC was found to be negatively related to the between-school level of emotional exhaustion (γ = -.71, SE = .33, $p < .05$, PSC L3 → EE L3) (Table 6.11, Model 2). Therefore, Hypothesis 4 was partially supported.

Table 6.9: Multilevel model predicting emotional exhaustion (within-persons)

	Model 1	**Model 2**	**Model 3**	**Model 4**
Level 1				
Intercept	2.79 (.08)***	2.74 (.08)***	2.74 .07)***	2.74 (.07)***
PSC (within-persons)		-.18 (.13)	-.18 (.13)	-.18 (.13)
Level 2				
PSC (between-persons)			-.08 (.11)	-.05 (.10)
Level 3				
PSC (between-schools)				-.49 (.28)*
Variance components				
Within-team (L1) variance	.29	.41	.41	.41
Intercept (L2) variance	.32	.21	.21	.21
Intercept (L3) variance	.07	.05	.04	.03
Additional information				
ICC	.11			
–2 log x likelihood (FIML)	1,090	506***	505	502*
Number of estimated parameters	4	5	6	7

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 6.10: Multilevel model predicting emotional exhaustion (between-persons)

	Model 1	**Model 2**	**Model 3**
Level 2			
Intercept	2.79 (.08)***	2.79 (.08)***	2.79 (.08)***
PSC (between-persons)		-.02 (.10)	-.02 (.14)
Level 3			
PSC (between-schools)			-.53 (.24)*
Variance components			
Within-team (L1) variance	.38	.38	.38
Intercept (L2) variance	.07	.07	.05
Additional information			
ICC	.16		
–2 log x likelihood (FIML)	218	218	213*
Number of estimated parameters	3	4	5

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 6.11: Multilevel model predicting emotional exhaustion (between-schools)

	Model 1	Model 2
Level 3		
Intercept	2.80 (.06)***	2.80 (.06)***
PSC (between-schools)		-.71 (.33)*
Variance components		
Within-team (L1) variance	.17	.13
Additional information		
–2 log x likelihood (FIML)	23	17**
Number of estimated parameters	3	4

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, **p < .01, ***p < .001 (two-tailed).

In relation to Hypothesis 5 in which it was proposed that PSC at all levels was significantly positively related to daily (within-person) work engagement (WE), a significant relationship of daily (within-person), between-person and between-school levels of PSC was found with daily (within-person) work engagement ($\gamma = .31$, SE = .14, $p < .05$, PSC L1 → WE L1; $\gamma = .56$, SE = .07, $p < .001$, PSC L2 → WE L1; and $\gamma = .34$, SE = .18, $p < .05$, PSC L3 → WE L1) (Table 6.12, Model 4). In addition, the individual (between-person) level of PSC was found to be significantly related to individual (between-person) work engagement ($\gamma = .46$, SE = .05, $p < .001$, PSC L2 → WE L2). However, the between-school level of PSC was not significantly related to between-person work engagement ($\gamma = .23$, SE = .16, *n.s.*, PSC L3 → WE L2) (Table 6.13, Model 3), and, lastly, the between-school level of PSC was positively associated with the between-school level of work engagement ($\gamma = .24$, SE = .21, $p < .05$, PSC L3 → WE L3) (Table 6.14, Model 2), which indicated that Hypothesis 5 was moderately supported.

Table 6.12: Multilevel model predicting work engagement (within-persons)

	Model 1	Model 2	Model 3	Model 4
Level 1				
Intercept	3.75 (.05)***	3.75 (.06)***	3.76 (.06)***	3.76 (.06)***
PSC (within-persons)		.31 (.14)*	.31 (.14)*	.31 (.14)*
Level 2				
PSC (between-persons)			.46 (.07)*	.56 (.07)***
Level 3				
PSC (between-schools)				.34 (.18)*
Variance components				
Within-team (L1) variance	.16	.21	.21	.21
Intercept (L2) variance	.24	.20	.14	.13
Intercept (L3) variance	.01	.01	.02	.02
Additional information				
ICC	.01			
–2 log x likelihood (FIML)	782	396***	376***	372*
Number of estimated parameters	4	5	6	7

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

Table 6.13. Multilevel model predicting work engagement (between-persons)

	Model 1	Model 2	Model 3
Level 2			
Intercept	3.75 (.05)***	3.76 (.05)***	3.75 (.05)***
PSC (between-persons)		.46 (.05)***	.46 (.05)***
Level 3			
PSC (between-schools)			.23 (.16)
Variance components			
Within-team (L1) variance	.27	.22	.22
Intercept (L2) variance	.01	.01	.01
Additional information			
ICC	.01		
–2 log x likelihood (FIML)	166	149***	147
Number of estimated parameters	3	4	5

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109. Values in parentheses are standard errors. ***p < .001 (two-tailed).

Table 6.14. Multilevel model predicting work engagement (between-schools)

	Model 1	Model 2
Level 3		
Intercept	3.77 (.05)***	3.77 (.05)***
PSC (between-schools)		.24 (.21)*
Variance components		
Within-team (L1) variance	.07	.07
Additional information		
–2 log x likelihood (FIML)	2	2
Number of estimated parameters	3	4

Note: FIML = full information maximum likelihood estimation; L1 = Level 1; L2 = Level 2; L1 N = 545 and L2 sample size = 109.
Values in parentheses are standard errors. *p < .05, ***p < .001 (two-tailed).

6.4 Discussion

The main objective of the present study was to examine the effect of the variance of PSC and its relationship to job characteristics and psychological outcomes by using a three-level model. The study provides a more comprehensive and appropriate conceptualization of the multilevel effect study on schools as was suggested by Bryk and Raudenbush (1988). This study enables us to understand a structural effect that may disentangle the individual (between-persons) and school levels into the within-person components based on daily reports. In addition, the variance of PSC can be partitioned into within-persons, between-persons, and between-schools, thus providing valuable information about the potential sources of variability of PSC in the model. From the findings, the variance of PSC resides at all levels which indicates that PSC can be explained within and between individual levels, as well as at the school level.

In general, we found the different effects of PSC on both emotional demands and emotional resources. Specifically, we found that emotional demands were not influenced by PSC within-persons (daily reports), but were due to PSC between-persons and between-schools. Conversely, emotional resources were affected by PSC at all levels, thus indicating that PSC differs within-persons, between-persons, and between-schools. Specifically, PSC differs within-persons (the daily level) and accounts for significant variance in the daily perception of emotional resources, but not of emotional demands. Psychosocial safety climate (PSC) also differs between-persons and accounts for significant variance in individual perceptions of emotional demands and emotional resources. Lastly, PSC differs between-schools and accounts for significant variance in between-school perceptions of emotional demands and emotional resources.

This study also examined the influence of PSC on psychological outcomes at all levels. Most studies on PSC have focused on the role of PSC as a precursor to job characteristics (i.e., job demands and job resources). However, we attempted to reveal

the role of PSC on psychological outcomes. Several studies have proven that PSC is also able to influence psychological outcomes without the existence of job characteristics. For example, a recent study on PSC has shown that the group level of PSC reduces individual emotional exhaustion among Malaysian private organizations (Idris et al., 2014). To conserve energy in order to buffer the effect of job demands (Brotheridge & Lee, 2002), PSC may act as a job resource. If the organization has an emphasis on psychosocial safety, indirectly this may influence each level of analysis. In this current study, PSC differs between-schools and accounts for significant variance in daily, individual and school perceptions of emotional exhaustion. In terms of work engagement, PSC differs at all levels and accounts for significant variance in daily work engagement. Thus, PSC differs between-persons and between-schools, and accounts for significant variance in individuals' and schools' perceptions of work engagement, respectively.

To date, studies using a diary approach (Garrick et al., 2014) have been solely focused on the mechanism between and within persons, but have been unlikely to explore antecedents that affect the individual level. Although debate has occurred about the outcomes variables residing at the lower level of analysis (Mathieu et al., 2007), some arguments have countered this point. For example, Schaufeli and Salanova (2011) explained how work engagement would also reside at the team level, particularly when the whole group shares a similar mood about their positive emotions. This condition may also apply to emotional exhaustion; for example, if members of the group share a similar feeling of being emotionally exhausted, emotional exhaustion may not only pertain at the individual level, but can also be identified as a collective emotional exhaustion. Thus, in the current study, we provide an explanation for how, while organizational climate resides at the upper level (the school level), this has an effect on the between-person level outcomes, and also on daily level outcomes (within-persons).

6.5 Conclusion

In conclusion, consistent with the notion that PSC is a "shared" perception, PSC appears at all levels of analysis. In this study, we provide evidence for the theoretical framework of psychosocial safety climate (PSC). This shows that the management priority of protecting workers from psychological harm would have an effect on the lower level of analysis, although the phenomenon of PSC appears at the highest level of analysis (i.e., the school level), and that it will influence the between-person and within-person levels. In other words, if the organization (the school) takes care of its workers, not only will it remove unnecessary psychological harm at the school level, but it will lead to better protection at both inter- and intra-person (i.e., between-person and within-person) levels.

CHAPTER 7: CONCLUSION, LIMITATIONS, FUTURE RESEARCH DIRECTIONS, AND RESEARCH IMPLICATIONS

7.1 Introduction

The emergence of psychosocial risks has become a worldwide concern due to their adverse consequences for health and safety. Psychosocial risks, such as poor working conditions and an unstable labor market, worsen the work situation and affect employees' health and well-being which consequently reduce the quality of life. As a consequence, as shown by statistics, work-related stress has become a major problem with increasing numbers of employees suffering from stress (Eurofound, 2006). Based on this scenario, the main objective of the current research was to examine psychosocial risks at work by exploring the impact of psychosocial safety climate (PSC) and its relationships to job conditions, health, and work motivation in Malaysia. This research was also interested in examining the moderating effects of PSC at work. In addition, the current research provides a better understanding of the Eastern perspective, in particular, the Malaysian perspective, regarding psychosocial risks at work.

The current research utilized quantitative approaches (a cross-sectional survey, a longitudinal survey, and a quantitative diary study) in order to obtain a bigger picture of psychosocial risk factors in the workplace. The research was also interested in examining the influence of PSC on psychological health conditions and work motivation among workers in Malaysia.

In the first stage, a systematic literature review was conducted in which, by looking at previous studies, PSC and two other climate constructs of safety-related climate (i.e., safety climate and psychological safety) were compared. The emphasis in this review was on the roles, impacts, current research trends, and also the challenges for future research.

In the second stage of the research, data were collected from the two-wave data collection process among police personnel from the Contingent Police Headquarters in Bukit Aman, Peninsular Malaysia. In total, 909 police personnel (58 departments) participated at Time 1 and 638 police personnel (44 departments) at Time 2. This study was followed by the third stage in which data were obtained using a diary report from teachers in the State of Selangor, Malaysia, with 109 teachers from 23 schools participating in the diary study.

7.2 Summary of research findings

The current research highlights the most recent facet-specific climate for psychological health and safety, psychosocial safety climate (PSC), as a precursor to working conditions, and investigates its influence on employees' well-being. The first part of the thesis reported on the systematic literature review in which, by looking at previous studies, PSC was contrasted with two other safety-related climate constructs, namely, safety climate and psychological climate. In the next four chapters, the thesis discussed how PSC acts as the antecedent, and also as a moderator, of the relationship between job conditions and individual-related and work-related outcomes. In order to recall the research findings from previous chapters, the main findings are discussed concisely in this section.

In Chapter 2, the main purpose of the systematic literature review was, by looking at previous studies, to compare three major "safety-related work climates", namely, PSC and two other constructs, safety climate and psychological climate. The review examined the roles and impacts of these climates, as well as the research trends and levels of measurement. In addition, the review highlighted several issues and challenges for future research, such as the possibility of using multiple safety-related climates at the same time in research, multilevel modeling, time interval considerations,

and the use of advanced research design. The review revealed that although these climates are under the safety "umbrella", they each have a different focus. Safety climate mainly focuses on physical injuries and risk prevention (Zohar, 1980), whereas psychological climate focuses on psychological safety outcomes (Edmondson, 1999). In contrast, PSC is a specific organizational climate that is believed to be able to create a conducive working environment (i.e., low job demands vs. higher job resources) which, in turn, influences outcomes for the individual and work outcomes (Dollard & Bakker, 2010). This review enables us to understand the safety-related work climate (in general) and PSC (in particular), and also their importance for improving health and work quality.

With the cross-sectional study in Chapter 3, the current research sought to examine positive job demands (challenge demands) and hindrance demands. This is crucial as challenge demands are important for supporting personal growth, while hindrance demands threaten personal growth and performance (Cavanaugh et al., 2000; LePine et al., 2005). Specifically, the study aimed to explore whether organizational PSC is more likely to create positive challenge demands, and less likely to generate negative hindrance demands, and also how these demands influence psychological health and work engagement, as well as physical health. In line with the relationship between PSC and job demands in the JD-R model, the study proposed that PSC is negatively related to hindrance demands and positively associated with challenge demands. However, the analysis revealed that PSC was only negatively related to hindrance demands, and not to challenge demands. The findings of this study revealed the similarity of the relationships between challenge–hindrance demands and emotional exhaustion and work engagement. The findings showed that, while both challenge demands and hindrance demands were positively related to emotional exhaustion, challenge demands were also positively associated with work engagement. This

provided support for the view that although job demands are mostly regarded as negative, not all job demands are negative. Some may be perceived as challenging and have the effect of stimulating individuals' motivation and personal growth.

In Chapter 4, with a longitudinal approach and using the extended JD-R motivational pathway, the study examined the influence of PSC on work motivation (work engagement and workaholism) and psychological health. The main concern of this study was to investigate whether PSC has similar effects on workaholism and work engagement, or whether these relationships react in different ways. The findings showed that while PSC improves job resources which, in turn, are significantly associated with work engagement in the mediation process, the relationship between job resources and workaholism only exists under conditions of low PSC in a moderated mediation process. This study again empirically showed that the relationship between PSC and psychological health was mediated by work motivation, particularly the indirect relationship between job resources and psychological health via workaholism with this only holding in conditions of low PSC. Therefore, results support a moderated mediation analysis that PSC is a lead indicator of psychological health.

Using a quantitative diary study, as reported in Chapter 5, the study's emphasis was on the alignment between the theory (espoused) and action (enacted) of climate policies, procedures, and practices. The study proposed that it is imperative to ensure that espoused PSC (organizational PSC) is congruent with enacted PSC (supervisor support) for workers' psychological health (reduced emotional exhaustion) and work engagement on a daily basis. In this study, while espoused PSC moderated the relationship between enacted PSC (supervisor support) and emotional exhaustion, enacted PSC mediated the relationship between espoused PSC and work engagement. Thus, the findings showed that espoused PSC predicted future enacted PSC (supervisor support) in which a high level of espoused PSC leads to a high level of enacted PSC on

a daily basis (with the converse applying for low levels of espoused PSC and enacted PSC). These findings indicated the importance of climate congruence in which espoused PSC is related to the expected actions or behaviors to be taken. Thus, this study also suggests that the expected beneficial effects of enacted PSC were only found when enacted PSC was aligned with espoused PSC.

Finally, in Chapter 6, the effects of PSC were investigated using an innovative three-level design (within-person, between-persons, and between-groups/schools). We found that the variance in PSC resides at all levels indicating that PSC variance was due to the school, between persons and within the individual. In addition, this study revealed that PSC at all levels was positively related to daily emotional resources and daily work engagement, whereas it was moderately related to daily emotional demands. This study suggests that PSC as an overarching concept reflects an organization's (or a team's) concern regarding psychological health and safety.

7.3 Research limitations

Although this thesis has presented extensive research conducted on PSC in Malaysia, several limitations have been identified as described in the following sections.

7.3.1 Self-reported measurement issues

One possible limitation of the current research is the utilization of self-reported measures which could be contaminated by the problem of common method variance bias (due to the use of a single rater or a single source of data). However, this problem was overcome by using a longitudinal design (two-wave) and a diary study. Repeated measures lagged across time are capable of demonstrating more accurate and stronger causal effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A multilevel design may also reduce common method effects due to the use of group-level PSC that is not

solely explained by individual-level factors, but is also the accumulation of several individuals' perceptions within the organization.

7.3.2 Cross-sectional study

As previously mentioned, common method variance bias due to self-reported measures is unavoidable. This problem is exacerbated by the method of measurement, particularly in a cross-sectional study in which data are collected only at the one time. The first paper in this thesis relied on cross-sectional data (Chapter 3) which was likely to be tainted by shared method variance bias. However, the research methodology was improved by using longitudinal data and a diary study in the next three papers in order to reduce common method variance bias and to enhance causal relationships.

7.3.3 Western-developed measurements

Generally, the measures for PSC and other measurements utilized in this study were constructed in the Western context: these may be incompatible when used in the Eastern context due to cultural differences. However, several steps were taken to ensure that the measurements were reliable and valid for this context. For instance, an appropriate translation method, such as the use of back-translation (Brislin, 1970), was one way to deal with this issue.

Moreover, several measures have been validated and have been proven as suitable for the Eastern context, particularly in Malaysia. For example, PSC has been reported as valid and reliable for utilization in this context (Idris et al., 2015; Idris et al., 2014). The internal consistency for PSC ranged from .81 to .97 in Western studies: similarly, the internal consistency for PSC in the current study ranged from .91 to .94. This is consistent with prior Malaysian studies of PSC which also ranged from .91 and .94. Thus, from this study, it has been demonstrated that the measurements used were reliable with several tests on reliability and validity analyses conducted.

7.3.4 Multilevel modeling issues

Although hierarchical linear modeling (HLM) software is often used in multilevel analysis (Aguinis et al., 2013; Mathieu & Taylor, 2007), HLM is still limited particularly in relation to its utilization for analysis of outcome variables at different levels and multilevel mediation (Zhang, Zyphur, & Preacher, 2009). The HLM analysis only allows higher levels (Level 3 and/or Level 2) to predict Level 1 variables, and not otherwise (Preacher et al., 2011). In addition, in terms of HLM analysis involving the within-level (Level 1) elements and between-level (Level 2 and/or Level 3) elements, this analysis may produce inaccuracy in variance estimates due to conflation between upper-level and lower-level components (Zhang et al., 2009). Moreover, unlike structural equation modeling (SEM), another limitation of HLM is its inability to assess all the analysis paths concurrently. In other words, HLM is unable to measure several outcome variables at the same time.

Multilevel structural equation modeling (MSEM) has been suggested as the best solution to compensate for HLM's limitation in relation to multilevel modeling, by extending the analysis of structural equation modeling (SEM) in the nested structure (Preacher et al., 2011; Preacher, Zyphur, & Zhang, 2010). Multilevel structural equation modeling (MSEM), such as that employed by Mplus software, would enable the measurement of all paths simultaneously which may provide more accurate estimation effects. However, MSEM requires a larger and more adequate sample size at the group level, with the recommended sample size being at least 100 (Hox & Maas, 2001; Meuleman & Billiet, 2009). Hox and Maas (2001) have suggested that a small and insufficient sample size could lead to problems and inaccuracy in the results. Therefore, as the group-level sample size was less than 100, we were unable to analyze the data using this approach in the current study.

7.4 Suggestions for future research directions

Overall, although PSC has been extensively researched in the Western context, together with the extended model of job stress, in particular, the JD-R model, there have been very limited studies from the Eastern context, and particularly in Malaysia. The current research has been designed to investigate PSC, together with the JD-R model and challenge–hindrance demands. Although previous research in Malaysia has integrated PSC into the JD-R model, our study differentiates job demands into positive and negative demands. However, future research could consider examining PSC with other job stress models, such as the Demand–Induced Strain Compensation (DISC) model, using specific emotional, cognitive, and physical elements of both job demands and job resources. Future research could also consider examining personal resources as an alternative to job resources, and comparing PSC with other climate constructs that possibly exist within the organization, such as safety climate and psychological climate.

In relation to research design, future research could employ multiple respondents or sources, or multiple types of data collection methods, and could also collect data over time with more than two waves of data collection (such as a three-wave longitudinal design). Using other methods of data collection, such as interviews, could be included in future research. Objective measurement could also be considered as the appropriate approach in PSC research, rather than self-reported questionnaires. Future research could measure PSC by collecting data directly from managers or supervisors rather than asking their subordinates' perceptions. In addition, future research could assess performance objectively by using actual performance, such as supervisors' evaluation or other appropriate strategies that are commonly used in organizations. These strategies are expected to reduce the problem of common method variance bias.

Another important issue for future research consideration is in relation to the analytical tools used in the current research. As previously mentioned, multilevel

modeling using HLM has a limitation that needs to be overcome. Therefore, it is suggested that future research utilizes advanced software, such as Mplus, to investigate multilevel data. It is expected that this tool would, if used in future, provide more accurate estimates of research findings.

7.5 Research implications

It is imperative that there is a better understanding regarding the concept of psychosocial factors and their risks in order to understand how to measure and manage them effectively. Therefore, the current research has examined PSC as a specific climate for psychological health and safety at work, and has explored how it relates to job conditions and outcomes. The findings of this research have several important theoretical and practical implications. Firstly, this research provides additional support for multilevel theorization in occupational and organizational contexts. The use of organizational-level PSC has proven that PSC resides beyond the level of the individual. In addition, this research supports the notion of PSC as the "cause of the causes" of psychological health and as the moderator in predicting individual-related and work-related outcomes (Dollard & Bakker, 2010).

Secondly, this research provides information regarding PSC and its relationship to challenge–hindrance demands. To the best of the researcher's knowledge, this is the first study in Malaysia of challenge–hindrance demands. In addition, the findings of this current research are consistent with prior Malaysian research on PSC and the extension of the JD-R model in multilevel modeling (e.g., Idris et al., 2015; Idris et al., 2014). The research highlights the relationships between PSC and job conditions, particularly job demands and job resources, and their relationships to health and well-being. Thus, the research supports the importance of PSC to employees' health and motivation, and to the prevention of psychological hazards.

Thirdly, the current research also highlights the level of analysis in multilevel modeling by utilizing a three-level analysis of organizational PSC. In this difference from prior PSC research which has solely focused on two-level analyses (organizational level vs. individual level), this research has utilized PSC at the organizational level, followed by other constructs representing individual and daily levels (see Chapter 5). This is expected to provide a better understanding of the relevance of the PSC construct.

Regarding the practical implications, this research suggests that PSC should be developed and enhanced within organizations in order to build positive work motivation and to ensure employees' health (Dollard & Karasek, 2010). Thus, PSC could be used as a benchmark to assist in assessing the quality of working conditions within organizations and also to target the aspects of work that are important for employees' health and well-being. The findings of the current study could also be utilized as a reference for Malaysian public policies, especially by the Department of Occupational Safety and Health. This research has revealed the importance of high PSC in terms of good managerial practices as a key to enhancing employees' health and well-being, as well as in the prevention of psychological hazards.

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LIST OF PUBLICATIONS AND PAPERS PRESENTED

List of publications

1. Yulita, Idris, M. A., & Dollard, M. F. (2014). A multilevel study of psychosocial safety climate, challenge and hindrance demands, employee exhaustion, engagement and physical health. In M. F. Dollard, A. Shimazu, R. Bin Nordin, P. Brough & M. R. Tuckey (Eds.), *Psychosocial factors at work in the Asia Pacific* (pp. 127-143). Netherland: Springer.

2. Yulita, Idris, M. A., & Dollard, M. F. (2016). Psychosocial safety climate: Past, present and future research. In A. Shimazu, R. Bin Nordin, M. F. Dollard, & J. Oakman (Eds.), *Psychosocial factors at work in the Asia Pacific: From theory to practice* (in press).

Oral presentations

1. A multilevel study of psychosocial safety climate on job challenges, job hindrances and employees' health at the 4th Expert Workshop on Psychosocial Factors at Work in the Asia Pacific, Ayuttaya Province, Thailand, 27-29 November 2013.

2. Psychosocial safety climate and its impact on job engagement, workaholism, and psychological distress: A multilevel study among police personnel at the 5th International Commission on Occupational Health – Work Organizational and Psychosocial Factors Congress, Adelaide, Australia, 17-19 September 2014.

Poster presentation

1. Challenge vs. hindrance stressors: The effect on work and employees' health, at the University of Malaya Researchers' Conference 2013: Advancing Frontiers through Research on Grand Challenges, Kuala Lumpur, Malaysia, 19-20 November 2013.

Other

1. Reviewer of the International Journal of Human Resource Management.

APPENDIX A

The impact of psychosocial safety climate on health and motivation among police personnel

Dear participant,

The purpose of this research is to investigate the impact of psychosocial safety climate (PSC) on psychological health, physical health and work motivation among police personnel in Malaysia. This questionnaire consists of several parts, including demographic informations, 12 items of PSC scale, and other measurements. Please choose one of the following responses for each statement and/or question in this questionnaire. It will take 15–20 minutes to complete this questionnaire.

Please return to me or your supervisor when you have completed this questionnaire. I would appreciate if you complete this questionnaire within the next one or two weeks. For information, your participation is completely voluntary and it is assumed that your consent is given by the return of this questionnaire. If you do not wish to participate, you may withdraw from the research at anytime and may return this questionnaire.

Please be assured that your responses will not be publicly disclosed and will be treated with the utmost confidentiality. Reports and publications arising from this research will be generalized without referring to any particular party or organization, and will not contain your personal information.

If you have any enquiries, please feel free to contact me or my supervisor, Dr. Mohd Awang Idris. Thank you in advance.

Sincerely,

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DEMOGRAPHIC

Name of organization : _____

Location : _____

Department: Please state, _____

Current position: Please state, _____

Length of service: Please state, _____

Gender: ☐ Male ☐ Female

Age: ☐ 21-30 years ☐ 31-40 years ☐ 41-50 years
☐ 51-60 years ☐ 61 years - above

Marriage status: ☐ Single ☐ Married
☐ Divorce ☐ Widow

Education level: ☐ SPM/STPM ☐ Diploma ☐ Bachelor degree
☐ Master degree ☐ Others

Ethnicity: ☐ Malay ☐ Chinese
☐ Indian ☐ Others

Religion: ☐ Muslim ☐ Buddhist ☐ Christian
☐ Hindu ☐ Others

IC number:
(4 digits behind) ☐☐☐☐

PART I

Psychosocial Safety Climate

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1	2	3	4	5

1.	In my workplace senior management acts quickly to correct problems/ issues that affect employees' psychological health.	1	2	3	4	5
2.	Senior management acts decisively when a concern of an employees' psychological status is raised.	1	2	3	4	5
3.	Senior management shows support for stress prevention through involvement and commitment.	1	2	3	4	5
4.	Psychological well-being of staff is a priority for this organization.	1	2	3	4	5
5.	Senior management clearly considers the psychological health or employees to be of great importance.	1	2	3	4	5
6.	Senior management considers employee psychological health to be as important as productivity.	1	2	3	4	5
7.	There is good communication here about psychological safety issues which affect me.	1	2	3	4	5
8.	Information about workplace psychosocial well-being is always brought to my attention by my manager/ supervisor.	1	2	3	4	5
9.	My contributions to resolving occupational health and safety concerns in the organization are listened to.	1	2	3	4	5
10.	Participation and consultation in psychological health and safety occurs with employees' unions and health and safety representatives in my workplace.	1	2	3	4	5
11.	Employees are encouraged to become involved in psychological safety and health matters.	1	2	3	4	5
12.	In my organization, the prevention of stress involves all levels of the organization.	1	2	3	4	5

PART II

Emotional Demands

Never	Sometimes	Often	Very often
1	2	3	4

1.	I have to deal with people (e.g., clients, colleagues, or supervisor) who have unrealistic expectations.	1	2	3	4
2.	I have to control my emotions to complete tasks within a limited time frame.	1	2	3	4
3.	I have to deal with people (e.g., clients, colleagues, or supervisor) whose problems touch me emotionally.	1	2	3	4

4.	I have to deal with people (e.g., clients, colleagues, or supervisor) who get easily angered towards me.	1	2	3	4
5.	I have to do a lot of emotionally draining work.	1	2	3	4
6.	I have to display emotions (e.g., towards clients, colleagues, or supervisor) that are inconsistent with my current feelings.	1	2	3	4

PART III

Challenge Demands

Strongly disagree	Do not agree	Not sure	Agree	Strongly agree
1	2	3	4	5

1.	I have a lot of projects/ tasks at work.	1	2	3	4	5
2.	I have spent a lot of my time working on projects/ tasks at work.	1	2	3	4	5
3.	I have experienced a difficulty in order to fulfill work requirement.	1	2	3	4	5
4.	I have experienced the high volume of work that must be accomplished in the allotted time.	1	2	3	4	5
5.	I have experienced severe time pressures in my work.	1	2	3	4	5

PART IV

Hindrance Demands

Strongly disagree	Do not agree	Not sure	Agree	Strongly agree
1	2	3	4	5

1.	I have had to go through a lot of red tape to get my job done.	1	2	3	4	5
2.	I have felt that politic rather than performance affects organizational decision.	1	2	3	4	5
3.	I have not fully understood what is expected to me.	1	2	3	4	5
4.	I have had many hassles to go through to get projects/ tasks done.	1	2	3	4	5
5.	I have felt the degree to which my career seems stalled at work.	1	2	3	4	5

PART V

Emotional Resources

Never	Sometimes	Often	Very often
1	2	3	4

1.	I am able to stop emotionally-laden interactions with others for a while whenever I want to.	1	2	3	4
2.	I feel esteemed at work by others (e.g., clients, colleagues or supervisors).	1	2	3	4
3.	I get emotional support from others (e.g., clients, colleagues or supervisor)	1	2	3	4

when a threatening situation at work occurs.

4.	I have the opportunity to express my emotions after a threatening situation occurs, without experiencing negative consequences (e.g., from supervisor, colleagues or clients).	1	2	3	4
5.	Other people (e.g., clients, colleagues or supervisors) will be a listening ear for me when I have faced a threatening situation.	1	2	3	4

PART VI

Cognitive Resources

Never	Sometimes	Often	Very often
1	2	3	4

1.	I have the opportunity to take a mental break when tasks require a lot of concentration.	1	2	3	4
2.	I have the opportunity to vary complex tasks with simple tasks.	1	2	3	4
3.	I receive information from others (e.g., colleagues or supervisor) in solving complex tasks.	1	2	3	4
4.	I am able to use my knowledge and intellectual skills to solve complex tasks.	1	2	3	4
5.	I have access to useful information (from computers, books, records, colleagues and operating instructions) to help solve complex tasks.	1	2	3	4
6.	I have the opportunity to determine my own work method.	1	2	3	4

PART VII

Emotional Exhaustion

Strongly disagree	Disagree	Agree	Strongly agree
1	2	3	4

1.	There are days when I feel tired before I arrive at work.	1	2	3	4
2.	After work, I tend to need more time than in the past in order to relax and feel better.	1	2	3	4
3.	I can't tolerate the pressure of my work.	1	2	3	4
4.	During my work, I often feel emotionally drained.	1	2	3	4
5.	After working, I don't have enough energy for my leisure activities.	1	2	3	4
6.	After my work, I usually feel worn out and weary.	1	2	3	4
7.	I can't manage the amount of my work well.	1	2	3	4
8.	When I work, I don't feel energized.	1	2	3	4

PART VIII
Work Engagement

1 Never	Almost never 2 A few times a year or less	Rarely 3 Once a month or less	Sometimes 4 A few times in a month	Often 5 Once a week	Very often 6 A few times in a week	Always 7 Every day

1.	_____	At my work, I feel bursting with energy.
2.	_____	I can continue working for very long periods at a time.
3.	_____	When I get up in the morning, I feel like going to work.
4.	_____	At my job, I feel strong and vigorous.
5.	_____	At my job, I am very resilient, mentally.
6.	_____	At my work I always persevere, even when things do not go well.
7.	_____	I find the work that I do full of meaning and purpose.
8.	_____	I am enthusiastic about my job.
9.	_____	My job inspires me.
10.	_____	I am proud on the work that I do.
11.	_____	To me, my job is challenging.
12.	_____	Time flies when I'm working.
13.	_____	When I am working, I forget everything else around me.
14.	_____	I feel happy when I am working intensely.
15.	_____	I am immersed in my work.
16.	_____	I get carried away when I'm working.
17.	_____	It is difficult to detach myself from my job.

PART IX
Workaholism

Never 1	Sometimes 2	Often 3	Very often 4

1.	It is important to me to work hard even when I don't enjoy what I am doing.	1	2	3	4
2.	I feel that there's something inside me that drives me to work hard.	1	2	3	4
3.	I feel obliged to work hard, even when it's not enjoyable.	1	2	3	4
4.	I feel guilty when I take time off work.	1	2	3	4
5.	I seem to be in hurry and racing against the clock.	1	2	3	4
6.	I find myself continuing to work after my co-workers have called it quits.	1	2	3	4

7.	I stay busy and keep many irons in the fire.	1	2	3	4
8.	I spend more time working than on socializing with friends, on hobbies, or on leisure activities.	1	2	3	4
9.	I find myself doing two or three things at one time such as eating lunch and writing a memo, while taking on the telephone.	1	2	3	4
10.	It is hard for me to relax when I'm not working.	1	2	3	4

PART X
Psychological Distress

Never	Sometimes	Often	Very often
1	2	3	4

1.	Have you recently been able to concentrate on whatever you're doing?	1	2	3	4
2.	Have you recently felt capable of making decisions about things?	1	2	3	4
3.	Have you recently been able to face up to your problems?	1	2	3	4
4.	Have you recently lost much sleep over worry?	1	2	3	4
5.	Have you recently felt constantly under strain?	1	2	3	4
6.	Have you recently felt you couldn't overcome your difficulties?	1	2	3	4
7.	Have you recently been feeling unhappy and depressed?	1	2	3	4
8.	Have you recently been losing confidence in yourself?	1	2	3	4
9.	Have you recently been thinking of yourself as a worthless person?	1	2	3	4
10.	Have you recently felt that you are playing a useful part in things?	1	2	3	4
11.	Have you recently been able to enjoy your normal day-to-day activities?	1	2	3	4
12.	Have you recently been feeling reasonably happy, all things considered?	1	2	3	4

PART XI
Physical Health Problem

Never	Sometimes	Often	Very often
1	2	3	4

Over the past [period of time]…(Within one month)

1.	How often have you had difficulty getting to sleep at night?	1	2	3	4
2.	How often have you woken up during the night?	1	2	3	4
3.	How often have you had nightmares or disturbing dreams?	1	2	3	4
4.	How often has you sleep been peaceful and undisturbed?	1	2	3	4
5.	How often have you experienced headaches?	1	2	3	4

6.	How often did you get a headache when there was a lot of pressure on you to get things done?	1	2	3	4
7.	How often did you get a headache when you were frustrated because things were not going the way they should have or when you were annoyed at someone?	1	2	3	4
8.	How often have you suffered from an upset stomach (indigestion)?	1	2	3	4
9.	How often did you have to watch that you ate carefully to avoid stomach upsets?	1	2	3	4
10.	How often did you feel nauseated ("sick to your stomach")?	1	2	3	4
11.	How often were you constipated or did you suffer from diarrhea?	1	2	3	4

APPENDIX B

The impact of psychosocial safety climate on health and motivation among teachers

Dear participant,

The purpose of this research is to investigate the impact of psychosocial safety climate (PSC) on psychological health and work motivation among teachers. This questionnaire consists of several parts, including demographic informations, 12 items of PSC scale, and other daily measurements. Please be informed that PSC items are completed only on Monday and Friday, and the remaining items after morning sessions everyday from Monday to Friday within a week. It will take 5–10 minutes to complete each session in this questionnaire.

Please return to me or your supervisor when you have completed this questionnaire. I would appreciate if you complete this questionnaire within the next two or three weeks. For information, it is assumed that your consent is given by the return of this questionnaire. If you do not wish to participate, you may withdraw from the research at anytime and may return this questionnaire.

Please be assured that your responses will not be publicly disclosed and will be treated with the utmost confidentiality. Reports and publications arising from this research will be generalized without referring to any particular party or organization, and will not contain your personal information. I also enclosed a gift as my appreciation for your participation in this research.

If you have any enquiries, please feel free to contact me or my supervisor, Dr. Mohd Awang Idris. Thank you in advance.

Sincerely,

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DEMOGRAPHIC

Name of school : _____

Location : _____

Subject : _____

Length of service : _____

Gender : ☐ Male ☐ Female

Age : ☐ 21-30 years ☐ 31-40 years
☐ 41-50 years ☐ 51 years – above

Marriage status : ☐ Single ☐ Married
☐ Divorce ☐ Widow

Education : ☐ SPM/STPM ☐ Diploma
☐ Bachelor Degree ☐ Master Degree
☐ Others, _____

Ethnicity : ☐ Malay ☐ Chinese
☐ Indian ☐ Others, _____

Religion : ☐ Muslim ☐ Buddhist
☐ Christian ☐ Hindu
☐ Others, _____

DAY 1

Psychosocial Safety Climate

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	School management acts quickly to correct problems/ issues that affect employees' psychological health.	1	2	3	4	5
2.	School management acts decisively when a concern of an employees' psychological status is raised.	1	2	3	4	5
3.	School management shows support for stress prevention through involvement and commitment.	1	2	3	4	5
4.	Psychological well-being of teacher is a priority for this school.	1	2	3	4	5
5.	School management clearly considers the psychological health or employees to be of great importance.	1	2	3	4	5
6.	School management considers employee psychological health to be as important as productivity.	1	2	3	4	5
7.	At school, there is good communication here about psychological safety issues which affect me.	1	2	3	4	5
8.	Information about workplace psychosocial well-being is always brought to my attention by my principal/senior assistant at school.	1	2	3	4	5
9.	My contributions to resolving occupational health and safety concerns in the school are listened to.	1	2	3	4	5
10.	Participation and consultation in psychological health and safety occurs with employees' unions and health and safety representatives in my school.	1	2	3	4	5
11.	Teachers are encouraged to become involved in psychological safety and health matters.	1	2	3	4	5
12.	In my school, the prevention of stress involves all levels of the organization.	1	2	3	4	5

Day : Monday
Session : Morning

Emotional Demands

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who have unrealistic expectations at school.	1	2	3	4	5
2.	Today, I had to control my emotions to complete tasks within a limited time frame at school.	1	2	3	4	5

3.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) whose problems touched me emotionally.	1	2	3	4	5
4.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who got easily angered towards me.	1	2	3	4	5
5.	Today, I had to do a lot of emotionally draining work.	1	2	3	4	5
6.	Today, I had to display emotions (e.g., towards students, colleagues, or school principle/senior assistant) that were inconsistent with my current feelings.	1	2	3	4	5

Supervisor support

1	2	3	4	5
Strongly disagree	Disagree	Not sure	Agree	Strongly agree

1.	Today, my school principal/senior assistant was concerned about the welfare of those under him/her.	1	2	3	4	5
2.	Today, my school principal/senior assistant paid attention to what I was saying.	1	2	3	4	5
3.	Today, my school principal/senior assistant provided assistance to me in order to ensure that my job was done.	1	2	3	4	5
4.	Today, my school principal/senior assistant managed to persuade the teachers to work together.	1	2	3	4	5

Emotional Resources

1	2	3	4	5
Strongly disagree	Disagree	Not sure	Agree	Strongly agree

1.	Today, I was able to stop emotionally-laden interactions with others for a while whenever I wanted to.	1	2	3	4	5
2.	Today, I felt esteemed at school by others (e.g., students, colleagues or school principle/senior assistant).	1	2	3	4	5
3.	Today, I got emotional support from others (e.g., students, colleagues or school principle/senior assistant) when a threatening situation at school occurred.	1	2	3	4	5
4.	Today, I had the opportunity to express my emotions after a threatening situation occurred, without experiencing negative consequences (e.g., from students, colleagues or school principle/senior assistant).	1	2	3	4	5
5.	Today, other people (e.g., students,	1	2	3	4	5

	colleagues or school principle/senior assistant) would be a listening ear for me when I faced a threatening situation.	

Work Engagement

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I felt bursting with energy at school.	1	2	3	4	5
2.	Today, I was enthusiastic about my job.	1	2	3	4	5
3.	Today, I got carried away when I was working	1	2	3	4	5
4.	Today, when I got up in the morning, I felt like going to work.	1	2	3	4	5
5.	Today, my job inspired me	1	2	3	4	5
6.	Today, I was immersed in my work.	1	2	3	4	5
7.	Today, I felt strong and vigorous at school.	1	2	3	4	5
8.	Today, I was proud on the work that I did.	1	2	3	4	5
9.	Today, I felt happy when I was working intensely.	1	2	3	4	5

Emotional Exhaustion

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I felt tired before I arrived at school.	1	2	3	4	5
2.	Today, I tended to need more time than in the past in order to relax and feel better.	1	2	3	4	5
3.	Today, I could not tolerate the pressure of my work.	1	2	3	4	5
4.	Today, I felt emotionally drained.	1	2	3	4	5
5.	Today, I did not have enough energy for my leisure activities.	1	2	3	4	5
6.	Today, I felt worn out and weary.	1	2	3	4	5
7.	Today, I could not manage the amount of my work well.	1	2	3	4	5
8.	Today, I did not feel energized.	1	2	3	4	5

DAY 2

Day : Tuesday
Session : Morning

Emotional Demands

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who have unrealistic expectations at school.	1	2	3	4	5
2.	Today, I had to control my emotions to complete tasks within a limited time frame at school.	1	2	3	4	5
3.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) whose problems touched me emotionally.	1	2	3	4	5
4.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who got easily angered towards me.	1	2	3	4	5
5.	Today, I had to do a lot of emotionally draining work.	1	2	3	4	5
6.	Today, I had to display emotions (e.g., towards students, colleagues, or school principle/senior assistant) that were inconsistent with my current feelings.	1	2	3	4	5

Supervisor support

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, my school principal/senior assistant was concerned about the welfare of those under him/her.	1	2	3	4	5
2.	Today, my school principal/senior assistant paid attention to what I was saying.	1	2	3	4	5
3.	Today, my school principal/senior assistant provided assistance to me in order to ensure that my job was done.	1	2	3	4	5
4.	Today, my school principal/senior assistant managed to persuade the teachers to work together.	1	2	3	4	5

Emotional Resources

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I was able to stop emotionally-laden interactions with others for a while whenever I wanted to.	1	2	3	4	5

2.	Today, I felt esteemed at school by others (e.g., students, colleagues or school principle/senior assistant).	1	2	3	4	5
3.	Today, I got emotional support from others (e.g., students, colleagues or school principle/senior assistant) when a threatening situation at school occurred.	1	2	3	4	5
4.	Today, I had the opportunity to express my emotions after a threatening situation occurred, without experiencing negative consequences (e.g., from students, colleagues or school principle/senior assistant).	1	2	3	4	5
5.	Today, other people (e.g., students, colleagues or school principle/senior assistant) would be a listening ear for me when I faced a threatening situation.	1	2	3	4	5

Work Engagement

1	2	3	4	5
Strongly disagree	Disagree	Not sure	Agree	Strongly agree

1.	Today, I felt bursting with energy at school.	1	2	3	4	5
2.	Today, I was enthusiastic about my job.	1	2	3	4	5
3.	Today, I got carried away when I was working	1	2	3	4	5
4.	Today, when I got up in the morning, I felt like going to work.	1	2	3	4	5
5.	Today, my job inspired me	1	2	3	4	5
6.	Today, I was immersed in my work.	1	2	3	4	5
7.	Today, I felt strong and vigorous at school.	1	2	3	4	5
8.	Today, I was proud on the work that I did.	1	2	3	4	5
9.	Today, I felt happy when I was working intensely.	1	2	3	4	5

Emotional Exhaustion

1	2	3	4	5
Strongly disagree	Disagree	Not sure	Agree	Strongly agree

1.	Today, I felt tired before I arrived at school.	1	2	3	4	5
2.	Today, I tended to need more time than in the past in order to relax and feel better.	1	2	3	4	5
3.	Today, I could not tolerate the pressure of my work.	1	2	3	4	5
4.	Today, I felt emotionally drained.	1	2	3	4	5
5.	Today, I did not have enough energy for my leisure activities.	1	2	3	4	5

6.	Today, I felt worn out and weary.	1	2	3	4	5
7.	Today, I could not manage the amount of my work well.	1	2	3	4	5
8.	Today, I did not feel energized.	1	2	3	4	5

DAY 3

Day : Wednesday
Session : Morning

Emotional Demands

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who have unrealistic expectations at school.	1	2	3	4	5
2.	Today, I had to control my emotions to complete tasks within a limited time frame at school.	1	2	3	4	5
3.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) whose problems touched me emotionally.	1	2	3	4	5
4.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who got easily angered towards me.	1	2	3	4	5
5.	Today, I had to do a lot of emotionally draining work.	1	2	3	4	5
6.	Today, I had to display emotions (e.g., towards students, colleagues, or school principle/senior assistant) that were inconsistent with my current feelings.	1	2	3	4	5

Supervisor support

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, my school principal/senior assistant was concerned about the welfare of those under him/her.	1	2	3	4	5
2.	Today, my school principal/senior assistant paid attention to what I was saying.	1	2	3	4	5
3.	Today, my school principal/senior assistant provided assistance to me in order to ensure that my job was done.	1	2	3	4	5
4.	Today, my school principal/senior assistant managed to persuade the teachers to work together.	1	2	3	4	5

Emotional Resources

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I was able to stop emotionally-laden interactions with others for a while whenever	1	2	3	4	5

	I wanted to.					
2.	Today, I felt esteemed at school by others (e.g., students, colleagues or school principle/senior assistant).	1	2	3	4	5
3.	Today, I got emotional support from others (e.g., students, colleagues or school principle/senior assistant) when a threatening situation at school occurred.	1	2	3	4	5
4.	Today, I had the opportunity to express my emotions after a threatening situation occurred, without experiencing negative consequences (e.g., from students, colleagues or school principle/senior assistant).	1	2	3	4	5
5.	Today, other people (e.g., students, colleagues or school principle/senior assistant) would be a listening ear for me when I faced a threatening situation.	1	2	3	4	5

Work Engagement

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, I felt bursting with energy at school.	1	2	3	4	5
2.	Today, I was enthusiastic about my job.	1	2	3	4	5
3.	Today, I got carried away when I was working	1	2	3	4	5
4.	Today, when I got up in the morning, I felt like going to work.	1	2	3	4	5
5.	Today, my job inspired me	1	2	3	4	5
6.	Today, I was immersed in my work.	1	2	3	4	5
7.	Today, I felt strong and vigorous at school.	1	2	3	4	5
8.	Today, I was proud on the work that I did.	1	2	3	4	5
9.	Today, I felt happy when I was working intensely.	1	2	3	4	5

Emotional Exhaustion

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, I felt tired before I arrived at school.	1	2	3	4	5
2.	Today, I tended to need more time than in the past in order to relax and feel better.	1	2	3	4	5
3.	Today, I could not tolerate the pressure of my work.	1	2	3	4	5
4.	Today, I felt emotionally drained.	1	2	3	4	5
5.	Today, I did not have enough energy for my	1	2	3	4	5

	leisure activities.					
6.	Today, I felt worn out and weary.	1	2	3	4	5
7.	Today, I could not manage the amount of my work well.	1	2	3	4	5
8.	Today, I did not feel energized.	1	2	3	4	5

DAY 4

Day : Thursday
Session : Morning

Emotional Demands

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who have unrealistic expectations at school.	1	2	3	4	5
2.	Today, I had to control my emotions to complete tasks within a limited time frame at school.	1	2	3	4	5
3.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) whose problems touched me emotionally.	1	2	3	4	5
4.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who got easily angered towards me.	1	2	3	4	5
5.	Today, I had to do a lot of emotionally draining work.	1	2	3	4	5
6.	Today, I had to display emotions (e.g., towards students, colleagues, or school principle/senior assistant) that were inconsistent with my current feelings.	1	2	3	4	5

Supervisor support

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, my school principal/senior assistant was concerned about the welfare of those under him/her.	1	2	3	4	5
2.	Today, my school principal/senior assistant paid attention to what I was saying.	1	2	3	4	5
3.	Today, my school principal/senior assistant provided assistance to me in order to ensure that my job was done.	1	2	3	4	5
4.	Today, my school principal/senior assistant managed to persuade the teachers to work together.	1	2	3	4	5

Emotional Resources

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I was able to stop emotionally-laden interactions with others for a while whenever	1	2	3	4	5

	I wanted to.					
2.	Today, I felt esteemed at school by others (e.g., students, colleagues or school principle/senior assistant).	1	2	3	4	5
3.	Today, I got emotional support from others (e.g., students, colleagues or school principle/senior assistant) when a threatening situation at school occurred.	1	2	3	4	5
4.	Today, I had the opportunity to express my emotions after a threatening situation occurred, without experiencing negative consequences (e.g., from students, colleagues or school principle/senior assistant).	1	2	3	4	5
5.	Today, other people (e.g., students, colleagues or school principle/senior assistant) would be a listening ear for me when I faced a threatening situation.	1	2	3	4	5

Work Engagement

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, I felt bursting with energy at school.	1	2	3	4	5
2.	Today, I was enthusiastic about my job.	1	2	3	4	5
3.	Today, I got carried away when I was working	1	2	3	4	5
4.	Today, when I got up in the morning, I felt like going to work.	1	2	3	4	5
5.	Today, my job inspired me	1	2	3	4	5
6.	Today, I was immersed in my work.	1	2	3	4	5
7.	Today, I felt strong and vigorous at school.	1	2	3	4	5
8.	Today, I was proud on the work that I did.	1	2	3	4	5
9.	Today, I felt happy when I was working intensely.	1	2	3	4	5

Emotional Exhaustion

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, I felt tired before I arrived at school.	1	2	3	4	5
2.	Today, I tended to need more time than in the past in order to relax and feel better.	1	2	3	4	5
3.	Today, I could not tolerate the pressure of my work.	1	2	3	4	5
4.	Today, I felt emotionally drained.	1	2	3	4	5
5.	Today, I did not have enough energy for my	1	2	3	4	5

	leisure activities.					
6.	Today, I felt worn out and weary.	1	2	3	4	5
7.	Today, I could not manage the amount of my work well.	1	2	3	4	5
8.	Today, I did not feel energized.	1	2	3	4	5

DAY 5

Psychosocial Safety Climate

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	School management acts quickly to correct problems/ issues that affect employees' psychological health.	1	2	3	4	5
2.	School management acts decisively when a concern of an employees' psychological status is raised.	1	2	3	4	5
3.	School management shows support for stress prevention through involvement and commitment.	1	2	3	4	5
4.	Psychological well-being of teacher is a priority for this school.	1	2	3	4	5
5.	School management clearly considers the psychological health or employees to be of great importance.	1	2	3	4	5
6.	School management considers employee psychological health to be as important as productivity.	1	2	3	4	5
7.	At school, there is good communication here about psychological safety issues which affect me.	1	2	3	4	5
8.	Information about workplace psychosocial well-being is always brought to my attention by my principal/senior assistant at school.	1	2	3	4	5
9.	My contributions to resolving occupational health and safety concerns in the school are listened to.	1	2	3	4	5
10.	Participation and consultation in psychological health and safety occurs with employees' unions and health and safety representatives in my school.	1	2	3	4	5
11.	Teachers are encouraged to become involved in psychological safety and health matters.	1	2	3	4	5
12.	In my school, the prevention of stress involves all levels of the organization.	1	2	3	4	5

Day : Friday
Session : Morning

Emotional Demands

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who have unrealistic expectations at school.	1	2	3	4	5
2.	Today, I had to control my emotions to complete tasks within a limited time frame at school.	1	2	3	4	5
3.	Today, I had to deal with people (e.g., students, colleagues, or school	1	2	3	4	5

	principle/senior assistant) whose problems touched me emotionally.					
4.	Today, I had to deal with people (e.g., students, colleagues, or school principle/senior assistant) who got easily angered towards me.	1	2	3	4	5
5.	Today, I had to do a lot of emotionally draining work.	1	2	3	4	5
6.	Today, I had to display emotions (e.g., towards students, colleagues, or school principle/senior assistant) that were inconsistent with my current feelings.	1	2	3	4	5

Supervisor support

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, my school principal/senior assistant was concerned about the welfare of those under him/her.	1	2	3	4	5
2.	Today, my school principal/senior assistant paid attention to what I was saying.	1	2	3	4	5
3.	Today, my school principal/senior assistant provided assistance to me in order to ensure that my job was done.	1	2	3	4	5
4.	Today, my school principal/senior assistant managed to persuade the teachers to work together.	1	2	3	4	5

Emotional Resources

1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree

1.	Today, I was able to stop emotionally-laden interactions with others for a while whenever I wanted to.	1	2	3	4	5
2.	Today, I felt esteemed at school by others (e.g., students, colleagues or school principle/senior assistant).	1	2	3	4	5
3.	Today, I got emotional support from others (e.g., students, colleagues or school principle/senior assistant) when a threatening situation at school occurred.	1	2	3	4	5
4.	Today, I had the opportunity to express my emotions after a threatening situation occurred, without experiencing negative consequences (e.g., from students, colleagues or school principle/senior assistant).	1	2	3	4	5
5.	Today, other people (e.g., students, colleagues or school principle/senior assistant) would be a listening ear for me	1	2	3	4	5

	when I faced a threatening situation.

Work Engagement

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I felt bursting with energy at school.	1	2	3	4	5
2.	Today, I was enthusiastic about my job.	1	2	3	4	5
3.	Today, I got carried away when I was working	1	2	3	4	5
4.	Today, when I got up in the morning, I felt like going to work.	1	2	3	4	5
5.	Today, my job inspired me	1	2	3	4	5
6.	Today, I was immersed in my work.	1	2	3	4	5
7.	Today, I felt strong and vigorous at school.	1	2	3	4	5
8.	Today, I was proud on the work that I did.	1	2	3	4	5
9.	Today, I felt happy when I was working intensely.	1	2	3	4	5

Emotional Exhaustion

		1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly agree
1.	Today, I felt tired before I arrived at school.	1	2	3	4	5
2.	Today, I tended to need more time than in the past in order to relax and feel better.	1	2	3	4	5
3.	Today, I could not tolerate the pressure of my work.	1	2	3	4	5
4.	Today, I felt emotionally drained.	1	2	3	4	5
5.	Today, I did not have enough energy for my leisure activities.	1	2	3	4	5
6.	Today, I felt worn out and weary.	1	2	3	4	5
7.	Today, I could not manage the amount of my work well.	1	2	3	4	5
8.	Today, I did not feel energized.	1	2	3	4	5

APPENDIX C

Keberkesanan iklim keselamatan psikososial terhadap kesihatan dan motivasi kerja di kalangan polis

Tuan/Puan,

Kajian ini bertujuan untuk mengenalpasti impak iklim keselamatan psikososial terhadap kesihatan fizikal dan psikologi, juga motivasi kerja di kalangan polis di Malaysia. Borang kaji selidik ini mengandungi beberapa bahagian, termasuk maklumat demografik, soalan berkenaan dengan iklim psikososial di tempat kerja, dan soalan-soalan lainnya. Sila pilih nombor dalam kotak bagi setiapa pernyataan dan/atau pertanyaan mengikut skala yang diberi. Ianya mengambil masa selama 15–20 minit bagi melengkapkan borang kaji selidik ini.

Pengkaji sangatlah berharap agar borang kaji selidik ini dapat dilengkapkan dalam masa satu atau dua minggu selepas penghantaran. Penyertaan anda dalam kajian ini adalah bersifat sukarela dan kesediaan dalam melengkapkan borang kaji selidik ini menandakan persetujuan untuk menyertai kajian ini. Anda mempunyai hak sepenuhnya untuk menarik diri dari kajian ini sekiranya anda tidak bersetuju untuk turut serta.

Segala maklumat yang diberikan adalah sulit dan rahsia. Maklumat peribadi dan organisasi tidak akan didedahkan dalam mana-mana pembentangan dan penulisan.

Sekiranya terdapat sebarang pertanyaan, sila hubungi saya atau penyelia saya, Dr. Mohd Awang Idris. Sekian dan terima kasih.

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DEMOGRAFI

Nama Organisasi : _____

Lokasi Organisasi : _____

Jabatan: nyatakan, _____

Jawatan: nyatakan, _____

Tempoh bekerja: nyatakan, _____

Jantina: ☐ Lelaki ☐ Perempuan

Umur: ☐ 21-30 tahun ☐ 31-40 tahun ☐ 41-50 tahun
☐ 51-60 tahun ☐ 61 tahun – ke atas

Status perkahwinan: ☐ Bujang ☐ Berkahwin
☐ Bercerai ☐ Balu/janda

Pendidikan terakhir: ☐ SPM/STPM ☐ Diploma ☐ Sarjana Muda
☐ Sarjana ☐ Lain-lain

Etnisiti: ☐ Melayu ☐ Cina
☐ India ☐ Lain-lain

Agama: ☐ Islam ☐ Buddha ☐ Kristian
☐ Hindu ☐ Lain-lain

Nombor IC.:
(4 digit di belakang) ☐☐☐☐

BAHAGIAN I

Iklim Keselamatan Psikososial

Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
1	2	3	4	5

1.	Di tempat kerja saya, pihak pengurusan bertindak cepat dalam menangani masalah/ isu yang boleh menjejaskan kesihatan psikologi pekerja.	1	2	3	4	5
2.	Pihak pengurusan bertindak secara bijak apabila ada perkara-perkara yang berkaitan dengan status psikologi pekerja dikemukakan.	1	2	3	4	5
3.	Pihak pengurusan atasan menunjukkan sokongan bagi mencegah tekanan melalui campurtangan dan komitmen.	1	2	3	4	5
4.	Kesejahteraan psikologi kakitangan adalah keutamaan untuk organisasi tempat saya bekerja.	1	2	3	4	5
5.	Pihak pengurusan secara jelas memberikan tumpuan terhadap kesihatan psikologi pekerja sebagai satu keutamaan.	1	2	3	4	5
6.	Pihak pengurusan mengambilkira kesihatan psikologi pekerja sama penting dengan produktiviti.	1	2	3	4	5
7.	Di tempat kerja saya, terdapat maklumbalas yang baik berkaitan keselamatan psikologi yang boleh menjejaskan saya.	1	2	3	4	5
8.	Maklumat berkaitan dengan kesejahteraan psikologi tempat kerja selalu dibincangkan oleh pengurus/ penyelia atasan saya.	1	2	3	4	5
9.	Sumbangan saya dalam menyelesaikan masalah kesihatan dan keselamatan pekerjaan dalam organisasi didengar.	1	2	3	4	5
10.	Penyertaan dan pandangan di antara pekerja, kesatuan sekerja dan wakil dari pihak berkaitan dalam membincangkan hal-hal keselamatan dan kesihatan psikologi wujud di tempat kerja saya.	1	2	3	4	5
11.	Pekerja adalah digalakkan untuk turut serta dalam hal-hal yang berkaitan dengan keselamatan dan kesihatan.	1	2	3	4	5
12.	Pencegahan tekanan melibatkan semua peringkat pekerja dalam organisasi.	1	2	3	4	5

BAHAGIAN II

Tuntutan Emosi di Tempat Kerja

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

1.	Saya perlu berurusan dengan orang (seperti pelanggan, rakan sekerja, atau penyelia) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4
2.	Saya perlu mengawal emosi bagi menyelesaikan tugas dalam tempoh masa yang terhad.	1	2	3	4
3.	Saya harus berurusan dengan orang-orang (seperti pelanggan, rakan sekerja, atau penyelia) yang masalahnya menyentuh saya secara emosi.	1	2	3	4

4.	Saya perlu berurusan dengan orang-orang (seperti pelanggan, rakan sekerja, atau penyelia) yang cepat marah terhadap saya.	1	2	3	4
5.	Saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4
6.	Saya perlu menunjukkan emosi (misalnya terhadap pelanggan, rakan sekerja, atau penyelia) yang tidak sesuai dengan perasaan saya yang sebenar pada masa tersebut.	1	2	3	4

BAHAGIAN III
Tuntutan Kerja (Challenge)

Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
1	2	3	4	5

1.	Saya mempunyai banyak projek/ tugasan di tempat kerja.	1	2	3	4	5
2.	Saya menghabiskan banyak masa di tempat kerja bagi menyiapkan projek/ tugasan kerja.	1	2	3	4	5
3.	Saya mengalami kesukaran dalam memenuhi peraturan/ cara kerja.	1	2	3	4	5
4.	Saya mempunyai banyak kerja yang perlu disiapkan dalam masa yang telah ditentukan.	1	2	3	4	5
5.	Saya mengalami tekanan masa yang sangat teruk di tempat kerja.	1	2	3	4	5

BAHAGIAN IV
Tuntutan Kerja (Hindrance)

Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju
1	2	3	4	5

1.	Saya harus melalui banyak kerenah birokrasi bagi menyelesaikan pekerjaan.	1	2	3	4	5
2.	Saya berasa bahawa politik dapat mempengaruhi keputusan organisasi berbanding dengan prestasi.	1	2	3	4	5
3.	Saya tidak faham sepenuhnya mengenai apa yang diharapkan daripada saya.	1	2	3	4	5
4.	Saya harus bersusahpayah terlebih dahulu agar dapat menyelesaikan kerja saya.	1	2	3	4	5
5.	Saya dapat merasakan kerjaya saya seolah-olah tidak berkembang.	1	2	3	4	5

BAHAGIAN V

Sokongan Emosi di Tempat Kerja

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

1.	Saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara pada bila-bila masa yang saya kehendaki.	1	2	3	4
2.	Saya berasa dihormati di tempat kerja oleh orang lain (misalnya pelanggan, rakan kerja atau penyelia).	1	2	3	4
3.	Saya mendapat sokongan emosi daripada orang lain (misalnya pelanggan, rakan kerja atau penyelia) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4
4.	Saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negatif (misalnya kepada penyelia, rakan kerja atau pelanggan).	1	2	3	4
5.	Orang lain (misalnya pelanggan, rakan kerja atau penyelia) akan selalu menjadi pendengar bagi saya apabila saya berhadapan dengan masalah yang berat.	1	2	3	4

BAHAGIAN VI

Sokongan Kognitif di Tempat Kerja

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

1.	Saya berpeluang untuk merehatkan minda apabila terdapat tugasan kerja yang memerlukan banyak tumpuan.	1	2	3	4
2.	Saya berpeluang untuk mengubah tugasan yang kompleks kepada tugasan yang mudah.	1	2	3	4
3.	Saya mendapat maklumat daripada orang lain (misalnya rakan sekerja atau penyelia) dalam menyelesaikan tugasan yang sukar.	1	2	3	4
4.	Saya dapat menggunakan pengetahuan dan kemahiran intelek saya dalam menyelesaikan tugas yang kompleks.	1	2	3	4
5.	Saya mendapat akses kepada maklumat yang berguna (daripada komputer, buku, rekod, rakan sekerja dan arahan operasi) bagi membantu dalam menyelesaikan tugasan kerja yang sukar.	1	2	3	4
6.	Saya berpeluang dalam menentukan kaedah kerja saya sendiri.	1	2	3	4

BAHAGIAN VII

Keletihan Emosi

Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju
1	2	3	4

1.	Terdapat hari-hari dimana saya berasa letih sebelum sampai ke tempat kerja.	1	2	3	4

2.	Selepas bekerja, saya cenderung memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.	1	2	3	4
3.	Saya tidak dapat bertolak ansur ke atas tekanan kerja.	1	2	3	4
4.	Selama bekerja, saya sering berasa penat secara emosi.	1	2	3	4
5.	Selepas bekerja, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.	1	2	3	4
6.	Selepas bekerja, saya berasa penat dan letih.	1	2	3	4
7.	Saya tidak dapat mengatur jumlah kerja dengan baik.	1	2	3	4
8.	Semasa bekerja, saya rasa tidak bertenaga.	1	2	3	4

BAHAGIAN VIII
Semangat Kerja

	Hampir tidak pernah	Jarang	Kadang-kadang	Kerap	Sangat kerap	Selalu
1 Tidak pernah	2 Beberapa kali dalam setahun atau kurang	3 Satu kali sebulan atau kurang	4 Beberapa kali sebulan	5 Satu kali seminggu	6 Beberapa kali dalam seminggu	7 Setiap hari

1.	_____	Di tempat kerja, saya berasa penuh dengan tenaga.
2.	_____	Saya dapat bekerja lebih lama dalam satu masa.
3.	_____	Ketika saya bangun tidur, saya langsung ingin pergi bekerja.
4.	_____	Di tempat kerja, saya berasa kuat dan bertenaga.
5.	_____	Di tempat kerja, saya sangat bertahan secara mental.
6.	_____	Saya sangat tekun dengan kerja saya walaupun terdapat sesuatu yang tidak berjalan dengan baik.
7.	_____	Saya mendapati bahawa kerja saya penuh dengan makna dan tujuan.
8.	_____	Saya sangat bersemangat dengan kerja saya.
9.	_____	Pekerjaan saya memberikan inspirasi kepada saya.
10.	_____	Saya bangga dengan kerja yang saya lakukan.
11.	_____	Bagi saya, pekerjaan saya adalah mencabar.
12.	_____	Masa berlalu dengan cepat apabila saya bekerja.
13.	_____	Apabila saya bekerja, saya lupa terhadap semua perkara yang berada di sekeliling saya.
14.	_____	Saya berasa sangat gembira apabila saya bekerja secara intensif.
15.	_____	Saya terleka dengan pekerjaan saya.
16.	_____	Saya terbawa-bawa apabila saya bekerja.

17. _____ Adalah sangat sukar menjauhkan diri saya dari kerja.

BAHAGIAN IX
Ketagihan Kerja

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

1.	Ia adalah penting bagi saya untuk bekerja keras walaupun saya tidak menikmati kerja yang saya lakukan.	1	2	3	4
2.	Saya rasa terdapat sesuatu di dalam diri saya yang memacu saya untuk bekerja keras.	1	2	3	4
3.	Saya rasa bertanggungjawab untuk bekerja keras walaupun ianya tidak menyeronokkan.	1	2	3	4
4.	Saya rasa bersalah apabila saya mengambil cuti kerja.	1	2	3	4
5.	Saya seolah-olah tergesa-gesa dan berlumba dengan masa.	1	2	3	4
6.	Saya mendapati diri saya terus bekerja walaupun rakan sekerja telah berhenti bekerja.	1	2	3	4
7.	Saya terus sibuk dan tetap bekerja.	1	2	3	4
8.	Saya menghabiskan lebih banyak masa untuk bekerja berbanding dengan melakukan aktiviti sosial dengan rakan, hobi ataupun aktiviti riadah.	1	2	3	4
9.	Saya mendapati diri saya melakukan dua atau tiga perkara dalam satu masa, seperti makan tengah hari dan menulis memo sambil menjawap telefon.	1	2	3	4
10.	Adalah sukar bagi saya untuk berehat apabila saya tidak bekerja.	1	2	3	4

BAHAGIAN X
Tekanan Psikologi

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

1.	Adakah kebelakangan ini anda dapat menumpukan perhatian kepada apa sahaja yang anda kerjakan?	1	2	3	4
2.	Adakah kebelakangan ini anda rasa mampu membuat keputusan mengenai sesuatu perkara?	1	2	3	4
3.	Adakah kebelakangan ini anda dapat mengatasi masalah anda sendiri?	1	2	3	4
4.	Adakah kebelakangan ini anda banyak kehilangan masa tidur disebabkan kebimbangan?	1	2	3	4
5.	Adakah kebelakangan ini anda berasa sentiasa berada di dalam keadaan tertekan?	1	2	3	4
6.	Adakah kebelakangan ini anda tidak dapat mengatasi permasalahan anda sendiri?	1	2	3	4

7.	Adakah kebelakangan ini anda berasa tidak bahagia dan murung?	1	2	3	4
8.	Adakah kebelakangan ini anda kehilangan kepercayaan diri?	1	2	3	4
9.	Adakah kebelakangan ini anda berfikir diri anda sebagai tidak berharga?	1	2	3	4
10.	Adakah kebelakangan ini anda rasa diri anda memainkan peranan penting dalam suatu perkara?	1	2	3	4
11.	Adakah kebelakangan ini anda dapat menikmati aktiviti normal harian anda?	1	2	3	4
12.	Adakah kebelakangan ini anda rasa gembira dengan semua perkara yang diperhatikan?	1	2	3	4

BAHAGIAN XI

Masalah Kesihatan Fizikal

Tidak pernah	Kadang-kadang	Kerap	Sangat kerap
1	2	3	4

Setelah beberapa masa…(Dalam satu bulan kebelakangan)

1.	Berapa kerap anda mengalami kesukaran tidur di malam hari?	1	2	3	4
2.	Berapa kerap anda terbangun dari tidur di malam hari?	1	2	3	4
3.	Berapa kerap anda mengalami mimpi buruk atau mimpi yang menyeramkan?	1	2	3	4
4.	Berapa kerap anda mengalami tidur yang tenang dan tidak terganggu?	1	2	3	4
5.	Berapa kerap anda mengalami sakit kepala?	1	2	3	4
6.	Berapa kerap anda mengalami sakit kepala apabila terdapat banyak tekanan dalam menyelesaikan kerja?	1	2	3	4
7.	Berapa kerap anda mengalami sakit kepala apabila anda kecewa kerana perkara yang berlaku tidak sesuai dengan keinginan atau anda rasa kesal dengan seseorang?	1	2	3	4
8.	Berapa kerap anda mengalami sakit perut (masalah penghadaman makanan)?	1	2	3	4
9.	Berapa kerap anda perlu berhati-hati dalam memilih makanan bagi mengelakkan masalah penghadaman makanan?	1	2	3	4
10.	Berapa kerap anda rasa loya (sakit perut)?	1	2	3	4
11.	Berapa kerap anda mengalami sembelit ataupun cirit birit?	1	2	3	4

APPENDIX D

Keberkesanan iklim keselamatan psikososial terhadap kesihatan dan motivasi kerja di kalangan guru

Tuan/Puan,

Kajian ini bertujuan untuk mengenalpasti impak iklim keselamatan psikososial (PSC) terhadap kesihatan psikologi dan motivasi kerja di kalangan guru di Malaysia. Borang kaji selidik ini mengandungi beberapa bahagian, termasuk maklumat demografik, soalan berkenaan dengan iklim psikososial di sekolah, dan soalan-soalan lainnya. Untuk maklumat, soalan PSC dijawap pada hari Isnin dan Jumaat sahaja, manakala soalan lainnya perlu diisi setiap hari selama 5 hari (Isnin sampai Jumaat). Ianya mengambil masa selama 5–10 minit bagi melengkapkan setiap sesi borang kaji selidik ini.

Pengkaji sangatlah berharap agar borang kaji selidik ini dapat dilengkapkan dalam masa dua atau tiga minggu selepas penghantaran. Penyertaan anda dalam kajian ini adalah bersifat sukarela dan kesediaan dalam melengkapkan borang kaji selidik ini menandakan persetujuan untuk menyertai kajian ini. Anda mempunyai hak sepenuhnya untuk menarik diri dari kajian ini sekiranya anda tidak bersetuju untuk turut serta.

Segala maklumat yang diberikan adalah sulit dan rahsia. Maklumat peribadi dan organisasi tidak akan didedahkan dalam mana-mana pembentangan dan penulisan.

Sekiranya terdapat sebarang pertanyaan, sila hubungi saya atau penyelia saya, Dr. Mohd Awang Idris. Sekian dan terima kasih.

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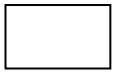

DEMOGRAPHIC

Nama sekolah : _____

Alamat sekolah : _____

Kursus yang diajarkan : _____

Tempoh bekerja : _____

Jantina :
- ☐ Lelaki
- ☐ Perempuan

Umur :
- ☐ 21-30 tahun
- ☐ 31-40 tahun
- ☐ 41-50 tahun
- ☐ 51 tahun – ke atas

Status Perkahwinan :
- ☐ Bujang
- ☐ Berkahwin
- ☐ Bercerai
- ☐ Balu/janda

Pendidikan :
- ☐ SPM/STPM
- ☐ Diploma
- ☐ Sarjana Muda
- ☐ Sarjana
- ☐ Lain-lain, _____

Etnisiti :
- ☐ Melayu
- ☐ Cina
- ☐ India
- ☐ Lain-lain, _____

Agama :
- ☐ Islam
- ☐ Buddha
- ☐ Kristian
- ☐ Hindu
- ☐ Lain-lain, _____

HARI 1

Iklim Keselamatan Psikososial

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pihak pengurusan sekolah bertindak cepat dalam menangani masalah/ isu yang boleh menjejaskan kesihatan psikologi pekerja.	1	2	3	4	5
2.	Pihak pengurusan sekolah bertindak secara bijak apabila terdapat perkara-perkara yang berkaitan dengan status psikologi pekerja dikemukakan.	1	2	3	4	5
3.	Pihak pengurusan sekolah menunjukkan sokongan bagi mencegah tekanan melalui campurtangan (penglibatan) dan komitmen.	1	2	3	4	5
4.	Kesejahteraan psikologi kakitangan adalah keutamaan bagi sekolah tempat saya bekerja.	1	2	3	4	5
5.	Pihak pengurusan sekolah secara jelas memberikan tumpuan terhadap kesihatan psikologi pekerja sebagai satu keutamaan.	1	2	3	4	5
6.	Pihak pengurusan sekolah mengambilkira kesihatan psikologi pekerja sama penting dengan produktiviti.	1	2	3	4	5
7.	Di sekolah, terdapat maklumbalas yang baik berkaitan keselamatan psikologi yang boleh menjejaskan saya.	1	2	3	4	5
8.	Maklumat berkaitan dengan kesejahteraan psikologi tempat kerja selalu dibincangkan oleh pengurus/ penyelia atasan saya.	1	2	3	4	5
9.	Sumbangan saya dalam menyelesaikan masalah kesihatan dan keselamatan pekerjaan dalam organisasi didengar.	1	2	3	4	5
10.	Penyertaan dan pandangan di antara pekerja, kesatuan sekerja dan wakil dari pihak berkaitan dalam membincangkan hal-hal keselamatan dan kesihatan psikologi wujud di tempat kerja saya.	1	2	3	4	5
11.	Pekerja adalah digalakkan untuk turut serta dalam hal-hal yang berkaitan dengan keselamatan dan kesihatan psikologi.	1	2	3	4	5
12.	Pencegahan ke atas tekanan melibatkan semua peringkat pekerja di sekolah.	1	2	3	4	5

Hari : Isnin
Sesi : Pagi

Tuntutan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya perlu berurusan dengan orang lain (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4	5
2.	Pada hari ini, saya perlu mengawal emosi bagi menyelesaikan tugas dalamtempoh masa yang terhad.	1	2	3	4	5

3.	Pada hari ini, saya harus berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang masalahnya menyentuk saya secara emosi.	1	2	3	4	5
4.	Pada hari ini, saya perlu berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang cepat marah terhadap saya.	1	2	3	4	5
5.	Pada hari ini, saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4	5
6.	Pada hari ini, saya perlu menunjukakan emosi (misalnya terhadap pelajar, rakan sekerja, atau pengetua/penolong kanan) yang bercanggah dengan perasaan saya yang sebenar selama bekerja.	1	2	3	4	5

Sokongan Penyelia

1	2	3	4	5
Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju

1.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya mengambil berat mengenai orang bawahannya.	1	2	3	4	5
2.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya memberikan perhatian terhadap apa yang saya katakan.	1	2	3	4	5
3.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah memberi bantuan dalam memastikan kerja-kerja saya yang disiapkan.	1	2	3	4	5
4.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya berjaya mengajak orang lain bekerja bersama-sama.	1	2	3	4	5

Sokongan Emosi

1	2	3	4	5
Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju

1.	Pada hari ini, saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara bila-bila masa yang saya kehendaki.	1	2	3	4	5
2.	Pada hari ini, saya berasa dihormati di sekolah oleh orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan).	1	2	3	4	5
3.	Pada hari ini, saya mendapat sokongan emosi daripada orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4	5
4.	Pada hari ini, saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negative (misalnya kepada pengetua/penolong kanan,	1	2	3	4	5

	rakan sekerja, atau pelajar).					
5.	Pada hari ini, orang di sekeliling (misalnya pengetua/penolong kanan, rakan sekerja, atau pelajar) menjadi pendengar yang baik apabila saya berhadapan dengan masalah yang berat.	1	2	3	4	5

Semangat Kerja

	1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju	
1.	Pada hari ini, saya berasa penuh dengan tenaga.	1	2	3	4	5
2.	Pada hari ini, saya sangat bersemangat dengan kerja saya.	1	2	3	4	5
3.	Pada hari ini, saya sangat terbawa-bawa semasa bekerja.	1	2	3	4	5
4.	Pada hari ini, saya langsung ingin pergi bekerja ketika saya bangun tidur.	1	2	3	4	5
5.	Pada hari ini, kerja memberikan inspirasi kepada saya.	1	2	3	4	5
6.	Pada hari ini, saya terleka dengan pekerjaan saya.	1	2	3	4	5
7.	Pada hari ini, saya berasa kuat dan bertenaga.	1	2	3	4	5
8.	Pada hari ini, saya bangga dengan kerja yang saya lakukan.	1	2	3	4	5
9.	Pada hari ini, saya berasa sangat gembira apabila saya bekerja secara intensif.	1	2	3	4	5

Keletihan Emosi

	1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju	
1.	Pada hari ini, saya berasa letih sebelum sampai ke tempat kerja.	1	2	3	4	5
2.	Pada hari ini, saya memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.	1	2	3	4	5
3.	Pada hari ini, saya tidak dapat bertolak ansur ke atas tekanan kerja.	1	2	3	4	5
4.	Pada hari ini, saya berasa penat secara emosi.	1	2	3	4	5
5.	Pada hari ini, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.	1	2	3	4	5
6.	Pada hari ini, saya berasa penat dan letih.	1	2	3	4	5
7.	Pada hari ini, saya tidak dapat mengatur jumlah kerja dengan baik.	1	2	3	4	5
8.	Pada hari ini, saya rasa tidak bertenaga.	1	2	3	4	5

HARI 2

Hari : Selasa
Sesi : Pagi

Tuntutan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya perlu berurusan dengan orang lain (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4	5
2.	Pada hari ini, saya perlu mengawal emosi bagi menyelesaikan tugas dalamtempoh masa yang terhad.	1	2	3	4	5
3.	Pada hari ini, saya harus berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang masalahnya menyentuk saya secara emosi.	1	2	3	4	5
4.	Pada hari ini, saya perlu berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang cepat marah terhadap saya.	1	2	3	4	5
5.	Pada hari ini, saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4	5
6.	Pada hari ini, saya perlu menunjukakan emosi (misalnya terhadap pelajar, rakan sekerja, atau pengetua/penolong kanan) yang bercanggah dengan perasaan saya yang sebenar selama bekerja.	1	2	3	4	5

Sokongan Penyelia

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya mengambil berat mengenai orang bawahannya.	1	2	3	4	5
2.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya memberikan perhatian terhadap apa yang saya katakan.	1	2	3	4	5
3.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah memberi bantuan dalam memastikan kerja-kerja saya yang disiapkan.	1	2	3	4	5
4.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya berjaya mengajak orang lain bekerja bersama-sama.	1	2	3	4	5

Sokongan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara bila-bila masa yang saya kehendaki.	1	2	3	4	5
2.	Pada hari ini, saya berasa dihormati di sekolah oleh orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan).	1	2	3	4	5
3.	Pada hari ini, saya mendapat sokongan emosi daripada orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4	5
4.	Pada hari ini, saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negative (misalnya kepada pengetua/penolong kanan, rakan sekerja, atau pelajar).	1	2	3	4	5
5.	Pada hari ini, orang di sekeliling (misalnya pengetua/penolong kanan, rakan sekerja, atau pelajar) menjadi pendengar yang baik apabila saya berhadapan dengan masalah yang berat.	1	2	3	4	5

Semangat Kerja

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya berasa penuh dengan tenaga.	1	2	3	4	5
2.	Pada hari ini, saya sangat bersemangat dengan kerja saya.	1	2	3	4	5
3.	Pada hari ini, saya sangat terbawa-bawa semasa bekerja.	1	2	3	4	5
4.	Pada hari ini, saya langsung ingin pergi bekerja ketika saya bangun tidur.	1	2	3	4	5
5.	Pada hari ini, kerja memberikan inspirasi kepada saya.	1	2	3	4	5
6.	Pada hari ini, saya terleka dengan pekerjaan saya.	1	2	3	4	5
7.	Pada hari ini, saya berasa kuat dan bertenaga.	1	2	3	4	5
8.	Pada hari ini, saya bangga dengan kerja yang saya lakukan.	1	2	3	4	5
9.	Pada hari ini, saya berasa sangat gembira apabila saya bekerja secara intensif.	1	2	3	4	5

Keletihan Emosi

1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju

1.	Pada hari ini, saya berasa letih sebelum sampai ke tempat kerja.	1	2	3	4	5
2.	Pada hari ini, saya memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.	1	2	3	4	5
3.	Pada hari ini, saya tidak dapat bertolak ansur ke atas tekanan kerja.	1	2	3	4	5
4.	Pada hari ini, saya berasa penat secara emosi.	1	2	3	4	5
5.	Pada hari ini, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.	1	2	3	4	5
6.	Pada hari ini, saya berasa penat dan letih.	1	2	3	4	5
7.	Pada hari ini, saya tidak dapat mengatur jumlah kerja dengan baik.	1	2	3	4	5
8.	Pada hari ini, saya rasa tidak bertenaga.	1	2	3	4	5

HARI 3

Hari : Rabu
Sesi : Pagi

Tuntutan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya perlu berurusan dengan orang lain (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4	5
2.	Pada hari ini, saya perlu mengawal emosi bagi menyelesaikan tugas dalamtempoh masa yang terhad.	1	2	3	4	5
3.	Pada hari ini, saya harus berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang masalahnya menyentuk saya secara emosi.	1	2	3	4	5
4.	Pada hari ini, saya perlu berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang cepat marah terhadap saya.	1	2	3	4	5
5.	Pada hari ini, saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4	5
6.	Pada hari ini, saya perlu menunjukakan emosi (misalnya terhadap pelajar, rakan sekerja, atau pengetua/penolong kanan) yang bercanggah dengan perasaan saya yang sebenar selama bekerja.	1	2	3	4	5

Sokongan Penyelia

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya mengambil berat mengenai orang bawahannya.	1	2	3	4	5
2.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya memberikan perhatian terhadap apa yang saya katakan.	1	2	3	4	5
3.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah memberi bantuan dalam memastikan kerja-kerja saya yang disiapkan.	1	2	3	4	5
4.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya berjaya mengajak orang lain bekerja bersama-sama.	1	2	3	4	5

Sokongan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara bila-bila masa yang saya kehendaki.	1	2	3	4	5
2.	Pada hari ini, saya berasa dihormati di sekolah oleh orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan).	1	2	3	4	5
3.	Pada hari ini, saya mendapat sokongan emosi daripada orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4	5
4.	Pada hari ini, saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negative (misalnya kepada pengetua/penolong kanan, rakan sekerja, atau pelajar).	1	2	3	4	5
5.	Pada hari ini, orang di sekeliling (misalnya pengetua/penolong kanan, rakan sekerja, atau pelajar) menjadi pendengar yang baik apabila saya berhadapan dengan masalah yang berat.	1	2	3	4	5

Semangat Kerja

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya berasa penuh dengan tenaga.	1	2	3	4	5
2.	Pada hari ini, saya sangat bersemangat dengan kerja saya.	1	2	3	4	5
3.	Pada hari ini, saya sangat terbawa-bawa semasa bekerja.	1	2	3	4	5
4.	Pada hari ini, saya langsung ingin pergi bekerja ketika saya bangun tidur.	1	2	3	4	5
5.	Pada hari ini, kerja memberikan inspirasi kepada saya.	1	2	3	4	5
6.	Pada hari ini, saya terleka dengan pekerjaan saya.	1	2	3	4	5
7.	Pada hari ini, saya berasa kuat dan bertenaga.	1	2	3	4	5
8.	Pada hari ini, saya bangga dengan kerja yang saya lakukan.	1	2	3	4	5
9.	Pada hari ini, saya berasa sangat gembira apabila saya bekerja secara intensif.	1	2	3	4	5

Keletihan Emosi

	1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju			
1.	Pada hari ini, saya berasa letih sebelum sampai ke tempat kerja.				1	2	3	4	5
2.	Pada hari ini, saya memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.				1	2	3	4	5
3.	Pada hari ini, saya tidak dapat bertolak ansur ke atas tekanan kerja.				1	2	3	4	5
4.	Pada hari ini, saya berasa penat secara emosi.				1	2	3	4	5
5.	Pada hari ini, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.				1	2	3	4	5
6.	Pada hari ini, saya berasa penat dan letih.				1	2	3	4	5
7.	Pada hari ini, saya tidak dapat mengatur jumlah kerja dengan baik.				1	2	3	4	5
8.	Pada hari ini, saya rasa tidak bertenaga.				1	2	3	4	5

HARI 4

Hari : Khamis
Sesi : Pagi

Tuntutan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya perlu berurusan dengan orang lain (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4	5
2.	Pada hari ini, saya perlu mengawal emosi bagi menyelesaikan tugas dalamtempoh masa yang terhad.	1	2	3	4	5
3.	Pada hari ini, saya harus berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang masalahnya menyentuk saya secara emosi.	1	2	3	4	5
4.	Pada hari ini, saya perlu berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang cepat marah terhadap saya.	1	2	3	4	5
5.	Pada hari ini, saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4	5
6.	Pada hari ini, saya perlu menunjukakan emosi (misalnya terhadap pelajar, rakan sekerja, atau pengetua/penolong kanan) yang bercanggah dengan perasaan saya yang sebenar selama bekerja.	1	2	3	4	5

Sokongan Penyelia

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya mengambil berat mengenai orang bawahannya.	1	2	3	4	5
2.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya memberikan perhatian terhadap apa yang saya katakan.	1	2	3	4	5
3.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah memberi bantuan dalam memastikan kerja-kerja saya yang disiapkan.	1	2	3	4	5
4.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya berjaya mengajak orang lain bekerja bersama-sama.	1	2	3	4	5

Sokongan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara bila-bila masa yang saya kehendaki.	1	2	3	4	5
2.	Pada hari ini, saya berasa dihormati di sekolah oleh orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan).	1	2	3	4	5
3.	Pada hari ini, saya mendapat sokongan emosi daripada orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4	5
4.	Pada hari ini, saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negative (misalnya kepada pengetua/penolong kanan, rakan sekerja, atau pelajar).	1	2	3	4	5
5.	Pada hari ini, orang di sekeliling (misalnya pengetua/penolong kanan, rakan sekerja, atau pelajar) menjadi pendengar yang baik apabila saya berhadapan dengan masalah yang berat.	1	2	3	4	5

Semangat Kerja

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya berasa penuh dengan tenaga.	1	2	3	4	5
2.	Pada hari ini, saya sangat bersemangat dengan kerja saya.	1	2	3	4	5
3.	Pada hari ini, saya sangat terbawa-bawa semasa bekerja.	1	2	3	4	5
4.	Pada hari ini, saya langsung ingin pergi bekerja ketika saya bangun tidur.	1	2	3	4	5
5.	Pada hari ini, kerja memberikan inspirasi kepada saya.	1	2	3	4	5
6.	Pada hari ini, saya terleka dengan pekerjaan saya.	1	2	3	4	5
7.	Pada hari ini, saya berasa kuat dan bertenaga.	1	2	3	4	5
8.	Pada hari ini, saya bangga dengan kerja yang saya lakukan.	1	2	3	4	5
9.	Pada hari ini, saya berasa sangat gembira apabila saya bekerja secara intensif.	1	2	3	4	5

Keletihan Emosi

	1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju			
1.	Pada hari ini, saya berasa letih sebelum sampai ke tempat kerja.				1	2	3	4	5
2.	Pada hari ini, saya memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.				1	2	3	4	5
3.	Pada hari ini, saya tidak dapat bertolak ansur ke atas tekanan kerja.				1	2	3	4	5
4.	Pada hari ini, saya berasa penat secara emosi.				1	2	3	4	5
5.	Pada hari ini, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.				1	2	3	4	5
6.	Pada hari ini, saya berasa penat dan letih.				1	2	3	4	5
7.	Pada hari ini, saya tidak dapat mengatur jumlah kerja dengan baik.				1	2	3	4	5
8.	Pada hari ini, saya rasa tidak bertenaga.				1	2	3	4	5

HARI 5

Iklim Keselamatan Psikososial

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pihak pengurusan sekolah bertindak cepat dalam menangani masalah/ isu yang boleh menjejaskan kesihatan psikologi pekerja.	1	2	3	4	5
2.	Pihak pengurusan sekolah bertindak secara bijak apabila terdapat perkara-perkara yang berkaitan dengan status psikologi pekerja dikemukakan.	1	2	3	4	5
3.	Pihak pengurusan sekolah menunjukkan sokongan bagi mencegah tekanan melalui campurtangan (penglibatan) dan komitmen.	1	2	3	4	5
4.	Kesejahteraan psikologi kakitangan adalah keutamaan bagi sekolah tempat saya bekerja.	1	2	3	4	5
5.	Pihak pengurusan sekolah secara jelas memberikan tumpuan terhadap kesihatan psikologi pekerja sebagai satu keutamaan.	1	2	3	4	5
6.	Pihak pengurusan sekolah mengambilkira kesihatan psikologi pekerja sama penting dengan produktiviti.	1	2	3	4	5
7.	Di sekolah, terdapat maklumbalas yang baik berkaitan keselamatan psikologi yang boleh menjejaskan saya.	1	2	3	4	5
8.	Maklumat berkaitan dengan kesejahteraan psikologi tempat kerja selalu dibincangkan oleh pengurus/ penyelia atasan saya.	1	2	3	4	5
9.	Sumbangan saya dalam menyelesaikan masalah kesihatan dan keselamatan pekerjaan dalam organisasi didengar.	1	2	3	4	5
10.	Penyertaan dan pandangan di antara pekerja, kesatuan sekerja dan wakil dari pihak berkaitan dalam membincangkan hal-hal keselamatan dan kesihatan psikologi wujud di tempat kerja saya.	1	2	3	4	5
11.	Pekerja adalah digalakkan untuk turut serta dalam hal-hal yang berkaitan dengan keselamatan dan kesihatan psikologi.	1	2	3	4	5
12.	Pencegahan ke atas tekanan melibatkan semua peringkat pekerja di sekolah.	1	2	3	4	5

Hari : Jumaat
Sesi : Pagi

Tuntutan Emosi

		1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju
1.	Pada hari ini, saya perlu berurusan dengan orang lain (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang mempunyai jangkaan yang tidak realistik.	1	2	3	4	5
2.	Pada hari ini, saya perlu mengawal emosi bagi menyelesaikan tugas dalamtempoh masa yang terhad.	1	2	3	4	5

3.	Pada hari ini, saya harus berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang masalahnya menyentuk saya secara emosi.	1	2	3	4	5
4.	Pada hari ini, saya perlu berurusan dengan orang-orang (seperti pelajar, rakan sekerja, atau pengetua/penolong kanan) yang cepat marah terhadap saya.	1	2	3	4	5
5.	Pada hari ini, saya perlu melakukan banyak kerja yang memerlukan emosi.	1	2	3	4	5
6.	Pada hari ini, saya perlu menunjukakan emosi (misalnya terhadap pelajar, rakan sekerja, atau pengetua/penolong kanan) yang bercanggah dengan perasaan saya yang sebenar selama bekerja.	1	2	3	4	5

Sokongan Penyelia

1	2	3	4	5
Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju

1.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya mengambil berat mengenai orang bawahannya.	1	2	3	4	5
2.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya memberikan perhatian terhadap apa yang saya katakan.	1	2	3	4	5
3.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah memberi bantuan dalam memastikan kerja-kerja saya yang disiapkan.	1	2	3	4	5
4.	Pada hari ini, pihak atasan (pengetua atau penolong kanan) sekolah saya berjaya mengajak orang lain bekerja bersama-sama.	1	2	3	4	5

Sokongan Emosi

1	2	3	4	5
Sangat tidak setuju	Tidak setuju	Tidak pasti	Setuju	Sangat setuju

1.	Pada hari ini, saya dapat menghentikan bebanan emosi dengan orang lain untuk sementara bila-bila masa yang saya kehendaki.	1	2	3	4	5
2.	Pada hari ini, saya berasa dihormati di sekolah oleh orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan).	1	2	3	4	5
3.	Pada hari ini, saya mendapat sokongan emosi daripada orang lain (misalnya pelajar, rakan sekerja, atau pengetua/penolong kanan) apabila berlaku masalah yang mengancam di tempat kerja.	1	2	3	4	5
4.	Pada hari ini, saya berpeluang untuk meluahkan perasaan emosi saya selepas berlaku masalah, tanpa mengalami kesan yang negative (misalnya kepada pengetua/penolong kanan,	1	2	3	4	5

	rakan sekerja, atau pelajar).					
5.	Pada hari ini, orang di sekeliling (misalnya pengetua/penolong kanan, rakan sekerja, atau pelajar) menjadi pendengar yang baik apabila saya berhadapan dengan masalah yang berat.	1	2	3	4	5

Semangat Kerja

1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju

1.	Pada hari ini, saya berasa penuh dengan tenaga.	1	2	3	4	5
2.	Pada hari ini, saya sangat bersemangat dengan kerja saya.	1	2	3	4	5
3.	Pada hari ini, saya sangat terbawa-bawa semasa bekerja.	1	2	3	4	5
4.	Pada hari ini, saya langsung ingin pergi bekerja ketika saya bangun tidur.	1	2	3	4	5
5.	Pada hari ini, kerja memberikan inspirasi kepada saya.	1	2	3	4	5
6.	Pada hari ini, saya terleka dengan pekerjaan saya.	1	2	3	4	5
7.	Pada hari ini, saya berasa kuat dan bertenaga.	1	2	3	4	5
8.	Pada hari ini, saya bangga dengan kerja yang saya lakukan.	1	2	3	4	5
9.	Pada hari ini, saya berasa sangat gembira apabila saya bekerja secara intensif.	1	2	3	4	5

Keletihan Emosi

1 Sangat tidak setuju	2 Tidak setuju	3 Tidak pasti	4 Setuju	5 Sangat setuju

1.	Pada hari ini, saya berasa letih sebelum sampai ke tempat kerja.	1	2	3	4	5
2.	Pada hari ini, saya memerlukan masa yang lebih panjang untuk berehat berbanding dengan yang sebelumnya.	1	2	3	4	5
3.	Pada hari ini, saya tidak dapat bertolak ansur ke atas tekanan kerja.	1	2	3	4	5
4.	Pada hari ini, saya berasa penat secara emosi.	1	2	3	4	5
5.	Pada hari ini, saya tidak mempunyai cukup tenaga bagi melakukan aktiviti riadah.	1	2	3	4	5
6.	Pada hari ini, saya berasa penat dan letih.	1	2	3	4	5
7.	Pada hari ini, saya tidak dapat mengatur jumlah kerja dengan baik.	1	2	3	4	5
8.	Pada hari ini, saya rasa tidak bertenaga.	1	2	3	4	5

17 Mei 2013

Yulita
Jabatan Antropologi dan Sosiologi
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Kuala Lumpur

Urus Setia KPN (Komunikasi Korporat)
Ibu Pejabat Polis Diraja Malaysia
Bukit Aman, 50560
Kuala Lumpur

(u.p : ACP Ramli bin Mohamed Yoosuf)

Tuan

Permohonan bagi menjalankan kajian di Ibu Pejabat Polis Kontinjen Malaysia

Dengan hormatnya saya merujuk kepada perkara di atas.

Untuk makluman, saya seperti butiran di bawah ingin memohon kelulusan bagi menjalankan kajian berkenaan dengan psikologi kerja. Maklumat pengkaji adalah seperti berikut:

Nama	: Yulita
Nombor Matrik	: AHA120024
Fakulti	: Sastera dan Sains Sosial
Universiti	: Universiti Malaya

Tajuk kajian saya ialah "Keberkesanan *Psychosocial Safety Climate* dan *Safety Climate* di kalangan Anggota Polis". Tujuan kajian ini dijalankan adalah untuk melihat sejauh mana iklim organisasi dan tekanan kerja menyumbang kepada keberkesanan kerja di kalangan anggota polis.

Oleh itu, besarlah harapan saya sekiranya pihak Tuan dapat memberi sokongan dan kelulusan bagi permohonan saya dalam melakukan kajian di Ibu Pejabat Polis Kontinjen di Malaysia dengan butiran seperti berikut:

Senarai IPK/ responden : IPK Kuala Lumpur (150 orang)
IPK Selangor (150 orang)
IPK Negeri Sembilan (150 orang)
IPK Melaka (150 orang)
IPK Pahang (150 orang)
IPK Johor (150 orang)
IPK Perak (150 orang)
IPK Pulau Pinang (150 orang)
IPK Kedah (150 orang)
IPK Perlis (150 orang)

IPK Kelantan (150 orang)
IPK Terengganu (150 orang)

Tarikh edar : 3 Jun 2013
Tarikh ambil : 28 Jun 2013

Saya sangatlah berharap agar saya dapat dibantu bagi menjalankan kajian ini. Kerjasama, maklumbalas dan bantuan pihak Tuan bagi perkara ini sangat dihargai. Sekiranya terdapat sebarang keraguan mengenai kajian ini, pihak Tuan boleh menghubungi penyelia kajian ini, Dr. Mohd Awang Idris di talian telefon 012-5986615 atau emel idrma@um.edu.my.

Sekian dan terima kasih.

Yang benar,

Yulita
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(Emel : yu_2202@siswa.um.edu.my)

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Fakulti Sastera dan Sains Sosial
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'KOMUNITI SEJAHTERA, KOMITMEN KAMI'

KPN 10/8/2

27 Mei 2013

Seperti edaran

YDH Dato',

PERMOHONAN BAGI MENJALAN KAJIAN DI IBU PEJABAT POLIS KONTINJEN DI MALAYSIA

Dengan segala hormatnya izinkan saya membawa ke perhatian YDH Dato' mengenai perkara di atas.

2. Pejabat ini telah menerima permohonan berikut seperti di para 2.4.

2.1 Nama Pemohon : Yulita
AHA120024

2.2 Institusi (IPTA/IPTS) : Fakulti Sastera dan Sains Sosial
Universiti Malaya

2.3 Tajuk Kajian : Keberkesanan *Psychosocial Safety Climate* dan *Safety Climate* di Kalangan Anggota Polis

2.4 Rujukan Diperlukan: **Borang Kaji Selidik**

2.4.1 Tempat kajian dipohon : IPK Kuala Lumpur
IPK Selangor
IPK Negeri Sembilan
IPK Melaka
IPK Pahang
IPK Johor
IPK Perak
IPK Pulau Pinang

IPK Kedah
IPK Perlis
IPK Kelantan
IPK Terengganu

2.4.2 Responden : 150
2.4.3 Tarikh edar borang : 03 Jun 2013
2.4.4 Tarikh kutipan borang : 28 Jun 2013

3. Walau bagaimanapun kesesuaian dan kelulusan permohonan ini adalah tertakluk kepada nasihat dan pandangan pihak YDH Dato'. Pemohon dikehendaki menepati syarat-syarat bahawa data-data / maklumat yang dikeluarkan adalah bagi tujuan penyelidikan / akademik sahaja, dan **TIDAK DIBENARKAN** bagi kegunaan lain atau diedarkan kepada pihak ketiga. Pemohon juga dikehendaki menyumbang sesalinan hasil kerja ilmiah / penyelidikan berkenaan untuk dijadikan rujukan Polis Diraja Malaysia.

4. Mohon kerjasama pihak YDH Dato' untuk mengemukakan kembali borang kaji selidik berkenaan terus kepada pemohon. Kerjasama serta penyaluran maklumat daripada pihak YDH Dato' adalah amat dihargai.

Sekian, terima kasih.

'INTEGRITI AMALAN KITA'

(RAMLI BIN MOHAMED YOOSUF) ACP
Penolong Ketua Urus Setia KPN
(Komunikasi Korporat)
Bukit Aman

s.k : Fail

ra/RMYps.2013

BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN
KEMENTERIAN PELAJARAN MALAYSIA
ARAS 1-4, BLOK E-8
KOMPLEKS KERAJAAN PARCEL E
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
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Ruj. Kami : KP(BPPDP)603/5/JLD. 13(156)
Tarikh : 28 Mei 2013

Yulita
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Bukit Kerinchi
59200 Wilayah Persekutuan Kuala Lumpur

Tuan/Puan,

Kelulusan Khas Untuk Menjalankan Kajian Di Sekolah, Institut Perguruan, Jabatan Pelajaran Negeri Dan Bahagian-bahagian Di Bawah Kementerian Pelajaran Malaysia

Adalah saya dengan hormatnya diarah memaklumkan bahawa permohonan tuan/puan untuk menjalankan kajian bertajuk :

"Keberkesanan Psychosocial Safety Climate dan Safety Climate Terhadap Kesihatan, Kepuasan Kerja, Prestasi dan Tingkah Laku Agresif di Kalangan Guru" diluluskan.

2. Kelulusan ini adalah berdasarkan kepada cadangan penyelidikan dan instrumen kajian yang tuan/puan kemukakan ke Bahagian ini. **Kebenaran bagi menggunakan sampel kajian perlu diperolehi dari Ketua Bahagian/Pengarah Pelajaran Negeri yang berkenaan.**

3. Sila tuan/puan kemukakan ke Bahagian ini senaskhah laporan akhir kajian/laporan dalam bentuk elektronik berformat Pdf di dalam CD bersama naskhah *hardcopy* setelah selesai kelak. Tuan/Puan juga diingatkan supaya **mendapat kebenaran terlebih dahulu** daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum atau seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan/puan selanjutnya. Terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(DR. HJ. ZABANI BIN DARUS)
Ketua Sektor
Sektor Penyelidikan dan Penilaian
b.p. Pengarah
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
Kementerian Pelajaran Malaysia

جابتن فلاجرن سلاغور
JABATAN PELAJARAN SELANGOR
Jalan Jambu Bol 4/3E, Seksyen 4, 40604 Shah Alam,
Selangor Darul Ehsan

Rujukan Kami : JPNS.PPN 600-1/49 JLD.25(36)
Tarikh : 24/06/2013

YULITA
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Tuan,

KEBERKESANAN PSYCHOSOCIAL SAFETY CLIMATE AND SAFETY CLIMATE KESIHATAN, KEPUASAN KERJA, PRESTASI DAN TINGKAH LAKU AGRESIF DI KALANGAN GURU

Perkara di atas dengan segala hormatnya dirujuk.

2. Jabatan ini tiada halangan untuk pihak tuan menjalankan kajian/penyelidikan tersebut di sekolah-sekolah dalam Negeri Selangor seperti yang dinyatakan dalam surat permohonan.

3. Pihak tuan diingatkan agar mendapat persetujuan daripada Pengetua/Guru Besar supaya beliau dapat bekerjasama dan seterusnya memastikan bahawa penyelidikan dijalankan hanya bertujuan seperti yang dipohon. Kajian/Penyelidikan yang dijalankan juga tidak mengganggu perjalanan sekolah serta tiada sebarang unsur paksaan.

4. Tuan juga diminta menghantar senaskah hasil kajian ke Unit Perhubungan dan Pendaftaran Jabatan Pelajaran Selangor sebaik selesai penyelidikan/kajian.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(HAJI MOHD MAHMUDI BIN BAKRI)
Penolong Pendaftar Institusi Pendidikan dan Guru
Jabatan Pelajaran Selangor
b.p. Ketua Pendaftar Institusi Pendidikan dan Guru
Kementerian Pelajaran Malaysia

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